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THE INTERNATIONAL CENTRE OF INSECT
PHYSIOLOGY AND ECOLOGY
AND
THE AFRICAN ACADEMY OF SCIENCES

CONSULTATION ON THE MANAGEMENT OF SCIENCE FOR DEVELOPMENT IN AFRICA

SUMMARY OF RECOMMENDATIONS

Sponsored by the Canadian International
Development Agency (CIDA)

ICIFE Headquarters, Duduville, Kasarani,
Nairobi, 21-24 November 1988

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Preamble

1 African Governments and their societies are unanimous in the global objective of rapid industrialization and technology development geared towards increasing national productive output and contributing to dynamic and self-reliant economies. There is, however, ineffective mechanism to realize these laudable goals as evidenced by the minimal investment made by African nations (0.1 to 0.15% of GNP) on Research and Development and for the training of skilled human resources to sustain scientific creativity and technological innovation.

2 The Consultation Meeting on the Management of Science for Development in Africa, brought together distinguished policy-makers, administrators, university academics, research scientists, development bankers and financiers, industrialists and entrepreneurs, largely from Africa, to deliberate on these issues and to initiate a mechanism for sponsoring and sustaining the processes for managing science. The participants recognized the dominance of scientific activity in industrial infrastructure; the need to make international technology and financial transfer to flow in opposite directions for the developing countries; and the importance of investment in science-driven agriculture and agro-industry to ensure food self-sufficiency as a start for industrialization. These actions are so fundamental to the improvement of the living conditions of the people in Africa that the strategy of the governments for financing R & D should be to place science and technology on a war-footing in Africa. The African Governments must make a policy decision on the promotion of science as a means of bringing technology into the mainstream of national development and to exercise the

obligations to finance the necessary R & D through all means – national, regional, international, private, banking and industry.

3 Further, the participants were aware that people will finance research if the benefits are close to them. In this process, the scientists must take the initiative particularly dealing with transnational corporations and the informal sector; the scientists must have honesty of purpose, safeguard ethical and cultural considerations in science and promote standardization and quality control; scientists must encourage policy-makers, entrepreneurs and scientists to work together in Africa and to develop this technology triangle to be applied by national institutions. In turn, the governments must create incentives conducive to the development of the environment of science in Africa for motivated scientific personnel and to utilize scientists as advisers if not members of their cabinets for assuring high priority of science and technology in national development planning.

4 The Consultation Meeting focussed its attention on four major themes:

- (a) Creating an enabling environment for R & D, focussed on African development;
- (b) Mechanisms for creating an interface between Science, Industry and Government;
- (c) Financing of R & D in both private and public sectors; and
- (d) Long-term vision of special opportunities for Africa.

5 The participants acknowledged and endorsed the action of the African Academy of Sciences (AAS) in implementing mechanisms for promoting science and technology in Africa;

- (a) It has established the Network of African Scientific Organizations (NASO) to bridge the gap between science/technology, industry, and the Government;
- (b) Together with the International Centre of Insect Physiology and Ecology (ICIPE), it has instituted a series of Seminars and Conferences with national, regional and international organizations to develop Patent Laws and

- System for Africa for the protection of innovations and the rights of scientists and industrialists in Africa;
- (c) In consultation with other agencies, it will carry out detailed study of the problems of brain-drain from Africa and the possible ways of arresting the situation;
 - (d) In collaboration with Third World Academy of Sciences (TWAS), it has launched a peer review, multidisciplinary journal that will enhance the communication between scientists and other segments of society within Africa; and
 - (e) It is also planning to launch, in collaboration with the Association of African Universities (AAU) and interested donor organizations a human resources programme (under its programme of Africa Brains Trust). It is also, under the same auspices, developing a Referral Data Base Centre. The participants urged the Academy to carry on with expanded activities in these programmes and to undertake to study the need for the establishment of:
 - (i) A Technology Commission for Africa (TCA), and
 - (ii) African Technology Group (ATG) as an industrial, commercial enterprise owned by scientists, technologists and industrialists.

SPECIFIC RECOMMENDATIONS

6 Multifactorial problems of development in the continent requires that all interested organizations should rally to these causes. The participants, therefore, directed specific Recommendations to some of these organizations as discussed below.

THEME A: Creating an Enabling Environment for R & D Focussed on African Development on a Sustainable Basis

7 That the Association of African Universities (AAU) should play a leading role in evolving new approaches to Science and

Technology which emphasize practical involvement of the University Faculty and students with:

- (i) Agriculture in support of food production;
- (ii) Local industries and occupations; and
- (iii) Local entrepreneurs including the informal sector.

8 That training at university level should be designed to incorporate into the scientific and engineering programmes, courses that should cater for the entrepreneurial development of future generations. The curricula should be modified to include courses in Management, Politics, and Economics.

9 That the Association of African Universities (AAU) should endeavour to change the evaluation and reward system of University Staff to encourage cooperation with the informal as well as agro-industry and the industrial sectors.

10 That there should be close collaboration between Universities, Research Institutes and National Planning agencies; and this collaboration should emphasize R & D geared towards socio-economic goals which are target-oriented. Furthermore, Technology triangles should be established as a means of converting knowledge into wealth for the improvement of human condition.

THEME B: Evolving Mechanisms for Creating an Interface between Science, Industry and Government

Information Data base

11 The consultation meeting urged that the African Academy of Sciences (AAS) should examine the existing national and regional information initiatives and sources from outside Africa for the establishment of data bases for possibilities of networking. The participants noted that this is already

a programme of the Academy and welcomed the Academy assurance that it will cover the collection of past and current R & D findings in Africa so as to constitute a comprehensive Referral Data Base Centre. The information data base should be created to be used by scientists/engineers, industrialists and policy makers. The data base would be a multilocational network with centres in various strategic parts of Africa and elsewhere in the world.

12 The consultation meeting agreed that the services of the data base would be run on a commercial basis and be paid for by all users. The services provided by the data base should cover technological research findings, possible applications of existing technology, products of technological innovation and text books.

Teaching materials

13 The African Academy of Sciences (AAS) should organize a programme to promote the publication, popularisation and distribution of technical books to facilitate the extension of Science and Technology to the General Public. The participants welcomed the information that the Academy intends to make this one of its major planks of activities through NASO.

Sensitization of Institutes of Technology

14 It was the view of the consultation meeting that University and research institutions should play a promotional role in the development and growth of small-scale industrial operations. Universities and research institutes should initiate and operate industrial consultancies. They should model themselves to provide service on the basis of their expertise to the government and industry as a source of income. Conversely, the industrialists should seek greater advice from professionals in universities and research institutions and participate in refresher courses.

15 Individual scientists should be encouraged to go into industry. They should initially start small-scale industries, but with the vision of developing their businesses to large-scale economic levels.

THEME C: Financing of R & D in both Private and Public Sectors

16 The African Development Bank (ADB), as the primary African development and lending institution, should be involved as a partner in this enterprise of initiating and promoting R & D and in the mobilisation of the necessary resources for its implementation in the near and long-term.

17 There is urgent need for industry and the private sector in general to get involved in financing of R & D enterprises. In this respect, African Governments have a critical role to play in establishing incentives such as tax-exempt contributions by industry to R & D that would promote and bring about the involvement of industry.

THEME D: Long-term Vision of Special Opportunities for Africa

18 The consultation meeting felt that previous intensive discussions of the calibre that was witnessed in Nairobi in November 1988 remained just that. It established the **Future Actions Committee** as a mechanism for assuring post-conference actions, for undertaking the implementation of the key recommendations of the Duduville meeting, and of drawing up further plans for the second consultation meeting. The African Academy of Sciences and the International Centre of Insect Physiology and Ecology, being recognized as independent institutions devoted to the promotion of Science and Technology in Africa were selected to provide the **secretariat** for the **Management of Science for Development in Africa (MANSCI)**.

It should appoint specialised Task Forces to identify critical scientific problem areas with potential for R & D of benefit to the African continent in times of crisis. The Task Forces should be responsible for developing plans for their implementation in order to achieve the goals of this programme.

IMPLEMENTATION PLAN

19 That to achieve the strategy of the programme the participants to the consultation established a **Future Actions Committee** to act as the continuing organ of the Consultation Meeting. The Future Actions Committee is a small group consisting of experts in science, technology, geopolitics, management, banking and industry. Its current Chairman is the renowned soldier and statesman, General Olusegun Obasanjo.

20 That the Future Actions Committee will operate under the aegis of the International Centre of Insect Physiology and Ecology (ICIPE) and the African Academy of Sciences (AAS), which will be the focal point for coordinating and implementing the actions arising from the Recommendations of the Consultation Meeting.

21 That the second Consultation Meeting will be held in **two years** time at which the Future Actions Committee will report progress.

22 That the Future Actions Committee will (a) constitute a delegation to address Heads of State (OAU) meeting in Addis Ababa on Science and Technology, and (b) organize a meeting of Heads of State with scientists and industrialists (possibly as part of the Second Consultation indicated in (3) above), to focus on Science and Technology objectives to be achieved by Africa by the year 2000:

- (i) Self-sufficiency in basic food production for Africa;
- (ii) Self-reliance in transportation and basic equipment for land and in-land water ways and agriculture;

- (iii) Self-reliance in production of basic educational materials and equipment;
- (iv) Self-reliance on energy supply, particularly intra-continental gridding of hydro-electricity and distribution of fossil fuels;
- (v) Production of 50% of drugs and medicaments required in Africa; and
- (vi) Entrepreneurs to re-invest or give grants and donations of not less than 10% of their profits in research and development and make scientists their close allies in indigenising their production and products, such investment or grants to research and development to be made tax deductible by the governments.

23 That the **Future Actions Committee** will comprise the following individuals and agencies invited as observers:

MEMBERS

- | | | |
|---|---|-----------------------------|
| General Olusegun Obasanjo
(Statesman, Entrepreneur and
Chairman, Africa Leadership
Forum) | – | Chairman, Nigeria |
| Professor Lydia Makhubu
(Vice Chancellor and Head of
Chemistry Department
University of Swaziland) | – | Vice Chairman,
Swaziland |
| Professor Thomas R. Odhiambo
(Director, ICIPE and Chairman,
AAS) | – | Member, Kenya |
| Professor C.C. Mjojo
(Professor of Chemistry,
University of Malawi) | – | Member, Malawi |

- Mr. Madatally Manji
(Industrialist and Executive
Chairman of House of Manji) – Member, Kenya
- Dr. J.M. Kordylas
(Consultant, Arkolyds Food
Laboratory for Research and
Development of Tropical Food
Products) – Member, Ghana
- Professor P.N. Nkwi
(Chief Adviser to Ministry
of Higher Education) – Member, Cameroon

Agency Observers

U.N. Economic Commission for Africa (ECA)
African Development Bank (ADB)

Secretariat

24 These will comprise:

- (1) Professor S. Gombe – Scientific Secretary, AAS
(2) Professor T.T. Isoun – Editor, AAS
(3) Mrs. R.A. Odingo – Chief Planning Officer, ICIPE
(Convener)
(4) Dr. V.O. Musewe – Station Manager, ICIPE

25 The Proceedings of the Consultation will be circulated widely in African countries and to the international community.

26 A Declaration in English and French highlighting issues of concern and the commitment of African scientists will be pre-

pared by the Future Actions Committee and circulated to all Heads of State in Africa and the Secretary-General of OAU.

27 The Secretariat will liaise with ECA, ADB, and UNDP on the role these institutions will play in the programme.

28 The Secretariat will draft terms of reference, membership and timetables of the various Task Forces and circulate to Future Actions Committee.

29 The Future Actions Committee will meet in Nairobi for two days in the second half of July 1989.

The MANSOCI Secretariat
Nairobi
14th January 1989

**CONSULTATION ON THE MANAGEMENT OF
SCIENCE FOR DEVELOPMENT IN AFRICA,
DUDUVILLE (NAIROBI), KENYA, 21–24 NOVEMBER 1988**

LIST OF PARTICIPANTS

1. Professor Olu Adegoke (Consultant)
Obafemi Awolowo University
ILE-IFE
Nigeria
2. Dr. Henry M. Bwisa
Research Officer
Kenya Industrial Research and Development Institute (KIRDI)
P.O. Box 30650
NAIROBI
Kenya
3. Dr. Laketch Dirasse
U.N. Adviser
Ministry of Labour and Home Affairs/
Women's Affairs Unit
c/o United Nations Development Programme (UNDP)
P.O. Box 54
GABORONE
Botswana
4. Professor D.E.U. Ekong
Secretary-General
Association of African Universities
State House
P.O. Box 5744
ACCRA-NORTH
Ghana

5. **Mr. Peter M. Gatongi**
Assistant Director
Animal Health
KARI Secretariat
Kenya House, Koinange Street
P.O. Box 57811
NAIROBI
Kenya

6. **Professor Samson Gombe**
Scientific Secretary
The African Academy of Sciences (AAS)
P.O. Box 14798
NAIROBI
Kenya

7. **Dr. Ali Haribou**
Science and Technology Officer
Joint ECA/FAO Agricultural Division (JEFAD)
U.N. Economic Commission for Africa (ECA)
Africa Hall
P.O. Box 3001
ADDIS ABABA
Ethiopia

8. **Professor Ichirou Inukai**
International University of Japan
Yamato-Machi
Minamiuonuma-Gnu
Niigata-Ken 949-72
Japan

9. **Professor T.T. Isoun**
The African Academy of Sciences (AAS)
P.O. Box 14798
NAIROBI
Kenya

10. Mr. Silas Ita
Chairman
Kenya Association of Manufacturers (KAM)
P.O. Box 30225
NAIROBI
Kenya
11. Mr. M.M. Karanja
Chief Engineer
East Africa Industries Ltd. (EAI)
P.O. Box 14798
NAIROBI
Kenya
12. Dr. J. Maud Kordylas
Consultant
Arkolyd's Food Laboratory for Research
and Development of Tropical Food Products
B.P. 427
DOUALA
Cameroon
13. Professor Lydia Makhubu (Chairman)
Vice Chancellor and Head
Chemistry Department
University of Swaziland
Private Bag
KWALUSENI
Swaziland
14. Mr. Madatally Manji
Chairman
House of Manji
P.O. Box 78032
NAIROBI
Kenya
15. Dr. William T. Mashler
4 Woody Lane
Larchmont
New York, NY 10538
USA

16. Professor Chodziwadziwa Crossley Mjojo
Head, Chemistry Department
Chancellor College
University of Malawi
P.O. Box 280
ZOMBA
Malawi
17. Dr. V.O. Musewe
The International Centre of Insect
Physiology and Ecology (ICIPE)
P.O. Box 30772
NAIROBI
Kenya
18. Dr. Michael O. Namai
Faculty of Engineering
University of Nairobi
P.O. Box 30197
NAIROBI
Kenya
19. Dr. Samuel C. Nana-Sinkam
Director
Joint ECA/FAO Agricultural Division (JEFAD)
U.N. Economic Commission for Africa (ECA)
Africa Hall
P.O. Box 3001
ADDIS ABABA
Ethiopia
20. Dr. Paul Nchoji Nkwi
Deputy Director
Recherche Scientifique et Technique (MESRES)
B.P. 1457, YAOUNDE
Cameroon
21. Mr. G.M. Nyambati
Deputy Director
Ministry of Research, Science and Technology
P.O. Box 30568
NAIROBI
Kenya

22. Dr. Z.M. Nyiira
The International Centre of Insect
Physiology and Ecology (ICIPE)
P.O. Box 30772
NAIROBI
Kenya
23. General Olusegun Obasanjo
P.O. Box 2286
ABEOKUTA
Ogun State
Nigeria
24. Professor Thomas R. Odhiambo
Director
The International Centre of Insect
Physiology and Ecology (ICIPE)
P.O. Box 30772
NAIROBI
Kenya
25. Mrs. R.A. Odingo
The International Centre of Insect
Physiology and Ecology (ICIPE)
P.O. Box 30772
NAIROBI
Kenya
26. Chief Melford Okilo
Rivers State of Nigeria
Nigeria
27. Dr. T.K. Ollenu
P.O. Box A71
LABADI-ACCRA
Ghana
28. Hon. Dalmas Otieno, MP
Minister for Industry
Cooperative House
P.O. Box 30418
NAIROBI
Kenya

29. Mr. E.K.M. Sanvee
Regional Representative
African Development Bank (ADB)
P.O. Box 52617
NAIROBI
Kenya
30. Dr. M.E. Smalley
The International Centre of Insect
Physiology and Ecology (ICIPE)
P.O. Box 30772
NAIROBI
Kenya
31. Dr. J.F. Wangati
National Council of Science and Technology (NCST)
P.O. Box 30623
NAIROBI
Kenya

RAPPORTEURS

1. Professor T.T. Isoun
The African Academy of Sciences (AAS)
P.O. Box 14798
NAIROBI
Kenya
2. Dr. V.O. Musewe
The International Centre of Insect
Physiology and Ecology (ICIPE)
P.O. Box 30772
NAIROBI
Kenya
3. Miss Mary H. Bugembe
The International Centre of Insect
Physiology and Ecology (ICIPE)
P.O. Box 30772
NAIROBI
Kenya

ORGANISING COMMITTEE

1.	Mrs. R.A. Odingo	–	ICIPE
2.	Dr. V.O. Musewe	–	ICIPE
3.	Dr. M.E. Smalley	–	ICIPE
4.	Dr. Z.M. Nyiira	–	ICIPE
5.	Professor S. Gombe	–	AAS
6.	Professor T.T. Isoun	–	AAS
7.	Mr. N. Nsubuga	–	ICIPE
8.	Miss M.H. Bugembe	–	ICIPE
9.	Miss R. Washika	–	ICIPE

SECRETARIAT

1.	Mrs. R. Kermei	–	ICIPE
2.	Mrs. J.A. Sabaya	–	ICIPE
3.	Miss C.A. Otieno	–	ICIPE
4.	Miss R.M. Mwaniki	–	ICIPE
5.	Mrs. J. Eyobo	–	AAS