

**Report of the Space Education and Space Education and Awareness Working Group
Thirteenth Session of Asia-Pacific Regional Space Agency Forum (APRSAF13)**

I. Introduction

1. The Space Education and Awareness Working Group met in Jakarta, Indonesia, on 5 and 6 December 2006. The co-chairs of the Working Group were as follows:

Co-Chairmen: Koh-Ichiro Oyama (Japan)
Herudi Kartowisastro (Indonesia)

II. Adoption of the agenda

2. At its opening meeting, the Working Group adopted the following agenda:

1. Opening of the session
2. Adoption of the agenda
3. General exchange of views on space education and awareness increase
4. Joint educational activities for primary and secondary school students and teachers
 - a. Water rocket event
 - b. Poster contest
 - c. Space education forum and seminar
5. Possible joint educational initiatives for university and graduate students and young professionals
6. Ways and means to promote collaborations among space scientists and engineers and educators in expanding space education activities for young people
7. Other matters

III. Membership

3. As of 6 December 2006, the Working Group was composed of the members from the following 16 countries and 3 international entities: Australia, Bangladesh, Cambodia, India, Indonesia, Japan, Kazakhstan, Malaysia, Myanmar, Nepal, Pakistan, Philippines, Republic

of Korea, Sri Lanka, Thailand, Vietnam, Asian Institute of Technology, United Nations Educational, Scientific and Cultural Organization (UNESCO), United Nations Office for Outer Space Affairs (UNOOSA).

IV. Attendance

4. Experts from the following 14 countries and 3 international entities attended the meeting: Australia, Bangladesh, Cambodia, India, Indonesia, Japan, Malaysia, Myanmar, Nepal, Philippines, Republic of Korea, Sri Lanka, Thailand, Vietnam, Asian Institute of Technology, United Nations Educational, Scientific and Cultural Organization (UNESCO), and United Nations Office for Outer Space Affairs (UNOOSA).

V. Adoption of the observations and recommendations of the Working Group

5. After considering the various items before it, the Working Group, at its meeting on 6 December 2006, adopted the following observations and recommendations set out below.

VI. Observations and recommendations of the Working Group

Joint educational activities for primary and secondary school students and teachers

<Water Rocket Activities>

Observations

6. The Space Education and Awareness Working Group noted with satisfaction that the First APRSAF Water Rocket Competition had been held in Kitakyushu, Japan, in October 2005 and that the Second APRSAF Water Rocket Event would be held in Jakarta, Indonesia, from 7 to 9 December, in conjunction with the thirteenth session of APRSAF, with the participation of about 50 students from 13 countries.

7. The Working Group noted with satisfaction that some countries held national competitions with the participation of a large number of students and that some other countries intend to initiate water rocket activities.

8. The Working Group noted with appreciation that JAXA Space Education Center developed and distributed instructive DVDs and educator's manuals to carry out water rocket activities for educational purposes.

9. The Working Group noted with satisfaction that the Leaders Meeting would be organized on 8 December, as part of the APRSAF Water Rocket Event, for the participating teachers and leaders of water rocket activities to exchange information and ideas on how to promote water rocket activities for educational purposes.

Recommendations

10. The Working Group agreed that the Water Rocket Event should be continued, for participation by school students at the age between 12 and 18 years old, within the framework of APRSAF, to be held in conjunction with the annual session of APRSAF. The Working Group, in this regard, noted with satisfaction that discussions are underway to organize the next APRSAF Water Rocket Event in India in conjunction with the fourteenth session of APRSAF.

11. The Working Group noted the financial difficulties faced by some developing countries in providing support to teachers and students to participate in APRSAF Water Rocket Events. While recognizing the financial support provided by JAXA Space Education Center to some developing countries, the Working Group noted the need to seek for sponsorship from other entities, including those in the commercial sector, to support the participation of developing countries in APRSAF Water Rocket Events.

12. In order to seek for such sponsorship, the Working Group agreed that further efforts need to be made to receive media attention to APRSAF Water Rocket Events as well as national competitions held in participating countries, as done successfully in India and Vietnam.

13. The Working Group recognized the need to enhance the educational content of water rocket activities. In this regard, the Working Group recommended that the instructive DVDs and educator's manual developed by JAXA Space Education Center should be distributed as widely as possible. The Working Group also welcomed the intention of the Space Education Center to receive feedback from the users and to further enhance the content of the DVD and the educator's manual.

14. The Working Group agreed that as soon as the venue of the next APRSAF Water Rocket Event has been agreed upon, the schedule for the preparations for the Event, including the deadline for selecting the winners of the national competitions and for circulating the rules for the launch competition of the APRSAF Water Rocket Event, should be distributed to its members.

<Poster Contest>

Observations

15. The Working Group noted with satisfaction that the first APRSAF Poster Contest was held under the theme entitled "Importance of Space" for school children in the region at the age between 8 and 11 years old and that the participating countries submitted three posters each, in accordance with the agreement of the Working Group at its last session.

16. The Working Group noted that all the posters were at display during APRSAF-13 and that each participating country or international organization of APRSAF-13 was provided with two votes to select the posters that best address the theme of the Contest. The Working Group was provided by the Secretariat with the results of the selection.

Recommendations

17. On the basis of the results of the selection compiled by the Secretariat, the Working Group agreed that APRSAF Best Poster Award should be given to Ms. Kaede Andoh (Japan) and that APRSAF Special Poster Awards should be given to Mr. Tsubasa Fujita (Japan) and to Ms. Do Dieu Linh (Vietnam).

18. The Working Group agreed to continue the organization of APRSAF Poster Contest each year. As for the year 2007, the Working Group agreed that the Contest should be held under the theme selected for World Space Week Poster Contest. The Working Group noted that the representative of UNESCO would inform the members of the Working Group of the theme selected for World Space Week when it becomes available.

19. While the Working Group agreed to continue the selection method used this year, the Working Group agreed that more participants of APRSAF should be made aware of the organization of APRSAF Poster Contest and should actively participate in the selection. In this regard, the Working Group requested the Secretariat to make posters to be submitted for the next Contest available on the web site of the Working Group (<http://www.aprsaf.org>) for review prior to APRSAF-14 and to inform the participants of APRSAF-14 of the selection methods.

<Space Education Seminar/Forum>

Observations

20. The Working Group noted with satisfaction the successful organization of APRSAF/UNESCO Space Education Forum in March 2006 in Hanoi, Vietnam, in cooperation with Vietnamese Academy of Science and Technology, for the local junior high school and high school students and teachers. The Working Group also noted with satisfaction the plan

to hold APRSAF/UNESCO/LAPAN Space Education Seminar (11-12 December 2006, Jakarta, Indonesia) for high school teachers. The Seminar features lectures and demonstrations by some members of the Working Group.

21. The Working Group noted the efforts made by UNESCO to organize space education workshops in developing countries around the world. The Working Group noted with satisfaction that the above Space Education Forum and Seminar held within the framework of APRSAF had contributed to promoting the objectives of the Space Education Programme of UNESCO.

Recommendations

22. The Working Group stressed the need for providing opportunities for school teachers to enhance their understanding of space science and technology and their applications and to participate in hands-on, mind-on training in space education activities. The Working Group also stressed the need to make educational materials on space science and technology as well as space law more available particularly for developing countries.

23. The Working Group agreed that the convening of space education forums and seminars in developing countries for students and teachers of primary and secondary schools should continue within the framework of APRSAF in cooperation with UNESCO if offers are received from interested countries to host such activities.

Possible joint educational initiatives for university and graduate students and young professionals

Observations

24. The Working Group heard a presentation by JAXA Space Education Center on CanSat activities and the Ground Station Network (GSN) project carried out by university students in Japan, particularly through the University Space Engineering Consortium (UNISEC). The Working Group noted the offer by JAXA to provide opportunities to interested countries participating in the Working Group to take part in the following activities: i) an international CanSat seminar to be jointly organized by JAXA and UNISEC in late February 2007 in Tokyo, Japan; ii) training activities with the use of "CanSat Kit", developed by the University of Tokyo; iii) training activity, with the use of hardware and software to be provided by the University of Tokyo, to operate a ground station to be installed at an interested university in a developing country.

25. The Working Group was briefed by the representative of the United Nations Office for

Outer Space Affairs on the history, structure, achievements and current and future activities of United Nations-affiliated regional centres for space science and technology education. The Working Group noted with interest in particular the accomplishments of the regional centre for Asia and the Pacific, established in India, over ten years.

26. The Working Group heard a presentation by the representative of the Asian Institute of Technology on an initiative by AIT to organize a new educational course with specialization in the "Space Applications and Utilization Technology". The Working Group noted the request by AIT to provide suggestions and ideas for such course from user's point of view.

Recommendations

27. The Working Group agreed that the CanSat activities and the GSN project as introduced by JAXA could be carried out within the framework of APRSAF. The Working Group agreed upon the following action items:

- i) Interested members of the Working Group should contact JAXA Space Education Center to participate in the International CanSat Seminar to be organized in February 2007;
- ii) The Secretariat should compile a document that contains technical details of the CanSat activities, in particular "CanSat Kit", for transmission to the United Nations Office for Outer Space Affairs, for the purpose of disseminating information on activities carried out within the framework of APRSAF for university students and above. The draft of that document should be circulated to the members of the Working Group prior to the submission to the Office for Outer Space Affairs for their review and comments;
- iii) UNISEC should be invited to consider participating in space education workshops organized by UNESCO in developing countries to introduce their CanSat and GSN activities;
- iv) Interested members of the Working Group should contact JAXA to participate in the training activities with the use of "CanSat Kit" or in the training to operate a ground station and report the results of their participation in such activities to the Working Group during APRSAF-14.

28. The Working Group noted with appreciation the offer made by the United Nations Office for Outer Space Affairs to make a set of information materials and model curricula developed by the Office for the UN-affiliated regional centres for space science and technology education available for interested members of the Working Group through its Secretariat. The Working Group encouraged its interested members to establish contact with the United Nations-affiliated Regional Centre for Space Science and Technology Education in Asia and the Pacific (CSSTEAP), Dehradun, India (Contact: Director, CSSTEAP, IIRS Campus, 4 Kalidas Road, Dehradun, India).

29. Regarding the initiative taken by AIT to establish a course with specialization in the “Space Applications and Utilization Technology”, the Working Group agreed to conduct a survey as requested by AIT among the members of the Working Group, to receive suggestions and ideas to enhance the content of the course to be established. The Working Group also agreed that AIT may wish to continue discussion with those interested members of the Working Group who provide suggestions and ideas through e-mail. The Working Group further agreed that the results of such discussions should be reported to the Working Group during APRSAF-14.

Collaborations among space scientists and engineers and educators

30. The Working Group noted with satisfaction that APRSAF Space Science Education Workshop had been held in Hanoi, Vietnam, in March 2006. The Working Group noted that the Workshop had made the following recommendations:

- 1) Members of the Working Group would benefit from the expertise and experience of researchers of various space science and engineering fields in enhancing space education and training opportunities for young people in the region;
- 2) In this regard, closer links should be established between the members of the Working Group and researchers in space science and engineering within each of the countries participating in APRSAF, to exchange ideas and views on how the efforts made by those researchers to enhance educational activities could be better supported within the framework of the Working Group;
- 3) At its next meeting, the Working Group could give consideration to establishing an informal group of researchers in space science and engineering and educators that could serve as resource persons to assist in the work of the Working Group in carrying out joint space education activities within the framework of APRSAF.

31. The Working Group agreed that efforts should be made to strengthen the links between the space scientists and educators to enhance space education activities.

32. The Working Group heard a presentation by the representative of Australia on the activities of Victorian Space Science Education Centre (VSSEC). The Working Group noted with interest the efforts made by VSSEC to provide training opportunities for teachers as well as to carry out space education activities in close cooperation with scientists for the benefit of school students.

33. The Working Group noted the request by the representative of Sri Lanka for assistance by its members in the establishment of a Space Science Exploratorium at Arthur C. Clarke

Institute for Modern Technologies (ACCIMT), with the aim of making available more teaching materials and expertise in the field of space science and astronomy to enhance space science education not only for school children but also for the general public, including those in remote areas. The Working Group encouraged its members to provide models for display or educational materials for the Space Science Exploratorium.

34. The Working Group heard a presentation by the United Nations Office for Outer Space Affairs on the activities carried out around the world to celebrate the International Heliophysical Year (IHY) in 2007, which include many educational activities. The Working Group agreed that interested members should contribute to educational activities carried out as part of the global initiatives such as IHY.

35. The Working Group noted the project undertaken by the International Astronautical Academy (IAA) to develop database of space terminologies in multiple languages. The database is currently available in 16 languages.¹ The Working Group agreed that its members, if interested in contributing to the project, should contact Prof. Y. Matogawa, IAA member responsible for Asian region in this project (Email: matogawa.yasunori@jaxa.jp).

36. The Working Group reviewed the responsibilities of its members as follows:

- i) serving as a single contact point of each country;
- ii) organizing local space education activities;
- iii) informing the Working Group Co-Chairs of any change to the contact point; and
- iv) collecting more information on space education activities in their countries.

37. The Working Group noted that Prof. K. Oyama would be succeeded by Prof. T. Kubota of the Institute of Space and Astronautical Science of JAXA as the Japanese Co-Chair of the Working Group following the conclusion of APRSAF-13.

¹ Arabic, Bulgarian, Chinese, English, French, German, Hindi, Hungarian, Italian, Japanese, Polish, Portuguese, Romanian, Russian, Spanish, Turkish.