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Committee on the Peaceful Uses of Outer Space

Report on the Second United Nations/Argentina International Conference on the Use of Space Technology for Water Management

(Buenos Aires, 14-18 March 2011)

I. Introduction

A. Background and objectives

1. At the World Summit on Sustainable Development, held in Johannesburg, South Africa, from 26 August to 4 September 2002, Heads of State and Government strongly reaffirmed, in the Plan of Implementation of the World Summit on Sustainable Development,[1] their commitment to the full implementation of Agenda 21,[2] which had been adopted at the United Nations Conference on Environment and Development, held in Rio de Janeiro, Brazil, from 3 to 14 June 1992. They also committed themselves to achieving the internationally agreed development goals, including those contained in the United Nations Millennium Declaration (General Assembly resolution 55/2). The Johannesburg Declaration on Sustainable Development[3] and the Johannesburg Plan of Implementation were both adopted at the World Summit.

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[1] *Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August-4 September 2002* (United Nations publication, Sales No. E.03.II.A.1 and corrigendum), chap. I, resolution 2, annex, para. 1.

[2] *Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992*, vol. I, *Resolutions Adopted by the Conference* (United Nations publication, Sales No. E.93.I.8 and corrigenda), resolution 1, annex II.

[3] *Report of the World Summit on Sustainable Development* …, chap. I, resolution 1, annex.

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2. In its resolution 54/68, the General Assembly endorsed the resolution entitled "The Space Millennium: Vienna Declaration on Space and Human Development",[4] which had been adopted by the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III), held in Vienna from 19 to 30 July 1999. UNISPACE III had formulated the Vienna Declaration as the nucleus of a strategy to address future global challenges using space applications. In particular, the States participating in UNISPACE III noted, in the Vienna Declaration, the benefits and applications of space technology in addressing the challenges to sustainable development, as well as the effectiveness of space instruments for dealing with the challenges posed by the depletion of natural resources, loss of biodiversity and the effects of natural and anthropogenic disasters.

3. The implementation of the recommendations contained in the Vienna Declaration supports the actions called for in the Johannesburg Plan of Implementation to strengthen the capacities of Member States, in particular developing countries, in order to improve the management of natural resources by increasing and facilitating the use of remote sensing data and increasing access to more affordable satellite imagery.

4. At its fifty-third session, in 2010, the Committee on the Peaceful Uses of Outer Space endorsed the programme of workshops, training courses, symposiums and conferences of the United Nations Programme on Space Applications for 2011. Subsequently, the General Assembly, in its resolution 65/97, endorsed the Programme on Space Applications for 2011.

5. Pursuant to General Assembly resolution 65/97 and in accordance with the recommendations of UNISPACE III, the United Nations/Argentina International Conference on the Use of Space Technology for Water Management was held in Buenos Aires from 14 to 18 March 2011.

6. The Conference was jointly organized by the Office for Outer Space Affairs of the Secretariat, as part of the activities of the United Nations Programme on Space Applications for 2011, the Government of Argentina, the European Space Agency (ESA) and the General Secretariat of the Prince Sultan bin Abdulaziz International Prize for Water (PSIPW). The event was hosted by the Comisión Nacional de Actividades Espaciales (CONAE) on behalf of the Government of Argentina.

7. The Conference was the second international event focusing on water-related issues in the series of meetings organized in cooperation with, and with the financial assistance of PSIPW and ESA. The first United Nations/Saudi Arabia/United Nations Educational, Scientific and Cultural Organization International Conference on the Use of Space Technology for Water Management was held in Riyadh in April 2008.

8. The 2011 Conference explored applications of space technology that provided cost-effective solutions or essential information for the planning and implementation of programmes or projects to enhance the management, protection and restoration of water resources, as well as contributed to mitigating water-related emergencies, providing safe drinking water and combating desertification.

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[4] *Report of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space, Vienna, 19-30 July 1999* (United Nations publication, Sales No. E.00.I.3), chap. I, resolution 1.

Participants in the Conference were provided with the opportunity to present case studies on successful applications of space technology to water resource management in their respective countries.

9. The primary objectives of the event were as follows: (a) to enhance the capabilities of countries in the use of space-related technology, applications, services and information for identifying and managing water resources; (b) to strengthen international and regional cooperation in that area; (c) to increase awareness among decision makers and the research and academic community regarding space technology applications for addressing water-related issues, primarily in developing countries; and (d) to promote educational and public awareness initiatives in the area of water resource management, as well as contribute to capacity-building processes in that area.

B. Programme

10. The programme of the Conference was developed jointly by the Office for Outer Space Affairs, CONAE and PSIPW. It included six technical sessions that focused on the following themes: (a) initiatives and strategies for the use of satellite data for water resource management; (b) use of satellite-derived information for surface water studies; (c) application of space technology to the management and distribution of water resources; (d) application of space technology to water management in mountain and arid areas; (e) application of space technology to managing groundwater resources; and (f) use of space-related technology in addressing water-related emergencies, natural hazards and climate change.

11. In addition, the meeting also featured a special “Water Prize Day” session, which was organized by PSIPW as an exclusive event within the framework of the Conference, with the participation of Prize Day winners and Government officials from Saudi Arabia. The Conference also included working group discussion sessions and a one-day technical field trip.

12. Introductory and welcoming statements were made by representatives of the Government of Argentina, the Office for Outer Space Affairs and the local organizing committee. A keynote address was given by a representative of CONAE.

13. Forty-three oral technical presentations were made during the three-day course of the technical sessions, and six papers were presented at the poster session. All presentations focused on successful applications of space technology and space-related information resources that provided cost-effective solutions or essential information for planning and implementing programmes or projects in the areas of water resource management and water-related disasters, including case studies by participants. The Conference also featured presentations on the needs of end-users engaged in managing water resources, as well as on international and regional cooperation and capacity-building initiatives required for the successful implementation of sustainable development programmes in developing countries.

14. Technical sessions were followed by meetings of two working groups established to prepare the observations and recommendations of the Conference, develop proposals for follow-up projects and examine possible partnerships that could be launched. The first working group focused on issues related to the

integrated application of space technology and data. The second working group discussed capacity-building, data policy and international and regional cooperation. Reports of the working groups were presented by their chairs at the closing session and were discussed and adopted by the participants of the Conference.

15. The Conference was conducted in English and Spanish, with the use of simultaneous interpretation.

C. Attendance and financial support

16. The United Nations, on behalf of the organizers, invited developing countries to nominate candidates to participate in the Conference. To be eligible to attend, participants were required to hold a university degree and possess professional experience in a field related to the overall theme of the Conference. Participants were selected on the basis of their work experience in programmes, projects or enterprises that were already using space technology applications or that could potentially benefit from using space technology. The participation of specialists at the decision-making level from both national and international entities was particularly encouraged.

17. Funds allocated by the United Nations, the Government of Argentina, ESA and PSIPW were used to provide financial support for the participation of 26 participants from developing countries. A total of 21 participants received full financial support, which included international round-trip air travel, hotel accommodation and a living allowance for the duration of the Conference. Five participants received partial funding (either air travel or a hotel and living allowance).

18. The hosting organization, CONAE, provided conference facilities, secretarial and technical support and transportation of funded participants from/to the airport, and organized a number of social events for all participants of the Conference.

19. The Conference was attended by more than 90 participants from the following 26 States: Argentina, Armenia, Azerbaijan, Bolivia (Plurinational State of), Brazil, Chile, Costa Rica, Ecuador, Haiti, India, Iraq, Kenya, Mexico, Nicaragua, Pakistan, Paraguay, Peru, Poland, Saudi Arabia, Syrian Arab Republic, Thailand, Tunisia, United Arab Emirates, United States of America, Uruguay and Venezuela (Bolivarian Republic of). The United Nations Office for Outer Space Affairs, the United Nations Educational, Scientific and Cultural Organization (UNESCO) and PSIPW were also represented.

II. Overview of technical sessions

20. The first technical session discussed initiatives and strategies for the use of satellite data for water resource management, covering such issues as international and regional cooperation, capacity-building and the development of national policies and frameworks. The participants were given a presentation on the International Hydrological Programme of UNESCO, which was the only intergovernmental programme of the United Nations system devoted entirely to water research, water resource management and education and capacity-building in

those areas. Created in 1975, after the International Hydrological Decade (1965-1974), the programme was tailored to meet the needs of Member States and implemented in six-year phases in order to adapt to a rapidly changing world. The current phase, International Hydrological Programme VII (2008-2013), entitled "Water dependencies: systems under stress and societal responses", was aimed at strengthening scientific understanding of the impact of global changes on water systems and linking scientific findings to policies for promoting the sustainable management of water resources, as well as contributing to implementation of the Millennium Development Goals.

21. The participants were also given a presentation on "Water and Development Information for Arid Lands: a Global Network" (G-WADI), which was implemented by UNESCO within the framework of the International Hydrological Programme to strengthen the global capacity to manage the water resources of arid and semi-arid areas. The G-WADI network provided a powerful tool for promoting and sharing global experience with respect to understanding scarce water resources in arid lands and their management, as well as promoting international and regional cooperation in arid and semi-arid areas.

22. The participants of the conference were updated on the status of the SAC-D Aquarius satellite project, which was an international mission jointly being developed by CONAE and the National Aeronautics and Space Administration of the United States, with the participation of the Italian Space Agency (ASI), the Centre national d'études spatiales of France, the Canadian Space Agency and the National Institute for Space Research (INPE) of Brazil, for the observation of oceans and climate change and for environmental studies. One of the main objectives of the project was to estimate sea surface temperature and salinity, as such information was fundamental for understanding the water cycle and the interaction between the ocean and the atmosphere, as well as for developing long-term climate models.

23. The session also featured presentations of case studies on the successful application of space technology in regional and national projects related to improving water management in South America, as well as papers on the development of legal frameworks, national policies and capacity-building strategies in that area.

24. The second technical session considered the use of satellite-derived information in surface water studies. A case study on the use of Earth observation data for understanding and estimating the decline of Lake Naivasha in Kenya was presented to participants as a good example of the potential of space technology. In recent years, Lake Naivasha had experienced a rapid decrease in its spatial extent and a fluctuation in its depth. In an attempt to explain that gradual decline, various factors had been considered, with horticultural and floricultural activities, as well as climatic change, featuring prominently; however, the lack of reliable basin-mapping information had hampered the proper quantification of changes in the lake basin in the past, as well as prohibited sound predictions of likely future situations. Use of Earth observation data offered the only possibility for providing the information required for a broader and more integrated analysis of the lake in order to better understand its basin. Land Remote Sensing Satellite (Landsat) data were used for mapping shoreline changes and analysing trends in those changes over time, as well as the correlation between the shoreline changes and the possible causes of those

changes. Satellite altimetry data were used to assess the fluctuation in the lake's level. Precipitation records based on Tropical Rainfall Measuring Mission (TRMM) data were then used to evaluate whether the fluctuations in the level of Lake Naivasha were related to changes in precipitation behaviour in the region. Gravity Recovery and Climate Experiment (GRACE) mission data were then employed to examine the variations in the mass of water over a region covering the entire Lake Naivasha basin and to compare that to the area around Lake Victoria in order to assess whether the variations in Lake Naivasha correlated with those of Lake Victoria. That provided some indication as to whether the changes were climatic or caused by humans.

25. Other presentations at the session demonstrated ways to apply space technology and information to the monitoring and controlling of water resources in Argentina, contributing to the development of national water safety plans in Paraguay, monitoring shallow lakes in the pampas and ensuring water quality in various regions of Latin America, as well as a reliable inventory of wetlands in the Papaloapan river basin in Mexico.

26. The third technical session considered issues related to the application of space technology to the management and distribution of water resources. It started with a keynote address on the role of advanced observational and information technology in addressing global water issues, which set the tone for the discussions carried out during the Conference. The keynote address emphasized the important role of Earth observations from space in the collection of the primary hydrologic variables (such as precipitation, evaporation and steam flow data) required for the development of appropriate scientific models and reliable hydrometeorological forecasting. The comparison of existing satellite precipitation retrieval instruments (infrared and visible bands, microwave, active radar), as well as an overview of ongoing and planned satellite missions, provided participants with very useful reference information. The participants were also introduced to the "Precipitation Estimation from Remotely Sensed Information Using Artificial Neural Networks (PERSIANN)" project carried out by the Center for Hydrometeorology and Remote Sensing of the University of California (United States), in collaboration with UNESCO, which provided worldwide users with near-real-time global precipitation estimates calculated on the basis of both satellite and ground observation data.

27. Presentations at the session also addressed the importance of the use of optical and microwave satellite data for revealing water resources in farming areas and for efficient agricultural land management and accurate yield forecasts. A number of case studies, on the application of remote sensing data in regional evapotranspiration research projects and for detecting water quality in the Uruguay River, were presented. Participants were also updated on the Observation and Communications Satellite (SAOCOM) constellation project of Argentina, which would consist of two satellites equipped with L-band polarimetric synthetic aperture radar (SAR) instruments for all-weather Earth observations. The session also featured presentations on the use of space technology for mitigating water-related emergencies and for supporting national emergency warning systems. Participants recognized that significant capacity-building efforts should be made in developing countries in order to successfully integrate such technology into national disaster management programmes.

28. The next technical session discussed the application of space technology to water management in mountain and arid areas. In presentations made during that session, it was emphasized that arid and semi-arid zones were the most vulnerable to desertification. Water scarcity in those areas could be aggravated by such issues as growing population and high per capita water consumption, degradation of water quality owing to pollution and high water losses in agricultural and urban water supply systems. It was recognized by participants that those issues were common to all geographical regions and should be addressed both nationally and internationally. The technical papers at the session demonstrated the capabilities of space technology to contribute to agricultural water demand assessment, site selection and the control of dams and integrated water resource management. Some projects demonstrated that appropriate use of space-derived information could help to reduce urban water use by 30 per cent, industrial water use by 50 per cent and the use of water for irrigation by 50 per cent, especially when space technology was supplemented by such traditional methods as rainwater harvesting and run-off recharge. Case studies in that regard from Argentina, Chile, India and Saudi Arabia were presented to the participants.

29. Another matter considered by the session was water management in mountain regions. The Conference recognized that fragile mountain ecosystems such as the Andes were essential as strategic reserves of freshwater, especially in arid and semi-arid regions, but that they were extremely vulnerable owing to climate change and economic activities. The participants were shown examples of the use of Earth observation data for the inventory of Argentine glaciers, studies of watersheds in the Andean region and hydroglaciological simulation of the Rimac and Mantaro river basins in Peru. Presentations at the session also reviewed some national policies and legislative frameworks related to the assessment and management of water resources in mountain regions.

30. The fifth technical session discussed applications of space technology to managing groundwater resources. It was noted that arid and semi-arid areas globally faced the greatest pressure to deliver and manage freshwater resources. Challenges facing water managers in those areas included population growth, urbanization, food security and pollution from various sources. Superimposed on those pressures, climate change was expected to increase water scarcity and the frequency of floods and droughts in many arid and semi-arid areas. Accurately assessing and managing available and renewable water resources was more difficult in semi-arid regions, compared with water-rich countries; the science base was limited and data were scarce. In that regard, the participants were shown examples of how space technology was used in Pakistan for the monitoring of groundwater pumping. With very low precipitation and an infrequent flood cycle in the country, excessive, uncontrolled and unmonitored groundwater pumping could result in the depletion of existing aquifers. The balance between aquifer recharge and discharge could be established only once groundwater pumping was monitored. The project carried out by the Pakistan Space and Upper Atmosphere Research Commission demonstrated the advantage of using high-resolution satellite imagery, supplemented by Global Positioning System (GPS), Global System for Mobile Communication (GSM) and Geographic Information System (GIS) technologies for the monitoring and control of groundwater pumping, particularly in the agricultural sector.

31. The session also featured a case study on the use of the Differential Interferometry Synthetic Aperture Radar (DInSAR) technique for irrigation system management in Mexico. SAR date from the Environmental Satellite (Envisat) of ESA were used for producing high-resolution interferogram imagery for cost-effective and accurate monitoring of irrigation infrastructure in areas with a high probability of geological and environmental hazards. Other papers presented at the session demonstrated the effectiveness of the application of Earth observation data to the estimation of groundwater resources in Tunisia and to the determination of groundwater potential zones in the Syrian Arab Republic.

32. The sixth technical session considered the use of space technology in addressing water-related emergencies, natural hazards and climate change. Participants were updated on the latest developments of the Charter on Cooperation to Achieve the Coordinated Use of Space Facilities in the Event of Natural or Technological Disasters and its recent contributions to emergency management in South America. Initiated at UNISPACE III in 1999 and founded in 2000 by ESA, the Centre national d'études spatiales of France and the Canadian Space Agency, the Charter was an international collaboration between the owners and operators of Earth observation missions to provide rapid access to satellite data to help disaster management authorities in the event of a natural or man-made disaster. The Charter was aimed at providing a unified system of space data acquisition and delivery through authorized users to those affected by natural or technological disasters. The agreement arose from the recognition that no single operator or satellite could meet the challenges of natural disaster management. Each member agency committed resources to support the provisions of the Charter, helping to mitigate the effects of disasters on human life and property. It was noted that, over the previous two years, about 30 per cent of the Charter's activations came through the Office for Outer Space Affairs and the Operational Satellite Applications Programme of the United Nations Institute for Training and Research, two United Nations entities that had been granted the authority to request a triggering of the Charter. It was also recognized that the Charter represented an example of successful international cooperation in the use of space tools for disaster management by providing space data on a free-of-charge basis through efficient global data delivery mechanisms. Nevertheless, special training of professionals from civil protection and disaster management agencies was required for more efficient use of space-derived data in developing countries.

33. Participants were also updated on the contribution of data from the planned Argentine observation and communications satellite (SAOCOM) mission to hydrological risk modelling and forecasting. The session also featured a case study on the use of SAR and optical satellite data for flood monitoring in Thailand, as well as presentations on free software for climate change modelling and risk management in Ecuador, the contribution of space technology to the development of vulnerability indicators in Costa Rica, and the evaluation of precipitation over the south-eastern region of South America.

34. Case studies on successful applications of space technology for water management in Argentina, Armenia, Azerbaijan, Iraq and Thailand were presented at the poster session of the Conference.

35. All papers delivered at technical sessions of the workshop, as well as presented at its poster session, are available on the CONAE website: ftp1.conae.gov.ar.

III. Conclusions and recommendations of the Conference

36. Following deliberations in the technical sessions, two working groups were established in order to consider thematic issues and concerns, discuss potential solutions using space technology, formulate observations and recommendations of the Conference and develop project ideas for possible follow-up action.

37. The working group on integrated applications of space technology and data to water resource management outlined the major tasks regarding follow-up projects and the associated work to be done. The working group agreed that, at the national level, each member should create its own country team and define the pilot project in preferred thematic areas. At the regional level, members of each national team should share data and technical knowledge and make possible the exchange of information as the basis of their cooperation. In addition, a follow-up group, open to all participants of the Conference, should be established for:

(a) Distributing the conclusions and recommendations of the Conference among appropriate institutions and agencies in participants' home countries;

(b) Elaborating the concept of a multinational cooperative project on the use of satellite data to study and manage water resources;

(c) Creating a website or portal for communication among the final users of results of the follow-up projects. Such a portal for networking could be the main method of maintaining cooperation among data providers and data users;

(d) Setting up the working groups for development of the hydrological models for particular regions.

38. Participants in the working group discussed a number of proposals for pilot projects on watershed management for the optimal utilization of land and water resources using space technology and data in arid and semi-arid areas. Participants recognized the high importance of projects that addressed the impact of climate change on basins in mountain areas, including the development of snowmelt run-off models, the monitoring of glaciers and the study of high-mountain wet meadows. It was noted that the Andean basins of Argentina, Bolivia (Plurinational State of), Chile and Peru would provide a broad context for such project proposals.

39. It was recognized that remote sensing methods were indispensible for addressing water management in general and water-related disasters in particular. Earth observation data could efficiently contribute to flood prediction methodology, mapping of the extent of flooding and the assessment of damages after floods. Other hazardous events that needed to be monitored on various regional scales were drought and land-use changes in relation to water. In that regard, data from existing microwave instruments such as RADARSAT C-band, Envisat C-band and Advanced Land Observing Satellite (ALOS) L-band should be used for the discussed pilot projects. A combination of radar data with optical images received from Terra moderate resolution imaging spectrometer (MODIS), Terra advanced spaceborne

thermal emission and reflection radiometer (ASTER) and National Oceanic and Atmospheric Administration advanced very high resolution radiometer (NOAA/AVHRR) instruments could help to track changes; therefore, both microwave and optical data should be used in the projects. In addition, appropriate in situ data validation should be carried out at project sites.

40. The group agreed that a common methodology for implementing projects should be developed by national task forces. Participants also discussed plans of action and monitoring and evaluation procedures and examined funding opportunities. It was emphasized that implementation of the proposed projects would be beneficial for decision makers in participant countries, as they would gain access to more reliable data. In addition, implementation of such projects would improve land and water resource management, enhance regional and international cooperation and contribute to capacity-building in developing countries.

41. The working group on capacity-building, education and international and regional cooperation discussed the need to establish the long-term self-sustainable educational frameworks required for successful incorporation of space-related technology and services into integrated water resource management systems. The working group also emphasized that enhanced international coordination was required for the better integration of space-derived information into the policy- and decision-making process. In addition, there was a strong need for the interpretation of scientific results into language that was understandable at the policy- and decision-making levels of government institutions in charge of water management.

42. The working group discussed the importance of knowledge transfer via e-learning systems using Web-based distance education programmes. It was also recognized that, despite the substantial capacity-building infrastructure available in some countries, there was still a significant shortage of appropriately trained staff in government institutions and agencies dealing with water-related emergencies. The group discussed the steps needed to bridge that gap, including developing human resources, building institutional frameworks, allocating appropriate financial resources and establishing partnerships between government and academic, industrial and local communities.

43. The working group also considered the activities of the regional centre for space science and technology education in Arabic, affiliated to the United Nations. Participants were of the opinion that nine-month postgraduate courses offered by those centres were extremely beneficial for all developing countries. The working group also discussed the need for having educational institutes and universities offer both short- and long-term programmes on remote sensing and GIS technology for specialists from developing countries.

44. The deliberations of the working groups resulted in a number of recommendations, which were adopted at the closing session of the Conference.

45. The Conference recommended continuing the practice of conducting short- and long-term training courses and workshops in cooperation with appropriate United Nations agencies. Training programmes should include the following elements of great importance and relevance to participants from developing countries:

(a) Optical remote sensing for the detection and monitoring of snow cover areas;

(b) Optical remote sensing for the detection of changes;

(c) Development of digital elevation models (DEM), including practical exercises on the extraction and validation of DEM data from satellite images (ASTER, ALOS);

(d) Radiometric calibration of data from MODIS, ASTER and ALOS platforms;

(e) Microwave remote sensing for the identification and monitoring of snow, glaciers and vegetation in high mountains;

(f) DInSAR technique for detecting movements of glaciers, monitoring damps, studying debris risk zones and managing aquifers.

46. The Conference recommended that the United Nations Programme on Space Applications should continue assisting institutions and agencies in developing countries to build capacity in the use of space technology for water management through medium- and long-term fellowships and programmes organized in cooperation with Member States. The Conference encouraged all participants to better utilize educational and training opportunities offered by the Programme.

47. The Conference noted with satisfaction that the regional centres for space science and technology education, affiliated to the United Nations, were operational in Brazil, India, Mexico, Morocco and Nigeria. The Conference emphasized that those regional centres could play an important role in capacity-building and dissemination of knowledge in the area of application of space technology to water management.

48. The Conference recommended supporting, enhancing and strengthening existing networks, such as G-WADI and PERSIANN, for sharing data and experiences, in close cooperation with the Office for Outer Space Affairs, UNESCO, non-governmental organizations and academic communities.

49. The Conference emphasized the need to continue outreach activities, especially in those countries where the benefits of space technology applications had not yet resulted in the systematic use of space-related data and services for the advancement of their societies, particularly in the areas of water resource monitoring and disaster management. Activities should also be continued to increase awareness on the part of policymakers and decision makers through workshops and training programmes for institutions and agencies in charge of water management.

50. Recognizing that networking was crucial for the effective application of space technology for water resource management, the Conference commended efforts of PSIPW in developing the Internet-based water portal, which would support such networking and provide a platform for sharing data and other information, including information on experts and scientists available for advisory services and on education and training opportunities in water management. In that context, participants were encouraged to provide relevant information and educational materials for inclusion in the portal.

51. The Conference also recommended that at future meetings climate change issues should be addressed and adaptation strategies for managing water resources should be discussed.

52. At the closing session, participants expressed their appreciation to the Government of Argentina, the United Nations and PSIPW for organizing the Conference and for the significant support provided.

IV. Follow-up actions

53. It was noted that the Conference provided an excellent opportunity to facilitate support for the increased use of space technology for sustainable development in developing countries. The pilot projects and actions identified by the working groups would provide guidance on how participants' home institutions could work together through regional partnerships.

54. It was noted that the Third International Conference on the Use of Space Technology for Water Management, planned for 2013, would be held in the Economic and Social Commission for Asia and the Pacific region and would consider additional ways of improving national and regional coordination mechanisms for matters related to water resource management, as well as strengthening the capacity of developing countries to respond to water-related challenges and enhancing international cooperation in that area.