

# TWAS SECOND GENERAL CONFERENCE

## "FUTURE OF SCIENCE IN CHINA AND IN THE THIRD WORLD"

### Regional Meeting of Latin American and Caribbean Countries

Present at the Meeting were:

1. Berger, M. — Uruguay
2. Croxatto, H. — Chile
3. Garraghan, F. — Argentina
4. Giesecke, A. A. — Perú
5. Hartmann, L. F. — Bolivia
6. Marinello Vidaurreta, Z. — Cuba
7. Martínez Palomo, A. — México
8. Mascarenhas, S. — Brazil
9. *Mora-Osejo, L. E. — Colombia*
10. Pavan, C. — Brazil
12. Peixoto, M. M. — Brazil
12. *Reichel-Dolmatoff, A. — Colombia*
13. *Reichel-Dolmatoff, G. — Colombia*
14. Rendón, F. — México
15. Rivas-Mijares, G. — Venezuela
16. Rivero Alvisa, D. — Cuba
17. Roche, M. — Venezuela
18. Rosenblueth, E. — México
19. Saavedra, I. — Chile
20. Sáenz, T. W. — Cuba
21. Springmühl, C. — Guatemala
22. Taylor, G. V. — Jamaica
23. Tola Pasquel, J. — Perú
24. Viau, A. — Guatemala
25. Villegas, R. — Venezuela

#### THE LATIN AMERICAN AND CARRIBBEAN GROUP RECOMMENDS:

1. that the inventory carried out by ACAL be strengthened through support from TWAS as needed and in accordance with budgetary possibilities;
2. that TWAS offer support for ACAL to carry out, by various means, a feasibility study for an eventual Federation and/or mutual affiliation of scientific organizations of the region such as Academies, Research Councils and Associations for the Advancement of Science;

3. that TWAS help ACAL by all possible means to identify priority areas for the region;
4. that TWAS propitiate appropriate meetings with inter-governmental organizations such as UNESCO, UNDP, FAO and OAS, which administer funds for S&T cooperation, to evaluate the conceptual basis and the actual means by which these funds are allocated;
5. that TWAS endorse the implementation of the International Decade for Natural Hazard Reduction;
6. that TWAS offer financial support, within budgetary possibilities, to the Library of the Venezuelan Institute for Scientific Research (IVIC), so that it may provide a low-cost photocopying service of scientific papers for the region;
7. that TWAS support the establishment of a computer network for communication within Latin America and the Caribbean;
8. that TWAS consider the possibilities of using fellowships for the South-South or North-South training of qualified technicians;
9. that TWAS support the proposal to hold a meeting in Guatemala to evaluate the possibilities of establishing an International Earth Science Institute.
10. and, in general, to assist, by any possible means, reasonable proposals made in the region towards fostering the development of S&T and its application.

The Latin American and Caribbean Group unanimously approve the proposal of Colombia to be the site of the Third General Conference of TWAS, and commission the President of the Colombian Academy of Sciences to initiate arrangements with the Colombian Government for this purpose.

### Regional Meeting of African Countries

Present at the Meeting were:

1. Adegbola, A. A. — Nigeria
2. Andriambololona, R. — Madagascar

3. Babale, A. — Cameroon
4. Bouramoué, C. — Congo
5. Butler, R. G. J. — Guinea (Rapporteur)
6. Dinga-Reassi, J. — Congo (Rapporteur)
7. Doulou, V. — Congo
8. Dzinotyiweyi, H. A. M. — Zimbabwe (Rapporteur)
9. Ekong, E. D. U. — Nigeria
10. Ekouya, A. — Congo
11. Emovon, E. U. — Nigeria
12. Evans-Anfom, E. — Ghana
13. Ezeilo, J. O. C. — Nigeria
14. Gombe, S. — Kenya (Chairman)
15. Keffelew, M. — Ethiopia
16. Mboup, M. — Senegal
17. Mefane, C. — Gabon
18. Msangi, A. S. — Tanzania (Rapporteur)
19. Nya-Ngatchou, J. — Cameroon
20. Okigbo, B. N. — Nigeria
21. Toure, S. — Ivory Coast

The Meeting started with a presentation by Prof. S. Gombe, Scientific Secretary of the African Academy of Sciences (AAS) on "The Impact of International Research Centres on National Development in Africa". He gave a brief account of the activities of International Research Centres such as IITA, ILCA, ILRAD and ICIPE, and their relevance to agricultural development in Africa.

This was followed by country presentations on the state of Science and Technology in the following African countries:

1. "The Organization and Performance of Science and Technology in the Congo", by Prof. C. Bouramoué, Minister of Scientific Research and Environment presented by Dr. Doulou, Director of Science and Technology, Congo;
2. "Organization of Scientific Research in Tanzania", by Prof. A. A. Msangi, Director General of the Tanzania National Scientific Research Council;
3. "The Role and Functions of the Ghana Academy of Arts and Sciences", by Dr. Evans-Anfom, President, Ghana Academy of Arts and Sciences;
4. "Situation of Science and Technology Organization in Madagascar", by Dr. R. Andriambololona, L.P.N.P.A., Madagascar;
5. "Some Aspects of Scientific Research in the Ivory Coast", by Prof. S. Toure, Director, Mathematical Research Institute of Cothe d'Ivoire;
6. "Scientific and Technological Scene on Natural Development of Ghana", by Dr. R.G.J. Butler, Director General, Council for Scientific and Industrial Research, Ghana;
7. "Agricultural Research in Nigeria and Advantages of Collaboration with China", by Dr. B.N. Okigbo, Deputy Director, IITA, Ibadan, Nigeria;
8. "The Role and Functions of the Science Council of Zimbabwe", by Prof. H.A.M. Dzinotyiweyi, Chairman, Science Council, Zombabwe.

These presentations were followed by a general discussion of the situation of Science and Technology in Africa.

The African delegates noted that:

1. there was urgent need for African Governments to give more financial support to the development and the application of science and technology in order that scientists may have the facilities to solve the problems discussed. The meeting supported the CASTAFRICA

II resolution that all African countries should devote at least one percent (1%) of their GNP to Science and Technology by the year 2000 in their respective countries;

2. African countries should strengthen cooperation in Science and Technology among themselves and with other members of the Third World;
3. in view of the remarkable development of Science and Technology in China in such relevant areas as agriculture, medicine, industry, etc., special efforts should be made to develop appropriate cooperative programmes between African Countries and China in special areas such as:
  - intensive crop production;
  - biotechnology and genetic engineering;
  - germ plasm banks;
  - food preservation and processing;
  - afforestation and environmental management.

### 1993 Conference of TWAS

It was agreed among the members of the African Group that AFRICA should host the 1993 Biennial Meeting of the Third World Academy of Sciences and that the venue should be:

- (i) Nigeria, or
- (ii) Kenya, or
- (iii) Tanzania,

in this order.

Members expressed their appreciation for the opportunity given to them to meet and discuss their problems by the Second General Conference of the Third World Academy of Sciences in Beijing, China.

## Regional Meeting of Asian Countries

Present at the Meeting Were:

1. Akhtar, M. — Pakistan/UK
2. Amrollahi, R. — Iran
3. Ang, R. P. — Singapore
4. Chang, Jung Jong — D. P. R. Korea
5. Chen, Naixing — P. R. China
6. Cho, Dong Chun — D. P. R. Korea
7. Ding, Guo-yu — P. R. China
8. Dong, Sheng Liu — P. R. China
9. Feng, Depel — P. R. China
10. Golshani, M. — Iran
11. Huang, Kun — P. R. China
12. Hug, M.M. — Bangladesh
13. Jayewardene, R. P. — Sri Lanka
14. Kim, Gyong Bong — D. P. R. Korea
15. Kim, Won Jin — D. P. R. Korea
16. Kulasinghe, A. N. S. — Sri Lanka
17. Li, Wenlin — P. R. China
18. Li, Zhijie — P. R. China
19. Ma, Shyn — P. R. China
20. Menon, M. G. I. — India
21. Rahman, A. U. — Pakistan
22. Rana, R. S. S. B. — Nepal
23. Rao, C. R. — India/USA
24. Sadrnezhad, K. — Iran
25. Salimi-Namin, M. H. — Iran
26. Sharma, A. K. — India
27. Shen, Shi-min — P. R. China

28. Shen, Y. K. — P. R. China
29. Shi, Ying-Xien — P. R. China
30. Siddiqi, O. — India
31. Sudarshan, E. C. G. — India/USA
32. Tan, C. C. — P. R. China
33. Tseng, Chenkui — P. R. China
34. Tu, Guangzhi — P. R. China
35. Wang, Bin — P. R. China
36. Wang, Daheng — P. R. China
37. Xi, Zezong — P. R. China
38. Xu, Fuahren — P. R. China
39. Zhu, Daoken — P. R. China

1. About 40 scientists, from 9 different countries of Asia, Participated in the Group meeting on regional presentations and the modality of South-South Cooperation. Seven presentations were made.

The representatives from the Institute for Fundamental Studies of Sri Lanka, H.E.J. Research Institute of Chemistry from the University of Karachi and the Institute of Mathematical Sciences in Madras spoke about the objectives, areas of study and management patterns of these respective institutes.

The other participants from Bangladesh, Iran and Morocco presented reports on the state of science in their respective countries. The group was also informed about the Centre for Science and Technology for Non-Aligned Countries being set up in India. It will serve as an information centre for the entire technological capability available in the developing world.

2. The group expressed their deep appreciation of the development of Science and Technology in China in different fields - both basic and applied. In China, Science Education and Research are in conformity with the national requirements. Moreover, there is a strong commitment of the Chinese scientists - whether working abroad or in the country - to work for the development of the nation.
3. It is suggested that in other countries as well, Science Education and Research should be adapted to their national requirements, where it is lacking. In order to achieve this objective, a strong base of researches on basic sciences is essential. TWAS may assist in promoting basic research in these countries.

- 4.1. For South-South Cooperation, some of the areas of study suggested were:

- (a) natural products - chemistry, pharmacology, molecular biology;
- (b) vector biology
- (c) biomass as a source of energy
- (d) biophysics
- (e) physics of condensed matter
- (f) material science
- (g) biotechnology in relation to agriculture and animal husbandry
- (h) marine sciences
- (i) climate modelling
- (j) resource survey - land and biological resources
- (j) resource survey - land and biological resources
- (k) natural and man made climatic changes on man and environment in addition to others.

Some institutions were identified for the effort and it was suggested that the respective academies be approached for further suggestions.

## Regional Meeting of Arab Countries

Present at the Meeting were:

1. Al-Attar, M. — Kuwait
2. Al-Shamlan, A. A. — Kuwait
3. Alikhan, A. A. — Kuwait
4. Anani, J. — Jordan
5. Ashour, A. A. — Egypt
6. Badr-El-Din, A. C. — Jordan
7. Bensari, D. — Morocco
8. Haddad, I. — Syria
9. Khalaf, A. N. — Iraq
10. Khidir, M. O. — F.A.S.R.C. (Chairman)

The Arab region participants in the Second General Conference of TWAS met and discussed the status of science in the Arab world, and cooperation among the Arab countries and between them and other Third World Countries.

The Group reached a consensus on the following points:

1. In spite of the present situation in the Arab region, some noticeable advances in science and technology are made. However, they are still short of meeting the expectations, because of a number of obstacles such as brain drain, limitation of funds, shortage of high quality technical manpower in some fields, limited industrialization to generate demand for scientific research.
2. Arab Governments are convinced of the need to increase expenditure on science and technology in spite of the present economic situation in the region.
3. Arab Governments realize the importance of education and scientific research, and the Arab Group feels the need for a correlation between expenditure on education and scientific research.
4. The main source of financing scientific activities in the Arab region is the Government. However, the Group strongly feels that the private sector should play a role in funding scientific activities. An example of such role is played by the Kuwait Foundation for the Advancement of Sciences (KFAS), whose financial resources come from 5% of the annual profit of over 300 private companies in Kuwait.
5. The present disparity in the degree of development of science among the Arab countries call for further coordination and cooperation among the scientific communities in the Arab world.
6. There is need for strengthening and better utilization of existing cooperation channels in the Arab world, such as intergovernmental and non-governmental organizations to play a more effective role. In this regard, the Federation of Arab Scientific Research Councils (FASRC) represents a unique experience in strengthening relations among research centres and Arab scientists. It is an intergovernmental organization entrusted with fostering coordination and cooperation among research establishments in the Arab world.
7. There is need to counteract the brain drain problem and to keep the scientists and researchers through development of industry to create "demand-pull" for research results, improving the scientific atmosphere including the socio-economic aspects, and encouraging the prominent scientists. A positive step in this direction is being taken by some Arab governments and by some private Arab establishments.

8. Due to the limited resources, there is need to direct Arab scientific activities to priority areas such as food security, desertification, water and energy.
9. There is need to encourage Arab students to study science, and to intensify the efforts of popularization of science among the public.
10. There is need for studying the scientific and technological potential (STP) in the Arab countries.
11. There is need to increase the present cooperation between the Arab countries and other Third World countries, through bilateral agreements, or through existing Arab intergovernmental and non-governmental organizations. Such cooperation requires peace and an atmosphere of understanding.
12. The Arab participants appreciate the Kuwaiti initiative to host the Fourth General Conference of the Third World Academy of Sciences due to be held in 1991. The Conference will be a valuable opportunity to further strengthen scientific cooperation between the Arab countries and other countries of the Third World. The Arab Group will spare no effort in cooperating with the State of Kuwait to ensure the success of the Conference.

## Working Group "Expatriate Scientists"

Present at the Meeting were:

1. Akhtar, M. — Pakistan/United Kingdom
2. Huq, M. M. — Bangladesh
3. Ponnampetuma, C. — Sri Lanka/USA
4. Rao, C. R. — India/USA
5. Shibli, I. A. — Pakistan/United Kingdom
6. Sudarshan, E. C. G. — India/USA

In the course of this meeting it was decided that the STD Forum will make a datafile of the expatriate scientists in the United Kingdom with some input from other countries of the North and try to match this against the requirements of the institutions on the South. The institutions in need will be identified by an organization like TWAS, with links in the South.

The following specific actions were decided upon:

1. An expert working on a short-time assignment in the Third World might be more useful in areas of applied science, such as computer applications, materials science, etc. All such areas should be identified and given priority.
2. In pure sciences, involvement of high level academics from the North should be considered for jobs such as staff development in the South. This should be an intermittent long-term involvement (i.e. a few weeks per year over a number of years) to make it productive and useful. Exception to this rule should be visits of scientists of exceptional fame for a single short duration, as this could boost the morale of the host scientific community.
3. Some of the Embassies/High Commissions in the North keep names and addresses of their nationals working there. These, together with organizations of expatriate scientists in the North should also be approached for names of their nationals.
4. STD Forum should approach national talent policy pools and personal contacts in Third World countries to enquire about the usefulness of other similar schemes which be operating in these countries.
5. When the scheme comes into operation, a proposal and detailed system of evaluation of a candidate's qualifications and suitability for a specific job would be required to make it successful both for the expatriate scientist and the receiving institutions.