

**Report of the Space Education and Space Education and Awareness Working Group
Fourteenth Session of Asia-Pacific Regional Space Agency Forum (APRSAF-14)***

I. Introduction

1. The Space Education and Awareness Working Group met in Bangalore, India, on 21 and 22 November 2007. The Working Group was co-chaired by the following officers:

Co-Chairmen: S. Satish (India)
 T. Kubota (Japan)

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
 - d. Other activities
5. 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

* Re-issued for technical reasons.

III. Membership

3. As of 21 November 2007, 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 10 countries and 2 international entities attended the meeting: Bangladesh, Cambodia, India, Indonesia, Japan, Malaysia, Philippines, Sri Lanka, Thailand, Vietnam, Asian Institute of Technology and United Nations Educational, Scientific and Cultural Organization (UNESCO).

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 22 November 2007, adopted the following observations and recommendations set out below.

VI. Observations and recommendations of the Working Group

General statements

6. The following countries made presentations on the highlights of their space education and awareness increase activities in the past year and briefed the Working Group on their future plans: Bangladesh, India, Indonesia, Japan, Sri Lanka, Thailand and Vietnam.

7. The Working Group noted with appreciation the written reports submitted by the following countries, as contained in documents APRSAF/SEA-WG/2007/3, Add.1 and 2, on the highlights of formal and informal education relating to space activities in the past year, future plans for educational initiatives relating to space activities and proposal for initiatives to be undertaken by the Working Group in 2008: Indonesia, Malaysia, Pakistan, Sri Lanka and Vietnam.

Joint educational activities for primary and secondary school students and teachers

<Water Rocket Activities>

Observations

8. The Space Education and Awareness Working Group noted with satisfaction that the Second APRSAF Water Rocket Event had been held in Jakarta, Indonesia, in December 2006, and that the Third APRSAF Water Rocket Event would be held in Bangalore, India, from 23 to 25 November, in conjunction with the fourteenth session of APRSAF, with the participation of 24 students from the following 11 countries: Bangladesh, Cambodia, India, Indonesia, Japan, Malaysia, Philippines, Thailand, Sri Lanka, Singapore and Vietnam.

9. The Working Group noted with satisfaction that some countries held national competitions with the participation of a large number of students and schools.

10. The Working Group recalled that JAXA Space Education Center had distributed in Japanese and English the instructive DVD and the educator's manual to carry out water rocket activities for educational purposes. The Working Group noted that the set of the above manual and DVD would be made available into Spanish in cooperation with UNESCO, in response to the need expressed by some countries in Latin America.

Recommendations

11. The Working Group agreed that the Water Rocket Event should be continued, for participation by school students at the age between 12 and 16 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 the offer by Vietnam to host the next APRSAF Water Rocket Event if agreement was reached to hold the fifteenth session of APRSAF, in 2008, in Vietnam.

12. 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 the Space Education Center of the Japan Aerospace Exploration Agency (JAXA) 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.

13. In order to seek for such sponsorship, the Working Group agreed that further efforts need to be made to draw media attention to APRSAF Water Rocket Events as well as national competitions held in participating countries.

14. The Working Group agreed that further efforts should be made to promote water rocket activities for educational purposes, to enhance education. In this regard, the Working Group agreed that increasing the number of teachers, educators and leaders of voluntary groups for educational activities for youth with knowledge and skills to teach water rocket activities with educational contents would be important.

15. The Working Group had before it the proposal made by JAXA Space Education Center to organize an international water rocket workshop for educators and to develop a multilingual leaflet on water rockets, with a view to further enhancing water rocket activities for education (document APRSAF/SEA-WG/2007/5).

16. The Working Group agreed that it would be desirable to organize the international water rocket workshop in 2008 as proposed in paragraph 15 above for educators and that members interested in hosting such a workshop should contact the Secretariat. The Working Group noted that organizing such a workshop a few months in advance of the next APRSAF Water Rocket Event would promote the Event in Asia and the Pacific and could lead to increasing the participation of students, schools and countries in the region.

17. The Working Group agreed that it would be desirable to make more education materials available for teachers and educators in the languages spoken by their students to further promote water rocket activities for educational purposes. In this regard, the Working Group agreed that its interested members could start developing leaflets on water rockets in the languages spoken in their countries, using the information provided in the Educator's Manual for Water Rockets and its accompanying DVD, distributed by JAXA Space Education Center in English.

18. The Working Group noted with interest the intention by India to develop such a leaflet on water rockets in English, to be followed later by other language versions to meet the needs of a large population that speak many different languages. The Working Group invited India to share the leaflet, once made available in English, with the other members.

19. The Working Group agreed that for the next APRSAF Water Rocket Event, the names of the student contestants and accompanying teachers and leaders selected through national competitions should be communicated to the secretariat of the Working Group and the organizers of the Event two months prior to the Event. The Working Group agreed that the

schedule for the preparations for the Event, including the deadline for selecting the winners of the national competitions, should be distributed to its members as soon as the dates of the next Event have been determined.

<Poster Contest>

Observations

20. The Working Group noted with satisfaction that the first APRSAF Poster Contest had been held successfully for school children in the region at the age between 8 and 11 years old and that the second APRSAF Poster Contest was held under the theme entitled “50 Years in Space”, the same as the one for this year’s World Space Week. The Working Group recalled its agreement that each participating country should submit three best posters. The Working Group noted with appreciation that the following 8 countries had submitted the selected posters for APRSAF Poster Contest: Bangladesh, India, Indonesia, Japan, Pakistan, Malaysia, Sri Lanka, Vietnam. All those posters were displayed during APRSAF-14.

21. The Working Group noted that each delegation to APRSAF-14 was provided with two votes to select the posters that best address the theme of the Contest. At its meeting on 22 November 2007, the Working Group was provided by the Secretariat with the results of the selection.

Recommendations

22. 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. Priscillia (Indonesia) and that APRSAF Special Poster Awards should be given to Ms. Miki Takao (Japan) and Mr. Seigo Sasaki (Japan).

23. The Working Group agreed to continue the organization of APRSAF Poster Contest each year. As for the theme for the next Poster Contest, in 2008, the Working Group agreed that the main theme should be “Wonders of the Universe.” Each participating country may wish to add a sub-title to the main theme as it carries out its national contest.

24. The Working Group noted with interest the proposal by UNESCO to jointly develop a calendar for the year 2009 using the selected posters for APRSAF Poster Contest. While recognizing the limited time between the selection of those posters for the Poster Contest and the beginning of the year 2009 as well the time required for production and distribution, the

Working Group agreed to consider, during the inter-sessional period, ways and means of developing such a calendar, taking into account the resource requirements.

<Space Education Seminar/Forum>

Observations

25. 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 junior and senior high school students and teachers, and APRSAF/UNESCO/LAPAN Space Education Seminar in December 2006 in Jakarta, Indonesia for high school teachers.

26. 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.

27. The Working Group noted the suggestion to consider the appropriateness in terms of timing to organize a regional seminar to conduct round-table discussions among teachers and educators to exchange experiences and lessons learned in their efforts to carry out space education activities. The Working Group considered that prior to give consideration to such possibility, there was a need to conduct a survey on the situation in various countries for teachers to promote space education activities.

Recommendations

28. 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 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.

<Other activities>

29. The Working Group noted that the year 2009 had been declared by UNESCO and International Astronomical Union (IAU) as the International Year of Astronomy (IYA). The Working Group agreed that all interested countries should consider organising activities in the area of astronomy toward the celebration and report to the Working Group at its next meeting in 2008 on their activities.

30. The Working Group noted the need expressed by some countries for educational materials and information on teaching methods in the area of astronomy and considered that the exchange of such educational materials and teaching methods would be important in enhancing education in astronomy in the region. In this regard, the Working Group invited the members to submit to the Secretariat the educational materials available and information on the teaching methods used in their countries for circulation to the members of the Working Group through its web site and that of UNESCO.

31. The Working Group noted with appreciation that UNESCO would consider donating portable telescopes made available through its cooperation with MEADE company for the benefit of the countries participating in APRSAF.

Joint educational initiatives for university and graduate students and young professionals

Observations

32. The Working Group recalled its agreement at its meeting during APRSAF-13 that the CanSat activities and the Ground Station Network (GSN) project as introduced by JAXA could be carried out within the framework of APRSAF.

33. The Working Group noted with satisfaction that JAXA Space Education Center jointly organized with the University Space Engineering Consortium (UNISEC) the International CanSat Workshop (23-24 February 2007, Tokyo) and that ten countries from Asia and the Pacific participated in the Workshop. The Working Group also noted that the "CanSat Kit", developed by the University of Tokyo in cooperation with a commercial entity and had been introduced by JAXA Space Education Center at its last meeting, had been used by some of its members.

34. The Working Group heard presentations by Malaysia and Thailand on their CanSat activities.

35. The Working Group was briefed on the latest status of the United Nations-affiliated Centre for Space Science and Technology Education in Asia and the Pacific (CSSTE-AP).

36. The Working Group was briefed on the situation concerning the initiative by the Asian Institute of Technology (AIT) to organize a new educational course with specialization in the “Space Applications and Utilization Technology”.

Recommendations

37. The Working Group noted with interest the proposal made by JAXA Space Education Center to organize within the framework of APRSAF a training seminar for trainers to teach CanSat activities. The Working Group also noted the above proposal had emanated from the results of discussions during the International CanSat Workshop, mentioned in paragraph 33 above. The Working Group further noted that JAXA Space Education Center was under discussion with ISRO and the United Nations Office for Outer Space Affairs, the latter of which was considering the possibility of launching a United Nations Basic Space Technology Initiative, which could include CanSat activities, to explore possibilities of holding such a training seminar at one of the campuses of CSSTE-AP, preferably by mid-March 2008.

38. The Working Group agreed that it was desirable to organize a training seminar within the framework of APRSAF for trainers to teach CanSat activities and requested JAXA Space Education Center to keep its members informed of the progress made in organizing such a seminar.

Collaborations among space scientists and engineers and educators

Observations

39. 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 recommended that 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.

40. The Working Group noted with satisfaction that various efforts were being made by its members to encourage collaborations with space experts and educators, to enhance educational activities in the area of space science and technology. The Working Group heard presentations by Bangladesh and Thailand on their efforts in this regard.

Recommendations

41. The Working Group noted the suggestion made by JAXA Space Education Center to conduct a survey in Asia and the Pacific on the efforts made by various countries to integrate space-related subjects into the education curricula for primary and secondary schools. The Working Group agreed that the above survey could be combined with the survey on the situation in various countries for teachers to promote space education activities, mentioned in paragraph 27 above.

42. The Working Group agreed that its Secretariat should develop a draft questionnaire to conduct the survey on those matters mentioned above, in paragraph 41 and circulate the draft by end January 2008 for review and comments by its members. The deadline for submitting comments on the draft questionnaire should be end March 2008. The Working Group agreed that any findings resulting from the survey should be presented at its next meeting during APRSAF-15.

43. The Working Group recalled 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 recalled that it had encouraged its members to provide models for display or educational materials for the Space Science Exploratorium and reminded its members to consider doing so, if not done yet.

44. The Working Group was briefed on the progress made in the project undertaken by the International Astronautical Academy (IAA) to develop database of space terminologies in multiple languages. The database is currently available in 18 languages.¹ The Working Group noted with satisfaction that its members, from three countries, had joined in the project to serve as coordinators for their respective languages. The Working Group agreed that any other members, if interested, should contact Prof. Y. Matogawa, IAA member responsible for Asian region in this project (Email: matogawa.yasunori@jaxa.jp).

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

45. The Working Group noted its membership as provided in document APRSAF/SEA-WG/2007/8 and recalled 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.