

IAC Study on Science and Technology Strategies for Improving Agricultural Productivity and Food Security in Africa



Inter Academy Council
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Background

Globally, the amount of food produced per person has increased by 30% over the past four decades. But in Africa, it has decreased by 7%. Millions are on the brink of starvation in a world of plenty.

Food security for all was the main goal after the Second World War, and increasing worldwide food production was the first imperative. The latter has been accomplished. But we now know that food security – defined as having enough nutritious food to eat to maintain an active and healthy life – depends on far more than food production.

People must also have access food, which means that individuals must be able to generate sufficient income to purchase it. For that to happen, communities must have properly functioning markets and infrastructure through which food can be distributed, traded, and sold to consumers. A conducive policy environment is complementary to these elements. Other aspects of food security go beyond availability and accessibility. Even where people can obtain food, they may not get adequate nutrition. Diets poor in iron, vitamin A, iodine, zinc and other essential micronutrients condemn millions of people to death, disability, and disease. Finally, food cannot be produced at the expense of the natural resource base, which must be maintained and conserved if progress is to be sustainable.

While producing food is the principal goal of the agricultural sector, it also serves other purposes necessary for achieving food security. Improvements in agriculture directly improve the lives of the 70 percent of poor people whose income derives primarily from the land. The non-agrarian population also benefits from the economic development that reverberates through the entire production-to-market chain. To improve food security in African countries, agricultural development and increased productivity are absolutely essential.

Science and technology have played key roles in increasing agricultural production in the industrialized world, in Asia, and in Latin America in the last half-century. But though similar applications of science and technology in Africa have led to success in isolated areas, there has been no comparable blossoming of agriculture there. The food security situation in Africa is so urgent that the Secretary-General of the United Nations, Kofi Annan, has asked the Inter Academy Council (IAC) to formulate strategies to mobilize and harness the best science and technology to produce a substantial increase in agricultural productivity and improved food security in the continent. IAC's proposal for such a study is outlined below.

Scope

The Inter Academy Council will organize and implement a study designed to produce a strategy for the mobilization of science and technology aimed at the improvement of agricultural productivity and food security in Africa. The study will also address the enabling social and economic environment necessary to activate the effective use of science and technology. The scope of the study encompasses the following elements:

- A continental approach that includes all of Africa.
- A consideration of crops and livestock, inland fisheries, aquaculture, and agro-forestry.
- An understanding of the crisis that recognizes agricultural factor productivity as a means to achieve sustainable food security, not as an end in itself.
- A primary focus on food commodity productivity, with recognition that commercial, non-food commodity productivity is also relevant to food security.
- A focus on both pre- and post-harvest productivity.
- A broad definition of science and technology that includes not only agricultural sciences but also related disciplines such as information and communication technologies, geographic information systems, energy, and others insofar as they influence agricultural productivity.
- A consideration of policies that affect agricultural productivity, including those related to science and technology, agriculture, and macro-economics and trade.
- An inclusion of sectors other than agriculture, such as health and education, which directly affect agricultural productivity; the impact of HIV/AIDS on scientific capacity and farm labor supply is but one example.
- An emphasis on bottom-up approaches to the formulation of strategies and priorities and an institutional overview that includes horizontal and vertical dimensions of the policy and institutional environments.
- An agricultural/farming/production systems approach that goes beyond cropping systems.

The focus of the study would be on strategies and policies, rather than research agendas and priorities. The study will mainstream gender, cultural and environmental perspectives, and will include a communications strategy.

Methodology

The IAC has a special relationship with 80 national scientific academies, which comprise the Inter Academy Panel (IAP). From this group, the IAC has drawn a study panel of 17 members and three co-chairs. A directorate will support the study panel as it implements this project. The study panel has outlined the scope of the report and the process to be followed during the study period. It is the expressed intention of the study panel that the report will be African-led and owned. To this end, consultative workshops will be conducted in collaboration with African subregional agricultural research organizations. The workshops will be followed by the submission of a draft report to the Forum for Agricultural Research in Africa (FARA) and participation in a FARA meeting to elicit the views of the African scientific community. Study panel members will participate in the various workshops. Two further study panel meetings are foreseen to oversee and monitor progress and to draft the final report.

Regional consultative workshops

The objective of the four regional workshops is to mobilize African expertise to guide the study panel in drafting the report. The workshops will focus on

- understanding the general regional constraints to increased agricultural productivity as a means to improve food security, and
- identifying explicitly the role of science and technology in alleviating constraints and exploiting opportunities.

The subregional agricultural research organizations have agreed to take the lead in organizing these workshops in collaboration with IAC. The study panel anticipates participation by a wide range of stakeholders, such as civil society, farmers' organizations, the private sector, the scientific community, and policymakers.

Synthesis papers

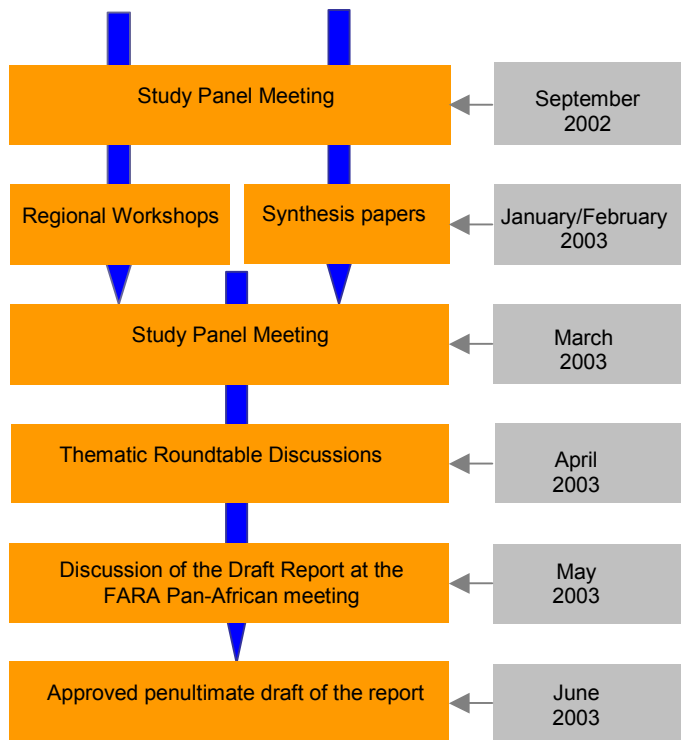
Synthesis papers have been commissioned from leading institutes on topics identified by the study panel. These analytical papers and the conclusions and recommendations of the regional consultative workshops will serve to inform subsequent panel meetings and provide the foundation for the draft chapters of the report.

Roundtable discussion

Based on the outputs of the workshops and the draft report chapters, the study panel may identify thematic issues that need further discussion and debate at roundtable discussions and will also allow peer review of the draft chapters.

Pan-African meeting

At the FARA pan-African meeting, preliminary ideas for the report will be put forward for debate and comments. The interaction and linkage with the Forum for Agricultural Research in Africa will strengthen the report and further ensure full involvement of African stakeholders.



Linkages

It is of great importance to ensure that ongoing activities related to agricultural production and food security in Africa are mutually reinforcing. Therefore, close links have been established with various related initiatives: the New Partnership for African Development (NEPAD), the “Hunger” task force of the UN Millennium Goals Program and, the World Bank International Assessment on the role of agricultural science and technology in reducing hunger, improving rural livelihoods and stimulating economic growth.

Report

The report will recommend strategic priorities and choices for effectively harnessing science and technology to increase agricultural productivity and food security in Africa. The process ensures broad input and strong commitment within and outside Africa for such a strategic plan. The IAC expects that the strategic plan will be embraced by Governments and the international research and development communities.

Study Panel

CO-CHAIRS

Speciosa Wandira Kazibwe, Vice-President of the Republic of Uganda

Rudy Rabbinge, Dean Wageningen Graduate Schools, the Netherlands

M.S. Swaminathan, Chairman M.S. Swaminathan Foundation, India

MEMBERS

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The study panel welcomes comments and suggestions. Please forward feedback to Jim Ryan, Study Director. By e-mail to: ryanjim@cyberone.com.au or secretariat@iac.knaw.nl. By fax to +31 20 620 4941.

The Inter Academy Council

In a world where science and technology are fundamental to many critical issues -- from genetically modified organisms and climate change to the overall challenge of achieving sustainability -- making wise and effective decisions has become increasingly dependent on quality scientific information. To mobilize the world's best science, the Inter Academy Council (IAC) has been established by the world's national science academies to provide expert advice to the United Nations, the World Bank, and other international institutions. Headquartered at the Royal Netherlands Academy of Arts and Sciences in Amsterdam, the IAC can be reached at: secretariat@iac.knaw.nl