

Bombay, India

8-10 February, 1988

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The Asian Coordinating Group for Chemistry holds one meeting at the beginning of each year. The purpose of the ACGC is to facilitate cooperation between the various agencies, inter-governmental organizations and non-governmental organizations which have active programmes in the Chemical Sciences in Asia. Cooperation with other activities in the basic sciences is also promoted.

Record of the Meeting

Bombay, India

8-10 February, 1988

The Fifth Meeting of the Asian Coordinating Group for Chemistry (ACGC V) was held in Bombay, India, during the period of 8-10 February, 1988.

The Agenda for ACGC V is given in Attachment 1.

The names and addresses of participants are listed in Attachment 2.

Apologies were received from Dr. S. B. Malla. Dr. R. Maybury, Mr. R. A. Bradley. Professor J. Reisse. Dr. D. G. Blight and Dr. J. Douek.

The Meeting was opened by Dr. R. A. Kulkarni, Director of The National Entrepreneurs' Chemical Park who welcome the participants to Bombay.

Dr. J.V. Kingston of UNESCO. The Convenor of ACGA, then introduced the participants and explained the Agenda, which was approved by the meeting.

The meeting then considered matters arising from ACGC IV, together with developments since that time; these are discussed under the relevant sections below:

- (a) The UNESCO Medium Term Plan 1990-95
- (b) The Common wealth Science Council (CSC)
- (c) Reports from Networks
- (d) Activities in X-ray Crystallography
- (e) The National Entrepreneur's Chemical Park (NECP)
- (f) Reports from SAREC, IFS and IPICS
- (g) The Sixth Asian Symposium on Medicinal Plants and Spices ASOMPS VI
- (h) Interregional Cooperation
- (i) Inventory of Resource Institutions in Southeast Asia
- (j) Address by the Guest of Honour Professor Min-Bo Chen
- (k) Publications and General Information Services
- (l) Special Support for Nepal

- (m) Equipment Maintenance and Repair
- (n) Local Production of Equipment
- (o) ICSU/UNESCO Pilot Project on Post-Secondary Teaching in Asia
- (p) Teaching Aids
- (q) Conclusion

(a) The UNESCO Medium Term Plan 1990-95

- Dr. Kingston explained that this plan was in the process of preparation and requested that professional organizations and networks advise UNESCO of the activities which they consider to be most important for UNESCO to promote during this period. He also asked each of the participants to outline these activities in their presentations.

(b) The Commonwealth Science Council (CSC)

- Dr. G. Thyagarajan, Secretary of CSC, gave a brief introduction on the background of this organization which dates back to 1946. In listing the highlights he referred to the recommendations of an expert group chaired by Sir John Kendrew which led to CSC programmes in the areas of Natural Resources, Industrial Support and Science Management and Organization. He also referred to the Commonwealth Secretariat's Working Group Report on Technological Change (1985) chaired by Professor M. G. K. N. Menon. Further details may be found in Attachment 3.

Dr. Thyagarajan suggested two areas for active cooperation with ACGC. The first of these is a specific proposal for a regional workshop on Environmental Chemistry, Chemical Hazards and Safety to be held in Darwin, Australia in 1989; details are given in Attachment 4.

Dr. Thyagarajan also undertook to prepare, on behalf of CSC and in collaboration with UNESCO a position paper concerned with Chemical Hazards and Laboratory Safety.

(c) Reports from Networks

Reports were received from:

- The Network for the Chemistry of Biologically Important Natural Products (Attachment 5)
- The Asian Network for Analytical and Inorganic Chemistry (Attachment 6).
- Dr. J. Webb reported that IDP had agreed to fund a new Network for Instrument Development, Maintenance and Repair (NIDMAR) from 1 January 1988. The creation of NIDMAR owes much to the discussions which have taken place in previous meetings of ACGC. A preliminary statement concerning NIDMAR forms Attachment 7.

Unfortunately no reports were received from either the Regional Network for the Chemistry of Natural Products in Southeast Asia or from the South and Central Asian Network for Medicinal and Aromatic Plants (SCAMAP)

(d) Activities in X-ray Crystallography

Following the encouragement received at ACGC V, a Workshop on X-ray Crystallography was held at the University of Western Australia during the period 12 August to 5 October 1987. Seven crystallographers from Thailand, Malaysia and the Philippines took part and solved a total of 21 structures. In addition, the XTAL program was successfully implemented on a personal computer fitted with coprocessor facilities. As a result it is now possible for crystallographers from developing countries to carry out state of the art crystallography in their own laboratories and they are now only dependent on their colleagues in Sweden and Australia for the raw diffractometer data.

Financial support for the workshop was provided by six organizations belonging to ACGC as well as three universities Universiti Pertanian Malaysia, the Prince of Songkla University and The University of Western Australia. Further details are provided in Attachment 8.

Following the successful transfer of state-of-the-art technology outlined above and the involvement of NIDMAR in providing support services to the X-ray crystallographers, ACGC considered that there was no pressing need to establish a new network for crystallography.

ACGC also noted the recent formation of the Asian Crystallographic Association by the International Union of Crystallography which now publishes a newsletter.

(e) The National Entrepreneur's Chemical Park (NECP)

NECP has now purchased a plot of land at Trans Thane Creek Industrial Area for housing its R&D and Analytical laboratories. It will still take some time for the construction of buildings to be completed and in the meantime efforts are being made to hire an existing building.

NECP has already conducted 4 Entrepreneurship Development Programmes in various parts of India.

During 1987 one group of young entrepreneurs from Sri Lanka and another group from Bangladesh came to India for Industrial Training and also participated in an Industrial Workshop which was specially arranged for them.

During 1988 participants from Nepal and Pakistan are expected to arrive in India under this University/Industry Interaction project.

The Chemical Park will be actively involved in the manufacture of high-purity chemicals, reagents and reference standards. A List of the basic chemicals required by Universities and research laboratories was provided by Professor J. R. Cannon and Dr. Mohinder Singh at ACGC IV.

(f) Reports from SAREC, IFS and IPICS

- The SAREC proposal entitled Procurement. Operation and Maintenance of Scientific Equipment in Developing Countries was tabled by Dr. L. Prage and appears as Attachment 9.

The Meeting agreed that this document would serve as the definitive statement in the areas covered and should be given the widest possible circulation. All organizations which are engaged in the purchase of foreign equipment should be aware of it.

- Dr. Prage also outlined recent developments in the programmes of the International Foundation for Science. A paper on this topic, presented at the IFS General Assembly in Panama during November 1987 forms Attachment 10.

The matter was discussed further at a meeting held after the Princess Congress I in Bangkok during December 1987 and a paper on Chemistry and Natural Products Research in Developing Countries forms Attachment II. (A full report on the Bangkok meeting will be available at ACGC VI)

- Dr. Rune Liminga spoke concerning the activities of the International Program in the Chemical Sciences Uppsala University. Dr. Liminga's paper forms Attachment 12.

(g) The Sixth Asian Symposium on Medicinal Plants and Spices ASOMPS VI

Professor S. A. Achmad tabled a report on the preparations for ASOMPS VI which appears in Attachment 14.

In addition to the listed associated activities of ASOMPS VI, the Network for the Chemistry of Biologically Important Natural Products agreed to organize a meeting of up to 8 botanical taxonomists whose work in the region is of particular importance to natural products chemistry.

At ACGC V it was hoped that a meeting of taxonomists could be arranged through cooperation between the Network for the Chemistry of Biologically Important Natural Products and the Asian Network for Biological Sciences. However no such cooperation has eventuated and the Network for the Chemistry of Biologically Important Natural Products will now assume full responsibility for this activity.

(h) Interregional Cooperation

- The meeting heard a report from Dr. J. Webb on the first Eurasian Conference on the Chemistry of Solutions held in Bangkok during January 1988. A second meeting will take place in Seoul, Korea during 1990.

ACGC reviewed the prospects for interregional cooperation and as a first step in this

direction it was agreed to give advice and support to the Natural Products Research Network for East and Central Africa (NAPRECA) based in Addis Ababa Ethiopia. Dr. Kingston will report to ACGC VI on the NAPRECA Coordinating Board Meeting to be held in Ethiopia during March 1988.

- ACGC was pleased to note that the Institute of Phytochemistry in Sofia will support the analytical services programmes. They will give special attention in the first instance to the needs of Ethiopia and Afghanistan.
 - (i) Inventory of Resource Institutions in Southeast Asia

ACGC noted the completion of the Inventory of Resource Institutions in Southeast Asia for the period 1974-1984 which was tabled by Professor Cannon. This is being published by UNESCO and will be distributed during 1988.

Follow up action will be taken by Professor W. C. Taylor to encourage chemists in New Zealand to provide the same information. Professor Achmad also promised to provide information from the Indonesian chemical community. In addition, Professor Taylor will draw the attention of the Coordinating Board of the Regional Network for the Chemistry of Natural Products in Southeast Asia at their next meeting in Kyoto, Japan to the necessity of up dating this publication a regular basis.

Professor Taylor will request that the necessary information be made available to Professor Cannon before ASOMPS VI.

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(j) Address by the Guest of Honour Professor Min-Bo Chen

The ACGC Guest of Honour Professor Min-Bo Chen described the foundation and early activities of the Chinese Chemical Society and tabled an article published in Chemistry International 1987. 9(4) 131-135 (Attachment 15)

Professor Chen also tabled a list of proposals for joint activities with UNESCO as well as those for which funding is requested. (Attachment 15).

The presentation led to a lively exchange of views and each individual member of ACGC promised to cooperate closely with the Chinese Chemical Society to the best of their abilities. Several written suggestions were provided to Professor Chen for research cooperation on the projects proposed Professor Chen, on his part, promised to resolve certain ambiguities that appeared to exist in the list of projects and will contact Dr. Kingston directly on these matters.

The ACGC hopes that the Chinese Chemical Society will be a regular attendant at future ACGC meetings.

(k) Publications and General Information Services

- Dr. M. Mohinder Singh gave a report on his discussions with the Federation of Asian Chemical Societies (FACS) on a journal suitable for the publication of research results obtained by young Asian scientists. FACS showed no interest in upgrading their present Newsletter to meet this need. The Regional Network for the Chemistry of Natural Products in Southeast Asia had also been negative about modifications to their Newsletter.

ACGC has now decided to actively pursue the establishment of a new journal aimed at providing a means for young Asian scientists to publish their research results. This publication will be edited by Dr. M. Mohinder Singh who will be supported by an Editorial Board to be appointed by ACGC. All of the communications and reports will be refereed to comply with the publications policy of ACGC. IFS will use this journal as one means of communicating the research results of IFS grantees in the area of chemistry.

- There was a general sense of disappointment at the lack of publicity given to the networks and other active programs in Asia. It was accepted that this was probably the fault of ACGC. Each program involved in ACGC is now asked to set aside some funding which can be used to inform the scientific community both in Asia and elsewhere of our activities.

At ACGC VI consideration will be given to mounting a publicity campaign with the intention of attracting further financial support from funding agencies.

(l) Special Support for Nepal

Professor Taylor reported on his five week visit to Nepal in 1987 as a follow up to the request made by Dr. Malla at ACGC IV. His report forms Attachment 16.

The present support programme provided by ACGC has the following components:

- Biological screening services provided by the University of Santo Tomas, Manila.
- Training programme for college teachers with LPLC.
- Visiting professor scheme
- Analytical and spectroscopic services provided on demand by various networks. The last service will now be streamlined with the creation of the three new service centers described in c (iii) above.

It was recognized that large scale support was required by the Chemistry Department of Tribhuvan University so that it can train the research workers who will form the future staff of other institutions in Nepal. ACGC members agreed that all would use their best efforts to convince donor agencies to provide this support to that the University would be capable of playing its role in the country's socioeconomic development. ACGC affirmed that it would be prepared to make any inputs required in any development project.

(m) Equipment Maintenance and Repair

This item was introduced by Dr. L. Prage and Dr. j. Webb. Dr. Prage highlighted some essentials in the procurement of equipment. These included a procurement check list to be completed before purchase, a list of suppliers which have provided proper support services a need to provide feedback to the suppliers and a necessity to compile available information. In addition the need for training technical staff and the need to strengthen existing facilities for maintenance and repair were noted. There is also a need for increased attention to laboratory safety and management for example, the preparation of maintenance schedules and instructional notes for users of particular instruments preferably in the local language.

It was felt that greater use should be made of modern audio-visual technology for instruction in the repair and maintenance of equipment. SAREC will examine the possibility of carrying out national surveys of the status of laboratory equipment in smaller countries. Dr. Prage's proposal (Attachment 17) will be taken up by ACGC.

The suggestion that the consortium consisting of SAREC, IFS, IPIC, ANAIC and NIDMAR should hold a conference with major suppliers of equipment to discuss the problems associated with the importation of equipment was strongly supported by ACGC.

All agreed that courses run by suppliers should be reviewed with the possibility of involving them in future ACGC programmes.

Dr. Webb reported on the activities of ANAIC and NIDMAR in hosting workshops on instrument maintenance and repair workshops on locally-produced equipment regular visits by experienced technicians to regional laboratories and a commitment to support regional research centers of other networks.

(n) Local Production of Equipment

This topic was introduced by Professor K. Sane and Dr. H. Gunasingham. Professor Sane described recent activities within the IUPAC/UNESCO LPLC project. A considerable expansion has taken place in the development of new equipment the re-designing of earlier models and in the College Teachers Training Program. This training program will continue in 1988 in India and it is expected that 70 Indian institutions will be using 250 pieces of equipment supplied through the project. (Attachment 18).

ACGC applauded the continuing cooperation between LPLC and ANAIC. The new network NIDMAR will now play a complementary role with LPLC in the ACGC drive to ameliorate the problem of availability of functional equipment for laboratory

teaching and research as decided at ACGC III.

ACGC will promote the strengthening of the LPLC programs in Thailand the Philippines and other developing countries in Southeast Asia with an enhanced training program in 1988/89. The Delhi group will continue to offer the training program to Nepal.

In the next phase the Delhi group will prepare a series of instruction manuals containing modern experiments for University laboratory teaching. Dr. Sane also reported on the development of desk top publishing for preparing these manuals and teaching packages.

Dr. H. Gunasingham described the IDRC sponsored project he is carrying out at the National University of Singapore. (Attachment 19). This concerns the development of microprocessor-based instruments for analytical chemistry and process control in chemical industries. The project has a major focus on the development of powerful and flexible software packages.

ACGC felt that there was an excellent opportunity for collaboration between the IDRC project the LPLC project and the NECP. This is now being explored by Dr. Gunasingham, Professor Sane and Dr. Kulkarni. The development of a microprocessor-controlled low-cost instrument and of a low-cost computer interface for the existing LPLC instruments will be the first two projects to be studied.

(o) ICSU/UNESCO Pilot Project on Post-Secondary Teaching in Asia

Dr. Kingston introduced this project which is described in Attachment 20. A meeting had been held with Professor D. J. Waddington just before the present ACGC meeting and it was decided to launch the chemistry part of this project as a combined operation involving curriculum development technician training locally-produced laboratory equipment and the use of computers in University teaching.

ACGC welcomed this invitation and will provide support through LPLC and ANAIC.

(p) Teaching Aids

Dr. Webb raised the problem of the availability of high quality low-cost molecular models for teaching. This is also a concern of the International Network for Chemical Education based in Ljubljana, Yugoslavia. Dr. R. Kulkarni promised to take up this matter and will report to ACGC VI.

(q) Conclusion

The meeting thanked Dr. R. A. Kulkarni for his hospitality and many kindnesses during ACGC V and Professor J. R. Cannon and Dr. J. Webb for acting as rapporteurs.

It was decided to accept the invitation of Professor Sjamsul Arifin Ach mad to hold the next meeting (ACGC VI) in conjunction with ASOMPS VI at Bandung, Indonesia during January 1989.

ATTACHMENTS

1. Agenda for ACGC V
2. List of Participants
3. Commonwealth Science Council Proposal for SCS/UNESCO Collaboration in Chemistry for Asia.
4. Regional Workshop on Chemical Constituents of the Environment: An Asian Initiative in a Global Perspective
5. Statement concerning the Network for the Chemistry of Biologically Important Natural Products.
6. Statement concerning the Asian Network for Analytical and Inorganic Chemistry.
7. Proposal to IDP for the Establishment of the Network for Instrument Development, Maintenance and Repair (NIDMAR).
8. Report on the IUCr Congress and the XTAL Workshop held at The University of Western Australia during the period 12 August 5 October 1987
9. SAREC Guidelines for Support to Procurement Operation and Maintenance of Scientific Equipment in Developing Countries.
10. The Natural Products Programme in the International Foundation for Science-Experiences and Ideas for Development.
11. IFS Chemistry and Natural Products Research in Developing Countries Needs Problems and Possibilities
12. International Program in the Chemical Sciences, Uppsala University
13. International Seminar in Chemistry Project Catalogue (September 1987).
14. Report on Preparations for the Sixth Asian Symposium on Medicinal Plants and Spices (ASOMPS VI)
15. The Chinese Chemical Society Beijing
16. Chemistry in Nepal; A report to UNESCO by Professor W. C. Taylor
17. IFS; Assistance to the Operation and Maintenance of Scientific Equipment in the SADCC countries.
18. A Report on the Locally Produced Low Cost Equipment (LPLC) Project.
19. IDRC Sponsored Project on Micro Computer based Instrumentation for Teaching. Research and Industry.
20. ICSU-UNESCO Pilot Project for Post-Secondary Science Teaching in Asia 1988-1989
21. List of Acronyms.