



Science, Policy and Development in Africa

Since gaining political independence in the 1950s, science has rapidly become a prerequisite for national development within many African nations. Supported by international agencies, such as UNESCO, initiatives were taken to direct Africa on the road of scientific development, enabling contributions to world science and significant progress in many specific research areas. However, from a developmental perspective, there remains the question of how science influences national development plans and strategies. How far are science policies integrated into the national development plans? What potential and challenges do science and technology pose for Africa and its prospects for wider development?

Offering a comprehensive historical and empirical study of science in both colonial and postcolonial Africa, R. Sooryamoorthy brings to light the connections between science, policy and development in African nations. Focusing on understanding the widening gap in science and technology between developed and developing regions, and the integration (or lack of) with national development strategies, this study provides important insights into the potential opportunities and challenges facing Africa in the areas of science.

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Challenges and Prospects

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*To
My Parents*

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Preface

Science has been fascinating scientists for a very long time. Interminable possibilities for new discoveries and inventions continue to draw scientists to the world of science. Social scientists, on the other hand, are eager to know about scientists. They want to know what scientists are doing with science and how scientific knowledge is produced. For over two decades, this has been my primary interest. Having had opportunities to study science and scientists in different country contexts, I thought of focusing on a larger canvas. That was the beginning of the study of science in the African continent which is now presented in this book. It is not just about science and scientists in Africa. It is also about the developmental and policy implications of science for Africa. Obviously, it was not an easy task. The canvas was large, covering fifty-four countries on the continent.

No study is without challenges. Apart from the relevant literature, there should be sufficient empirical data for a study like this. Bibliometric records and data from several other sources had to be analysed. Thousands of bibliometric data have to be captured carefully to a data management programme. In order not to compromise the integrity of data, I could not ask any hired assistant to do data capturing. I chose to do it myself, which required a great deal of time. The availability of comparable data for most of the countries in Africa continues to be another handicap for studies on science.

The support I received from my wife was important for me while completing this work. My gratitude goes to my friend Geoff Waters who passed away in 2018. He was the first reader of the manuscript. Geoff was always a source of inspiration and encouragement. I also gratefully acknowledge the support I received from my institution.

It was a pleasure to work with the Cambridge University Press team. The project started with the commissioning editor, Maria Marsh. It was the concerted efforts of Daniel Brown who moved the book to the

production line. Dan was a wonderful person to work with who was very prompt with communication. I am so grateful to him. My sincere gratitude also goes to Atifa Jiwa who worked with Dan for the production of this book. Thanks are also due to the excellent content manager, Natasha Whelan, and her production team.

Abbreviations and Acronyms

AAB	Academics Across Borders
AIMS	African Institute of Mathematical Sciences
ANSTI	African Network of Scientific and Technological Institutions
ARC	Agriculture Research Council
ARCT	African Regional Centre for Technology
ARSO	African Regional Organisation for Standardisation
ASEAN	Association of South-East Asian Nations
ASTIPI	African Science, Technology and Innovation Policy Initiative
AU	African Union
COSTECH	Tanzania Commission for Science and Technology
CPA	Consolidated Plan of Action
CSIR	Council for Scientific and Industrial Research
CCTA	Commission for Technical Cooperation in Africa
DHET	Department of Higher Education and Training
DST	Department of Science and Technology
EAC	East African Community
EATPS	Eastern African Technology Policy Studies
ECOWAS	Economic Community of West African States
EFTA	European Free Trade Association
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
GERD	Gross Domestic Expenditure on Research and Development
HERANA	Higher Education Research and Advocacy Network in Africa
HSRC	Human Sciences Research Council
ICT	Information and Communication Technologies
IITA	International Institute of Tropical Agriculture
ILCA	International Livestock Centre for Africa

ILRAD	International Laboratory for Research on Animal Diseases
ISHReCA	Initiative to Strengthen Health Research Capacity in Africa
KARI	Kenya Agricultural Research Institute
KEI	Knowledge Economy Index
KEMRI	Kenya Medical Research Institute
MDG	Millennium Development Goals
MOSTIS	Mozambique Science Technology and Innovation Strategy
NAFTA	North American Free Trade Agreement
NCST	National Council for Science and Technology
NEPAD	New Partnership for Africa's Development
NGO	Non-governmental Organisation
NPRSTI	National Programme on Research, Science, Technology and Innovation
NRDS	National Research and Development Strategy
NRF	National Research Foundation
NSI	National System of Innovation
OECD	Organisation for Economic Cooperation and Development
PASET	Partnership for Applied Science, Engineering, and Technology
PFI	Pact for Research and Innovation
PNDES	National Economic and Social Development Plan
SACU	Southern African Customs Union
S&T	Science and Technology
SADC	Southern African Development Community
SCA	Scientific Council for Africa
SCI	Science Citation Index
SKA	Square Kilometer Array
STEI	Science, Technology, Engineering and Innovation
STEM	Science, Technology, Engineering and Mathematics
STI	Science, Technology and Innovation
STISA	Science, Technology and Innovation Strategy for Africa
STISA-24	Science, Technology and Innovation Strategy for Africa 2024
TAI	Technology Achievement Index
TDCA	Trade, Development and Cooperation Agreement

List of Abbreviations and Acronyms

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TIMSS	Trends in International Mathematics and Science Study
TOKTEN	Transfer of Knowledge through Expatriate Nationals
TTIP	Transatlantic Trade and Investment Partnership
TYIP	Ten-Year Innovation Plan
UNCTAD	United Nations Conference on Trade and Development
UNESCO	United Nations Educational, Scientific and Cultural Organisation
VOIP	Voice over Internet Protocol
WARDA	West African Rice Development Association
WATPS	West African Technology Policy Studies
WFC	Weighted Fractional Count
WoS	Web of Science
WTO	World Trade Organisation

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