

Foreword

Science and technology, and science and technology education, play an important role in the development of a country's economy, environment, social relations and other sectors. African countries recognise this role and many have committed considerable resources to the development of science and technology and to their educational systems. In the early 1960s, immediately after independence, most African countries promoted capacity building in science and technology by sending scholars for training in universities in industrialised countries, while offering science and technology as subjects in their primary and secondary schools. Some invested heavily in the development of infrastructure such as national laboratories, and university and school science departments.

Despite such investment, the countries of sub-Saharan Africa continue to rely on the agrarian and extractive sectors and in some cases on tourism. The agrarian sector largely consists of subsistence farmers and pastoralists who often cannot produce sufficient excess to meet both national needs and exports of cash crops such as coffee, tea and horticultural products. Tourism is dependent on adequate infrastructure and stability, itself dependent on good governance. The extractive sector mines and exports resources such as chrome (97 per cent of world stocks) and platinum (50 per cent of world stocks), without adding value by processing them into manufactured and secondary products. The United Nations Economic Commission for Africa (UNECA) estimates that Africa contributes only 2 per cent of the world's industrial output. Most of the world's 97 least developed countries are in Africa.

In African countries, science and technology education stresses the memorising of facts rather than problem solving and concentrates on the teaching and learning of acultural and irrelevant science and technology. African countries must, therefore, recognise the need to promote, develop and sustain a relevant science and technology culture, which includes problem solving and indigenous aspects, in order to narrow the gap between them and the industrialised countries. Otherwise Africa will continue to be a source of cheap labour and raw materials, and a market for imported products, dependent on foreign technology and aid on dictated terms. African countries must reform policy, engage in programme development, reorganise institutions and reallocate resources to develop science and technology systems. However, such reform must be promoted with a sensitivity that learns from past failures, recognises the existing resource base and takes into account the developmental needs of the continent. South Africa has developed a new science and

technology policy framework with appropriate institutional arrangements to deal with the challenges of the twenty-first century. Through such country case studies this book will, therefore, re-examine and revisit:

- ◆ Why science and technology should be popularised;
- ◆ What and whose science and technology systems should be introduced and promoted;
- ◆ How science and technology should be implemented and practised.

This book is a joint effort by the Commonwealth Secretariat and the African Forum for Children's Literacy in Science and Technology (AFCLIST).

AFCLIST is an informal association of African educators, scientists, technologists, media specialists and international resource persons. It is based at the University of Durban-Westville, South Africa and works jointly with Chancellor College, University of Malawi. The AFCLIST mission is to develop a base for a strong science and technology culture among young people in Africa. Involvement in this culture provides young people with opportunities to participate actively in democratising the educational process and society, as well as providing a base for the development of higher level human resources in science and technology. AFCLIST aims to generate popular understanding of the practical applications of science and technology among young people in Africa. It believes that this understanding must be based on interaction between learners and the environment, peers, teachers and other adults in the community, together with accepted views of science. AFCLIST achieves its mission through five interlocking programmes:

- ◆ **Grants programme:** Project proposals on innovations in science and technology education are scrutinised by an AFCLIST grants committee according to established criteria.
- ◆ **Networking:** The AFCLIST Secretariat constantly monitors and advises project leaders by means of workshops in their countries.
- ◆ **Publications programme:** A writing and dissemination programme to achieve maximum benefit from the outcome of projects.
- ◆ **Node programmes:** Nodes are centres of excellence implemented by educational institutions. These centres are specialist centres dealing with particular problems in science and technology education in Africa, such as the node on teaching science and technology in large under-resourced classrooms.

- ♦ **Innovation and change programme:** By means of workshops, AFCLIST brings about change and innovation on aspects of science and technology education. An example is the AFCLIST–FEMSA gender workshop to be held in Nairobi, Kenya in December 2001.

The different country case studies provide some critical insights that are crucial for the realisation of the New Africa Partnership programme. It is hoped that this will assist African policy-makers and practitioners to instill a vibrant and successful science and technology literacy among its people and help to make Africa prosper.

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