ABSTRACT

UNESCO/ROSTSEA* (Jakarta) has developed a proposal to organise an Indo-Pacific network of marine and environmental science institutions to collaborate on enhancing education and monitoring programmes, with special reference to global change. More than 80 participants from 25 countries throughout the region met at the XVII Pacific Science Congress to review the proposal. Suggested changes were incorporated into a revision that will be submitted to UNDP for funding. Individual presentations were made about existing marine science education programmes in Indonesia, the People’s Republic of China, and India. An organising committee was formed, and a tentative program outlined for a marine curriculum workshop to be held in India in 1992.

* UN Acronyms

ESCAP = UN Economic and Social Commission for Asia and the Pacific
ESSD = Environmentally Sound and Sustainable Development
ROSTSCA = UNESCO Regional Office for Science and Technology for South and Central Asia
ROSTSEA = UNESCO Regional Office for Science and Technology for Southeast Asia
UNDP = UN Development Programme
UNESCO = UN Education, Scientific, and Cultural Organization
WESTPAC = Western Pacific Region, Intergovernmental Oceanographic Organization (IOC) of UNESCO
HISTORY OF NETWORK PROPOSAL

In 1986 UNESCO organised a brief planning meeting in Bangkok for a major inter-regional meeting on marine science curricula to involve countries represented by ROSTSEA (Southeast Asia and the Pacific) and ROSTSCA (Western and South-Central Asia) (UNESCO 1986). The matter was further discussed by a group at the XVI Pacific Science Congress (PSC) in Seoul in 1987. The major curriculum meeting was held in Qingdao late in 1987; it incorporated the findings of a curriculum/employment survey designed by the Bangkok group, and the Qingdao experts advanced the recommendation that a network be established to enhance marine science education at the tertiary level throughout the region (UNESCO 1989). ROSTSEA in 1989 contracted one of the Qingdao participants to draft a funding proposal for UNDP consideration. During a six-month period he travelled extensively throughout the region visiting marine science education institutions, and he conducted a further mail survey of potential network members. A small meeting of experts in Jakarta in August of 1989 provided additional guidance for proposal development. At a curriculum workshop sponsored by ROSTSEA in Jakarta in March 1990, faculty participants from the network region critiqued the proposal. A draft of the proposal was reviewed by a workshop of invited experts at the Fourth Pacific Congress on Marine Science and Technology (PACON) in Tokyo, July 1990 (Maynard et al. 1990). These comments were incorporated in the first draft of the proposal published for dissemination outside of ROSTSEA (UNESCO 1990). The proposal was also tabled before ESCAP meetings in 1990 and 1991. A subsequent revision (UNESCO 1991a) was circulated to potential participants in the session scheduled to review the proposal at the XVII Pacific Science Congress in Honolulu. The most current version of the proposal was completed just prior to PSC XVII and incorporated comments received by ROSTSEA in correspondence and in a March 1991 meeting with the aforementioned consultant (UNESCO 1991b). After ROSTSEA considered the PSC XVII comments, the proposal will be forwarded to UNDP. It will be discussed also at the December 1991 WESTPAC meeting in Penang and at UNCED in June 1992 in Brazil.

OVERVIEW OF NETWORK PROPOSAL

Objective

The project objective is to develop an inter-regional network to support and enhance existing educational organisations and structures for marine studies to prepare present and future generations with an understanding of marine and associated systems as they relate to ecologically sound and sustainable development in a continuously changing world.

Geographic Coverage

As presently envisioned, the network would encompass the Indo-Pacific region from Iran in the West to Hawaii in the East and from the former U.S.S.R. in the North to New Zealand
NOTE:
Overall coordination would be provided by UNESCO/ROSTSEA from Jakarta, with sub-regional headquarters in New Delhi, Bangkok, and Suva, each connected to a national lead institution in each member country/state/territory through a hierarchy of steering committees.

Figure 1. Proposed UNESCO Indo-Pacific Network of Marine Education Institutions.
in the South. Inclusion of the East Coast of the Pacific Basin (from the U.S.A. to Chile) was proposed at PSC XVII and is under consideration. Developing, newly industrialising, and developed countries may all belong (Figure 1).

**Organisation**

To facilitate management of the network and to assure better sensitivity to local needs, the country and state members would be organised into three sub-regions: West and South-Central Asia, East and Southeast Asia, and Pacific Islands. The composition of membership for each sub-region is still being worked out. Overall coordination would be based at the Jakarta office of ROSTSEA. Each of the three sub-regions would identify one institution to which a secretariat and teaching resource centre would be attached. Policies and programme priorities would be established by a steering committee for each sub-region. This committee would meet at least annually and consist of one representative from each national steering committee within its region. The national committees would be comprised of front-line education staff (faculty, teachers, training officers, etc.) of representative marine education institutions (colleges, universities, schools, marine resource departments, research facilities, oceanaria, environmental protection agencies, NGOs, etc.) from throughout the country or state.

**Funding**

The proposal is designed to secure at least five years' worth of start-up funding from the UN Development Programme. It is intended that others with interests in the region will also support the network, *e.g.* Asian Development Bank, World Bank, UN Environment Programme, U.S.A.I.D., J.I.C.A., A.I.D.A.B., I.C.O.D., E.E.C., IGBP, IOC, ESCAP and others. The preliminary five-year budget totals about US$ 30 million.

**Programmes**

The network will bring together individuals and institutions in the region to undertake activities grouped into nine areas. Global change and environmental stewardship will be core themes.

1. Organise the network administration, including the secretariats, steering committees, and institutional membership.

2. Through periodic training/curriculum workshops, keep faculty up to date on the latest developments in the field and on improvements in teaching technologies.

3. Co-ordinate faculty exchange programmes for teaching, curriculum development, and research.
4. Place tertiary students in other regional institutions for specialised training, for short-term research projects, for long-term matriculation in programmes not available at home institutions, and for participation in an annual regionwide symposium of student projects.

5. Conduct field-training workshops for secondary teachers to prepare their students to collect and analyse environmental data in conjunction with monitoring and ground-truthing programmes.

6. Develop, maintain, and publicise an information base/directory about the programmes, facilities, and personnel expertise of member institutions.

7. Act as an information clearinghouse for marine-education programmes, materials and services, training sessions, funding opportunities, employment, meetings, and ideas.

8. Establish sub-regional teaching resource centres which will collect, develop, and disseminate relevant, locally/regionally-based curricula and support materials.

9. Regularly submit proposals which support marine education programmes in the region and to serve as a point of co-ordination for external aid in marine and environmental sciences.

PSC WORKSHOP PARTICIPANT COMMENTS

More than 80 participants from 25 countries attended the PSC session. There was general agreement that the network and its programmes as conceived were worthwhile and that implementation should proceed without further delay. Some reservations were expressed about the scope, target audience, organisation, and size of the undertaking. Particular concerns were expressed about securing sufficient funding to underwrite the programmes. A number of questions were raised about which countries should belong to which sub-region. Concern was also expressed about whether adequate co-ordination could be achieved with other programs already working in the region.

Participants endorsed a resolution that was subsequently approved by the Pacific Science Council and ratified by the Pacific Science Association as "Resolution--4" arising from the XVII Pacific Science Congress:

 Resolution--4
 NETWORKS FOR MARINE SCIENCE EDUCATION

Whereas the development of networks for marine science education in Asia and the Pacific is deemed to be important,
Be it resolved that the Pacific Science Association endorse the UNESCO/ROSTSEA "Proposal for an Indo-Pacific Marine and Environmental Science and Technology Education, Training and Monitoring Network at the Secondary as well as Tertiary Levels and Beyond -- A Link in a Strategy for Managing Global Change in the 21st Century"; and,

Be it further resolved that the Association commends UNESCO/ROSTSEA for developing this timely proposal and urges UNESCO to move it forward as expeditiously as possible for funding and implementation.

In addition, participants agreed to the following:

Recommend that UNESCO present the proposal as an education programme/project to UNCED

Request UNESCO to draw the attention of IGBP to the similarity between this project and the START proposal and invite them to consider unification

Ask UNESCO member states to officially request the UNESCO secretariat to proceed with asking UNDP to fund network

Request UNESCO member state delegations to raise the requirement for this project at the UNESCO general conference in October 1991

Request UN member states to include mention of the project as an appropriate action for ESSD attainment in their country reports to UNCED (Brazil 1992)

Request UNESCO/IOC member states to pass a resolution at the upcoming WESTPAC scientific programme meeting in Penang, Malaysia, in December 1991 to support the project through UNDP

POST-Congress Developments

ROSTSEA is preparing a revised proposal accommodating input from Congress participants. This will be forwarded to UNDP via UNESCO Headquarters (Paris), with funding possibly starting as early as January 1992. A curriculum workshop is being planned for December 1992 at Andhra University in India.
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REFERENCES


UNESCO 1986. Marine science curriculum development at the university-level in Asia and the Pacific region. Results of a planning meeting, Bangkok, 4-6 June 1986. UNESCO/ROSTSEA, Jakarta.


