HOW DOES THE UNITED NATIONS CONTRIBUTE TO THE WORLDWIDE DEVELOPMENT OF ASTRONOMY?

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Of the 185 countries that are Member States of the United Nations, nearly 100 have professional or amateur astronomical organizations. Only about 60 of these countries, however, are sufficiently involved in astronomy to belong to the International Astronomical Union. Only about 20 countries, representing 15% of the world's population, have access to the full range of astronomical facilities and information.

Since 1990, the United Nations, through its Office for Outer Space Affairs, in cooperation with the European Space Agency, has organized annually Workshops on Basic Space Science to contribute to the worldwide development of astronomy and space science. Such workshops have been organized in India (1991) and Sri Lanka (1995) for Asia and the Pacific, in Costa Rica (1992) and Honduras (1997) for Central America and the Caribbean, in Columbia (1992) for South America and the Caribbean, in Nigeria (1993) for Africa, in Egypt (1994) for Western Asia, and in Germany (1996) for Europe. The recommendations and observations that emanated from these Workshops have been made available widely through United Nations General Assembly reports, Workshop Proceedings, and the Workshop homepage (UN/ESA Workshop homepage http://www.seas.columbia.edu/ ah297/un.html).

Additional to the benefits of common scientific Workshops, the UN/ESA series has led to the implementation of a number of follow-up projects: (i) the establishment of an astronomical telescope facility in Sri Lanka; (ii) the operation of a 5m radio telescope in Colombia; (iii) the inauguration of the astronomical observatory for Central America (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama) in Honduras, (iv) the refurbishment of the Kottamia telescope in Egypt, (v) the development of Egypt's Marshod drill project for the US/Russia Mars Mission 2001 (under the guidance of The Planetary Society) and (vi) the publication of an urgently needed newsletter (African Skies) for the astronomical community in Africa (http://www.saao.ac.za/ wgssa/). In the past eight years, astronomers and space scientists from more than 120 United Nations Member States participated at or contributed to the success of the UN/ESA Workshops on Basic Space Science (H.J. Haubold and W. Wamsteker, 1997, http://xxx.lanl.gov/abs/astro-ph/9705169).

The UN/ESA workshops were conducted as part of the annual activities of the United Nations Space Applications Programme, which promotes awareness of advances in space science and technology, particularly in developing countries. The Programme conducts annual series of workshops, training courses, seminars, and conferences on space related issues. It also administers a long term fellowship programme for in-depth training of specialists in space science and technology at facilities of the European Space Agency, provides technical advisory services on request and is establishing regional Centres for Space Science and Technology Education (Affiliated to the United Nations) around the world with the goal of developing indigenous capabilities (H.J. Haubold *Annals of the New York Academy of Sciences* **822** (1997) 621-630).

The Government of Japan, in cooperation with leading astronomers from the National Astronomical Observatory of Japan, was particularly supportive in establishing astronomical facilities in developing countries in Asia and the Pacific. The astronomical telescope at the Arthur C. Clarke Center for Modern Technologies in Sri Lanka was donated to the Government of Sri Lanka, through the United Nations, by the Government of Japan through the Japanese Cultural Grant Aid Programme. Currently, the Governments of Japan and Paraguay, in cooperation with the United Nations, are discussing the establishment of an astronomical telescope facility at the National Uni-

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versity of Paraguay at Asuncion, including the donation of a solar telescope by Japan through its Cultural Aid Grant Programme.

Follow-up projects of the above series of UN/ESA Workshops, currently hotly debated in the international community of astronomers and space scientists, are (i) the feasibility of the establishment of a World Space Observatory (WSO), (ii) the Network of Oriental Robotic Telescopes (NORT), (iii) the worldwide network of small astronomical telescopes to be preferentially used for observation of variable stars and near-Earth objects, and (iv) the finalization of education kits to be used for introducing astronomy into the education curricula in developing countries at the high school, college, and university levels.

An assessment of the achievements of the series of UN/ESA Workshops on Basic Space Science will be contained in a book publication titled Developing Astronomy and Space Science Worldwide. This assessment will also be part of the agenda of the forthcoming United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III) to be convened at Vienna, Austria, in 1999 by all Member States of the United Nations.

The views, interpretations, and opinions presented in this paper do not necessarily reflect the position of the United Nations.