SCIENCE IN PACIFIC SCHOOLS: PROBLEMS AND CHALLENGES

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Editor's Note: The following is a content summary of the opening address delivered at the Commonwealth Secretariat Regional Workshop to develop monographs for training of trainers in science and technology education, held at the University of the South Pacific (USP), from 29 April - May 4 1996.

In the past 20 years or so, a number of developments have taken place in the region in improving the quality of education and access to schooling.

The USP was established as a regional institution in 1968, and for the first fifteen years or so, the main focus of the University was to prepare teachers for the expanding school systems of the region. Many countries were also becoming independent nations during this period and they saw the replacement of expatriate teachers with trained local teachers, and the development of relevant curricula and examinations as a priority.

Responding to regional needs, the early 1970s saw the establishment of the UNDP/UNESCO regional curriculum development Project based at the USP. Consultants for the Project worked with educators from the region to develop curriculum materials in Science, Mathematics, Social Science, Home Economics and Industrial Arts for years 7-10. The Project also acted as a spur for the establishment of Curriculum Development Units in many countries in the region. The materials developed by the UNDP/UNESCO Project have since been revised, extended and adapted to suit the needs of member countries.

As a natural consequence of these reforms in curricula, the regional governments saw the importance of improving the assessment and examination systems. The result was the establishment in 1981 of the South Pacific Board for Educational Assessment (SPBEA), a regional body based in Suva.

Apart from these regional initiatives, individual countries have also made a number of efforts in bringing about improvements in their educational systems.

Despite all these developments and efforts, a number of concerns still remain to be addressed in the area of science education. These were highlighted at the 6th High Level Consultation of Senior Pacific Educators held in Western Samoa in 1992:

> If there is one subject matter which has the potential to offer significant returns on investment for both the individual and the country concerned, it is unquestionably science education.... Reforming science education can impact on the protection of the environment, the population growth rate, personal health and welfare, and the quality of life. It offers the possibility of increased relevance, higher student motivation, reduced per capita costs, improved teacher retention, overseas study options and better quality education.

During the consultation, four issues of concern to all the Pacific States emerged:

1. Curriculum: What subject areas should be included in the science curriculum? What should be valued? Should we emphasise the relationship between science and everyday life?

2. Teachers: How should training programmes be organised? Who gains access to pre-service courses? What in-service training will be needed to improve the teaching and learning of science? How can trained science teachers be retained in the teaching force?

3. Philosophy of science education: How should science be taught and assessed? Should we continue with the current

content-based approaches which place a heavy emphasis on memorisation or should we move towards process-based approaches which stress student understanding, critical thinking and the enjoyment of learning? What, if any, is the place of vernacular languages in science education?

4. Resource requirements: To what extent can and should localised resources be used? Is science which can only be taught using conventional laboratory equipment in the best interests of our countries?

The meeting suggested the establishment of a standing advisory group to monitor science education programmes in the region, with the mandate to look at all aspects of science education; its goals, content, teaching methods, assessment and cultural appropriateness.

As a sequel to the 6th Consultation, UNESCO and the Institute of Education at the USP established an independent Advisory group to identify the problems in science education and to suggest strategies to address them. This group met in March 1994 and produced a document which covered six key areas: Curriculum, Teachers, Examinations and Assessment, Resource Requirements, Dissemination and use of Information, and School and the Community.

The recommendations of the group were endorsed by the 7th High Level Consultation held in Suva in May 1994. This was followed by a survey of science education in the Pacific Island Countries (PICs).

The next step was to bring together educational planners in the PICs to prepare Project Formulation Frameworks (PFFs) for the six components of the programme. This workshop took place in September 1994 at the USP. The PFFs were then sent to regional governments for endorsement and inclusion in their bids for UNDP funding under its Sixth Inter-Country Programme Funding Cycle, due to begin in 1997.

In May 1995 a Consultation of Pacific Directors/ Secretaries of Education was convened to obtain reaffirmation of national commitments to a science education initiative for Pacific Island schools. The meeting also reviewed a draft of the Science Education in Pacific Schools (SEPS) project document. The document was endorsed with some minor amendments.

Reforms in science education require the efforts of many at the individual level, school level, national level and at the regional level. We also need the support of regional and international funding agencies and educational organisations. On our part, I am happy to report that the restructured BEd (Secondary) programme which we made available at the USP in 1994 has been a great success. You might be pleased to note that the majority of students in this programme are majoring in science subjects. Based on responses from the region, and our own view that we need better teachers in primary schools, we are also developing a BEd (primary) programme. It is also appropriate at this juncture to place on record the contributions made by the Institute of Education over a number of years throughout our region. The Institute continues to be active in the professional development of educators through various consultancies, workshops and seminars and publications.

All these initiatives, collectively, should pave the way for better teaching and learning in our schools in the years to come.

In conclusion, science teacher educators in the region have an important role to play in designing and implementing both pre-service and in-service programmes that will produce teachers who are better educated, who are confident in handling science lessons and who have the ability to motivate their students.