

**TOKYO STATEMENT
ON
THE
INFORMATICS
REVOLUTION**

**Summary Report of the Second Session
North South Roundtable on the Informatics Revolution
Tokyo, October 1-3, 1987**

**NORTH SOUTH ROUNDTABLE
P.O. Box 2006, Islamabad, Pakistan
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PREFACE

The North South Roundtable, in cooperation with the Tokyo chapter of the Society for International Development and the International Development Centre of Japan, held the second session of the Roundtable on the Informatics Revolution in Tokyo on October 1-3, 1987.

The first session of this Roundtable, held in Scheveningen, The Netherlands, on September 13-15, 1985, focused on the problems and opportunities confronting the developing countries, particularly in respect of human resource development priorities and policies, as a result of rapid advances in informatics technologies and their application to an increasingly broad range of development and development-related activities. The participants at the first session concluded that the informatics revolution has such profound implications for the future development of the less developed countries, and for the evolving relationships between them and the developed world, that a full exploration of all the policy implications will require a sustained process of dialogue. The second session was held in order to continue that dialogue process.

The agenda for the second session focused on three principal themes:

- i) Current issues and future trends in informatics from developed-country perspectives;
- ii) Current issues and future trends in informatics from developing-country perspectives; and
- iii) Priorities in international cooperation in informatics.

Against the background of a stimulating opening address by Mr. Koji Kobayashi, Chairman and Chief Executive Officer, NEC Corporation, and a number of specially prepared papers and presentations, the session, which was attended by 28 high-level development and informatics professionals and policy makers from 17 countries, engendered a lively discussion and made several recommendations for consideration by policy makers at the national and international levels. Lists of participants and papers are appended. All participants attended the meeting in their personal capacities.

The summary statement, prepared by Dr. Salah Mandil on the basis of reports by rapporteurs (Drs. Martha Stone, Dorothy Riddle and Naoto Sasaki), reflects the major ideas and recommendations that came out of two days' deliberations. The statement, though it broadly reflects the views of the participants, is not to be taken as a consensus document.

We offer our grateful thanks to the host country, especially the Japanese Organizing Committee, for the very gracious hospitality provided to the Roundtable. Dr. Saburo Okita, Chairman of the Japanese Organizing Committee, supported the whole initiative with his unique leadership. No number of words can express the North South Roundtable's great appreciation for the role that Dr. Okita has played over the years in Roundtable activities. Special mention also needs to be made of Mr. Kishio Suzuki, whose untiring efforts, along with those of his dedicated staff, made the Tokyo Roundtable a reality.

We are also thankful to all the participants, especially those who came from a long distance, for having contributed to the success of the Tokyo Roundtable.

Khadija Haq

Islamabad

October 18, 1987

TOKYO STATEMENT ON THE INFORMATICS REVOLUTION

Introduction

The second session of the Roundtable on the Informatics Revolution stressed that a constructive dialogue between the leading individuals from the North and the South on such a vital topic as informatics could lead to a more just and stable world order. Dramatic technological strides in the rapidly integrating fields of computers and communications are already becoming a part of the infrastructures to promote the economies of the developing countries.

But the social impact of the informatics revolution, its impact on interdependence among nations, and its impact on the economic gap between the rich and the poor nations all need to be discussed, understood and planned for. Issues that need to be addressed are, in particular, international agreements to guarantee the free flow of information; the elimination of monopolies to ensure fair and free competition; and affirmation of the principle of respect for the common assets of mankind, so that the benefits of the informatics revolution may be shared by all. The challenge to the Tokyo participants was to work out the modalities for facilitating that process.

Issues and Recommendations

1. Today's information technology (IT) may prove to be as essential to social advancement in the present century as steam, printing and electric power were in the past. The acquisition of this technology by the developing countries is thus not merely an option, but a necessity.

There are reasons to be optimistic about the relevance and potential of informatics as a supporting technology to development at large. Increasingly, examples of computing and telecommunications uses in developing countries are being reported to show how informatics has made the provision of certain services possible and of others more cost-effective. Other examples also point to the pitfalls.

2. The great majority of informatics uses reported so far appear to be in the areas of financial and statistical calculations and communications, as well as for the storage and retrieval of literal data. The potential uses of informatics management are much 1 should be further explored. Indeed, it is possible that many "development failures which are due" to systemic failures such as the African famine of the past few years could have been predicted and avoided with the appropriate managerial tools.

3. Even though the engineering behind informatics is a most advanced technology, the resulting tools provide a technology whose appropriateness to developing countries is now indisputable. Nevertheless, it has to be stressed that it is the appropriateness of the uses of informatics technology, not the technology per se and that to real development practice it is the appropriateness of a mix of technologies -- which is to be considered. Furthermore, because of the rapid evolution of the technology, particularly its software component, developing countries need to guard against technological dependency and against dumping of outmoded technologies by the more rapidly advancing countries.

4. While discussing national policies regarding the acquisition, application and manufacture of informatics tools, the Roundtable recognized that developing countries constitute a group whose societies and economies vary widely in size, levels of education and health, levels of physical and institutional infrastructure, character and composition of economic sectors, etc. As such, the utility of informatics technology will vary from country to country. The newly industrializing countries (NICs) are more sophisticated in the production and application of informatics technology than are the less-developed countries (LDCs), but the least-developed countries (LLDCs) have a long way to go to reap the benefits of this revolution.

5. Regardless of which type a country is, there are social and ethical considerations affecting the introduction, use and development of informatics. At its best, informatics could be used at the country level to promote human dignity and democracy, at its worst, it could be bent to serve only the elite, to restrict the flow of information and to suppress dissent. Internationally, informatics should be used to promote peace, protect the environment and foster international cooperation rather than to build secrecy or attain dominance. On the other hand, there is a serious risk that such a powerful leveling tool could be one factor in slowly wiping out the cultural variety on earth. Each country, in order to maintain its cultural identity even while acquiring foreign IT training and products, needs to imitate and innovate selectively, combining the strength of traditional patterns of social organization and thought with new strategies for economic progress and social equity.

6. For orderly, cost-effective and technologically compatible applications of informatics in a country, a broad national informatics policy is essential. However, a fully detailed policy is not a prerequisite even if many of the countries are working without such a policy. Roundtable participants defined the essential elements of a national policy on informatics as (i) selecting priority sectors for the application of informatics technology; (ii) identifying infrastructural requirements for the effective application of informatics technology in these sectors; and (iii) preparing plans and working out concrete strategies to ensure that informatics will contribute to human resource building, generate employment and have positive socio-cultural consequences.

7. The Roundtable stressed that informatics is not and cannot be a sector by itself; rather, it is fundamentally a support technology to all sectors. An informatics policy is thus concerned with integration and coordination

between sectors and should be based on supporting realistic goals set as part of the overall national development plan.

8. The importance of an "information policy" prior to an informatics policy is also stressed, but it is fully appreciated that this is more demanding and difficult to formulate and may not warrant a delay in developing certain aspects of an informatics policy, e.g., standards.

9. The question of "own manufacture" as opposed to "purchase's should be addressed each country separately. In the near future, this question is likely to arise only for the larger and relatively technologically advanced countries. However, the Roundtable stressed that as far as software is concerned, each country should seek to own and command the adaptation and further development of software according to its needs. Because software development is predominantly dependent on qualified professional manpower, it could provide an opportunity for technical cooperation among developing countries (TCDC), which could both benefit economically and make important contributions to exploring the uses of informatics for development.

10. The introduction and use of informatics require institutional changes which invariably breed resistance and difficulties. An informatics policy should thus include measures to explain these changes before they occur so that individuals will accept their new roles.

11. The implications for employment are varied, and for some sectors are quite profound. For the information and office-oriented functions, informatics should be allowed to influence employment in a socially acceptable, cost-effective manner. Got policies and strategies should aim at maximizing the positive aspects (e.g., informatics is a growth area for the employment of women in certain countries) and minimizing the negative.

12. An informatics policy has to be backed up by the necessary legislation and regulations. While these are important, and ideally are a prerequisite to the wide introduction and use of informatics, they are also demanding and time-consuming to formulate. In reality, many countries have incomplete or no such legislation. The Roundtable views the exchange of experience among developing countries, including texts of legislation, as another important step toward South-South cooperation.

13. An important element of national informatics legislation is setting standards and devising rules to enforce them, including technology standards or data, software and hardware and operational standards for documentation and procedures (including security and confidentiality considerations). These standards should be clearly defined, rigorously enforced and periodically reviewed and updated. Recognizing the dynamic and evolving field of applications revision should be made for possible departures from standards, on a justified exceptional basis.

The adoption of internationally accepted informatics standards (such as those of ISO and CCITT) are strongly recommended by the Roundtable.

14. A key impediment to the wider and speedier introduction or expansion of informatics is the inadequacy of the infrastructure in many developing countries. This ranges from inadequate and/or unreliable electric power supply to insufficient institutional mechanisms and procedures to manage and provide services. Because communication is an integral part of informatics, an inadequate national telecommunications infrastructure is a particularly crippling handicap -- and an unnecessary one, considering the fact that the technological products in this area have come down in cost and become relatively easy to acquire, install and maintain. Informatics strategies must therefore include the planned development and operation of a nationwide telecommunications network.

15. As another Roundtable on human development stressed, human beings are both the means and the end of development. This is never more so than in regard to informatics, since software, which depends entirely on human beings for its development, constitutes almost 80 percent of all informatics technology. Top priority should therefore be given to the education and training of informatics professionals. This training should be purposeful, that is, tied to specific goals, jobs and tasks to be carried out; and it should be given with equipment and in an environment comparable to the professionals' eventual work environment and milieu. Training materials, adapted as appropriate, should be freely exchanged and shared to facilitate human resource development. Full advantage should be taken of training offered by the informatics industry in conjunction with the purchase of equipment, and such training should be dovetailed with other national and international training programs.

16. The predominance of Latin-based languages, particularly English, in the present-day informatics market has often proved to be a key impediment in the timely use and development of informatics by non-English-speaking countries. Many institutions have found it more practical to develop software in their own languages than to seek translations of existing products. The development of informatics software and documentation should allow for their easy adaptation and translation into other languages.

17. Informatics can contribute greatly to international collaboration. For example, information networks could be enriched immeasurably by increases in the number of users, the variety of uses and the diversity of information sources. International accessibility to such a network would further increase its potential. Areas that are particularly promising candidates for more international are:

I) Building telecommunications infrastructure.

ii) Developing domestic capability in producing software and maintaining hardware.

iii) Disseminating information on new IT, standards and uses.

iv) Helping LDCs to gain increased access to informatics technology.

v) Assisting in training programs.

18 There are other issues with respect to international collaboration _informatics which need to be recognized:

i) National needs and priorities should determine the form and timing of international collaboration input
ii) International collaboration is not a substitute for the development. of self-reliance, but a facilitation of it.

iii) The modalities of international collaboration are as important as the substantive collaboration

iv) Whereas the international coordination of informatics uses and development in specific sectors falls within the purview of the international organization responsible for such a sector (e.g., WHO for health), there is an apparent institutional gap in the coordination of informatics policies within and among nations which needs the urgent attention of the international community if all countries are to benefit from this revolution.

APPENDIX I

PARTICIPANTS

[Note: Participants' affiliations are those at the time of the meeting.]

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APPENDIX II

JAPANESE ORGANIZING COMMITTEE MEMBERS

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President, International Development Centre of Japan

APPENDIX III

PAPERS PREPARED FOR THE TOKYO ROUNDTABLE

[Note: These papers will be edited and published by the North South Roundtable.]

S. Abdulrachman (Indonesia)

Current Issues and Future Trends in Informatics: The Indonesian Perspective

Ralph A. Akinfeleye (Nigeria)

Africa and the Informatics Revolution: Issues, Trends and Policy Options for the 1990s

Renato Archer (Brazil)

The Brazilian Informatics Policy; National Informatics and Automation Plan

Gerard K. Boon (Netherlands)

Information Technology: Some Main Issues and Trends; Computer-based Industrialization in the Third World: Possibilities and Constraints

Ryokichi Hirono (Japan)

The Informatics Revolution and the Developing Countries

Hiroshi Inose (Japan)

Microelectronics and Employment

Fernando Jordan (Colombia)

Developing Countries and the Informatics Phenomenon: Action Alternatives

Yasukuni Kotaka (Japan)

International Training Pursued by NEC

Salah H. Mandil (Sudan)

Current Uses and Issues of Informatics and Telematics in Health in Developing Countries

Abdoulaye F. M'bow (Senegal)

Results and Trends in Computer Science in Developing Countries

Ntita Misakabu (Zaire)

A Note on Zaire's Informatics Policy

Ashok Parthasarathi (India)

Informatics for Development: The Indian Experience

Qin Lin Zheng (China)

Informatization: The Road Toward a Modernized Development

Bhichit Rattakul (Thailand)

Thailand and the Informatics Revolution

Dorothy I. Riddle (USA)

Priorities in International Cooperation in Informatic Services to Strengthen Service Sectors in Developing Countries

Masaru Saito (Japan)

The Informatics Revolution and Developing Countries

Jean V. Salmona (France)

Current Issues and Future Trends in Informatics from Developed Countries' Perspectives

Martha B. Stone (Canada)

Informatics as a Tool for Information Management in Development

Hideyoshi Tominaga (Japan)

Telecommunication Technologies in an Advanced Information-oriented Society and their Impact;. Overview of the Advanced Information Society and the Development of Electronic Telecommunication Technology

APPENDIX IV

NORTH SOUTH ROUNDTABLE PUBLICATIONS

Books(paperback)

Human Development, Adjustment and Growth, ed.

Khadija Haq and Uner Kirdar, 1987, 326 pp.

The Informatics Revolution and the Developing Countries, ed.

Khadija Haq, 1986, 127 pp.

Human Development: The Neglected Dimension, ed.

Khadija Haq and Uner Kirdar, 1986, 446 pp.

The Lingering Debt Crisis, ed.

Khadija Haq, 1985, 271 pp.

Adjustment With Growth A Search for an Equitable Solution, ed.

Khadija Haq and Carlos Massad, 1984, 336 PP

Crisis of the '90s, ed.

Khadija Haq, 1984, 317 pp.

Global Development: Issues and Choices, ed.

Khadija Haq, 1983, 231 pp.

Energy for Development: An International Challenge,

by John Foster, Efrain Friedmann, James W. Howe, Francisco R. Parra and David H. Pollock, 1981, 257 pp.

Roundtable Papers

Dialogue on Energy in Latin America

(Roundtable Paper 9), ed. Khadija Haq, 1985, 120 pp.

Cancun A Candid Evaluation (Roundtable Paper 8), by Roundtable Members, 1982, 88 pp.

Dialogue on Energy: Report of NSRT Missions to Kenya, Sudan, Tanzania, Bangladesh, Pakistan and Sri Lanka (Roundtable Paper 7), 1984, 110 pp.

Food Security for People and Nations (Roundtable Paper 6), by Hossein Ghassemi, Khadija Haq, Dale Hill and Martin Mclaughlin 1982, 76 pp.

A Global Agenda for the Eighties (Roundtable Paper 5), ed. Khadija Haq, 1981, 128 pp.

Energy and Development: Policy Issues and Options (Roundtable Paper 4), by John Foster, Mahbub ul Haq and Francisco Parra, 1981, 98 pp.

Energy and Development: An Agenda for Dialogue (Roundtable Paper 2), by Salah AI-Shaikhly and Mahbub ul Haq, 1980, 25 pp.

Beyond the Brandt Commission (Roundtable Paper 1), ed. Khadija Haq, 1980, 95 pp.

Reports

Tokyo Statement on the Informatics Revolution, Summary Report of the Second Meeting of the Roundtable on the ' Informatics Revolution, 1987, 20 pp.

Seizing the Trade Chance in '87: Proposals for Early Action in the Uruguay Round, from the 1st Session of the Roundtable on Trade, 1987, 29 pp.

On the Progress of African Recovery, Report of the NSRT Consultation in Bommersvik, Sweden, 1987, 37 pp.

Salzburg Statement on Adjustment and Growth with Human Development, from the 2nd Session of the Roundtable on the Human Dimension of Development, 1986, 23 pp.

Beyond the Famine: New Directions in Development, Report of the Africa Regional Roundtable in Nairobi, 1986, 16 pp.

Beyond the Famine: New Directions in Development, Report of the Sudan National Roundtable in Khartoum, 1986, 25 pp.

Statement of the Roundtable on Money and Finance, Report of the 4th Session of the Roundtable on Money and Finance, 1986, 45 pp.

The Informatics Revolution and the Developing Countries, Report of a Consultative Meeting, 1985, 22 pp.

Istanbul Roundtable Statement on Development; The Human Dimension, from the 1st Session of the Roundtable on the Human Dimension of Development, 1985, 24 pp.

Report of the North South Food Roundtable on the Crisis in Africa, 1985, 37 pp.

Vienna Statement on World Monetary, Financial and Human Resource Development Issues, Report of the 3rd Session of the Roundtable on Money and Finance, 1984, 20 pp.

Statement from Santiago, Report of the 2nd Session of the Roundtable on Money and Finance, 1984.

Statement from Istanbul, Report of the 1st Session of the Roundtable on Money and Finance, 1983, 40 pp.

The Oiso Declaration, Summary Report of the 4th Annual NSRT Session, 1982, 17 pp.

Castelgandolfo Report on Renewable Energy: Policies and Options, Report of an Expert Group Meeting, 1981, 25 pp.