This electronic version (PDF) was scanned by the International Telecommunication Union (ITU) Library & Archives Service from an original paper document in the ITU Library & Archives collections.

La présente version électronique (PDF) a été numérisée par le Service de la bibliothèque et des archives de l'Union internationale des télécommunications (UIT) à partir d'un document papier original des collections de ce service.

Esta versión electrónica (PDF) ha sido escaneada por el Servicio de Biblioteca y Archivos de la Unión Internacional de Telecomunicaciones (UIT) a partir de un documento impreso original de las colecciones del Servicio de Biblioteca y Archivos de la UIT.

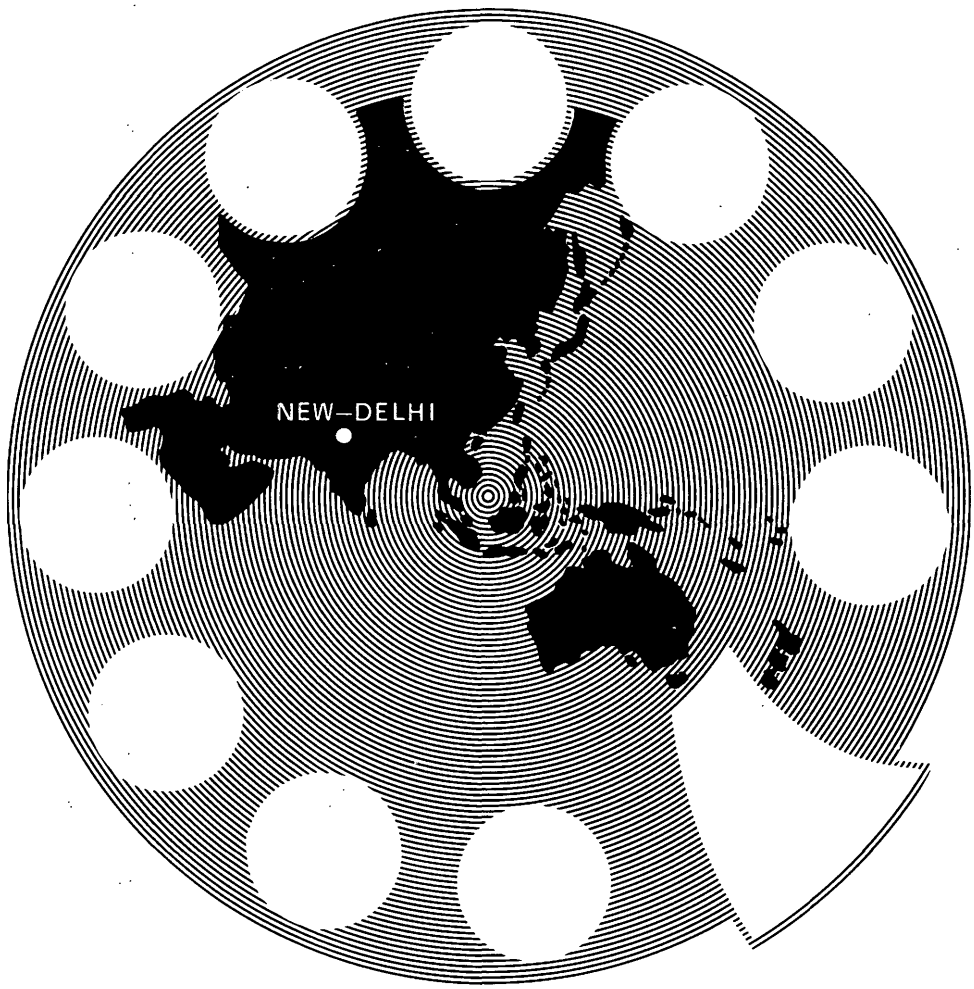
هذه النسخة الإلكترونية (PDF) نتاج تصوير بالمسح الضوئي أجراه قسم المكتبة والمحفوظات في الاتحاد الدولي للاتصالات (ITU) نقلاً من وثيقة ورقية أصلية ضمن الوثائق المتوفرة في قسم المكتبة والمحفوظات في الاتحاد.

此电子版（PDF 版本）由国际电信联盟（ITU）图书馆和档案室利用存于该处的纸质文件扫描提供。

Настоящий электронный вариант (PDF) был подготовлен в библиотечно-архивной службе Международного союза электросвязи путем сканирования исходного документа в бумажной форме из библиотечно-архивной службы МСЭ.

© International Telecommunication Union

ASIA AND PACIFIC



TELECOMMUNICATIONS DEVELOPMENT CONFERENCE

NEW DELHI, INDIA, 22–26 FEBRUARY 1988

FINAL REPORT
VOLUME I

The views expressed in this publication do not necessarily reflect those of the International Telecommunication Union, United Nations or of the Governments of any of the countries or areas mentioned in the studies. The designations employed and the presentation of the material do not imply the expression of any opinion whatsoever on the part of the ITU/UN concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimination of its frontiers or boundaries. Mention of any firm or licensed process does not imply endorsement by the ITU or the United Nations.

The papers in this publication have been reproduced as presented by the authors.

TABLE OF CONTENTS

PAGE

VOLUME I

Forward 1

Conference Agenda 2

Resume of Proceedings 7

Attendance and Opening Ceremony 7

Election of Officers 8

Adoption of Agenda 8

Organization and Method of Work 9

Statements by Delegates and Observers 9

Presentation of Arusha Declaration 9

Review of the past 10 years of Telecommunication Changes in the region and Assessment of the Current Situation 11

Telecommunication Requirements including Usages and Plans, Alternatives and Changes at the beginning of the Next Century 13

Strategy for Future Telecommunications Development in the Region 15

Technological changes and their Impact on ITU Activities 18

Review of progress in the Implementation of the Transport and Communications Decade 19

Conclusions and Recommendations 20

Closing Ceremony 22

Annex A: Resolutions 23

Resolution 1 - Financing the Development of Telecommunications in the Developing World 24

Resolution 2 - Study on the Sharing of Revenue on International calls between Industrialised and Developing countries 26

Resolution 3 - Centre for Telecommunications Development 27

Resolution 4 - Effective Response of the Union to Changing Telecommunications Scenario 29

Resolution 5 - Convocation of Regular Regional Telecommunications Development Conferences 31

PAGE

Resolution 6 - Mechanisms for National and Regional Telecommunications Development Policy 32

Resolution 7 - Support for Telecommunications Development 33

Annex B: Speeches Delivered at the Opening Ceremony 34

Welcome Address by Secretary, Department of Communications 35

Address by Minister of Communications, India 37

Address by Secretary-General, ITU 40

Inaugural Address by the Prime Minister of India 46

Vote of Thanks 49

Annex C: Statements by Delegates and Observers 51

Statement by ESCAP 52

Statement by UNDP 56

Statement by APT 58

Statement by EEC 60

Statement by ICAO 65

Statement by Islamic Republic of Iran 66

Statement by Repubic of Korea 68

Statement by Italy 73

Joint Statement of Pacific Island Countries 75

Annex D: Closing statement by the Deputy Secretary-General, ITU 77

Annex E: List of Participants 80

Annex F: List of Documents 88

Annex G: Statistical Summary 93

VOLUME II

	PAGE
Series 200	
The Arusha Declaration (Indonesia)	1
Presentation of the Arusha Declaration (India)	11
Series 300	
The Centre for Telecommunications Development - An Instrument for improving telecommunication services in Developing Countries (ITU)	20
The Missing Link - A Continuing Debate ? (ITU)	30
Development of Telecommunications in the South Pacific - The Role of the South Pacific Bureau for Economic Cooperation (SPEC)	41
The State of Telecommunications in Indonesia (Indonesia)	47
Telecommunications Services in Nepal (Nepal)	59
Review of the Past 10 years of Telecommunications Requirements and Assessment of the current situation (India)	68
Telecommunications Development in Thailand (Thailand)	74
Telecommunications Development in Malaysia (Malaysia)	87
Summary of State of Telecommunications in Bangladesh (Bangladesh)	98
Telecommunications Development in the Asia-Pacific Region in the last decade (APT)	104
Series 400	
Rural Telecommunications in China (China)	119
Satellite Service in the South Pacific (ITU)	124
Trends in Digital Switching (ITU)	129
Development of Telecommunications in Asia-Pacific Region (Japan)	140
Progress and Strategies for Development of Broadcasting in Asia and Pacific (All India Radio)	144
To Expand Telecommunications Requirements in the Next century (India)	155
Telecommunications Requirements at the Beginning of the Next Century - An Australian Perspective (Australia)	166
Rural Telecommunications in Bangladesh (Bangladesh)	176

PAGE

Series 500

The NTT Experience: Our View of Telecommunications Development in Asia and the Pacific (Japan) 181

Technical Cooperation Among Developing Countries (TCDC) in Telecommunications (ITU) 190

Investment in Telecommunications and their Financing (World Bank) 201

From a PTT to a Telecom Enterprise (Policy Consideration) (ITU) 214

Telecommunication Development - From a Human Resource Perspective (ITU) 220

Developmental Communications: INTELSAT's Programmes - Past, Present and Future (INTELSAT) 233

The Role of Telecommunications in the Economic and Social Development of the Asia-Pacific Region (ESCAP) 248

Strategy for Future Telecommunications Development - The Indonesian Perspective (Indonesia) 263

Telecommunications Development in Least Developed Countries of Asia Pacific Region (Nepal) 272

International Telecommunications - Strategic Considerations for Development (India) 275

Collective Self-Reliance in Telecommunication Technology Amongst the Developing Countries (India) 290

Strategy for Future Telecommunication Development in the Region (India) 296

ADB Operations in the Telecommunications Sector (ADB) 305

Multilateral Cooperation Amongst Developing Countries (India) 310

Philippines Country Report (Philippines) 314

An Outline of Telecommunications Policy being Considered for Adoption in India (India) 325

Series 600

Technological Change and its Impact on ITU Activities (India) 328

Cooperation between ITU and Regional Organizations (ITU) 338

The Impact of Technological Changes on ITU Technical Cooperation Activities in Asia and the Pacific (ITU) 342

Series 700

Regional Telecommunication Planning in the Context of the Transport and Communications Decade (ITU) 356

Transport and Communications Decade for Asia and the Pacific (ESCAP) 366

FOREWORD

The Asia and Pacific Telecommunications Development Conference was held in New Delhi, India, from 22-26 February 1988. The purpose of the conference was to provide an opportunity for telecommunications sector decision-makers and operators of the Asia and Pacific countries, and interested international and regional organizations to review the current state of development of telecommunications in the region; to assess present trends and future requirements; and to evolve long-term strategies keeping in view the overriding objective set by the Independent Commission for World-wide Telecommunications Development that is:

"..BY THE EARLY PART OF THE NEXT CENTURY, VIRTUALLY THE WHOLE OF MANKIND SHOULD BE BROUGHT WITHIN EASY REACH OF A TELEPHONE AND, IN DUE COURSE, THE OTHER SERVICES THAT TELECOMMUNICATIONS CAN PROVIDE..."

Organized by the International Telecommunications Union and hosted by the Government of India, the conference was convened in pursuance of the recommendations made by the World Telecommunications Development Conference held in Arusha, Tanzania, in 1985, and by the Regional Conference-cum-Seminar on Development and Management of Telecommunications of Asia and Pacific Telecommunictions held in Bangkok, Thailand, in 1982.

Papers on a number of related topics on development of telecommunications such as the Arusha Declaration, reviews of past changes and performance, techological changes and their impact, telecommunication requirements, including usages and plans at the beginning of the next century and strategies for future telecommunication development in the region were presented. Representatives of international and regional organizations and those of the funding institutions made statements highlighting their respective roles and activities aiming at the development of telecommunications in the region. The deliberations on these issues resulted in the adoption of a number of recommendations and resolutions calling for specific actions by national administrations of the region as well as by the regional and international organizations.

ASIA AND PACIFIC TELECOMMUNICATIONS DEVELOPMENT CONFERENCE

Agenda

1. Opening Ceremony.

2. Election of officers.

3. Adoption of the Agenda.

4. Organization and method of work.

5. Statements by regional and intergovernmental organizations.

6. Presentation of the Arusha Declaration.

7. Review of the past ten years of the Telecommunication changes in the region and assessment of the current situation.

8. Telecommunications requirements including usages and plans, alternatives and changes at the beginning of the next century.

9. Strategy for future telecommunication development in the region.

10. Technological changes and their impact on ITU activities.

11. Review of progress in the implementation of the Transport and Communications Decade.

12. Adoption of report and recommendations.

13. Closing of the Conference.

ANNOTATIONS TO THE AGENDA

Agenda Item	Remarks
1, 3, 5	The purpose of the Conference is to focus attention on matters concerning the development of telecommunications in the light of important issues and priorities and to evolve the strategy to sustain development in Asia and the Pacific, between now and the early part of the next century in the light of the Report of the Independent Commission on World-Wide Telecommunications Development and the Arusha Declaration made in May 1985.
2, 4	The Conference should elect a Chairman, and a Vice-Chairman, and appoint three rapporteurs. In view of its short duration, it is anticipated that the Conference will carry out its work mostly in Plenary sessions. The Conference may find it convenient for its work to adopt the Rules of Procedure for Conferences of the ITU as described in the ITU Convention (Nairobi 1982).
6.	Presentation of the Arusha Declaration The first World Telecommunications Conference, held in Arusha (Tanzania) in May 1985, examined the report entitled "The Missing Link" prepared by the Independent Commission for World-Wide Telecommunications Development. The 93 countries participating in the Conference adopted the Arusha Declaration which, inter-alia, endorsed the principal objective set out in the Missing Link report that "by the early part of the next century, virtually the whole of mankind should be brought within easy reach of a telephone and in due course, the other services telecommunications can provide". The Conference should examine, in detail, the implications of this recommendation for the Asia and Pacific Region and propose steps to attain the goal set out in the Declaration. To this end, a presentation will be made to the Conference outlining the measures that the Administations need to pursue.

7. Review of the past ten years of the Telecommunication changes in the region and assessment of the current situation

In order to assure a meaningful discussion on the development issues involved and in order to evolve the long-term development strategy, it is necessary to undertake a thorough review of the past ten years' telecommunications changes in the region and make an assessment of the current situation before proceeding with the projections which need to be made for future developments.

Each Administration has therefore been requested to provide to the Conference a brief statistical summary of the state of telecommunications in the country. Based on these a consolidated document would be prepared and circulated for the Conference.

8. Telecommunications requirements including usages and plans, alternatives and changes at the beginning of the next century

Emerging technologies and forecasts of their applications in Asia and Pacific project a great potential for growth of telecommunication networks and demands for new telecommunication services. The technologies which will continue to have the greatest significance for telecommunications relate to computers, digital communications wideband transmission media, satellites and optical fibres syntheses of advanced digital techniques and the wideband transmission capabilities provided by satellite and cable systems suggest an integrated network in which information flows will not only be easier, but also exceedingly reliable. The tailoring of these technologies, particularly to meet the needs of rural communities and LDCs, is an important consideration. The need for a new long-term approach to planning to benefit from these developments is becoming more evident.

The Conference will consider the growth and service prospects for telephones, sound broadcasting, television, mobile radio and other services and make recommendations on future approaches and steps that need to be taken by the countries individually and collectively to satisfy the needs of national and regional development. It will also consider measures necessary to ensure a comprehensive understanding of the role telecommunications will place in future information-oriented society, in the light of the transformation occurring in the social, economic and technological base of the countries.

9. Strategy for future telecommunication development in the region

This item of the agenda will permit the Conference to review the outcome of earlier discussions and to evolve a common strategy which the countries of the region could pursue to achieve the goals set out in the Arusha Declaration.

The discussions, in particular, should lead to concrete recommendations on:

- the development priorities for the Telecommunications sector;

- the undertakings to be made;

- the role of the economic communities, specialised institutions and regional technical cooperation programmes including UNDP and the new Centre for Telecommunications Development. The need for, and the means available, to achieve coordination of developments and the necessary exchange of information.

10. Technological changes and their impact on ITU activities

Profound changes in telecommunications technology have taken place during the past decade. Introduction of digital computer-controlled exchanges, high-speed transmission of information in digital form and the unprecedented developments in micro-electronic, space optical fibre technologies, radiocommunications etc., for various services, have lead to improved performance and reduced costs, apart from facilitating the introduction of new services in public telecommunication networks.

This item of the agenda will permit the Conference to discuss the new approaches that need to be adopted by the countries to benefit from these changes. It will also facilitate discussions on the impact of these changes on standardization and regulatory frameworks and the measures necessary to enable ITU to respond to the changing needs.

Discussions, in particular, should focus attention on the trends for wider range of support, priority and assistance that the Member Countries and the Union will be called upon to provide to respond effectively to those long-term needs of the totality of its membership.

11. Review of progress in the implementation of the Transport and Communications Decade

As the United Nations Transport and Communications Decade for Asia and the Pacific now enters its fourth year, it is appropriate to review the activities being undertaken in this context.

The Conference may wish to review, in particular, the activities being undertaken at the country and intercountry levels and those foreseen within the framework of the UNDP and other bilateral and multilateral programmes.

Contributions from administrations on activities planned at the national level would be welcome.

12, 13 The Conference should adopt the final report and recommendations before closing.

Asia and Pacific Telecommunications Development Conference
New Delhi, 22-26 February 1988
CONFERENCE TIME TABLE

DATE	09.00-10.30	10.30 11.00	11.00-12.30	12.30- 14.00	14.00-15.30	15.30 16.00	16.00-17.30
Mon. 22 Feb	Registration of Delegates		Registration of Delegates		2. Election of Officers 3. Adoption of Agenda 4. Organisation and method of work		1. 16.30 - 18.00 Opening Ceremony
Tues. 23 Feb	5. Statements by regional and intergovernmental organizations	B R E A K	Agenda Item 6: 1. Presentation of Arusha Dec (Indonesia)	L U N C H	Agenda Item 7: 1. Westendorpf (ITU) 2. Srirangan (ITU)	B R E A K	7. Review of the past ten years of the Telecommunication changes in the region and assessment of the current situation
Wed. 24 Feb	Agenda Item 7: Country contributions in this topic		Agenda Item 10: 1. Ministry (India) 2. Rahim (ITU) 3. Davey (ITU)		Agenda Item 8: 1. Hogendijk (ITU) 2. Motion (ITU)		Agenda Item 8: 1. Bhatikar (India) 2. PTT (Australia)
Thurs. 25 Feb	Agenda Item 8: 1. M.P.T. (Japan) 2. Country papers		Agenda Item 8: 1. Country Papers Debates		Agenda Item 9: 1. Ras-Work (ITU) 2. World Bank (USA) 3. UNDP (India)		Agenda Item 9: 1. Desai (ITU) 2. ESCAP (Thailand)
Fri. 26 Feb	Agenda Item 9: 1. N.T.T. (Japan) 2. Rural T. (China) 3. Intelsat (USA)		Agenda Item 11: 1. Anwar (ITU) 2. Review (ESCAP)		12. Adoption of report and recommendations		13. Closing of the Conference

RESUME OF PROCEEDINGS

ATTENDANCE

The Asia and Pacific Telecommunications Development Conference, organized by the International Telecommunication Union and hosted by the Department of Telecommunications, Government of India, was held in New Delhi from 22-26 February 1988. It was attended by 91 delegates from Afghanistan, Australia, Bangladesh, Bhutan, China, Cook Islands, Federated States of Micronesia, India, Indonesia, Islamic Republic of Iran, Japan, Kiribati, Republic of Korea, Maldives, Malaysia, Nauru, Nepal, Pakistan, Palau, Philippines, Samoa, Solomon Islands, Sri Lanka, Thailand, Tonga, Tuvalu, and Vanuatu; 22 observers from The Asian Development Bank, The World Bank, FINNIDA, CIDA, FES, STET, EEC, ESCAP, UNDP, ICAO, UNESCO, WMO, APT, UPU, SPEC, INTELSAT; and 19 members of the ITU secretariat.

A full list of the participants is given in Annex E.

1. Opening Ceremony (Agenda item one)

1.1 The Conference was inaugurated by His Excellency Mr. Rajiv Gandhi, Prime Minister of India, at Vigyan Bhavan at 1700 hours on 22 February 1988.

1.2 In his inaugural address, the Honorable Prime Minister emphasised the two important roles of effective communications, namely, to bring people together, stimulate development programmes and to optimize the management of administrative institutions. He stressed that efficient telecommunications are a powerful tool in nation building and in fostering the spread of new ideas, in dramatically altering concepts of time and distance. They are vital to the transformation of traditional societies into modern societies and are an indispensable means for ensuring people's participation in national policies and programmes. The Honourable Prime Minister explained that keeping this in view, his Government had given a high priority to Telecommunications in the national development programmes.

The Honourable Prime Minister further mentioned that his government intends to work towards an objective of placing the entire population of 800 million within five minutes' walking distance from a telecommunications facilitiy. He stated that India had mounted a Telecommunication Mission for building up an integrated network, which will give increased accessibility to all, with special attention to the more remote and rural areas, thereby forging the missing links in its own entire system. Self reliance was the cornerstone of this mission.

The Honourable Prime Minister reiterated his government's commitment to international cooperation through the ITU and through the relevant regional and sub-regional organizations.

1.3 The Prime Minister's inaugural address was preceeded by opening statements by :

a) Mr. D.K. Sangal, Secretary, Department of Telecommunications
b) Mr. Vasant Sathe, Honourable Minister for Communications
c) Mr. R.E. Butler, Secretary-General, International Telecommunication Union

and followed by a vote of thanks by Mr. Y.L. Agarwal, Chairman cum Managing Director, Telecommunictions Consultants India Ltd.

1.4 Copies of the statements were circulated to the participants. The statements delivered by the Honourable Minister and by the Secretary, Department of Communications, focussed attention on the low level of telecommunications development, particularly in the rural areas of India, other constraints hindering the development of telecommunications services, and the many steps being undertaken by the Government to stimulate development of telecommunications.

1.5 The statement by the ITU Secretary-General drew the attention of the Conference to the recommendations of the Independent Commission for World-Wide Telecommunications Development and to the over-riding objective set out by the Commission to bring all mankind within easy reach of a telephone by the early part of the next century, and referred also to the current and planned activities of the UNDP and ITU.

The texts of the statements made at the inaugural session appear in Annex B.

1.6 Prior to the official inauguration, a brief session of the Conference was convened at 1400 hours to elect the office bearers, adopt the agenda and decide on the organization and method of work.

2. Election of Officers (Agenda item two)

The Conference elected the following officers by acclamation:

a) Mr. D. K. Sangal, Head of the Indian delegation as Chairman;
b) Mr. Mohamed Ali Bin Yusoff, Head of the Malaysian Delegation and Mr. Lemiki Malu, Head of the Tonga delegation as Vice-Chairmen;
c) Ms. Jill Davidson of Australia, Mr. Saeedullah Alvi of Pakistan and Mr. Remedi Peranginangin of Indonesia as Rapporteurs.

3. Adoption of the Agenda (Agenda item three)

The provisional agenda (Document ASP/TDC/88/051) was adopted by the Conference without change. It included the following:

1. Opening Ceremony
2. Election of officers
3. Adoption of the Agenda
4. Organization and method of work
5. Statements by regional and intergovernmental organizations
6. Presentation of the Arusha Declaration

7. Review of the past ten years of the Telecommunication changes in the region and assessment of the current situation.
8. Telecommunications requirements including usages and plans, alternatives and changes at the beginning of the next century.
9. Strategy for future telecommunication development in the region.
10. Technological changes and their impact on ITU activities.
11. Review of progress in the implementation of the Transport and Communications Decade.
12. Adoption of the report and recommendations.
13. Closing of the Conference.

4. Organization and Method of Work (Agenda item four)

The Conference agreed that the Rules of Procedures for Conferences of the ITU, as described in the ITU Convention (Nairobi 1982), would apply. Furthermore, it decided to set up a drafting committee assisted by the ITU Secretariat and comprising of:

a) Mr. Mohamed Ali Bin Yusoff, Vice Chairman
b) The three Rapporteurs
c) Delegations wishing to participate on a voluntary basis.

The Conference decided that the drafting committee would meet outside the Conference sessions, under the Chairmanship of Mr. Mohammed Ali Bin Yusoff, Vice Chairman, and produce a report with recommendations and resolutions for consideration and adoption by the Conference.

5. Statements by Delegates and Observers (Agenda item five)

5.1 Statements were made by Mr. S. A. M. S. Kibria, Executive Secretary of the Economic and Social Commission for Asia and the Pacific (ESCAP); Mr. G. M. Hamdy, Resident Representative of the UNDP and Mr. Chao Thongma, the Executive Secretary of the Asia-Pacific Telecommunity (APT). In addition, the representatives of the Universal Postal Union, the International Civil Aviation Organization, the Islamic Republic of Iran, the Republic of Korea, Societa Finanzaria Telefonica of Italy (STET), the E.E.C. and Vanuata, representing all the Pacific Islands, made statements.

5.2 These statements highlighted the key role that telecommunications play in economic growth and social development and the disparities in levels of development and the resource limitations, in the countries of the region, which have impeded harmonious growth of the sector. The representatives of ESCAP, UNDP and APT expressed their continued commitment to fruitful partnerships with the ITU. Tracing the many areas of cooperation btween the ITU and ESCAP in the past, the ESCAP representative reiterated the desire to collaborate with the Union in achieving the objectives of The Missing Link report. The UNDP in its statement reviewed the sizeable support provided by the UNDP to telecommunications development in the region over the years at country and intercountry levels, and informed the Conference of the resources earmarked for the sector during the fourth programming cycle. The APT statement highlighted its role as a regional organization to collaborate on regional issues and to provide technical assistance to its members.

5.3 The above-mentioned organizations strongly supported the findings and recommendations contained in the Missing Link report and the Arusha Declaration.

6. Presentation of Arusha Declaration (agenda item six)

6.1 Three papers on the topic were presented by Mr. Djiwatampu, who read the paper prepared by Mr. S. Abdulrachman of Indonesia, Mr. S. G. Pitroda of India and by Mr. T. V. Srirangan of the ITU.

6.2 Mr. Abdulrachman's paper highlighted the important conclusions of the Arusha Conference and established a foundation for discussing the issues in an Asia and Pacific context. The paper identified the important issues in the Arusha Declaration most relevant to the Asia and Pacific Region, that is, to

close the gap between the developed and developing world; the need for governments to allocate a higher priority to telecommunications in the overall telecommunication development; the urgent need for improvements in technical and managerial metters; enhanced resource allocations to training and Research and Development (R&D) activities. The importance of regional/sub-regional cooperation, especially in human resource development and in R&D activities was stressed. The author considered the Centre for Telecommunications Development (CTD) to be an elegant and effective means of bringing the developed and developing world closer together in a very practical way.

6.3 Mr. Pitroda elaborated the steps India was taking to fulfil the objectives set by the "Missing Link" report and the resolutions of the consequent Arusha Declaration. In particular, Mr. Pitroda gave compelling reasons in the Indian context for the accelerated provision of access to, as distinct from an approach of mere density of, telecommunication services in ways which best resolved the broad spectrum of national needs, objectives and problems, and which optimised the use of national and regional resources. He underlined the basic differences in the needs and objectives for telecommunication services between the advanced western countries and the developing countries and the importance of choosing technologies which will address the latter. In this context, he particularly emphasised the relevance and importance to developing countries, of the choice and implementation of technologies which would respond to their specific needs.

6.4 Mr. Srirangan reviewed the recommendations of the Missing Link and the resolutions of the Arusha Declaration and provided an overview of the progress made, and the prospects for further implementation of the mechanisms and international institutional recommendations required to redress the telecommunications imbalance. He emphasised that in essence, on several important issues, the debates were continuing and these should culminate in decisions at the Plenipotentiary Conference in 1989.

6.5 The delegations reviewed the topic against the background of their own specific national requirements and problems. It was quite apparent that the balanced perception of the "Missing Link" report of the Independent Commission for world-wide telecommunications development is in tune with the needs and aspirations of the Asia and Pacific countries and that the problems and constraints identified by the report are representative of the full spectrum of difficulties in the developing countries of the region. The discussion highlighted differences in both the priorities and magnitudes of the needs and constraints while confirming their validity. The importance of subregional and regional cooperation, including particularly TCDC, towards ensuring self-reliant growth through collective actions, was also emphasised.

The discussions also focussed on the need to move forward with practical steps to remedy the problems and analysed the roles of intergovernmental and regional organizations, financing institutions and outside agencies together with the need to strengthen national initiatives. The discussions further confirmed the thrust of the Missing Link in an Asia-Pacific context and the actions and initiatives taken so far.

Calls were made for some firm recommendations and resolutions from the meeting particularly with regard to financial resources and for further progress of initiatives being undertaken by the ITU in persuance of the Missing Link recommendations and the consequent Arusha Declaration.

7. Review of the past ten years of telecommunication changes in the region and assessment of the current situation (agenda item seven)

Twelve papers were presented on this topic.

7.1 Mr. L. Holloway of SPEC reviewed the growth of regional cooperation in the South Pacific prior to and following the formation of the South Pacific Telecommunication Development Programme in 1984. He spoke of the saving of resources through sharing of planning, technical skills and expertise. Efforts to exploit other economies of scale had been foiled by the tying of grants and loans. Regional efforts to achieve a reduction in satellite space segment costs by the use of a demand assigned multiple access system were being investigated.

7.2 Telecommunciations development in Japan was covered by Mr. Makoto Miura who described the use of telephone bonds for financing early Japanese telecommunications development. He stressed the present strong postion of the telecommunications industry, the assistance now being given to the ITU and the commitment of Japan to providing technical and financial assistance in developing the telecommunications of other Asia and Pacific countries.

7.3 Mr. S.M. Prasad of India outlined telecommunication development in India where the government is giving a high priority to the task. He spoke of the Indian efforts to achieve a degree of self reliance through local manufacture where this is consistent with the immediate needs.

7.4 Mr. Remedi Peranginangin of Indonesia presented a paper on the state of telecommunications in Indonesia. The paper gave an account of the existing telephone, telegraph, telex and data communication services as well as of the new services viz, facsimile, radio paging and land-mobile radio telephone. Describing the expansion of the international telecommunication services, Mr. Peranginangin outlined the effective regional cooperation achieved in the ASEAN area especially in the utilization of the PALAPA Satellite and the submarine cable links. The paper, in particular, dealt with the utilization of financial, regulatory and institutional constraints in the development of telecommunications.

7.5 Mr. K.A. Rouf of Bangladesh gave a chronology of important events in the field of telecommunications in his country and described the existing situation. The main thrust is now towards improvement of rural telecommunications to provide access to small villages/sub-districts. The speaker explained the strategy the government of Bangladesh is following to achieve its objectives of providing access to 460 sub-districts and to provide a telephone for every three square kilometers in the rural areas using digital technology.

On the question of priority, he suggested that the regional organizations, particularly ESCAP, should impress upon the governments of the developing countries of the region to assign higher priority to development of telecommunications.

7.6 Mr. R.P. Sharma of Nepal gave an outline of the development of telecommunications in his country. The paper, in particular, dealt with the present status of transmission and switching systems, development plans and strategies as well as Nepal's experience with the new technologies. He stressed that easy access to reliable telecommunication services for the large majority of the population was more relevant to his country, than mere increase of telephone density.

He mentioned that the UNDP/ITU country project on computer-aided maintenance brought down the fault rate in Nepal and improved the local network and the quality of service provided by the Kathmandu Telephone System.

7.7 General discussion on the previous papers resulted in the identification of the need to guard against the risks of introducing new technologies by carrying out in-depth studies and consequent analysis before accepting equipment using unproven technologies. Administrations should where possible ensure that equipment is field proven and that technical specifications and contracts are carefully worded. In this respect it was suggested that the World Bank could assist the countries by circulating guidelines on technical specifications and contract terms to protect the interest of the developing countries.

The Conference realised that investment on switching tended to outweigh investment on outside plant with the result that the outside plant was often of a poor standard. More attention and investment was required to improve the local cable network in order to improve the overall quality of service.

7.8 Development in Malaysia was briefly covered by Mr. M.A. Yusoff who pointed to the recent establishment of a company, Syarikat Telekom Malaysia Berhad (STM), to operate the telecommunication services of the country. 99% of subscribers now have direct toll dialling. Special attention is being given to development of rural areas using cellular radio equipment and multi-access radio as well as conventional systems.

7.9 Mr. D.M. Westendoerpf, the Director of the Centre for Telecommunications Development (CTD), presented a paper covering developments following the establishment of the Centre. While the CTD is still in its early operational stages it has received requests for assistance from 11 countries in the Asia and Pacific region and has completed evaluation missions in five of these countries. An endeavour of the CTD will be to trigger more telecommunication investment in developing countries by bringing together as partners and contributors, industry, consulting and service companies, development aid agencies and financing organizations of all types. Discussion on Mr. Westendoerpf's paper expressed concern at the financial gap between the programme support requested and the present level of donor support. The conference resolved to urge the Advisory Board of the CTD to study the matter closely, and to initiate corrective measures.

Mr. Sharma of Nepal made a strong plea for the CTD to give priority and special attention to least developed countries where he saw the need for assistance to be the greatest.

7.10 Mr. Chao Thongma, the Executive Director of the APT, reviewed the general development of the National and Inter-regional networks of member countries of the APT, pointing out that for many of the developing countries, very significant improvement has been made in national telecommunication development, including both penetration and quality of service. The APT has also assisted its members in developing rural telecommunications. A further important APT project is in hand to assist members with digital network planning. The APT provides a secretariat for the members to undertake joint intercountry planning and the ITU has in hand a project assisting the secretariat and its members with the necessary expertise to establish an ongoing database to facilitate this activity. Despite such improvement, a great deal is yet to be done to ensure the further balanced development of telecommunication in developing countries of the region. The APT made a strong appeal to the

Governments of the member countries to allocate higher priority to telecommunications development, and to international, regional and sub-regional organizations for further effective coordination in assisting member countries concerned to achieve the principal objective set out in the Missing Link report and the Arusha Declaration.

7.10 Mr. R. Reowilaisuk of Thailand provided a review of the telecommunications development in Thailand over the last decade and the policies and actions in hand to facilitate the rapid ongoing expansion of the modern digital network.

7.11 Mr. Kyun Chul Park of the Republic of Korea made a statenebt outlining the telecommunications sector in his country. Economic growth in the 1970's outpaced the provision of telecommunications service until 1980 when the magnitude of the problem caused the government to change sector priorities in 1982. Since then the network has been expanding rapidly with modern digital high technology. Korea has succeeded in establishing a significant basic research, design and manufacturing capability in modern telecommunications technology.

7.12 Mr. Santos of the Philippines presented a paper outlining the present status and prospects for development of the telecommunications sector in the Philippines. He elaborated the Government's role in the operation of the telecommunications and broadcasting services of the private sector and the need for an updated regulatory legal framework which is expected to be in place shortly.

8. Telecommunication Requirements including Usages, Plans, Alternatives, and Changes at the beginning of the Next Century (Agenda item eight)

8.1 Eight papers on the above topic were presented during the conference.

8.2 Mr. Bhatikar of India presented a paper on progress and strategies for the development of broadcasting in Asia and Pacific. Reviewing the present position on the development of broadcasting in these countries, he stressed that it was only in the last decade that most of the developing countries in the region started recognizing the potential of broadcasting in the socio-economic development and that many gaps needed to be closed before the region could "catch up" with the state of the art. He specifically drew attention to the major bottle-necks impeding the speedier growth of radio and TV services in the region such as inadequate knowledge of systems engineering, inadequate training, multiplicity of equipment, non-availability of critical spare parts etc. He acknowledged the significant contribution made by the regional and international organizations in the development of broadcasting in the region and appealed to them for further assistance in this regard. Referring to the convening of the proposed Region 3 Administrative Radio Conference for establishing the sharing criteria between the broadcasting and fixed mobile services, in particular VHF and UHF bands, Mr. Butler, Secretary-General of the ITU, clarified that a date for the conference is now to be decided by the ITU Plenipotentiary Conference in 1989.

8.3 Dr. Bob Horton of Australia presented a graphic picture of the Australian perspective on telecommunication requirements at the beginning of the next century. He stressed the need for careful analysis of product and service opportunities with respect to comparative advantage and future demand for software skills. He pointed out the long-term nature of infrastructure investment with the need for accompanying flexibility for future adoptions as technology and value additions to the infrastructure evolve. Examples in fibre optics, mobile communications and integrated switching were given. He also stated that in the past there has been a tendency to cast Australia in an

8.4 Mr. Hogendijk of ITU in his paper on the Trends in Digital Switching, covered the present situation on public switching systems, the application of ISDN in current digital switching systems, the impact of ISDN requirements on existing digital switching systems, broadband services, fibre optic technology, and switching for asynchronous transfer mode (ATM). He foresaw the appearance of a new generation of digital switching systems based on different switching principles, perhaps during mid to late 1990s, which he felt was an additional reason for the Telecom Administrations to standardize as much as possible on the existing digital switching systems for the extension of their networks. He cautioned the Administrations to very carefully consider the different options when introducing signalling system No. 7 in their network and include preferably the applications which also provide for ISDN applications; preferably the most recent version of the ISUP (ISDN user part) should be adopted by the countries who have not yet introduced this signalling system. Other Administrations, already having implemented signalling system No. 7, should carefully review how to proceed with the extensions in their network.

8.5 "The NTT Experience" presented by Mr. Shigemaro Aoki of Japan included a brief summary of patterns of development across the Asia-Pacific region, the relationship between income levels and telecommunications development. Based on the NTT experience, the speaker reviewed the outlook for telecommunications development towards the 21st century and provided some suggestions regarding telecommunications sector investment priority, appropriate digital technology and the need for highly trained staff.

8.6 Pacific Island Nations have a pressing need for satellite service to their rural areas, but the relatively high capital and running costs of VISTA earth stations has inhibited development. Mr. R. Motion (ITU) presented a paper on a proposal to set up a common demand assigned multiple access (DAMA) satellite system covering the South Pacific. With such a service space segment costs could be reduced to about one fifth of the figure for preassigned channels.

8.7 Dr. Pelton of INTELSAT gave an account of Intelsat's contribution in domestic satellite services, assistance and development programmes, the two new services VISTA and INTELNET and their new programme PROJECT SHARE to provide new types of social services. In their commitment to the further development of communications INTELSAT has taken initiatives in strengthening its cooperation with ITU, APT and other international organizations, giving impetus to digital technology, renewing emphasis on financial mechanisms to develop telecommunications, recognizing the need for procuring additional space segment capacity, assisting in health, education and disaster relief projects and promoting research and development in new technology.

8.8 Mr. G. B. Meemamsi of India made an illustrated presentation on self-reliance in telecommunication technology amongst the developing countries in order to achieve the over-riding objective of bringing the whole of mankind to within easy reach of a telephone. His presentation included strategies, the nature of new technology, and aspects of human resource development. He also described the Indian Centre for Development of Telematics (C-DOT). He stressed the need for common technical standards, specifications and design for manufacture of both components and systems thereby assuring continuity of supply.

8.9 Mr. N.K. Mathur of India outlined, briefly, the highlights of his paper. He described the diverse backgrounds that exist between different countries of the region, and identified telecommunication not only as an

essential infrastructural support encouraging the development of their economies, but also as the next economical means of communicating over long distances. He outlined specific areas of technological thrust followed in India. These were: the development of indigenous digital switching and transmission technologies; exploitation of the satellite medium for voice, telegraph and data communications; and improved penetration and access to rural areas.

Mr. Mathur further emphasised the importance of regional cooperation, particularly in the field of technical and operational standards, technological choices, consultancies and manpower training and development. He stressed the importance of balanced growth of the regional telecommunications network, progressing from the present situation through integrated digital networks which will support the ISDN concept of the very near future. He called for the active assistance of the ITU and other agencies in enouraging a balanced strategy for growth in Member countries of the region.

9. <u>Strategy for Future Telecommunications Development in the Region</u>
(Agenda item nine)

9.1 Sixteen papers on this item of the agenda were presented.

9.2 Mr. Qu Wenchu of China read the paper on rural telecommunication in the remote areas of China, prepared by Mr. Liu Zhongen. The paper gave an outline of the present status of the rural network in China which was primarily based on manual exchanges linking the administrative centres of the provinces and mostly served by open wire lines. Discussing the improvements being made to the network with the provision of automatic exchanges, VHF and UHF radio links, cable systems and solar power systems, the speaker went on to describe the steps presently being taken to upgrade staff training. These improvements were mainly due to the higher priority accorded to development of rural telecommunications in China.

9.3 International operations and their development in India were reviewed by Mr. T.H. Chowdary of India. He emphasised the importance of improving the international incoming call completion rate by selectively upgrading and modernising the segments involved in the national network of developing countries, to maximise the foreign exchange earnings. He further stressed the need to evolve appropriate technical and financial policies for expansion and modernization of international telecommunication plants to make them economically more efficient and to develop the technical compatibility for interconnection with the global network.

9.4 Mr. Dinshaw Joshi of the World Bank first described the activities of the Bank in the telecommunications sector and thereafter covered a wide range of aspects of investments in telecommunications development and their financing. He described the bank's involvement in the telecommunications sector over the last 25 years during which it has lent about US$ 3.7 billion to 48 countries in support of 108 telecommunications development projects. Individual loans or credits varied from less than $10 million to $345 million. Mr. Joshi indicated that the Bank undertakes a detailed technical, financial and institutional appraisal of the entity and the programme before agreeing to lend assistance and that this appraisal process is unaffected by either the size of the country or its investment prgramme or the level or type of financial assistance proposed. He further indicated that there has been a gradual shift over the years in the attention given to different aspects during appraisal - from attention being focussed primarily on physical assets to greater attention being given to the internal management of the entity, and presently to more attention being given to overall sector policies, regulation and sector-wide restructuring.

He presented the causes and effects of the current low levels of investments in telecommunications and particularly stressed the need for telecommunications entities to use economically, efficiently and on time the limited resources currently allocated to them by their national fiscal agencies. This would greatly improve their credibility with their national planning agencies and enhance their case for allocation of a much larger share of national resources to telecommunications in future. He also indicated measures which could lead to more aggressive development of telecommunications in rural areas, and stressed the need for telecommunication entities to pay greater attention to (a) rehabilitation of existing facilities in their development programmes and (b) the requirements of the business communities in large commercial centres for more advanced telecommunication facilities for enhancing their prospects in international business. Regarding sources of funding, he highlighted the need for telecommunication entities to enhance internal funding of their development programmes through higher internal cash generation by setting proper tariff levels and, more important, improving the quality of service which would result in higher revenues. Regarding foreign financing, bilateral financing was becoming increasingly available for telecommunications development, but Mr. Joshi advised entities to be careful in their choice of bilateral aid to ensure competitive prices of equipment offered under such aid. For this purpose, he suggested adoption of competitive prices and financing terms for bidding using discounted cash flows for bid comparison. On the issue of financial flows between the governments and telecommunication entities, he indicated how in trying to maximize short-term gains from telecommunication entities the governments have contributed to the poor state of existing telecommunication facilities and quality of service and endangered future revenues from the sector. He stressed the need for governments to allow telecommunication entities to retain enough profits from their operations, thereby improving their creditworthiness and allowing them to borrow independently from the best funding sources to meet all their financial needs without government guarantees. On the issue of tariffs, Mr. Joshi explained how tariffs play two essential roles - of earning adequate revenues and of efficiently allocating the supply of services. He stressed the need for systematic periodic review of tariffs in relation to changes in demands for different services and the costs of provision of these services.

9.5 Mr. Akatsuka of the Asian Development Bank made a statement affirming the Asian Development Bank's commitment to funding the development of telecommunications in Asia and the Pacific. He pointed to the banks ability to give technical assistance grants as well as project loans.

9.6 Italian development aid was described in a statement by Mr. Bondioli-Osio of Italy. It could support research as well as development projects and favoured those applications which would serve the poorer strata of the population.

9.7 Mr. Hardy, representing the Commission of European Communities, confirmed the intention of the Commission to continue and strengthen its many ties with the countries of the Asia and Pacific region. He advised the meeting that due to the shift in regulatory focus within member states of the European Commission and due to the views expressed in the "Green Paper on Development of the Common Market for Telecommunication Services and Equipment" arising from which CEPT has taken a basic decision to establish a "European Telecommunications Standards Institute (ETSI)". The intention was to ensure open competition for European manufacturers in a European market.

Other objectives of the Community included confirming or strengthening policies and strategies to ensure the integrity of the European network, to promote a strong European presence in both the services and industrial fields, and to ensure participation in less favoured regions.

9.8 Mr. Ras-Work of the ITU reviewed the policy considerations faced by the PTTs in moving from a government administration to a telecom enterprise. He recommended that member countries should set up interdepartmental high level mechanisms in their own countries to develop national telecommunication policy and legislation. At an international level Mr. Ras-Work recommended that for intercountry service the Asia and Pacific countries should request regional and sub-regional organizations to initiate studies and to provide suitable forums for exchange of views and joint planning exercises.

9.9 The meeting took advantage of the presence of the Resident Representative of the UNDP, Mr. Gamil Hamdy, who was requested to provide information on the financial resources available to the telecommunications sector and the modalities of accessing these funds. Mr. Hamdy informed the conference of the working arrangements between the countries, the ITU and the UNDP for intercountry programme project funding, and briefed the delegates on the present status of the current mid-term review and the possibility of further telecommunications funding arising from this process. The UNDP Resident Representative suggested that it may prove beneficial if the meeting were to recommend increased funding to the Central UNDP donors for these to reflect positively on allocations made for the telecommunication sector in the programming process. The conference decided that it would be appropriate to urge UNDP and other cooperative developing agencies to use their best endeavours in their discussions with Government to highlight the need for increased priority support to the telecommunication sector.

9.10 Mr. Fachri Mahmud of the ESCAP presented a paper on "The role of telecommunications in the economic and social development in the Asia-Pacific region" wherein he described the ESCAP's activities in this respect. In the discussions following the presentation he drew the attention of the Conference to the statement made by the Executive Secretary of the ESCAP earlier in which he reiterated ESCAP's commitment to support the development of the telecommunications sector in the region. The Conference recommended that the ESCAP, given its wide mandate and its contacts at policy level in the developing countries of the Asia-Pacific region, takes appropriate action to follow-up the relevant Missing Link recommendations, particularly those relating to telecommunications sector priority, and to coordinate regional/sub-regional cooperative endeavours on research and development, common standards and specifications, collective procurement and local manufacture.

9.11 Mr. Seru Korikalo of Vanuatu read a statement prepared jointly by the small Pacific island countries participating in the Conference, on the need for understanding of and assistance to the Pacific countries whose requirements and situation are quite different from those of the larger developing countries. It was requested that special consideration should be given by the developed countries, the funding organizations and the international and intergovernmental organizations, to the special needs of the small island countries of the Pacific for the development of telecommunications.

9.12 Mr. Arnold P. Djiwatampu of Indonesia presented a paper on the strategy for future development. The paper in particular dealt with the need for higher priority to telecommunications in the developing countries and other relevant issues such as transfer of technology, research and development and human resource development. The paper led to the adoption of a number of recommendations, as reflected in paragraph 12.

9.13 Mr. S. L. Desai of ITU introduced his paper covering technical cooperation between developing countries (TCDC) in telecommunications. He made a number of recommendations which are reflected in the recommendations.

9.14 In his presentation, Mr. S. K. Lindquist of ITU pointed out ways in which technological and structural changes affect human resource management (HRM) functions and expressed the need for a more integrated approach to HRM. He also made a reference to the integrated framework for human resource strategy development, jointly prepared by the ITU and the World Bank.

9.15 Mr. N. R. Hiregange of India presented a paper on the strategy to be adopted for the development of telecommunications in the region. This paper touched upon the priority needs in the adoption of new technologies, self-reliance, indigenous manufacture, human resource development and the role of international and regional organizations such as ITU, APT, ASEAN and SAARC. In a document circulated by India for information, he indicated that India would cooperate with other countries of the region by providing experts in digital systems and also in providing the necessary training facilities in their training centres. He also presented an information document ASP/TDC/88/516 giving an outline of the telecommunications policy being considered for adoption by India.

9.16 Mr. K. A. Rouf of Bangladesh gave a brief description of the development in telecommunications which have occurred during the last ten years in Bangladesh. He further outlined the strategy of developing telecommunications particularly in the rural area by improving transmission networks and adopting transmission media which will avoid disruption of communications during natural emergencies such as floods and cyclones.

9.17 Mr. Y. L. Agarwal of India stressed the need for more regional cooperation to ensure balanced and optimum development of the regional network and gave examples of success for cooperation achieved in the objective by such organizations as PANAFTEL, MEDARABTEL etc. He foresaw many areas of cooperation, particularly in the introduction of new technologies and the attainment of the ultimate ISDN capabilities which would require close consultation and cooperation amongst the countries of the region. He also emphasized the need for regional cooperation in the operation and maintenance of hardware and software for the modern switching systems.

9.18 Mr. R. P. Sharma of Nepal talked about the problems of telecommunication development in least developed countries (LDC) of the Asia and Pacific region. He gave a brief account of the development situation obtaining in the LDCs and identified problems in realizing the main objective of the Missing Link report. He also suggested a number of steps which could be taken to achieve the report's over-riding objective. He emphasized the desirability of LDC's developing common specifications for telecommunication equipment with the cooperation of relatively more developed countries of the region and their participation in joint manufacturing activities.

10. Technological Changes and their Impact on ITU Activities
(Agenda item ten)

10.1 Three papers on the topic were presented.

10.2 Mr. S. N. Rahim of the ITU presented a paper on changes in ITU regional presence made in response to recommendations given by the Plenipotentiary meeting in Nairobi 1982. Today ITU is represented in the region by a Senior Regional Representative, two Area Representatives and a Senior Training Development Expert. Mr. Rahim then pursued the main theme of the paper by outlining ITU interaction/cooperation with other telecommunication related organizations active within the ASP region. The regional organizations

discussed were: ESCAP, APT, SPEC, ABD, AIBD, ABU, ASEAN and SAARC. It was expressed that ITU, through its regional presence, would be both able and willing to establish an even closer and more effective cooperation with these regional organizations.

10.3 Mr. G.J. Davey of the ITU presented a paper on the impact of technological changes on ITU technical cooperation activities in the Asia and Pacific region. Mr. Davey first outlined areas of traditional support that will continue in the new technical environment followed by an outline of the envisaged new direction of ITU support. The traditional support areas mentioned included outside plant reticulation, training (institution building and short term consultancy for technology transfer), planning (establish planning functions and preparation of master plans), test and development centres, and radio frequency monitoring/spectrum management. Examples of new directions described included policy and legislative frameworks in the new technological environment, organizational structure, increased service orientation, improved management efficiency, computerization, human resource management, business administration, tariffs etc. At the end of the presentation, Mr. Davey suggested a continuing rapid rate of change for the telecommunications sector as a whole and he concluded that these changes would undoubtedly be reflected in changes within the ITU itself.

10.4 Mr. C.K. Reddi and Dr. M. K. Rao of India provided a stimulating paper on technological changes and their foreseen impact on the future of the Union. Amongst the issues raised by the paper were the large number of expensive meetings and conferences of the various organs which need to be reviewed for better focus on results and the optimal use of available resources. The Conference noted the need for comprehensive general conferences and more particularly for regional developmental conferences which could be obtained by reviewing the mandate of the present Plan Committees. The Conference also noted the need for a detailed review of the structure of the Union in order to enable it to respond effectively to the repidly changing technology and services.

10.5 The Conference agreed on the need to highlight these issues for the attention and consideration of the Member countries prior to the ITU Plenipotentiary Conference in 1989.

11. Review of Progress in the Implementation of the Transport and Communications Decade (agenda item eleven)

Two papers on this topic were presented.

11.1 The first paper was presented by Mr. F. Mahmud of the ESCAP in which a full background, objectives, strategies and the progress of the transport and communications decade was discussed and explained.

11.2 The second paper was presented by Mr. M. Anwar of the of the ITU. He referred to the transport and communications decade programme in the region and the UNDP/ITU project in this respect which aims at with the establishment of a telecommunication database for future planning of the regional network. This project is being implemented by the ITU with full cooperation of the APT which is providing substantial inputs to the project and is committed to maintaining and updating the data on termination of the project. He also gave an account of other activities, particularly those relating to assistance and regional cooperation in telecommunication planning.

12 Conclusions and Recommendations (Agenda item twelve)

12.1 The Conference endorsed the general thrust of the reports, The Missing Link and the Arusha Declaration, and confirmed their resolve to accelerate the rate of growth in the development of telecommunications in the Asia-Pacific Region. The conference **recommended** that all out efforts be made to allocate more financial resources to the telecommunication sector and requested the international financial institutions such as the World Bank, the Asian Development Bank etc, to give higher priority to telecommunications while considering demands from the developing countries for national development and infrastructure improvements.

12.2 The Conference recognized in particular the special difficulties of the LDCs and the small island countries and **recommended** that special attention and consideration be given by the ITU and the international financial institutions and aid donors to their exceptional needs.

12.3 The Conference **appealed** to the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) to use its forums for stressing the needs for the development and improvement of telecommunications in the national and regional telecommunication network to boost socio-economic conditions in the Asia and Pacific region. The Conference also **requested** ESCAP to get directly involved in the telecommunications sector in association with the Asia-Pacific Telecommunity (APT) and International Telecommunications Union (ITU) and follow-up the relevant recommendations of "The Missing Link" report.

12.4 The Conference stressed the importance of sustained and predictable support in the field of technical cooperation for telecommunications development and recognized the global role of ITU and UNDP in this regard.

12.5 The Conference appreciated the role APT is playing in developing and improving telecommunications in the region in coordination and cooperation with ESCAP and ITU and welcomed the joint collaboration it has undertaken with the ITU and United Nations Development Programme (UNDP) in establishing a database in its headquarters to aid and undertake regional telecommunication planning activities.

12.6 The Conference took note of the fact that if specifications and contract terms are not properly worded this could result in the supply of inappropriate equipment and technology. The Conference **recommended** that in order to guard against the risk of introducing unproven equipment and technology into the network, the Administrations should be very cautious in wording the specifications and contract terms. The Administrations should, where necessary, make use of the consultancy and advisory services of ITU, APT, INTELSAT, the World Bank, etc. The Conference recommended that the World Bank should circulate guidelines on the proparation of technocal specifications and legal contract terms for the benefit of the developing countries.

12.7 The Conference also noted that the performance and reliability of switching equipment has improved considerably as a result of heavy investments made in this area whereas comparable investments have not been made in the outside line plant and cable networks, which continue to be a source of frequent faults and failures. The Conference therefore **recommended** that more attention should be paid and investments made to improve the reliability of the outside line plant with a view to improving the overall quality of service.

12.8 The Conference recognized the need for a more integrated human resource management within the telecommunication sector, and **recommended** that each developing country of the ASP region assigns their strategic/corporate planning function, or a separately nominated HRM task force, to be responsible for determining optimal human resource strategies to match their telecommunication development plans.

12.9 To facilitate collaboration on human resource management matters, it was recommended to the conference that countries nominate a single liaison specialist to communicate with the ITU Senior Training Development Expert located in Bandung, Indonesia. The training development activities of the CODEVTEL project which includes human resource management should be strengthened to cope with the increasing demand for assistance in this field of national, sub-regional and regional levels. To this end the conference **requested** the Secretary-General to make appropriate recommendations to the Plenipotentiary Conference so that these activities can become permanent.

12.10 Recognizing the need to optimize investments, the Conference **recommended** that national administrations and assisting agencies should stress the importance of:

i) increasing telephone accessability rather than mere telephone density.

ii) improving the reliability of existing telecommuniction facilities.

iii) adopting a policy of digitalization of the telecommunication networks for developing this service in a cost-effective manner.

12.11 To improve collective self-reliance and to strengthen cooperation between the developing countries of the region the conference **recommended** that international, regional and national organizations should encourage nations of the region to:

i) evolve common standards and specifications for telecommunication products and services,

ii) design products to meet their distinctive needs,

iii) manufacture the designed products,

iv) manufacture in ancilliary industries, components required to build the products,

v) share the infrastructure available for human resource development,

vi) procure imported equipment collectively where feasible,

vii) share operation and maintenance hardware and software facilities for modern switching systems.

12.12 The Conference confirmed stongly the need for TCDC and **recommended** that the Secretary-General of the ITU make suitable proposals to the ITU Plenipotentiary Conference 1989 to substantially augment TCDC activities and to take whatever other actions are necessary, in the Department of Technical Cooperation of the ITU, to further facilitate TCDC.

12.13 Recognizing the importance of foreign exchange earnings in international telecommunications operations to the developing countries the Conference **recommended** that national telecommunications administrations should substantially improve the answer/seizure ratios for incoming traffic by selectively upgrading and modernizing the elements involved in international traffic.

12.14 The Conference **recommended** that the ITU and the World Bank consider inviting Ministers of Finance and Planning of the developing countries to a joint meeting to highlight the importance of adequate high quality telecommunication services which support socio-economic development and to demonstrate the negative effects of past underinvestment on the sector. The need to allocate a larger share of fiscal resources to telecommunication in future should be demonstrated clearly at this meeting.

12.15 The Conference **recommended** that all countries pay increased attention to improving telecommunications access to the rural areas of developing countries.

12.16 The Conference requested the ITU Secretary-General to take appropriate steps to follow up these recommendations. Seven resolutions which appear in annex A were adopted.

13. Closing Ceremony (agenda item thirteen)

13.1 The report on the proceedings of the Conference, including Recommendations in paragraph 12 and the Resolutions in Annex A was adopted by the Conference at its last session held in the afternoon of 26 February 1988.

13.2 Following the adoption of the report and recommendations there was a brief closing ceremony. The closing session was addressed by Mr. J. Jipguep, Deputy Secretary-General of ITU, who congratulated the Chairman on the tact, wisdom and and foresight with which he lead the delibrations during the Conference. Complimenting the delegates at the high quality of the papers and the voluminous information presented during the Conference, he assurred them of the Union's readiness to assist and cooperate in the implementation of the resolutions and recommendations adopted by the Conference. On behalf of the Asia Pacific Telecommunity, Mr. Chao Thongma congratulated the Conference on its achievements and on focussing attention on important regional issues.

A number of delegates spoke at the closing ceremony to thank the Chairman for leading the deliberations to a successful conclusion.

There being no other business, the Chairman declared the Asia Pacific Telecommunications Development Conference closed at 1900 hours.

ASIA AND PACIFIC TELECOMMUNICATIONS DEVELOPMENT CONFERENCE

ANNEX A

RESOLUTIONS

NEW DELHI, INDIA, 22–26 FEBRUARY 1988

RESOLUTION 1

Financing the Development of Telecommunications in the Developing World

The Asia and Pacific Telecommunications Development Conference (New Delhi, India, 22-26 February 1988),

considering

that the Arusha Declaration on World Telecommunications Development generally endorsed the conclusions and recommendations of the Independent Commission for World-wide Telecommunications Development, and the overriding objective that "by the early part of the next century, virtually the whole of mankind should be brought within easy reach of a telephone";

recalling

that the Arusha Declaration:

- urged developed countries to devote larger financial and technical resources than hitherto for telecommunications within the various multilateral and bilateral aid programmes and, in this regard, paying special attention to the needs of the least developed countries,

- also called upon the Member states of the ITU to study the long-term measures proposed by the Independent Commission for World-wide Telecommunications Development, and take appropriate action "so that more satisfactory financing and related institutional arrangements could be evolved";

recalling further

that the Independent Commission for World-wide Telecommunications Development had asked the Secretary-General of the ITU to study the proposal for long-term measures and submit his conclusions to the Plenipotentiary Conference 1989;

recognizing

that the investments required to meet the objective of bringing the whole of mankind within easy reach of a telephone by the early part of next century, are beyond the capabilities of most developing countries;

realizing

that shortfall of resources for investments would indeed prove to be a serious impediment in reaching the set objective;

convinced

of the urgent need for special efforts for raising and channelling additional resources for investments in telecommunications on a timely and efficient basis;

requests

the Secretary-General of the ITU to continue the necessary studies and consultations with the view to following up the conclusions of the Independent Commission for World-wide Telecommunications Development, and presenting appropriate recommendations to the Plenipotentiary Conference, 1989.

calls on

all ITU Member states to extend every possible assistance to the Secretary-General in this regard.

RESOLUTION 2

Study on the Sharing of Revenue on International calls between Industrialized and Developing Countries

The Asia and Pacific Telecommunications Development Conference (New Delhi, India, 22-26 February 1988),

considering

the various recommendations contained in the Missing Link report for financing the development of telecommunications in the developing world, generally endorsed in the Arusha Declaration on World Telecommunications Development;

recalling

in particular the recommendation that "Member states of the ITU consider, in the light of their own circumstances, a rearrangement of their international traffic accounting procedures with the aim of setting aside a small proportion of the revenues from calls between developing countries and industrialized countries..." (ch. 9, para 30);

conscious

that a spirit of partnership and a mutuality of interests are crucial for the effective provision and efficient operation of international telecommunication facilities in every relation;

recognizing

the flexibility available in the current Recommendations on arrangements for accounting and sharing of revenues on international calls;

also recognizing

that there is reason to believe that the cost of international calls to and from industrialized countries may be relatively higher for developing countries and that if so this might justify some variation in the normal sharing of accounting revenue on a different basis from that currently existing, for the benefit of developing nations;

notes

that a study is being undertaken by the Secretary-General of the ITU to examine this matter;

requests

the Secretary-General of the ITU to complete the study and present the conclusions to Member states as a matter of priority;

appeals

to all Member administrations of the ITU and operating agencies to extend the necessary assistance to the Secretary-General in completing the study.

RESOLUTION 3

Centre for Telecommunications Development

The Asia and Pacific Telecommunications Development Conference (New Delhi, India, 22-26 February 1988),

recalling

Resolution No. 929 of the ITU Administrative Council, by which the Centre for Telecommunications Development was established;

regretting

- the continuing serious imbalance in the availability of telecommunication technology and services between North and South and the worsening trend towards it;

- the poor state of telecommunication facilities and services existing in most of the developing countries;

- the fact that two thirds of the world's population has no access to basic telephone services;

noting

the need for strengthening and expanding the scope and extent of advisory services and technical assistance to developing countries through the Union and, in particular, through the Centre for Telecommunications Development (CTD);

noting further

the recognized potential of the CTD to accelerate the promotion of self-reliant growth of the telecommunications sector in the developing countries;

greatly concerned

by the inadequate response, particularly of the telecommunications industry, operating entities etc, in developed countries to the campaign undertaken by the Secretary-General of the Union and the Advisory Board of the CTD for mobilization of resources for the Centre;

also recalling

the general disappointment and concern expressed by the 42nd Session of the ITU Administrative Council at the low level of resources mobilized and the slow commencement of the field activities of the CTD;

urges

the Advisory Board to continue to seek ways to ensure that the CTD is provided with sufficient and stable resources, as foreseen in Administrative Council Resolution No. 929, and to increase the field activities commenced by the CTD;

convinced

that the development of telecommunication networks in the third world is to the advantage not only of the developing countries but also to the governments, administrations, operators and industry of the industrialized countries;

appeals

to the developing countries in the Asia and Pacific region, the telecommunications industry, operating entities and others concerned in the developed countries to provide more significant funding for the CTD's programme and activities in the spirit of multilateral cooperation to the benefit of all and;

resolves

that the telecommunication administrations of Member states of the ITU actively pursue this matter.

requests

the Secretary-General of the ITU to circulate this resolution to all the members of the Union.

RESOLUTION 4

Effective Response of the Union to the Changing Telecommunication Scenario

The Asia and Pacific Telecommunications Development Conference (New Delhi, India, 22 - 26 February 1988),

recalling

- that the ITU is the Specialized Agency of the UN System for Telecommunications;

- that the purposes of the Union are:

a) to maintain and extend international cooperation between all Members of the Union for the improvement and rational use of telecommunications of all kinds, as well as to promote and to offer technical assistance to developing countries in the field of telecommunications;

b) to promote the development of technical facilities and their most efficient operation with a view to improving the efficiency of telecommunication services, increasing their usefulness and making them, so far as possible, generally available to the public;

c) to harmonize the actions of nations in the attainment of those ends.

considering

- that the Union has been discharging its mandate through a structure which has evolved over the decades;

- that in recent years particularly, the Union has been increasingly subject to severe financial resource constraints;

- that no substantial improvement in the financial resource position of the Union can be presently foreseen;

noting

- that telecommunication technology continues to take rapid strides;

- that the world is witnessing sweeping changes in regard to telecommunication networks, services and applications;

- that unprecedented structural changes are taking place in respect of the provision, operation and use of telecommunication services;

- that several new entities are now entering and influencing the international telecommunication scene;

realizing

- that these changes are making fresh demands on the Union;

- that some of the changes would also present challenges to the maintenance of the Union's primacy in matters coming within its aforesaid purposes;

realizing also

that there are urgent and increasing demands on the Union for the promotion of a balanced and universal world-wide access to telecommunication facilities and services;

recognizing

- the importance of ensuring that the Union responds to these demands, challenges and changing needs in a rapid, flexible and timely manner;

- the need to mobilize additional resources to the maximum extent possible to enable the Union to deal with its tasks;

- the need, specifically, to use all available resources in the most effective manner and minimize all avoidable overlaps, duplication and wastage of efforts;

recognizing further

- that the many revolutionary changes in the worldwide telecommunication scenario demand a serious, introspective review of the Union's own structure, procedures and methods of working;

- that such a review is most essential to preserve the Union's continuing role as a responsive, cohesive agency;

resolves

that Member countries of the Asia and Pacific region consider the need to review and reevaluate the current structure and working methods of the Union with the objective of arriving at the most appropriate structure and methodologies to enable the Union to meet its mandate more effectively and that this matter may be considered by the Plenipotentiary Conference in 1989 as appropriate;

requests

fellow Member states of the other regions of the world to also examine this matter;

requests also

the Secretary-General of the ITU to circulate this resolution to all the members of the Union.

RESOLUTION 5

Convocation of Regular Regional Telecommunication Development Conferences

The Asia and Pacific Telecommunications Development Conference (New Delhi, India, 22-26 February 1988),

recalling

the Arusha Declaration, unanimously adopted by the Ministerial level World Telecommunications Development Conference held at Arusha (Tanzania), 27-30 May 1985, which set a world-wide target for telecommunications development;

welcoming

the present conference which provides an opportunity to the developing countries of the Asia and Pacific region to coordinate development efforts;

recognizing

that telecommunication is a powerful engine for economic growth, and is one of the pre-requisites for socio-economic development;

convinced

that regional telecommunications development conferences provide an effective forum for:

- reviewing the progress on, and comparing the strategies and experience of national development programmes in the region,

- the presentation and crystalization of new ideas for enhancing the effectiveness of telecommunications network development and operation,

- furthering the opportunities for technical cooperation amongst Member states themselves, and also through international development agencies;

- harmonizing the growth of regional and sub-regional telecommunications facilities and services;

requests

the Secretary-General of the ITU to seek ways and means of institutionalizing the convocation of regional telecommunications development conferences, thus enabling them to be convened regularly and at appropriate intervals.

RESOLUTION 6

Mechanisms for National and Regional Telecommunications Development Policy

The Asia and Pacific Telecommunications Development Conference (New Delhi, 22-26 February 1988),

having reviewed

the documents presented at the conference and the discussions that followed;

considering

that telecommunication is a tool for effective nation building and increasing productivity and efficiency in all major sectors of the economy;

considering further

that modern technology particularly the merging of computers and telecommunication, has brought about many new services and service providers;

recognizing

that the provision of national telecommunication services falls within the sovereign right of nations not withstanding the interconnected nature of the global network;

invites

developing Member countries of the Asia and Pacific region to set-up an interdepartmental high-level governmental mechanism to review current national telecommunication policy and articulate clear guidelines on the extent and type of services to be provided, the ownership, structure and management of service providers, as well as the means and mechanisms for regulating the resources and activities of the sector;

requests

the ITU and other regional organizations to assist the Member states to evolve a harmonized sub-regional and regional telecommunications development policy.

RESOLUTION 7

Support for Telecommunications Development

The Asia and Pacific Telecommunications Development Conference, New Delhi, India, 22-26 February 1988,

recalling

the request of the Arusha World Telecommunications Development Conference, to the UNDP to accord a higher priority and enhanced allocations to the needs of the telecommunication sector in the developing countries;

appreciating

the assistance provided by UNDP and ITU in the telecommunication sector to the developing countries of the Asia and Pacific region in the past;

recognizing

the allocation to telecommunications in the UNDP Intercountry programme for the fourth cycle and inclusion of a number of important UNDP/ITU projects responding to the changing needs of the countries in new technology areas;

recognizing further

the higher priority that all developing countries need to accord to the telecommunication sector;

noting with concern

that due to funding constraints in the UNDP country programmes a number of equally important country projects could not be included and others had to be substantially reduced in scope and/or duration and therefore unlikely to fully meet the expectations of the countries and the objectives originally foreseen;

urges

the UNDP,

- in its relationship with developmental organs of Governments, to recommend higher priority to the telecommunication sector, with stress on rural telecommunication development and increased allocation of funds to telecommunication in its programmes for the fourth cycle in the countries of the Asia and Pacific region;

- to respond to the changing needs of the countries arising from the adoption of new technologies and introduction of new services and increase its assistance for the telecommunication sector beyond the current programming cycle;

- to promote the inclusion of an adequate allocation to provide the telecommunication services required to support all other projects funded by the UNDP;

the ITU,

- to continue to seek ways of influencing its Member States to accord higher priority to telecommunications development in their national plans, and to influence UNDP and other multi-lateral and bi-lateral funding agencies to match this higher priority in conformity with the Arusha Declaration.

ASIA AND PACIFIC TELECOMMUNICATIONS DEVELOPMENT CONFERENCE

ANNEX B

SPEECHES DELIVERED AT THE OPENING CEREMONY

NEW DELHI, INDIA, 22–26 FEBRUARY 1988

1. Welcome Address by Mr. D.K. Sangal
Secretary, Department of Telecommunications
Government of India.

Respected Prime Minister, Honourable Minister of Communications, Mr. R.E. Butler, Secretary General, and Mr. Jipguep, Deputy Secretary General, other guests from the International Telecommunication Union, Honourable Ministers of the Government of India, Your Excellencies the Ambassadors, Distinguished delegates to the Asia & Pacific Telecommunications Development Conference, Honoured Guests, Ladies and Gentlemen of the Media and Colleagues;

It gives me great pleasure to welcome you all to this Asia & Pacific Telecommunications Development Conference.

First and foremost, I extend a hearty welcome to our guests the distinguished delegates from the various countries of the Asia and Pacific Region and from the international agencies. I hope your stay here, during the next week, will be comfortable, pleasant and satisfying to you. Please do not hesitate to call upon us if we can do anything to make it more useful.

Respected Prime Minister, Sir, to you I extend a very special welcome on my own behalf and on behalf of the fellow delegates from the countries of the Asia and Pacific Region, the International Telecommunication Union and the regional representatives of the various international agencies. We are grateful to you for having agreed to inaugurate our conference. You have been taking a very keen interest in all matters relating to modern technology and human welfare in general, and telecommunications in particular. Very early on, on assumption of your office as the Prime Minister of India, you recognized the importance of telecommunications as a vital infrastructure. You gave us a new organization, by way of a fully-fledged Department of Telecommunications. You have supported us in securing a larger allocation of investible resources. You have given us access to the national capital market for supplementing our own substantial internal resources through public borrowings. And finally, you have included the "Mission - Better Communication" as one of the five National Missions which cover such vital sectors as Drinking Water, Immunization and Literacy. In fact, Sir, we in the telecommunications community have come to look upon you as one of us.

We have no doubt that your words of advice to us in this inaugural session of the conference will help set the pace of discussion and deliberations to evolve useful strategies through international and regional cooperation to develop telecommunications, nationally and internationally, in the service of humanity.

To you, Shri Vasant Sathe, Minister of Energy and Communication, also a very special welcome. You have just taken over as Minister of Communication. However, within a very short time you have displayed your very special interest in the development of telecommunication and use of modern technologies in the service of the people. In fact, telecommunications is not really new to you. Earlier, as Minister of Information & Broadcasting, you were instrumental in launching a major programme of extending television programmes to all parts of the country. It was through your vision and the support of the then Prime Minister Smt. Indira Gandhi that the country adopted the colour television transmission which covers more than 70 per cent of the population through over 200 television transmitters using the Indian National Satellite System. We are

grateful to you, Sir, for having agreed to address this Inaugural Session of the Conference. We have no doubt that your words of wisdom and guidance will help set a proper pace for our endeavours.

To you Mr. Butler, Secretary-General and Mr. Jipguep, Deputy Secretary-General and your colleagues from the International Telecommunication Union, I extend a very hearty welcome on my own behalf and on behalf of the delegates to the conference. It was through the initiative of ITU under your guidance, Mr. Butler, that World communications Year 1983 was celebrated throughout the nations. The celebration of World Communications Year has helped focus on the role and importance of telecommunications infrastructure, nationally and internationally. The Independent Commission for the development of telecommunications set up by the International Telecommunication Union has made a landmark contribution through its valuable report, appropriately called "The Missing Link". The report has focussed on the relatively under-developed state of communications in the third world countries. The Commission has made recommendations which should lead to bridging this gap and provide "The Missing Link".

Since then, you have taken initiative to organize in 1985 the Arusha World Telecommunications Development Conference and other conferences at regional levels. We are happy that you and the ITU have chosen India to host this conference for the Asia and Pacific Region. We feel it a privilege to do so.

I am happy to welcome all our distinguished guests, the Ministers of the Government of India, Secretaries, Senior Officers, Your Excellencies the Ambassadors from all the friendly nations and all the other distinguished ladies and gentlemen who have joined us in this Inaugural Session. Your presence here gives us encouragement and the will to work with determination towards development of communication infrastructures for the common good of the people of the world.

In this Conference, we are assembled here, the delegates from countries of the Asia & Pacific Region as well as the regional representatives of the various international organizations engaged in cooperative efforts towards human development. In the next five days, we will be focussing on the role of telecommunications in all its aspects, the basic telecommunications infrastructure for public and private communication by telephone, telegraph, data and video and the infrastructure for the electronic media. We will review the progress during the last ten years, the present status, and the telecommunication requirements for the beginning of the next century and will try to evolve strategies for meeting the same.

The ITU has played an important role for over a century in making communications universal through standardization of equipment, software and procedures. It has also helped in the orderly use of the common natural resources like the electro-magnetic spectrum and the geostationary satellite orbit. It is but proper that we meet here under the auspices of the International Telecommunication Union and consider and exchange ideas on how to cooperate further on the development of telecommunications throughout the world.

Once again, I welcome you all Ladies and Gentlemen. With this, may I request the Honourable Minister for Communications, Shri Vasant Sathe, to kindly address us.

2. Address by His Excellency Mr. Vasant Sathe
Minister of Communications
Government of India

Honourable Prime Minister, Mr. Butler, Secretary-General ITU, Mr. J. Jipguep, Deputy Secretary-General ITU, my colleagues from the Government of India, Your Excellencies, Ambassadors, Distinguished Delegates to the Asia & Pacific Telecommunications Development Conference, Ladies and Gentlemen;

It is a pleasure for me to be associated with this Asia & Pacific Telecommunications Development Conference being held in New Delhi under the auspices of the International Telecommunication Union. I have joined the Ministry of Communications only recently, but I have had close relations with the world of telecommunications for quite some time in my earlier incarnation as Minister of Information & Broadcasting.

It is a matter of happy coincidence that this Telecommunications Development Conference for Asia and Pacific is being organised in India when we are also celebrating the 40th Anniversary of our Independence. I am happy to welcome the distinguished delegates from the countries of the Asia & Pacific Region, the ITU and other international agencies and all of you ladies and gentlemen. We are indeed privileged to have our Honourable Prime Minister to inaugurate the Conference.

At the time of Independence, we had very limited telecommunication facilities. The country had hardly 82,000 telephone connections from 321 telephone exchanges and 338 long distance public call offices. There were hardly 500 trunk telephone channels. The broadcast system also consisted of only about 12 transmitters covering only the urban parts of the country. Immediately after Independence we faced very serious challenges thrown up by the problems created by the partition of the country and the massive migration of population and a stagnant economy. It goes to the credit of our leaders at that time that on the one hand they tackled the immediate problems with courage and fortitude and on the other started laying foundations of an orderly socio-economic development of the nation. Communications infrastructures received due attention. Since then, there has been a substantial growth. Today, we have over 3.6 million telephone connections served from over 12,000 telephone exchanges. We have about 25,000 long distance public telephones; the number of trunk channels exceeds 120,000. We are using a mix of the old and the new technology; among them strowger, crossbar and SPC Analogue and digital exchanges work side by side in the national telecommunications network. Similarly, in the transmission field, open-wire physical, open wire carrier, coaxial cable, analogue and digital microwave and UHF, Satellite and now the optical fibres technologies are working side by side in the network. The Indian National Satellite system has proved a boon for the T.V. and radio broadcasting. Nearly 70 percent of population is now within the range of over 200 colour TV transmitters. Radio transmitters cover over 90 percent of the population.

Impressive though our growth has been it is still far from meeting the needs. We have a registered waiting list for nearly 1.3 million telephone connections. 75 percent of our population lives in about 575,000 villages dispersed throughout the country. While most of the people in these villages would not need and cannot afford an individual telephone, they do need access to a public telephone. But we have such phones only in about 35,000 villages. We thus face, along with our brothers in many other developing countries, a serious challenge of providing a basic communication infrastructure which can meet the needs of our people.

Telephones have now been serving the human society for more than a century. It has enabled people to exchange information, observations and ideas without constraints of distance and time. It has profoundly affected the way people all over the world conduct their lives and has now become an essential part of a global society with the services reaching a new level of maturity. We have observed that the pace of events since the dawn of civilisation has been dependent almost entirely by man's access to and use of information and today we are poised to achieve an accessability to information and knowledge without parallel in history. Major changes in methods of information collection, storage and distribution are producing a profound impact on the human civilization.

Innovations in the application of microprocessors, satellites and video technology are rapidly expanding our access to and use of information. Such developments will have important consequences for the productivity of organizations and individuals. Increased agricultural productivity and industrial capabilities, achievement of literacy among the population and development of transportation are some of the attainments. This will inevitably lead to much increased utilisation of sophisticated communication systems. When an effective information infrastructure is created based largely on interactive telecommunications and computer technologies, the nations are enabled to become active participants in a global system of collective information exchange which will assist in many nation-building activities.

The last few years have witnessed an explosion in new telecommunication services and techniques. Fibre optics, digital switching and transmission, cellular radio, direct broadcast satellites and software defined networks have all lent urgency to establish a standard and world-wide consensus on essential points of a common communications infrastructure. ITU is no doubt aware of this urgency and has taken steps through its various study groups for drawing up uniformly acceptable standards worldwide. While these initiatives are encouraging, deeper problems are arising as even the very definition of telecommunication services is becoming complex.

Basic versus enhanced, public versus private, mobile versus fixed, radio versus wireline - boundaries that were once clearly defined have begun to lose their meaning. Let us hope that these will get sorted out soon to enable establishment of world-wide standards so that all of us in all parts of the globe can be partners in exchange of global information.

The problems faced by most of the developing countries are somewhat similar and pooling of the limited resources of these countries, both material and manpower, should prove advantageous to reduce the widening gap between industrialized and developing countries in the shortest possible time in an economical way. This calls for both multilateral and bilateral cooperation, involving both industrialized and developing nations.

I hope that this Conference of the Asia and Pacific region will address itself to these challenges and will come up with concrete proposals for cooperative action so that such challenges can be met. In this region, there are many countries which are highly developed; they are even leaders with regard to telecommunications. There are others who have made significant efforts towards development in this field and many others who are amongst the least developed in this regard. We cannot have a world with such stark contrasts and we have to work in close collaboration and evolve strategies for speeding the development of telecommunciations in such countries.

It is in this context that India has been working and participating with the International Telecommunication Union in its various efforts for development of telecommunications. We are happy to have been associated with the Independent Commission for the development of telecommunciations set up by the ITU.

One of my predecessors, Shri R.N. Mirdha had personally participated in the first World Telecommunications Development Conference in Arusha following the report of the Independent Commission. He had participated actively and had endorsed the Arusha Declaration on behalf of this country.

Recently, my immediate predecessor, Shri Arjun Singh, while speaking in the Executive Policy Symposium of the fifth World Telecommunications Forum of Telecom 1987 held in Geneva, had outlined a brief history of telecommunications development in India and also had given a broad perspective plan for the year 2000. This was to share information about our progress and plans and invite suitable suggestions as to how we could achieve our aspirations. He had also described some institutions like the Advanced Level Training Centre, the Telecommunication Research Centre, the Centre for Development of Telematics, Telecommunications Consultants India Ltd, etc, and the modest expertise gained by us in this area. He had offered to share these facilities with the sister developing nations. I would like to reiterate this offer.

I once again welcome the Prime Minister, the Secretary-General, ITU and the distinguished ladies & gentlemen.

May I now request Mr. R.E. Butler, Secretary-General, ITU to address the Conference.

3. Speech by Mr. R.E. Butler,
Secretary General
International Telecommunication Union.

Your Excellency, Mr. Prime Minister,
Your Excellencies,
Honourable Ministers,
Distinguished participants,
Ladies and Gentlemen,

It is indeed a great honour for me to be here today in this beautiful city of New Delhi, and to extend a warm welcome to this important gathering of eminent telecommunication personalities representing the countries of the Asia and Pacific region - of such an impressive historical and cultural heritage. On behalf of the International Telecommunication Union I should like to thank Your Excellency, Mr. Prime Minister, for agreeing to give some of your valuable time to inaugurate this conference, the first of its kind organized by ITU in this region. Your presence here this evening clearly demonstrates the importance which you and the government of India attach to the development of telecommunications. It will no doubt inspire all those participating in this conference to strive harder to seek appropriate solutions to the numerous problems hampering the development of telecommunications in this vast region.

On behalf of the International Telecommunication Union and the countries participating in this conference, I should like to thank the Department of Telecommunications of the Government of India for its generous offer to host this conference and for the excellent facilities provided. I am particularly pleased to see so many representatives from the United Nations, International and Intergovernmental Organizations, International Banks and Funding Institutions, whose presence at this forum indicate clearly their interest in the development of telecommunications.

The dramatic strides taken by the computer and telecommunication technologies in recent years and their declining unit costs have already profoundly revolutionized telecommunications in all developed countries. The emergence of advanced digital techniques hold the promise of a more efficient flow of communication and information within and between nations - the developing countries need to evolve strategies now (and not later) to benefit from these advances and the new information-intensive environment, in pursuance of their socio-economic and cultural development needs. The progress of these technologies and resulting services are stimulating the winds of change in the telecommunication sector and its planning, investment, management and operations.

Some of the distinguished participants here today were also present at the World Telecommunications Development Conference held in Arusha, Tanzania, in May 1985, which unanimously adopted the Arusha Declaration. The conference endorsed the general thrust of the recommendations of the Independent Commission for World-Wide Telecommunications Development as presented in its well-known report - **"The Missing Link"**. The present conference has been convened as a

direct consequence of the Arusha Declaration, the overriding objective of which being to **"bring all mankind within easy reach of a telephone by the early part of the next century"**. The realization of this objective in the Asia and Pacific Region is one of the major tasks before us.

The challenges facing you may be difficult, but not insurmountable. The next few days will provide the opportunity to analyze both the state of telecommunications in your individual countries and in the region as a whole, and importantly to seek solutions to the many problems already known to you, as well as those which may be identified as a consequence of your deliberations. You will need to offer constructive suggestions and recommendations to your Governments and administrations, all directed towards bridging **"The Missing Link"**.

Let me set the scene for the ensuing discussions by giving a general overview of the state of telecommunications in this vast region.

With nearly three billion people, and covering a third of the world, Asia and the Pacific enshrines already some of the fastest growing sub-regions in the world. Yet it is served with no more than one sixth of the world's telephones: about 100 million or an average of three telephones per hundred people.

There are wide deviations from the average figures. For example 18 countries bear the consequences of 0.6 telephones per hundred - or one telephone for every 167 persons, many of whom need to travel long distances to reach this telephone.

A prime reason for this state of affairs is under-investment in telecommunications. The time to consider the investment requirements for effective growth of the telecommunication sector is well overdue. The African Telecommunications Development Conference held in Tunis, Tunisia, in January 1987, examined similar issues pertaining to the African Continent. It was then noted that an investment of approximately sixty billion United States dollars would be required to achieve the very modest target of two telephones per 100 people in the African continent by the year 2000. It seems to us that to meet the same modest target in the 18 Asian and Pacific countries referred to, there would need to be an investment of approximately two hundred billion dollars.

It is my belief, distinguished participants, that this target can in fact be achieved, or possibly even improved through concerted national and regional action and related cooperation.

Many countries in this region have started to seek ways of redressing the current dilemma. Several econometric studies have concluded that "merely increasing the share of public funds and external aid allocated to telecommunications, within the limits feasible at the expense of other sectors, does not nearly suffice". Much more imaginative solutions need to be found. The challenge demands the concerted action of Governments, funding institutions and international agencies and any other concerted actions available to support the telecommunications objectives which must coincide with the national planning objectives. The ITU, as the UN specialized agency for telecommunications with a

specific objective to promote the acceleration of universal telecommunication development, is ready to discuss and explore ways and means for strengthening collaboration with all those who are interested in contributing to the multilateral effort involved.

This conference will need to concentrate its attention on the issues of the future planning, financing management and organization of telecommunication networks, rather than linger on the many related technical issues.

It is not sufficient just to indicate that developing countries need more telecommunications. The most difficult question is HOW this can come about. Developing countries, especially those with some infrastructural capacity for local manufacture, have to take into account three very powerful forces:

a) The force demanding early entry into the advanced technologies by-passing and leap-frogging usual developmental steps along the way. This force often demands payments in foreign exchange - a scarce commodity in many countries.

b) The forces to provide the basic telephone service on a widespread national scale. The vast manufacturing capacities and investment levels demanded the rapid technological changes taking place and the general shortage of advanced technological skills in developing countries, make total reliance on the new technologies unfeasible for all but the smallest developing countries.

c) The forces to maximize self-reliance on local knowledge and competency and local production and materials supply. This vital force, so much desired by independent developing countries, is often unattainable within the time-frame of rapid network expansion.

The balance among these forces is of crucial importance, particularly in the Asia and Pacific region, where competence in the new technologies is generally available, albeit in inadequate quantities to meet the rapid expansion required - and where reasonably well-established industries producing older generation equipment are also in existence again in an inadequate capacity.

It is encouraging to note that this balance is being actively sought in many countries of this region. India is tackling these issues firmly and positively, as illustrated in the thought provoking contributions to the World Telecommunication Forum'87 including the remarkable results achieved at the Telecommunications Research Centre, the R & D group of Indian Telecommunications Industries, and C-DOT, the Centre for Development of Telematics.

Critical balances are therefore necessary in decision making in manufacturing. They should never lose sight of the major single objective - to provide telecommunications on the widest possible scale, consistent with national planning objectives. Some of these problems can be eased with the evolution of improved cooperation as set out in **"The Missing Link"** report.

There is the importance of evolution of improved technical standards, growth strategies and increased cooperation including amongst developing countries (TCDC), with both horizontal and vertical transfers in the application of new technologies.

I would now like to refer briefly to a fundamental, and very sensitive but crucial issue affecting telecommunications - **the management of telecommunication networks**. I will restrict my discussions to the internal structures and management of telecommunication networks and services generally available to the public. High levels of achievement can be, and indeed have been realized irrespective of the nature of ownership of the enterprise. We need to examine what can be done, or should be done now to improve the management of telecommunications.

Your Excellency, Mr. Prime Minister, Excellencies, Honourable Ministers, Distinguished participants, Ladies and Gentlemen, all that I have said and all that will be discussed during the next few days, will amount to nothing if telecommunication resources are not managed effectively. We may witness that well-laid plans and hopes as well as scarce resources, gradually disappear into the waste heap of inadequate management, unless special attention is paid to the system structures, requirements of flexibility, autonomy and their operation to implement and manage plans and resources.

But having said that, how do we identify good management, let alone emulate it ? What basis do we have for judging any telecommunication administration as being better managed than another ? The answer is, of course, by comparing results, and that requires a means of measuring these results. We must find objective performance indicators not only to judge the quality of management of the telecommunication entities, but also to lead the way to performance improvement - to form the basis of future management development programmes. Good management information systems routed via valid statistics are thus a critical aid for good management. A great deal needs to be done in this regard in many countries and in particular the development of appropriate performance indicators.

Hence, I would like to stress that there is a need to review the existing structure of the telecommunication set ups, with a view to effecting whatever changes are necessary to achieve the performance goals and in this regard I would commend to you the ITU Publication "Investing in Telecommunications", published in Geneva, October 1986. Special attention needs to be given now to access to resource capital for investment. Success in these endeavours and a rapid improvement in both the quantity and the quality of telecommunications to the benefit of national economies in the region should ensue.

I would like to refer to some of the potential UNDP/ITU activities being undertaken within the region. This is provided for in the framework of the UNDP Fourth Cycle Intercountry Programme which began in 1987 and includes:

a) <u>Assistance in Regional Telecommunication Planning (Bangkok)</u>

Establishment of a telecommunication and socio-economic database and institutional arrangements at the APT to function as a focal point for regional telecommunications planning. The project will also transfer planning methodology.

b) Networking of Test and Development Centres (Seoul)

Strengthening the collective capability of the test and development centres in the region to formulate common standards and test procedures.

c) Development of Maritime Radiocommunications in Asia and the Pacific (Bangkok)

Enhanced training of the coast stations' staff, improvement of the maritime radio communication facilities and the efficiency of the maritime rescue coordination centres in the region.

d) Computer Software Development and Applications Training (Beijing)

Development of software for network planning, financial and resource management, radio frequency spectrum and external plant maintenance management.

These provide a complement to the on going cooperation between many Institutes, (including in the Advanced Level Telecommunication Centre, Ghaziabad, India) which have previously been supported by UNDP/ITU. You will learn of other projects including the specialized needs of the South Pacific countries.

I would ask that during your deliberations, you reflect on the many ITU activities and consider carefully the scope and depth of the cooperation to be provided not only through the regional projects but in the post project period, the adequacy of these resources, and the need to supplement them to include other priority areas. As with all projects there is a need to supplement the core inputs through the UNDP/ITU and to provide the counter-part inputs which would enable them to be evolved to meet your expectations with positive flows on to all the countries concerned.

The past decade marked a steady growth in sound broadcasting and other information services in the Asia and Pacific region. This growth is largely attributed to the increased use of satellite technology for transmission of broadcasting and information exchanges. I do hope that this conference will provide the much-needed opportunity for consideration and review of the service and growth prospects of this important sector of social development i.e. broadcasting in all its forms.

Distinguished participants,

I wish you a very enjoyable stay in New Delhi and every success in your exchanges on the major telecommunication issues before you. My colleagues and I will be available to assist you in your deliberations and provide the necessary secretarial support. It is my hope that this conference will lead to the evolution of a broad strategy to guide the development activities of the countries as they move into the 21st century.

Before I conclude, may I recall that the ITU, set up 123 years ago, is the world's first international organization. It has grown in strength and statue over these long years, taking in its fold the countless spectacular developments in telecommunications and has made possible the harmonized growth of the global telecommunication network of today - the largest, efficient world-wide machine, as someone put it. Imagine for a moment what the world would be like without this 'miracle machine'.

Throughout its history, the membership of the Union, through its support and maternal goodwill, has given it the needed strength, flexibility and dynamism to respond from time to time to the many challenges and to adapt to changing needs. Winds of change, perhaps as never before, are now sweeping the world of telecommunications and will no doubt make greater and as yet unforeseen demands on the Union.

The telecommunication environment is changing and challenges have to be met at both the national and international levels, albeit in national investment and service management, or in international activity involving the appropriate regulation, standards and coordination and cooperation in the Union's catalytic role in contributing information and advice for practical development.

With the support of its Members and all others concerned, the Union will rise to the occasion and meet the expectations of the World Community and play its role as telecommunications move to the focal point of international policy considerations, as well as continue to be the catalyst in the acceleration of truly universal telecommunication services.

4. Inaugural Address by H.E. Mr. Rajiv Gandhi
Prime Minister of India

It gives me great pleasure to welcome you to Delhi. We are honoured that you chose our Capital for this Conference. To our neighbours from the Asia Pacific region, I give a very special welcome.

Effective communication performs two important tasks. Firstly, it brings people together and then it is vital for optimizing the management of administrative institutions and growth and development programmes. For optimum management, we need rapid collection, collation and transmission of information.

Efficient telecommunications are a powerful tool in nation building. They are a tool in fostering the spread of new ideas, in dramatically altering concepts of time and distance. They are vital to the transformation of traditional societies into modern societies. They are indispensable for involving and getting the people to participate in national policies and programmes. And it is for that reason that we have given such high priority to telecom in our development programmes.

I will not go into the details of where we were and what we have achieved. It has already been told to you. But let me just say that in these years, and especially in these last few years, India has made tremendous progress in just about every area of telecommunication. In developing telecommunications, we have kept a watchword of self-reliance, not self sufficiency, but self reliance.

Self-reliance doesn't mean an autarchy, but rather seeking cooperation from others while avoiding dependence on others, by emphasizing our own technology and as much as possible indigenous manufacture. We have, therefore, stressed on research and development and product development. Our focus must be on certain aspects which are unique to us, the climate for example, the environment conditions in which the units will be used, our economic capabilities, our special consumer requirements and our network needs. These are quite different from a developed country. They are quite different if you look at rural areas in India and you compare that with an urban or a metro in India. And it is with these points in mind that we have looked at our own development needs in telecommunications. It is with awareness and consciousness of our conditions and the difference in our conditions that we look at technology from developed countries.

We have progressed from manual to fully digital exchanges, from open-wire to co-axial and microwave. We have brought satellite and optical fibre. The reach of our telecommunications is now spreading beyond the metropolitan cities and urban conglomerates to more remote locations, to the islands which are spread out in the Bay of Bengal and the Arabian Sea, scattered populations in the desert areas, isolated districts in the hills and the mountains.

Our public sector units are manufacturing a complete range of telecommunication equipment. Industrial units around the country are manufacturing subscriber terminals, PABX's, modems and many other components. Our technology has made a notable contribution to rural exchanges, digital switching, transmission equipment, radio systems, digital and optical fibres.

The measure of our achievements is also perhaps a reminder of how much further we have to go. 540,000 villages are still without direct access to a telephone network. The waiting list is well over a million. The telephones cover only one tenth of the people in rural areas and three quarters of our population lives in the rural areas. Efficiency leaves much to be desired. Ironically, it is quicker and easier to get a call to Sydney or Tokyo than it is sometimes to just get across town in Delhi or Bombay. It is almost impossible to get to a village or a remote location.

We have geared our objectives to our needs. Our overall target is to put the entire population of 800,000,000 to within five minutes' walking distance of a telephone. It is a very ambitious target and a number of unique steps will have to be taken taking our environment and these needs into consideration. First, we would like one public paid phone in each of 570,000 villages, a million paid phones at each major street corner in every town and city and a six-fold increase in the telephone connections from the three and a half million that we have now to aproximately 19 million by the turn of the century. We would like a national package switched data network. We would like greater access to remote areas through satellites. Therefore, we need to put all this together and we will have done that in a Telecommunications Mission - an integrated national network which will give increased accessibility to all and special attention to the more remote and rural areas. We will, thus, forge the missing links in our communication system. Our national network will reach out to those who feel left out of the main-stream of our society. It will provide a telecommunications infrastructure for economic and social development. This requires self-confident domestic effort which will stretch indigenous capabilities to their limits. But, it also means that we must not shrink away from international cooperation where that is required, because the tasks are so large.

Our telecommunications development over the last forty years has benefitted from assistance from several friendly countries, from the ITU, from the UN Development Programmes and the World Bank. Our capacities have increased. The need for support and encouragement in these areas has also increased as it has in other sophisticated areas. Conversely, the bulding of our capability increases our ability to share our experience, our expertise and our equipment with others who are less fortunate. Within the Asia and Pacific region, some are much more developed than us, many are like us developing. We seek to cooperate with the developed where this adds new dimensions to our efforts and we offer to cooperate with fellow developing nations who might find something useful in what we have learnt. Cooperation amongst the developing is far below its potential. Perhaps it is because we know so little of each other. At high political levels and at the higher bureaucratic levels, there is some interaction and an exchange of views but at the professional and technical levels there are vast gaps of knowledge. Our experts know so little about each other that they look first well beyond when they have problems or when they are looking for solutions.

We must encourage exchanges at professional levels between our countries and that is where real cooperation within the region will grow. We must make a habit of cooperation and we must nurture it. We have in our own immediate neighbourhood discovered through the South Asian Association for Regional Cooperation Telecommunication Programme that once we put our minds to it, there do indeed exist many areas for mutually enriching cooperation. Our technologies and equipments are designed and developed for our own needs, just as designing and engineering in developed countries is done for their needs which are significantly different to ours.

Good telecommunications is vital but it is very capital intensive. Hence, we find the developing countries creep along and are not able to move as rapidly as they perhaps would like to. The entire gamut of developments elsewhere over several decades is attempted to be done in a shorter span of time with much less funds than are normally available. We must make the quantum jump ignoring the intermediate technologies and going into the technologies which will be appropriate for the time when we really come on line with the developed countries and perhaps this is what Mr. Sathe was talking about when he talked about pole vaulting.

We must ensure that the technologies we use are cost-effective, that they are reliable and that they are maintainable under our conditions. Recent development in technology has made this possible. Our need is to be alive to these opportunities, our endeavour is to harness them for our requirements. Our hope is to get organizations such as yours to elaborate a system of international cooperation which will give the developing a just and equitable access to the latest technologies. We look for opportunities for developing countries to make their own contribution to the development of modern technology.

The Arusha Declaration provides a setting for your consideration of world telecommunications development and the report of the Independent Commission with the delightfully provocative title of "The Missing Link" sets out a series of exciting new prospects. Based on these documents, your deliberations will be of high importance in the telecommunications development with our respective countries and the promotion of telecommunciation cooperation amongst ourselves.

Our commitment to cooperating in telecommunications goes back 120 years from the time when India joined the ITU in 1868. Many changes in the world have taken place since then. But, the need for telecommunications cooperation has only been strengthened.

I hope that this conference will lead to much greater and more just access for the development in our region of new technologies and frontline technologies in these areas. We hope that this conference will bring about a much greater awareness of telecommunications develoment within our region, both amongst the developed and developing, and it will give a much-needed increase in cooperation between the developed and the developing in the region and amongst the developing themselves. I wish you all the very best for the Conference. It has given me great pleasure to be with you today.

5. Vote of thanks by Mr. Y.L. Agarwal
Chairman & Managing Director
Telecommunications Consultants India Limited

Respected Prime Minister, Honourable Minister of Communications, Honourable Secretary-General, ITU, Secretary, Department of Telecommunications, Honourable Ministers, Excellencies and distinguished delegates and guests;

It is my pleasant task to propose a vote of thanks. We are indeed honoured by the presence of our Prime Minister in this inaugural function and his presence is an indication of the importance he attaches to the development of telecommunications as an essential element for the advancement of nations. Mr. Prime Minister, your thought-provoking address contains many points on development of global telecommunications, specially in developing nations, which is the prime theme of this week-long conference. We assure you, Sir, that your observations in the address will be kept in view in the deliberations of the conference. Your keen interest to exploit fully the advancement of science and technology to raise the standard of living of the rural population and increase the productivity of the nation has been a motivating factor to the scientific community and technologists. On behalf of the National Coordinating Committee of the Conference, I have great pleasure in conveying our grateful thanks for your inspiring address.

Though Mr. Vasant Sathe has been with us as the Minister of Communications for only the past week, his address presents many facts of interest to the telecommunications community. He carries with him political sagacity on policy making aspects of a wide range of such key sectors as information and broadcasting, energy, petroleum etc. With him at the helm of affairs of the Ministry of Communications, we hope for long duration, we are assurred of full support to supplement the efforts of the International Telecommunication Union for the development of global telecommunications in this part of the world. We are grateful to him for all the efforts put in by him for the successful holding of this conference and his address.

We are fortunate that we have with us today Mr. R.E. Butler, Secretary-General of the International Telecommunication Union, and Mr. Jipguep, Deputy Secretary-General, to guide the deliberations of the conference. Though it may not be necessary that every country must follow exactly the same approach to telecommunications development, a unified approach on a regional basis will be conducive for promotion of regional and sub-regional cooperation in the interests of social, business and industrial advancement. The policy directions of Mr. Butler for such an achievement are well known and his address brings out vividly the role developing nations can play in the development of telecommunications world-wide. Our thanks to Mr. Butler and Mr. Jipguep for sparing their valuable time with us during this conference.

For holding a conference of this magnitude, intense organizational effort is required. Many months of spade work in organizing and planning of the various aspects connected with the conference were involved. The untiring efforts put in by Mr. D.K. Sangal, Secretary, Department of Telecommunications, for going into even the minute aspects have contributed a lot for the success of the conference. He has taken a keen interest in seeing that the delegates have an enjoyable time during their stay in New Delhi and that everyone can contribute to the deliberations of the conference. We are extremely grateful to Mr. Sangal for all the efforts put in by him and his valuable guidance.

We are greatly honoured by the presence this evening of our distinguished invitees comprising Honourable Ministers, Heads of Diplomatic Missions, representatives of international organizations and other political leaders. I take this occasion to express our thanks to them all.

The success of this conference and its outcome will depend greatly on the contribution by the delegates. We have with us top policy makers and representatives of telecommunication administrations of the various countries of the Asia and Pacific region and we look forward to the deliberations on the various papers to be presented during the conference. We are thankful to all the delegates for the efforts put in by them and hope they will have a pleasant and memorable stay in New Delhi.

Many premier institutions and industrial undertakings in India connected with telecommunications have made contributions in the conduct of the conference. Indian Telephone Industries Limited, Bharat Electronics Limited, Hindustan Teleprinters Limited, Mahanagar Telephone Nigam Ltd, Videsh Sanchar Nigam Limited, Centre for Development of Telematics, Hindustan Cables Ltd, and Telecommunications Consultants India Limited have contributed in the organization of the conference. We are indeed grateful to all of them.

The proceedings of this session have been covered by the presence of the representatives of the Press, All India Radio and Doordarshan. The cultural programmes for the entertainment of the delegates have been organized by the Ministry of Information and Broadcasting. To all of them, I express our thanks.

We are also thankful to the administration of Vigyan Bhavan for the nice arrangements made to extend various services for the successful holding of the conference.

Thank you all.

ASIA AND PACIFIC TELECOMMUNICATIONS DEVELOPMENT CONFERENCE

ANNEX C

STATEMENTS BY DELEGATES AND OBSERVERS

NEW DELHI, INDIA, 22–26 FEBRUARY 1988

1. Statement by Mr. S.A.M.S. Kibria, Executive Secretary, ESCAP

Excellencies, distinguished representatives, Ladies and Gentlemen,

It gives me great pleasure to address the Asia and Pacific Telecommunications Development Conference, which will weigh the implications for this region of the Arusha Declaration following The Missing Link report by the Independent Commission for World-wide Telecommunications Development. The declaration's main objective is for all the world's peoples to have access to a telephone by the early 21st century and in due course to other services provided by telecommunications. This is certainly a far-sighted and worthy goal, towards which we should all strive earnestly.

The profound impact that progress in telecommunications can have for our societies and people has been most eloquently articulated by His Excellency Mr. Rajiv Gandhi, Prime Minister of India. I wish to express my deep appreciation for his inspiring address. India herself is taking great strides in this vital field under the dynamic leadership of the Prime Minister and it is thus in the fitness of things that Delhi was chosen to be the venue of this important Conference. We are also grateful to ITU, with whom ESCAP has had close and fruitful cooperation over the years, for organizing this Conference. This reflects the high priority that ITU attaches to the development of telecommunications in the Asia and Pacific region. ESCAP will indeed be most pleased to continue the close collaboration with ITU in this important field and we shall look forward to strengthening our cooperation for the benefit of the member states.

It is said that without travel and the ability to transport goods, most human settlements would probably have remained trapped in island-like isolation, with standards of living around the subsistence level. Physical immobility, in other words, implies unchanging socio-economic conditions. The same applies to telecommunications and postal services. Progress in transport and communications thus lies at the heart of economic and social development, and our region is not lagging in such progress.

Indeed, there has been tremendous growth in transport and communications and improved productivity of this sector in this region. For example, in the developing member countries between 1975 and 1983, although there were fewer locomotives, passenger coaches and freight wagons, there was a marked increase in passenger-kilometres and freight-ton kilometres, of 60 and 45 percent respectively. Similarly, in civil aviation, the kilometres flown between 1975 and 1982 increased by 50 percent, while passenger-kilometres, freight-ton kilometres and mail-ton kilometres all rose between 100 and 200 percent. In the highway sector, between 1975 and 1982, the number of cars and trucks grew by 79 and 82 percent respectively, while the number of telephones in use grew by 78 percent between 1975 and 1980. These regional trends of dramatic growth and increasing productivity are expected to continue in the foreseeable future, particularly in the course of the Transport and Communications Decade for Asia and the Pacific that was launched in 1985.

However, there is great disparity in the number of telephones. Telecommunications and Economic Development, a World Bank study, shows that the world average telephone density is 19.1 telephones per 100 people. The average for the developed countries is 44.5, compared with that for the developing countries of only 2.8. In the ESCAP region, New Zealand has 57 telephones per 100 people, Australia 53 and Japan 49. At the other end of the scale comes

Thailand with 1.1, India and Pakistan with 0.4 each, and Bangladesh, Burma and Nepal with a meagre 0.1 each. These figures should be compared with those for the United States' 84, Sweden's 80, Switzerland's 73 and Canada's 67 telephones per 100 people. These figures, however, mask an even greater disparity between urban and rural areas. While the United States has 82 telephones per 100 people living outside large urban areas, the figures for Thailand, India, Pakistan, Bangladesh, Nepal and Burma are all far less than one phone per 100 people.

These figures, I believe, Mr. Chairman, should provide a sharp focus on the extent of the problem facing the region, particularly in the rural areas, if access to a telephone is to be provided on a universal basis.

A primary reason for ESCAP attaching great importance to efforts to improve and modernize transport and communications is their strong linkage with overall development and their direct bearing on the eradication of poverty. Another factor is that transport and communications are ideally suited for the pursuit of one of the major objectives of ESCAP: promoting regional and subregional cooperation. To serve the national economy efficiently, the transport and communications sector, whether it concerns roads, railways, air, telecommunications or postal services, must be developed with the objective of connecting or harmonizing with the systems of neighbours and trading partners. Thus the need for intercountry cooperation in the sector is particularly strong. A third important factor is the close linkage between the development of this sector and progress in science and technology, and in turn their enormous combined impact on the overall development process.

It was in view of the wide-ranging importance of transport that three years ago we embarked on the Transport and Communications Decade in the Pacific. Our approach was also shaped by the belief that this region has now reached the stage of development where it can assume a larger role in the 21st century if transport and communications can be modernized and kept up to date. In these rapidly changing fields, this will be a crucial challenge in the years ahead. In this context, I wish to emphasize that the decade is the potential generator of a variety of activities aimed at ensuring that transport and communications systems are developed systematically so as to become well balanced and coordinated as well as modern and efficient. ESCAP is actively pursuing these aims in implementing the Decade's regional action programmes.

It is envisaged that when the decade reaches its half-way mark in 1989, many project profiles comprising the regional action programme for the decade will have been completed, while some long-term regional projects might still be under implementation. At that juncture, it is essential that the regional action programme be examined and modified, if necessary, in close consultation with the member governments, to ensure that it continues to reflect their immediate needs and actual requirements for the remaining five years. In this connection, while reviewing the Decade's progress, the Commission last year suggested that since the Decade has already entered its second phase, it might be desirable for the secretariat to take a further step, through country missions, to assist the member countries in evaluating their implementation of the programmes for the Decade at national and regional levels. The Commission noted that the result of such an evaluation would determine the direction of secretariat activities for the middle and second part of the Decade.

Thus, the secretariat proposes to organize, subject to availability of funds and in cooperation with related agencies, a series of intercountry missions in 1988/89 to interested ESCAP member countries to assist in programming activities for the second half of the Decade. The proposed missions would assist member countries in evaluating their implementation of the Decade

programmes, identify the countries' immediate and direct needs with a view to modifying Decade activities, consult member governments on assigning priorities to Decade programmes in light of their changing needs and requirements, further assist in formulating national action programmes, further identify possible regional demonstration projects, and assist member countries in establishing a national coordination committee where such does not exist. I should add, Mr. Chairman, that significant progress has been made in implementing projects under the Decade's regional action programme.

Turning more directly to telecommunications, I am happy to note that ITU and ESCAP have developed a close and cordial working relationship, with a joint ITU/ESCAP unit now operating in Bangkok. This is a satisfactory way of proceeding and this method has been duplicated in other specialized areas.

Concerning the report "The Missing Link", during the 42nd session of the commission, ITU made a presentation stressing the particular recommendations in the report in which ESCAP might assume a follow-up role. Briefly, these related to according a sufficiently higher priority to telecommunications, standard specifications for telecommunication equipment and systems and agreements for collective procurement, the establishment of regional and sub-regional research and development centres, and the local manufacture of telecommunication equipment on a collective basis.

I wrote to all ESCAP members and associate members last year pointing out these facts and noting that these closely inter-related measures are essential steps for the self-reliant and balanced growth of telecommunications. Cooperative endeavours and mutual agreement are required on several fronts, dealing with economic, trade and associated relations among the countries. Hence, ESCAP with its wide mandate for economic and social development in cooperation with ITU, is well placed for the pursuit and achievement of these specific objectives. I reminded ESCAP members that the other regional Commissions have already considered The Missing Link report, and that the Commissions for Africa and Western Asia have already adopted appropriate resolutions.

I also pointed out that our Commission, at its 1986 session, felt that particular recommendations should be examined in greater detail by the secretariat before formulating a specific plan of action for follow-up, in cooperation with UNDP, ITU, the Asia-Pacific Telecommunity (APT) and other organizations concerned. ESCAP has been discussing with ITU the best way of addressing this matter, although current budgetary constraints preclude any substantive new programme on telecommunications. Still, it is recognized that this is a crucially important sector, deserving action by ESCAP.

Finally, I sought guidance as to the ESCAP response to the specific recommendations of The Missing Link report, suggesting that one way might be to seek funding for an ad hoc intergovernmental group of experts to study the matter. Such a group could identify the policy implications, required approaches and action, immediate priorities and the budgetary support that would be needed for the follow-up. A reasonable time-frame could be laid down to complete the work, in cooperation with ITU and other organizations concerned. I also solicited additional suggestions and comments on how the region should proceed. I hope that the discussions during this meeting will result in a clearer picture so that ESCAP and ITU can work together to achieve the recommendations contained in The Missing Link report.

Meanwhile, ESCAP, in cooperation with the Government of the Federal Republic of Germany, has implemented two related projects, one evaluating the social and economic impacts and costs and benefits of telecommunication

services, and the other providing technical advisory services on improved operations and maintenance protection of telecommunication facilities. The findings of these two projects are contained in a report titled "Issues of Telecommunication Infrastructure Development - A Contribution to the Transport and Communications Decade for Asia and the Pacific, 1985-1994". This report will serve as an input into the Seminar on the Planning of Rural Telecommunication Networks to be held early in 1988 in cooperation with the German Government.

Also programmed for 1988-1989 are a study on the socio-economic impact of telecommunications, a seminar on the socio-economic impact of telecommunication development in rural areas, and a regional conference on telecommunication development issues. These activities will be carried out in close cooperation with ITU and APT. In conclusion, let me stress that ESCAP, despite financial difficulties, will do as much as possible to help promote telecommunications development and especially to bring the people of the region within reach of a telephone as quickly as possible.

Thank you

2. Statement by Mr. G.M. Hamdy
Resident Representative
United Nations Development Programme, India

Mr Chairman, Mr. Secretary-General, Honourable Ministers and Distinguished Delegates, I bring to you the warm greetings and best wishes of Mr. William H. Draper III, the Administrator of UNDP, who would have liked to be with you on this important occasion. Previous firm commitments have prevented his attendance, but he has asked me to convey to this distinguished assembly with his regrets for not being with us, his assurances of UNDP's continued commitment to a fruitful partnership with Member countries, the ITU in the major efforts to be undertaken for the further development of telecommunications in the region, over and above the very substantial support and funding already extended by UNDP to this sector, UNDP's strong partnership with the ITU recognizes the vital role that telecommunications play in social and economic development. In this interdependent world where technological advances in information processing and communications especially matter, telecommunications are of essence for growth and for welfare. UNDP is glad to extend cogent support to the telecommuncations sector in Asia, both at the country and at the regional levels. Indeed, UNDP has acted in full consistence with Resolution 34 of the 1982 Plenipotentiary Conference in Nairobi which prompted ITU to continue to work for the strengthening, expansion and harmonization of telecommunications development throughout the world with particular emphasis on countries of the South. We are happy to say that the ITU is recognized by UNDP as a most effective leader in its field, a very competent partner to whom UNDP and the Governments of the region have entrusted many valuable projects.

As we are in the middle of the UN Transport and Communication Decade for Asia and the Pacific for which ESCAP and ITU cooperation extends to the countries of the region, it may be useful to review what has been achieved and what is being undertaken at the country and intercountry levels with UNDP support. From 1972 through 1986, UNDP has allocated a total of US $76.5 million for 215 country and intercountry projects executed by ITU in the Asia and Pacific region, including 33 intercountry projects amounting to $15.7 million. Out of the $76.5 million which I have just mentioned, US $41.1 million were provided to finance project personnel, US $22.5 million allocated for equipment and US $12 million for training.

For the Fourth IPF Cycle (1987-1991) alone, UNDP has earmarked about US $24 million for the telecommunication sector, including US $9.8 million for intercountry activities covering most of the countries of the Asia and Pacific region so far. Five regional projects have recently either been approved or are about to be approved, covering: the dissemination of new telecommunications techniques; the establishment of a regional telecommunications testing and development centre; assistance for the development of maritime radio communications - which are so vital for rescue and coordination; telecommunications software and computer development; and regional telecommunications planning. All of these projects include sizeable training components to transfer increasingly sophisticated telecommunications technology and know-how to the Asia and Pacific developing countries in such areas as digital technology, electronic switching, satellite communications and computer applications as well as for institution building, planning, management and maintenance.

UNDP fully appreciates that while telecommunications play a key role in economic growth and social development, harmonious development in this field

has been impeded by disparities between levels of technological and human resources development and by financial resource limitations in the various countries of the region.

As "The Missing Link" report of the Independent Commission for World-wide Telecommunications Development pointed out, three quarters of the world's telephones are concentrated in nine industrialized countries; 15 percent of the nations use 90 percent of the world's telephones while 85 percent use 10 percent. However, new technological options such as satellilte communications, micro-electronics, optical fibres, etc have brightened the hopes for an extension of the telecommunications network world-wide and a reduction in the current imbalances.

As pointed out by the ITU Secretary-General in his address yesterday, improvements in the present situation could be brought about principally by convincing decision makers in both the public and private sectors that increased investment in telecommunications is indeed vital and clearly profitable on an integrated impact basis and therefore deserves high priority; India's example in recent years is one among those that may be heeded; that this would permit the introduction of the latest technologies which in turn would facilitate the extension of the network to rural and isolated areas at considerably reduced costs; that modern information processing and communications facilities are needed for the financial, business and services sectors to speed up information flows and increase efficiency; and finally that by ensuring adequate training and technical back-stopping in management and maintenance of the telecommunications networks, a far greater measure of productivity, cost effectiveness and quality of service would be attained.

In India, ITU and UNDP have closely cooperated with the Government in implementing seven projects during the current Country Programme, involving UNDP inputs of US $7 million. This has helped the institution building and manpower development of a large number of training centres in the country as well as capacities in radio monitoring and spectrum management in the national telecommunications network. An advanced level telecommunication training centre near Delhi, established with UNDP/ITU asistance, not only meets India's needs for qualified personnel at all levels of the telecommunications industry within the country but also trains people from a number of other developing countries in the region.

Mr. Chairman, as often said, a telecommuncations network resembles the human nervous system which links the brain with all parts of the body. It conveys information and orders which are of vital significance for our well-being and for our very existence. It captures signals of infinitesimal dimensions and transmits data at unparalleled speed. Without it our body and our mind cannot function. But that system, be it sympathetic or solar, works for the good of the whole to which it belongs, our body, which it serves untiringly even when our mind and brain are at sleep. Similarly, telecommunications must be put to work for the good of humanity, for peace, for prosperity, for justice, freedom and equity and to protect our natural environment in a word for WORLD DEVELOPMENT. UNDP works hard for the noble goals of international cooperation that the UN Charter has placed before the international community. It joins you all at this important juncture and congratulates the Indian Government for hosting this major event and for the excellent arrangements made for it. It wishes you pleasant and fruitful deliberations.

Thank you.

3. Statement by Mr. Chao Thongma
Executive Director
Asia Pacific Telecommunity

Mr. Chairman, The Secretary-General of ITU, Distinguished Delegates, Ladies and Gentlemen, I am privileged and honoured to be represented in this Asia and Pacific Telecommunications Development Conference. I do indeed appreciate the kind invitation extended to APT by ITU and the government of India to attend this very important conference. I sincerely congratulate those who have initiated the convening of this conference.

This, only again, gives the opportunity to the leaders of telecommunications or decision/policy makers of telecommunications to discuss and reveiw the recommendations and action plans adopted by the Independent Commission as contained in "The Missing Link" report and the Arusha Declaration in 1985. This conference, therefore, provides an ideal forum for the exchange of ideas and experience gained and also of the difficulties encountered during the different phases of implementation of those recommendations.

On behalf of the APT, I would like to pay a tribute to Sir Donald Maitland for his pioneering work towards the realization of The Missing Link report and also to the ITU who usually works behind the scene for responding promptly to the proposals made by the Independent Commission. Among other proposals, the most eminent one is the establishment of CTD in 1986 which becomes an additional source of funding for developing further technical cooperation activities in developing countries. I am sure that this centre will play a great role in complementing the efforts of ITU/Technical Cooperation Department and in cooperating with APT in the near future.

It is also praise-worthy to note that several conferences, fora and studies have been organized by the suggestion and initiatives of the ITU in other parts of the world for arousing the interest of the people and ensuring them that one day they can have a telephone within arm's reach and access to the world network for information, education and entertainment as set forth by the principal objective of The Missing Link, such as the World Telecommunications Forum in Nairobi with the theme "Bridging the Missing Link". The Carribean Association of National Telecommunication Organization discussed the implications of The Missing Link report for their own efforts to improve regional cooperation. This Asia and Pacific Telecommunication Development Conference will be another important one as ever organized in our region by ITU in cooperation with India as the Host.

As you all are aware, APT was established in 1979 as a regional telecommunication organization under the auspices of ESCAP and under the umbrella of ITU by an inter-governmental agreement.

APT's objective, somewhat like the ITU is to ensure balanced development of telecommunications in the Asia and Pacific region, at a pace commensurate with the economic and social development of the region and also to develop the telecommunication networks and services by fulfilling the need of:

- a permanent machinery to correlate planning, programming, operation and management of existing and projected telecommunication services within the region,

- a consultative organization for settlement of telecommunication matters which could be more effectively discussed and solved on a regional basis,

- a professional resource in telecommunications within the region itself, consistuting an instrument of regional technical cooperation among developing countries.

APT as a catalyst and coordinator, serves its membership which stands now at 36, composed of 21 members, two associate members and 13 affiliate members. Its main feature of activities is focussed on the provision of expertise and fellowships, the organization of seminars/workshops, the arrangement of training, study visits, study groups and exchange of information about telecommunications development and facilities with the self-sustained budget support for the annual work programme of about US $ 492,740 this year. Our key activities and projects forming part of the current five year work programme 1987-1991 are classified into six categories: inter and intra regional telecommunication/national networks and services/technological development/direct technical assistance/telecommunication management and study groups and regional coordination.

I am very pleased to confirm that the APT fully endorses and supports the effective recommendations together with a range of measures and actions contained in The Missing Link and Arusha Declaration. Due considerations have specially been given in the process of work programme formulation by the Management Committee along with the policy and guidelines set out by the general Assembly of the APT as well.

As a matter of fact the APT organized last year in Tokyo, a Telecommunication Development Seminar which covered a review of vast subjects ranging from Rural Telecommunications, New Services Provisions, the ISDN, Policy and Management Strategy of telecommunications entities to the administrations of the telecommunication network. Apart from the exchanges of information contained in the country and technical papers concerning the current status and further aspects of telecommunication development in member countries, it is disclosed that in spite of some impressive progress being achieved through the introduction of new technological innovations like digitalization, fibre-optic, satellite technologies and mobile radio communication on the cellular system etc, there still exists in our region a great disparity in the telephone penetration in quantity and quality of services between industrialized and developing countries and even within developing countries between urban and remote areas. According to statistics, the Asia and Pacific region, comprising 55 percent of the world's population has only 17 percent, or around 103 million of the world's over 600 million telephones and over 90 percent of the population in the region enjoy less that 20 percent of the region's telephones. Therefore a great deal remains to be done in the process of development through concerted efforts and cooperative actions of the member countries in this region. I should like to emphasize that what we need most for the success of all countries concerned is first the political will of the respective governments who are responsible for the determination of policy, strategies and action plans to develop national and regional telecommuniction networks and facilities and secondly the effective coordination of the regional and international organizations concerned to assist all their members in the region so that the aspiration of The Missing Link and Arusha Declaration become true.

Permit me to conclude, Mr. Chairman, by saying how much we at the APT appreciate the emphasis placed on the promotion of telecommunications development and the tireless efforts exerted by ITU for the progress of peace and understanding through excellence of telecommunications in our region and also by expressing our gratitude to the Government of India for hosting this important Conference. As for APT, we will continue our determination and endeavour to serve our members and we are looking forward to strengthening closer cooperation with all international, regional and sub-regional organizations in order to achieve common objectives. Finally, may we join with all of you in wishing this conference every success.

Thank you.

4. Statement by Mr. Michael Hardy
Director
European Economic Community

Mr. Chairman, distinguished delegates, I should first like to pay tribute to the Government of India for the generous and efficient help shown in hosting this conference and to the International Telecommunication Union for convening the meeting. ITU Regional conferences provide a useful occasion to exchange ideas and information, most obviously about the region itself, but also as part of the wider dialogue that is required as a new telecommunication structure starts to emerge.

The European Community is concerned to follow developments in the Asia and Pacific region, an area with which we have many ties. We will be prepared to do our part, as indeed we are already doing, in assisting Asian and Pacific countries in their efforts to strengthen facilities in the telecommunications sector.

As all of us who have examined these matters are aware, reorganizing and developing the telecommunications sector is a major undertaking, with substantial ramifications for all aspects of economic life.

Each region will follow a course which reflects its circumstances; the overall framework must therefore continue to provid for a degree of flexibility, combined with effective means of cooperation and communication. I believe that it would accordingly be of interest if I were to set out for you the main lines of the telecommunications policy which is emerging in Europe. The problems encountered in Europe are not of course identical with those of Asia and the pacific, but the extent of the change in Europe and the way in which the problems involved are being tackled are, I believe, both important in themselves and significant for others.

The telecommunications sector in Europe, like that in other parts of the world, is in the midst of an extensive change. The basic reasons are well known and can be summarized under two main headings:

1) **technological developments;** the advances brought about the digitization, fibre optics, and the coming together of computer and telecommunications technology, and;

2) **the shift in regulation focus,** from stable monopoly conditions to an opening up to competition and a range of new services. The former position where the telecommunications administrations determined on their own what should be done has ended or is in the process of modification.

These two poles of discussions will be familiar to this audience. The third feature, special to Europe, is that this process is occurring within the framework of the **European Community.** This has a number of main consequences.

- It means that, for the Administrations and firms within the Member states of the European Community, telecommunications measures cannot be looked at in isolation from other Community policies, such as regional policy, competition rules, freedom to provide services, or external relations. The rules involved will apply in the telecommunications sector as elsewhere.

- The European Community is engaged in the completion of the Single

Market by 1992. European integration requires efficient networks of information systems and services accessible at low cost.

The telecommunications sector thus has a crucial contribution to make to the development of the European Single Market, to increased competitiveness and the internal and external cohesin which the community has adopted as its goals.

As many of you will know, a **Green Paper on the Development of the Common Market for Telecommunication Services and Equipment** was issued in June of last year by the European Commission. As the name suggests, the Green Paper (which is, incidently, about 200 pages long and accompanied by a 130 page annex) is a consultative document and does not itself commit the position of the public authorities. The publication of the Green Paper has however enabled a substantial consultation process to take place in Europe, involving users, administrations, industry and bodies from both inside and outside the Community. The overall response has been positive and demonstrated sufficient support and consensus for the Commission to begin to formulate concrete proposals based on the lines sketched out in the Green Paper.

The fundamental aim of the Paper is to seek to overcome the present fragmentation of Europe's capability in this sector. The telecommunications administrations grew up separately, as have the respective national industries. The established conditions have to be re-examined, however, under the pressure of technological changes and shifts in the regulatory framework. Greater competitivity has to be achieved in the telecommunications sector itself, and the sector has to provide a wider degree of support for the economy as a whole. Although the EC, taken together, has something in the region of a 20 per cent share of the world telecommunications market, individual Member States' shares are considerably smaller, no more than six percent even in the case of the largest. It is only by acting on a regional basis therefore that collective strength in the sector can be developed.

The Green Paper approach, then, is to create a common market for both services and equipment within the Community, to help overcome the structural problems and to contribute to the creation of advantages on a European scale which have up to now not been achieved in the Community in this sector. The Green Paper is intended to reinforce the current trend towards more competition and market openings which is already going on at a Member State level. This process of change in the organization of the telecommunications sector throughout the Community coincides with the entering into force of the Single European Act, which reinforces the means available for achieving the completion of the common Market in Europe in 1992.

So it is on this complementarity between competition on the one hand, and the concept of a wider market on the other, that the Green Paper focuses. Europe needs to see a greater opening of the telecommunications sector to competition in order to achieve a single Community-wide market. At the same time, only a Europe-wide single market can offer the economies of scale and scope required by the new competitive environment at the national level.

Within this broad framework, the commission proposed a number of policy orientations for discussion, concerning the opening of the markets for telecommunications terminals and equipment, as well as for telecommunications services, and the accompanying measures needed to achieve this market opening.

It was accepted in the Green Paper that there should continue to be exclusive provision or special reights for the telecommunications

administrations regarding the provision and operations of the **network infrastructure.** Where a Member State choses a more liberal regime, either for the whole or parts of the network, the short and long term integrity of the general network infrastructure should be safeguarded.

This general provision has been accepted and provides the basis for much of the further measures. A series of proposals and a programme for implementation have recenly been drawn up, and I would like to draw your attention particularly to these. These proposals are set out in a communication from the Commission to the Council which was issued on 5 February.

In brief summary therefore, the steps proposed in the recent communication are the following:

- The **terminal market will be opened to competition.** The Commission thinks that an open market in this area, including the first telephone set, should be possible by the end of 1990. This should allow a sufficient period of transition for the Operators to adjust. It is also proposed that "Receive Only Earth Stations" for satellite down-links should be assimilated to terminal equipment and be subject to type approval only. The Commission will issue a Directive, under Article 90 (3), of the EEC Treaty, on opening the terminal market in March of this year.

This measure will be accompanied by the introduction of **full mutual recognition of type approval** for terminal equipment. This is central to the liberalisation of the terminal market. A draft Directive on this will be submitted to the Council before the end of 1988.

- **With regard to the services market**, it is foreseen that this will be progressively opened to competition from 1989 onwards. Exclusive provision by network operators of voice telephony will be accepted for the time being, as this is considered indispensable to satisfy present public service goals, and to ensure the maintenance of viable networks. But it will be subject to review, particularly in the light of the evolution towards a digital infrastructure: obviously, a boundary cannot be fixed once and for all. There will also need to be a longer period of transition for public telex and packet and circuit switched data services. All other services however ("competitive services", including particular "value added services") should be opened to competition by the end of December 1989.

- **Tariff rebalancing** will be indispensable for the opening up of the services market. There is full support for the principle that tariffs should be related more closely to costs. The beginning of January 1992 is the deadline set by the commission for achieving reasonable cost rebalancing.

- In order to allow the participation of both telecommunications administrations and other providers in the new competitive markets on fair terms, the **regulatory and operational functions** of the telecommunications administrations are to be separated, where this has not already been done. Regulatory activities concern activities such as licensing, type approval and interface specifications, the allocation of frequencies and general surveillance of network usage conditions.

- The distinction between services reserved to the Operators and services to be conducted on a competitive basis raises the question of how the **conditions of access to the network** will be defined. Such a definition of the requirements which the Operators may impose on providers of competitive services for the use of the networks is central to the opening of the services

market. Work is progressing on defining the general approach to the concept, beginning with those issues relating to leased lines, public data networks, ISDN and tariff principles.

- Standardization is evidently an essential requirement for a truly open competitive market. For some time now in Europe, it has been recognized that work in this area needs to be carried out much more quickly, and in September 1987 the CEPT took a basic decision to establish a **European Telecommunications Standards Institute (ETSI).** It has been agreed to set up the body by **April of this year.** The network of the Institute is intended to build on and complement the Community's current policy on telecommunications and information standards within the framework of the Community's general promotion of open international standarization.

- The role of Telecommunications Operators will be considerably different in future, and some allowances will have to be made for this. **Achieving financial transparency in the relations between Member States Governments and the Operators will be necessary to allow** the competitive environment to function and to ensure market participation by all on fair terms. Likewise, some of the financial restrictions which apply to Operators at present will have to be removed.

- On the other hand, since the Operators will retain considerable powers in the market, there will need to be a **strict review of operators' operational (commercial)** activities, under the competition provision of the EEC Treaty (Articles 85, 86 and 90). This applies in particular to the question of cross subsidization in the competitive services sector and manufacturing. The Commission will issue guidelines on the application of the competition rules of the Treaty to the sector, and will set up a monitoring procedure.

- Ensuring the **independence of procurement** and procurement opening will be necessary. The Commission is committed to achieving fair and open procurement in the sector. Opening the market for terminal procurement should be covered by the opening of the terminal market in general, while the procurement of network equipment will call for special measures, including the establishment of tendering procedures and a monitoring system. **These measures will be proposed in March of this year.**

In the course of the consultation procedure it became clear that on a number of the proposals in the Green Paper, it would not be possible to achieve a clear consensus immediately. Further discussions will therefore be held on these areas, which include satellite communications and the promotion of the services market, with a view to defining common positions at an early date. It is also clear that further consideration will have to be given to external affairs, where GATT issues will have to be examined more fully, as well as matters handled by the ITU.

Finally, there are a number of areas where existing policies must be confirmed or strengthened.

These include:

- ensuring both the integrity of the network in Europe and its eventual convergence. (The RACE programme, and the plans for ISDN, digital mobile communications, and broadband communications for business use are central here).

- promoting a strong European presence in both the services and industrial field. (The relevant EC programmes in this respect are RACE, TEDIS, CADDIA, INSIS and ESPRIT).

- ensuring the participation of the less favoured regions. The STAR Programme (Special Telecommunications Actions for Regional Development) is designed to integrate the less favoured regions of the Community into advanced transnational telecommunications networks, to accelerate digitization, to overlay networks for advanced services (e.g. data transmission) and to foster the development of cellular radio infrastructures compatible with the development of a Community system.

This has been a rapid survey of an evolving sector, and I hope I have been able to convey to you some of the scope and urgency with which this matter is now being tackled in Europe. Between now and the year 2000, very substantial sums (much of them from private sources) will be invested in this area in Europe. By that same year up to 60 percent of the European Community work force will depend on Information Technology and telecommunications services. The size of the European market will expand over the next 20 years, to become the biggest and most attractive in the world.

These developments, which will be accompanied by those in other regions, will reinforce the importance of the ITU and GATT. Both will be involved in the efforts which will be required from all of us, in order that the extensive and turbulent developments now under-way in the telecommunications sector are directed towards a well-ordered international system. The success of the multilateral efforts will depend on whether the multilateral framework is sufficently flexible to adapt to technological developments, to the emergence of new market forces, and to the shifts in the regulatory pattern which will accompany them. We all agree that telecommunication has the capacity to be a driving force for world trade and economy, but for this to be achieved, a considerable degree of effort and openness will be required. Within Europe, we have had to learn - and we are still learning - to cooperate together more closely, in order to establish the European telecommunications policy which we require. Telecommunications, for us, is part of a process of regional integration. We are very conscious that all of this is only part of the overall picture, and that an effective and open world telecommunications system is necessary for all of our societies. Thus the European efforts which I have tried to sketch out for you, shaped to the particular circumstances, are to be seen as an element in the wider setting which is now evolving throughout the world, and which will enable telecommunications to play an ever more crucial role.

5. Statement by Mr. K.P. Rimal
Technical Officer, Communications
International Civil Aviation Organization

Mr. Chairman, Secretary General of ITU, Distinguished Delegates, Ladies and Gentlemen.

It gives me a great pleasure to present the International Civil Aviation Organization (ICAO) at this august gathering and I would like to express my appreciation for having been given the opportunity to make a statement in the Asia and pacific Telecommunication Development Conference. We are pleased to note with interest the progress made towards modernization of telecommunications in the Asia-Pacific Regions.

In view of the increasing availability of high grade common carier services, Civil Aviation Administrations in the Asia-Pacific Regions were urged by ICAO to make use of the services wherever feasible, as a means of improving the reliability and operational effectiveness of the aeronautical point-to-point communications services. Consequently, many elements of the present aeronautical fixed circuits now comprise leased circuits provided by common carrier agencies. In many instances, where common carrier services are used, the performance of aeronautical circuits has improved significantly and the user requirements have been adequately satisfied. However, the benefits afforded by high grade common carrier circuits have not materialized as expected in certain areas of the region, mainly because of the poor quality of terrestrial links provided to connect the aeronautical facilities with the common carrier terminals.

All of us are aware of the fact that a reliable communications is most essential to enhance flight safety and that aeronautical users consequently rely entirely on the quality and reliability of services provided by the common carrier agencies.

ICAO's interest and participation in the activities of this conference is motivated by a common interest to encourage further improvement in the quality and reliability of services provided to aeronautical users. Therefore, in order to ensure availability of reliable communication services, I would like to propose that this conference make appropriate recommendations which would assign high priority to those work efforts which would enhance the quality and relaibility of services provided to aeronautical users. I would also like to urge all PTT authorities in this region to provide preferential treatment in terms of quality and reliability of services, to the safety service which will contribute immensely to ensure safe and efficient control of air traffic.

Thank you.

6. Statement by Mr. Hossein Mahyar,
Director General of Telecommunications
Ministry of PTT, Islamic Republic of Iran

IN THE NAME OF GOD, THE COMPASSIONATE, THE MERCIFUL.

Mr. Chairman, Distinguished Delegates, Ladies and Gentlemen,

On behalf of the Delegation of the Islamic Republic of Iran, I would like to take this opportunity to express my sincere gratitude to the Government and people of the Republic of India for the warm hospitality granted to us since our arrival in this historic and beautiful city. Also permit me, Mr. Chairman, to congratulate you on your election as Chairman to this very important gathering, an appointment which incidently assures us all of a fruitful and successful conference.

Mr. Chairman, there is no doubt that the proposals made by the Independant Commission for World-wide Telecommunications Development, in "The Missing Link" report, and the unanimous approval by most member countries during the First World Telecommunications Development Conference held in Arusha, Tanzania, marked a major milestone in the history of international telecommunications, and heralded a new era in the development of world telecommunications, in which the development of telecommunications in developing countries will hopefully receive the attention and priority due to it.

Mr. Chairman, with the culmination of the Islamic Revolution in Iran and the setting up of the Islamic Republic in 1979, the management of Iranian Telecommunications by foreign persons, with self-serving interest, came to an end. Pursuant to the Revolution, long-term planning was undertaken with heavy emphasis on reliance on in-country resources. The objective of new policies considered in such planning was essentially the extensive development of the National Telecommunications Network in Iran, with special emphasis on rural regions. This effort culminated in the drawing up of the 20-year Telecommunications Development Plan (1983-2003) consisting of four five-year plans.

The objectives of the long-term national plan may be considered to include:

1) the creation of national self-reliance in the field of telecommunications through the implementation of comprehensive technology transfer programmes, coupled with development of an active in-country manufacturing capability,

2) the utilisation of new and up-to-date telecommunication technology such as digital switching and fibre optics techniques,

3) the establishment of a domestic telecommunications satellite capability, and

4) the development and expansion of services provided both in terms of quantity and quality.

Mr. Chairman, with the coming to an end of the first five-year plan, the Ministry of Posts, Telegraphs and Telephone, and in particular its Telecommunications Company of Iran, TCI, can look back with much pride with respect to its achievements in these five years. During this short period, and

despite a multitude of obstacles such as imposed war, embargoes and so on, considerable strides have been taken in expanding the National Telecommunication Network, such as tripling the number of cities with telephones and quadrupling the number of villages with access to telecommunications.

More specifically we are happy to announce that since the Arusha Conference, 450,000 telephone lines, over 1500 public phones and 15,000 inter-city channels have been put into service. Also over 80 cities have joined the national network, while the number of rural telecommunications offices have been increased by 1000 offices.

I am also glad to report that future trends look no less promising. It is estimated that by the year 2003, the number of telephones in cities will reach some 12 million, the number of public telephones will have surpassed 120,000, the inter-city telecommunication channels will have reached about 200,000 and the number of rural telecommunication offices will have exceeded 15,000. It is also envisaged that by that date full country coverage will be provided by the Terrestrial Network working together with an independent telecommunication satellite capability. Furthermore it is foreseen that the in-country manufacturing capability in the year 2003, producing Digital radio equipment, multiple switching equipment, cables etc, will be providing employment for over 200,000 persons.

Mr. Chairman, it is our pleasure to see that Arusha Recommendations had been almost the same as our adopted policies, ie "Development of Telecommunications using maximum in-country resources and with particular attention to the development of rural regions".

Mr. Chairman, The Islamic Republic of Iran takes this opportunity to yet again endorse the laudable aspirations of the Arusha Conference, and is hopeful that a gathering like the present conference will contribute to the achievement of these worthy goals. As the general statistics I have given above indicate, we for our part are doing our best to assist in the conversion of these aspirations into reality.

It is however in place for me to add that the achieving of such goals at the international level will need greater and more concrete cooperation both in terms of finance as well as technology transfer from the leading members of the international Telecommunication Community.

The Islamic Republic of Iran takes this opportunity to express its sincere hope that through gatherings such as the present one, and in close cooperation with the International Telecommunication Union, whose efforts and close participation in such endeavours are vital, practical means of realising these aspirations will be found. In other words, not only should such a meeting result in the establishment of agencies such as the Centre for Telecommunication Development but also find means and ways of effectively supporting such centres with adequate technical and financial means. Only in this way will the disparity referred to in the Arusha Declaration, rightly found to be unacceptable both in the name of common humanity and on the grounds of common interest, be corrected.

I thank you for your attention and patience.

7. Statement by Mr. K.C. Park
Director, Overseas Cooperation Department
Korea Telecommunications Authority, Republic of Korea

Mr. Chairman, distinguished delegates, ladies and gentlemen, I have great pleasure in making some remarks on the telecommunications environment in Korea.

I would like to begin by talking briefly about the progress of Korea's telecommunications in relation to her economic growth.

For some time after the Korean War that ended in 1953, Korea was striving hard to survive. During the 1960's Korean people, under their efficient government leadership, managed to take off from a war damage to a rapid economic development. From 1962, Korea launched a sequence of successful Five Year Economic Development Plans, which brought a better standard of living. In the meantime, the telecommunication sector was growing at a relatively slow speed. By the 1970's the economic growth had far outpaced telecommunications, so that soaring telephone demands could not be met by slowly increasing supplies.

Starting from 100,000 in 1961, the number of telephone subscribers increased in 10 years to 500,000. Then, in another 10 years, it became three million. Although the rate of supply was escalating, the waiting list was getting longer year by year. In 1980, the waiting list stood at 600,000 which amounted to 21 percent of the existing telephones. This large and prolonged backlog became a social problem. To make things worse, there were too many faults and incomplete calls in the network composed of old step-by-step and manual exchanges and metallic wire transmission.

The telephone crisis of the 1970's evolved from a social problem to a political issue. Having recognized that further economic and social development would be impeded by this problem, the Korean Government assigned a high priority to the telecommunication sector in the Fifth Five Year Plan that started in 1982. Some of the important measures the Government took and succeeded at are as follows:

- Investment weight for the telecommunication sector was increased to 7.5 percent, amounting to 6.5 billion dollars, from the three percent of the previous Five Year Plan period.

- Five hundred million dollar's worth of ESS and PCM equipments was acquired by foreign loans.

- R & D efforts were intensified, producing commercialized Korean design digital ESS, PCM, fibre optic equipments and others.

- Telecommunication industry was restructured for improved efficiency, and key technologies were transferred from foreign companies.

- KTA, that is Korea Telecommunication Authority, and DACOM, that is Data Communication Corporation of Korea, were established for a more efficient operation of the nation's telecommunication business.

- It can be said that it was in the 1980's, that Korea's telecommunication emerged from backwardness that had been bottlenecks for social development. During a short span of the past six years, the telephone network

has been expanded by more than one million lines every year. The total telephone lines exceeded 11 million up to now, becoming the 10th largest in the world. All telephones in Korea are now switched by automatic exchanges, and 72 percent of them are by ESS exchanges. As a result, new telephone services may now be filled immediately anywhere across the country, and chronic complaints about incomplete calls or poor tansmission quality became things of the past.

In talking about what has happened in Korea's telecommunication during the 1980's, I should not overlook the role KTA played in strengthening local industry and the nation's R & D capability. KTA has been purchasing one billion dollars worth of equipment each year, providing a stable market place for local manufacturers.

Major equipments, like switching and transmission systems, have been supplied mostly from local producers, with necessary technologies transferred from abroad. In order to promote the small to medium scale parts industry, the system manufacturers were recommended to increase the content of local parts in their systems according to some optimal schedules.

Another effective measure we took to boost the telecommunications industry was to liberalize the terminal market by allowing customer provided terminals to be connected to the public network. This was a very timely policy for the Korean market of the 1980's when terminal demands grew very fast.

For the R & D promotion, KTA has been funding more than three percent of its revenue for ETRI, this is Electronics & Telecommunications Research Institute, and other national R & D institutions. Already substantial technological achievements have been made. For example, the Korean design TDX-I digital switching system is now being produced and by last year about 400,000 line units had been put into operation in the KTA network.

Having made great strides during the 1980's, Korea's telecommunication now faces new challenges. The challenges we have are especially profound ones in that we are, as you see, going through a most dynamic period of economic, social and political developments.

Speaking about future tasks of telecommunications, let me take up a theme which I might call "Telecommunication Welfare and Information Society". Firstly, by "Telecommunication Welfare", I mean various measures we are going to take for the so-called "qualitative growth" of telecommunications. In fact, what we have achieved during the 1980's may be characterized as the growth in quantities in that the national waiting list has been eliminated, nationwide automatic dial network has been completed, and so on.

For this rapid network growth, however, the public has born a great cost in terms of new subscription and toll call service tariff. When people were clamouring for their own telephones, a telephone bond was instituted for securing a large share of the funds for network expansion. And our toll call service tariff as compared to living standards is still higher than advanced countries, even though it has been reduced several times since KTA was established in 1982. From January 1 this year, the telephones bonds need not be purchased for new subscriptions. Now, at an average of one telephone per household, we are observing a welcome trend of increased telephone demand. We will continue to install an average of one million lines every year, reaching 21 million by the year 2001. Most of the future equipments will be modern digital ESS and fibre optic systems for better network quality.

Also, we are going to implement phased reductions in toll call service

tariffs as rapidly as permitted by our financial condition and improved network operation structure. Quickly gone are the days in Korea when a telephone was considered an item of mere convenience. It is now woven so deeply into the social fabric that the public is no longer satisfied just by its easy availability. It is imperative that we further improve network quality, provide a wide range of sophisitcated services, and cultivate customer centered business attitudes. As part of the efforts to meet these challenges, KTA was reorganized last year for more market oriented corporate structures built around profit centres.

On top of this, we, as a public monopoly, should take even greater responsibility for the welfare of society. Payphone booths of various features and emergency telephone services will be provided more widely across the country. Also, we will actively develop user friendly telephone services for the handicapped people, and so on.

The telecommunications environment has been changing, stimulated by the political climate since last year. For more autonomous business operation of public corporations, and to promote the stock market to become more of a mass market, the Korean Government has decided to sell stocks of profit-making public coprorations to the general public.

According to the Government schedule, the state owned KTA will become a joint-stock company sometime in 1989. It is planned that up to 49 percent of KTA's stocks be sold to the public by 1992.

This privatization of KTA will no doubt bring changes in the ways of telecommunication business. I believe, however, the telecommunication welfare will continue to be our utmost responsibility. The changes may be that, in more accelerated ways, we are to improve and expand existing services, introduce new services to meet eveolving customer needs, implement more cost-related tariffs and more comprehensive financial strategy, direct R & D operations to be more market oriented, and so on. Most of all, however, we shall have to be well prepared for a further future of the deregulated telecommunications environment in Korea.

"Information society" is a catchword today. As everybody here agrees, telecommunications will be the most important infrastructure of the future information society. And social development will be led by telecommunications development. This is why, as I understand, more advanced countries are trying to make their telecommunications environment more competitive departing from a traditional policy of monopoly. I think such deregulation is a general trend of the times. But time is not mature yet for a complete deregulation in Korea. I would like to point out that the telecommunications operation was transferred from the government to a public corporation only six years ago. And the so-called "information industry" that includes telecommunications will not have sufficiently matured in Korea when the privatization takes place in two years, or at a time in the near future.

Nevertheless, we already made a small start on the road to deregulation as the government decided last year to open up value-added services market in a limited way. This is to allow qualified users of leased-lines to develop and sell the value-added services to members of the same business line.

Privatization, deregulation, or whatever else may be at our doorstep, one thing is certain for the role of Korea's telecommunication. This is to lead the society towards the information age. Out in front, telecommunications shall anticipate the needs and welfare of society. Telecommunications shall actively

create the environment for national development, rather than just keep up with it as in the past.

Of course, numerous new services, similar to other countries, are being offered or planned by KTA and DACOM to stimulate development of the information society. Rather than going into such details, I will just speak about KTA's plan to reduce the number of tariff zones. As a start, local call areas were widened across the country last year by reconfiguring a total of 1599 areas into wider 147 areas, for stimulating community developments. During the 1990's, lcoal call areas will further be grouped for a small number of zones. Even the system of one tariff zone for the whole country is under study for implementation by the next century. ISDN has become a big concern of every administration. We have a long term plan for the ISDN evolution in Korea. We even began to plan a model network of ISDN for public trial. For all this, what is more important is to first make the society ready for such sophisticated services.

A sensible thing to do before the full-scale ISDN age would be to provide a cheap and ubiquitous environment for data communications by making use of the existing PSTN network. Since personal computers are likely to gain wide popularity in Korea, we are going to implement a nationwide PC communication network over the PSTN, similar to the French MINITEL Project. On the other hand, we are going to expand the range of circuit switched degital capability in the PSTN, for such ISDN-like services as Group IV FAX communications. A key element of our initiatives in the promotion of information society is to strengthen R & D capabilities. KTA is undertaking various national scale development projects related to the ISDN. To name a few, we are developing large capacity digital switching and fibre optic transmission systems, super-minicomputers, multi-megabit DRAM's, communications processing systems, and operations support systems. KTA is committed more than ever to lead comprehensive R & D activities for a premier position in the future deregulated telecommunications market.

Today, Korea has a 42 million population and her per capita GNP is about 3,000 dollars. With 24 telephones per 100 inhabitants on an average of one telephone per household, a basic need has been met. Also, disparities in telecommunication services have largely been resolved. Having come a long way from a disgraceful status of social bottleneck, Korea's telecommunication is now gearing up for its ambitious new role of leading national development.

On the other hand, turning our eyes to international cooperation activities, KTA recognized that technical assistance and transfer of technologies for developing countries are very important for the balanced development of telecommunications throughout the world. With this recognition, KTA has been actively participating in the various fields of international activities and KTA is offering technical assistance in various forms to the developing countries with a view to sharing its expertise and experiences.

Among them, KTA provided a long-term technical training course for foreign engineers and four or five trainees from the developing countries are being accomodated every year at KTA's training institute.

On the other hand, Korea Telecommunication Authority has prepared another particular technical assistance programme for the developing countries to contribute to the technical and economic cooperation between the developing countries and the Republic of Korea.

This particular technical assistance programme represents not only

supply of consulting and engineering services but also consultation by dispatching specialists to the developing countries as below.

The technical assistance for the developing countries shall be provided at our own cost and expense. Types of technical assistance by KTA are grouped broadly into two categories as follows:

a) Supply of consulting and engineering services
- preliminary studies
- feasibility studies
- technical studies
- economic and financial studies
- basic design and engineering
- preparation of specifications
- supervision of construction
- management advisory
- computer processing

b) Consultation by dispatch of technical and managerial experts
- training
- transfer of technologies
- engineering
- supervision
- operation and maintenance

For the execution of the technical assistance programme, the Korea Telecommunication Authority International (KTAI) is appointed as the executing agency of this technical assistance programme.

KTA established KTAI in January 1986 as its special subsidiary of offering consulting and engineering services on telecommunications at home and abroad.

At present, KTA International, whose organization and manpower resources are originally separated from the Design and Engineering Division of KTA, has some 200 highly qualified specialists, engineers who possess the vital work experiences through the successful implementation of Korean telecommunication networks. For the effective and successful implementation of the Technical Assistance Programme, KTAI is appointed as the executing agency of the programme for the supply of not only consulting and engineering services but also consultation by dispatching technical and managerial experts.

8. Statement by Mr. Mario Bondioli-Osio
Minister, and representing
Societa Finanziaria Telefonca (STET)

Mr. Chairman, distinguished delegates, ladies and gentlemen, it is a great honour for me to bring to this important conference a sign of the keen interest with which the Italian Government follows the development of telecommunications in Asia. In a way I consider my attendance of this Conference on behalf of the Directorate General for Development Cooperation of the Ministry of Foreign Affairs as a follow-up of the short but very significant visit that the Prime Minister of Italy, Mr. Giovanni Goria, paid to four Asian countries at the beginning of this year.

In that visit the Prime Minister, who was acompanied by the Foreign Minister and an important group of leading businessmen, set the guidelines for a more active cooperation with your country, Mr. Chairman, as well as with others in the Asian region.

Mr. Chairman, the Italian financial effort in development aid is rather new, starting only in this present decade of the 1980's. But in these few years it has grown from a mere 50 million US dollars a year to a forecast for 1988 of roughly four billion US dollars. Last year Parliament adopted a new law opening new possibilities of intervention.

For the first time the new law foresees the possibility of financing actions directed towards scientific and technological research in a joint effort with developing countries. This means that Italy is ready to study with each developing country its particular needs and work together in order to find the most appropriate solution to a technical problem.

Research projects of this kind are already under way with China, in application of a framework agreement signed last October with the State Commission for Science and Technology. Among the five projects which shall be financed on the 1988 budget, there is a five million dollar project on rural communication technology and a 1.2 million dollar project on digital transmission.

The Italian scientific establishment follows with great interest the important developments taking place in many countries, in particular India, as it was mentioned by H.E. Prime Minister Gandhi in his inaugural address.

We think that cooperation in science and research can be of a mutual advantage and we are ready to support with the needed inputs the development of local solutions to problems which are necessarily very different from those we encounter in Europe.

A second instrument of cooperation introduced by the new law is the possibility of financing the establishment of joint ventures in developing countries. This possibility will increase in a substantial way - we hope - the cooperation between Italian companies and their partners in the developing world.

Mr. Chairman, as a general guideline our development aid is directed to tackle social problems with special attention to the needs of the poorer strata of the population.

We share therefore the concern expressed in the Arusha Declaration for

the need to bring every man and woman "within easy reach of a telephone and in due course, the other services telecommunications can provide".

Our action therefore is designed to increase the availability of telecommunications and improve service quality to support both social and economic development. In this, we enjoy a close cooperation with ITU, whose invaluable experience in the field of TLC we highly praise. We support ITU not only as an active member, but with specific contributions as it is the case for the feasibility study for the African TLC satellite, RASCOM.

We appreciate that TLC projects require huge investments in hard currency and very often the financial situation of the developing countries doesn't allow them to modernize their networks without substantial support from the industrialized countries, so we are becoming more and more attentive and responsive to this emerging need.

Given the magnitude of the problem we know that good results can be achieved only through the development of local capabilities, especially in industrial production of TLC equipment and in maintenance. This is a field in which the two new instruments mentioned before, namely transfer of technology and joint ventures, can bring about - we hope - a major break-through.

The type of projects we are ready to finance, mainly with soft loans, vary depending on each country demands. Some of our projects may consist of entire systems, some others of expansion of distribution network or rehabilitation and modernization of existing facilities. As a rule, we strive to improve overall performance by upgrading quality service and operational efficiency. In any case we would like to ensure that the new systems and the rehabilitated assets are properly maintained and operated. This is why we attach much importance to technical assistance and training. Our previous experience, which is mainly in Africa, has led us to identify as main constraints to the development of TLC management; inefficiency, shortage of skilled staff and inadequate maintenance facilities, hence the need to address these problems. In doing that we have found that Italian industry shares our concern and responds quite constructively to our request of a major technological involvement in the recipient countries.

The Italian Ministry of Post and Telecommunications is assisting us at the Directorate General for development cooperation in order to define the technical framework within which the specific demands of each country can be met.

Italian industry, both public and private, is capable of covering the total range of goods and sevices, technology, knowhow, and training that may be required. The experience of the Italian TLC carriers can be shared with similar bodies in the developing world.

I hope that as a result of this Conference a plan of action for the development of global communications in Asia will be more clearly defined. I hope also that within this framework, possibilities of cooperation between Italy and Asia will receive the attention it deserves.

9. Statement by Mr. Seru V. Korikalo
Deputy Director of Posts and Telecommunications
Vanuatu

THE PACIFIC ISLANDS VIEWPOINT

At this conference there are some 10 Pacific Island countries including Cook Islands, Federated States of Micronesia, Kiribati, Nauru, Palau, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu. Also the Maldives, while not in the Pacific, is also an Island Nation.

The situation in these island states is quite different from the large Asian countries. We are characterized by extremely small populations (17,000 total in the Cook Islands for example), extremely small land mass (8.5 sq. miles in Nauru for example) and widely scattered tiny islands to which telecommunication services are required. Our environmental conditions include high humidity combined with a high salt content. Three things which we do have in common with the Asian countries however are:

1. Poor communications to our rural (outer island) areas;
2. A legacy of underinvestment in the past;
3. An ongoing lack of finance to develop and improve these communications.

This is why we are here.

In the island countries we talk of total exchange lines of less than 5000 and typically less than 100 in the outer islands, we talk of national trunk routes at less than 10 trunks and telephone access to people within 20 minutes walking time. If one walked one hour in a straight line he is likely to be two miles out to sea! - some of the islands are that small.

Nevertheless, telecommunications is very important to these people if they are ever to obtain self-sufficiency and for all the social-economic reasons already outlined.

The Telecommunications development in this sub-region is assisted by two main organizations:

1. The ITU financed by UNDP, Australian and New Zealand funds;
2. The SPTDP administered by SPEC and funded by Australia and New Zealand.

Both of these two organizations have greatly assisted the Island countries and all of us appreciate the tremendous help received. However, neither of these two organizations can provide the finance required to implement our telecommunication plans. Efforts to obtain fundings have been frustrating and while conferences such as this focus attention on the problems, nothing will happen until finance is available to start purchasing equipment. Perhaps it is time that donor countries who supply aid to the region such as Australia, New Zealand and soon Japan (we hope) could meet to consider a coordinated approach to the telecom funding problem. Having said that and realising the institutional problems involved, it is no good preaching to the converted as we are doing here. We must seek solutions to the problem - radical that some of these may seem.

I know that both the ITU and the SPTDP stand by ready to assist.

In conclusion, we would like to restate:

1. The Island Nations exist and have quite different situations from the Asian Nations;

2. Our commonality is our communication problems;

3. That while technical solutions exist to solve these problems, financial solutions do not and answers must be sought. It would be very helpful if this conference could address some of the special problems faced by Island Nations like ours and possibly formulate recommendations that would assist both the donors and recipients to attack our problems in the most appropriate manner.

ASIA AND PACIFIC TELECOMMUNICATIONS DEVELOPMENT CONFERENCE

ANNEX D

CLOSING STATEMENT

NEW DELHI, INDIA, 22–26 FEBRUARY 1988

Closing Statement by Mr. J. Jipguep
Deputy Secretary General
International Telecommunication Union

Mr. Chairman, Distinguished Participants, Ladies and Gentlemen,

Before you close this important conference officially, let me congratulate you at leading its deliberations to a successful conclusion. The volume of information presented at this forum and the broad strategy and recommendations set out during the discussions will guide the development activities in the countries of the region for many years. Allow me to state how impressed I have been with the frankness of the debate and the high quality of the papers presented.

The participants in the conference had the privilege of being addressed by the Honorable Prime Minister of India. He emphasised the reasons for inadequacy of telecommunication services in the developing countries, particularly the under-investment in telecommunications development so far. He also suggested a new guideline for development of telecommunications in the developing countries is the concept of "telephone accessibility", rather than telephone density. On behalf of the participants, I request the Chairman to convey our thanks and gratitude to the Honorable Prime Minister for his highly inspiring speech.

I was gratified to note a large number of valuable and high quality papers on a variety of topics of telecommunication development and operation. Your deliberations have focussed attention on a wide range of issues relevant to the development of telecommunictions in the era of innovations and high technologies. During the last few days you have reviewed the changes that have taken place over the past decade and to make a realistic assessment of the current situation. This has also enabled you to determine the telecommunication requirements at the beginning of the next century and to discuss the strategy for future development of the services in the region. These are important achievements and will no doubt lead to better regional cooperation and more balanced approaches to development efforts. Your deliberations on the technological changes and their impact on the Union's activities are indeed timely and relevant. I am quite impressed with the emergence of a number of concrete and important recommendations. On behalf of the Union let me assure you of our whole-hearted support and cooperation and of our desire to assist in their implementation.

The conference is not an end in itself. Much work lies ahead to realize the obejctives set out in the various resolutions, and the recommendations that you have adopted. As you know, the primary role is the implementation of these recommendations which rests with the Administrations themselves. The ITU, for its part, remains at your disposal and, as in the past, will continue to assist you within the limits of its resources, in implementing the recommendations.

Mr. Chairman, before concluding I should like to congratulate you personally, for the tact and skill with which you steered the work of this conference. But for the patience and wisdom that you displayed during the last few days, this conference would not have completed all the tasks listed in the agenda in the allotted time.

Echoing the participants thoughts, let me express my deep gratitude and appreciation for the excellent facilities and the generous hospitality extended to us throughout our stay in New Delhi. Our sincere thanks are also

given to the support staff and the members of the organization committee in the Indian Administration who have worked behind the scenes to make this conference a success. May I request you, Mr. Chairman, to convey these sentiments to all members of your staff who have been involved in providing the secretarial services and other facilities.

I also take this opportunity to express my gratitude to the observers from our sister specialized agencies, UN bodies, regional and intergovernmental organizations, international banks and the funding organizations whose presence and participation greatly facilitate the work of this conference.

It has been a privilege for me and my colleagues to serve you; we stand ready to continue doing so convinced that the Union as guided by your conference, will also continue within the changing environment of telecommunication technology to strengthen the performance of its basic activities in the interest of all members, particularly the smaller and least-developed countries.

In conclusion, it only remains for me to bid you a farewell.

ASIA AND PACIFIC TELECOMMUNICATIONS DEVELOPMENT CONFERENCE

ANNEX E

LIST OF DELEGATES AND OBSERVERS

NEW DELHI, INDIA, 22–26 FEBRUARY 1988

LIST OF PARTICIPANTS

AFGHANISTAN

Mr. Mokhamed Jelalzai, President of Telecommunications, Ministry of Communications.

AUSTRALIA

Dr. Bob Horton, Assistant Director, Corporate Strategy, Australian Telecommunications Commission.

Ms E. Jill Davidson, Director, International Strategy, STAPP Division, Department of Transport and Communications.

Mr. Peter Clifton, Business Development Manager, Telecom Australia (International) Ltd.

Mr George F. Maltby, Managing Director, OTC and President of the Asia Pacific Telecommunity.

Mr. Peter Shore, Corporate Development Manager, OTC.

Mr. Daniel Maurice, Corporate Development Manager, Project Financing, OTC.

BANGLADESH

Mr. Kazi A. Rouf, Chairman, Bangladesh T & T Board.

Mr. Mohammad Abdus Salam, Director (Planning LT/LD), Bangladesh T & T Board.

BHUTAN

Mr. Bishnu L. Sharma, Deputy Director, Department of Telecommunications.

Mrs Louise Dorji, Deputy Director, Bhutan Broadcasting Service.

CHINA

Mr. Chi Zhengde, Deputy Director General, Directorate.

Mr. Qu Wenchu, Deputy Division Chief, Telecom.

COOK ISLANDS

Mr. Stuart Davies, Director General, Cook Islands Post Office.

FEDERATED STATES OF MICRONESIA

Mr. Asterio Takesy, Deputy Secretary of External Affairs.

Mr. Takuro Akinaga, Assistant General Manager of FSM Telecommunication Corporation.

INDIA

Mr. D.K. Sangal, Secretary to the Government of India, Ministry of Communications.

Mr. S.K. Lall, Additional Secretary, Ministry of Communications.

Mr. V. Devarajan, Member, Telecom Board, Department of Telecommunications, Ministry of Communications.

Mr. C.K. Reddi, Member, Telecom Board, Department of Telecommunications, Ministry of Communications.

Mr. Satya Pal, Member, Telecom Board, Department of Telecommunications, Ministry of Communications.

Mr. N.R. Hiregange, Deputy Director General, Department of Telecomunications.

Mr. B.S. Murty, Director, Telecom Research Centre, Department of Telecommunications.

Mr. Y.L. Agarwal, Chairman cum Managing Director, Telecommunications Consultants India Ltd.

Mr. N.P. Sen, Group General Manager, Telecommunications Consultants India Ltd.

Mr. S.K. Bansal, General Manager, Telecommunications Consultants India Ltd.

Dr. M.K. Rao, Wireless Adviser, Ministry of Communications.

Mr. A.M. Joshi, Jt. Wireless Adviser, Ministry of Communications.

Mr. M.P. Shukla, Managing Director, Mahanagar Telephone Nigam Ltd.

Mr. B.M. Khanna, General Manager, Mahanagar Telephone Nigam Ltd.

Mr. T.H. Chowdary, Chairman cum Managing Director, Videsh Sanchar Nigam Ltd.

Mr. P.K. Divakaran, Dy. General Manager, idesh Sanchar Nigam Ltd.

Mr. G.B. Meemamsi, Executive Director, Centre for Development of Telematics.

Mr. D.R. Mahajan, Director, Centre for Development of Telematics.

Dr. M.V. Pitke, Director, Centre for Development of Telematics.

Mr. P.D. Kale, Director, Space Application Centre, Indian Space Research Organization, Ahmedabad.

Mr. S. Ravi, Jt. Secretary, Department of Electronics.

Mr. S.G. Pitroda, Advisor to the Prime Minister of India.

Mr. S.P. Bhatikar, Engineer-in-Chief, All India Radio.

Mr. O.P. Khushu, Engineer-in-Chief, Directorate General, Doordarshan.

Mr. T.S. Vijayaraghavan, Jt. Secretary, Ministry of Commerce.

Mr. D.V. Gupta, Executive Director, Indian Telephone Industries Ltd.

Dr. Sira G. Rao, General Manager, Indian Telephone Industries Ltd.

Mr. R.S. Dhiman, Under Secretary, Ministry of External Affairs.

Mr. N.K. Mathur, Deputy Director General, Telecommunications Board.

Mr. S.M. Prasad, Deputy Director General, Telecom Board.

Mr. R.P. Subramanian, CMD, Hindustan Teleprinters Ltd.

Mr. D.K. Gupta, Chairman cum Managing Director, HCL.

INDONESIA

Mr. Arnold Ph. Djiwatampu, Director Telecom Convention and Legal Regulations, DG POSTEL.

Mr. Remedi Peranginangin, Director of Corporate Planning, PERUMTEL.

Mr. Bambang Sulistyo, General Manager for Planning, PT INDOSAT.

Mr. Yusbar Djamil, First Secretary, Indonesian Embassy.

ISLAMIC REPUBLIC OF IRAN

Mr. Hossein Mahyar, Director General of Telecommunications, Ministry of PTT.

Mr. Saeed Setayeshi, Deputy of Managing Director of Telecommunication Company of Iran (Islamic Republic).

JAPAN

Mr. Makoto Miura, Assistant Vice-Minister of Posts and Telecommunications.

Mr. Tomio Kuriki, Senior Assistant (Engineering) to Senior Executive Vice-President, NEC Corp.

Mr. Kenichiro Turigoe, Director of the International Cooperation Division, Communications Policy Bureau, Ministry of Posts and Telecommunications.

Mr. Toru Azumi, Deputy Director, International Affairs Division, Ministry of Posts and Telecommunications.

Mr. Nobuyoshi Mutoh, Deputy Director, Department of Telecom.

Mr. Shigemaro Aoki, Deputy Director, International Affairs Department, NTT.

Mr. Tsuguhao Tsujii, Assistant Manager, International Organization Division, International Affairs Dept, KDD.

Mr. Jun Maeda, Assistant General Manager, Switching Froup Fujitsu Limited.

Mr. Toshisada Okabe, Managing Director, World Communications Development Organization.

Mr. Hideto Takemoto, Chief Representative in India, NEC, New Delhi.

Mr. Takashi Suzuki, General Manager for New Delhi Office, FUJITSU, New Delhi.

KIRIBATI

Mr. John I. Tonganibeia, Secretary, Ministry of Transport and Communications.

Mr. Ieronimo Kienene, Telecom Engineer, Ministry of Transport and Communications.

KOREA REP. OF

Mr. Kyun Chul Park, Director, Overseas Cooperation Department, Korea Telecommunications Authority (KTA).

Mr. Seak Jin Choi, Deputy Director, Overseas Cooperation Department, Korea Telecommunications Authority (KTA).

Mr. Duck Kyu Kim, Manager, Overseas Planning Division, Korea Telecommunications Authority International (KTAI).

MALDIVES

Mr. Riluvan Shareef, Director, Department of Posts and Telecommunications.

MALAYSIA

Mr. Mohamed Ali Yusoff, Director General, Jabatan Telekom.

NAURU

Dr. V.S. Mani, Chief Secretary and Ag. Secretary for Island Development and Industry.

Mr. M.K. Sundararaman, Director of Telecommunications.

NEPAL

Mr. Ram Prasad Sharma, Joint Secretary, Ministry of Communications.

PAKISTAN

Mr. Shabbir Ahmad Siddiqi, Director General (TANDT).

Mr. Saiedullah Alvi, Chief Engineer (Planning), Pakistan T & T.

PALAU

Mr. Ramon Rechebei, Vice Chairman International Affairs, PNCC.

PHILIPPINES

Mr. Aloysius R. Santos, Deputy Commissioner, National Telecommunications Commission.

Ms. Kathleen G. Heceta, Chief, Legal Department, National Telecommunications Commission.

Ms. Ma. Mercedes F. Garcia, Chief, Telecom Planning Division, Dept of Transportation and Communications.

SAMOA

Mr. Tuuu I. Taulealo, Director of Post and Telecommunications.

SOLOMON ISLANDS

Mr. Leonard P. Maenu'u, Permanent Secretary, Ministry of Posts and Communications.

Mr. E. Burke, Chief Telecommunications Engineer, Ministry of Posts and Communciations.

SRI LANKA

Mr. R.B. Kumarapathirana, Chief Telcom Engineer.

THAILAND

Mr. Rianchai Reowilaisuk, Senior Engineer, Post and Telegraph Department.

Mr. Sukit Tirawatanawit, Chief, Office of Director of Project Management Department, Telephone Organization of Thailand.

Mr. Pitjapol Jantanasaro, Engineering Official Class 5, Communications Authority of Thailand.

TONGA

Mr. Lemeki Malu, General Manager, Tonga Telecommunication Commission.

TUVALU

Mr. Tauaasa Taafaki, Assistant Secretary, Ministry of Works and Communications.

VANUATU

Mr. Seru Victor Korikalo, Deputy Director of Posts and Telecommunications.

UNITED NATIONS BODIES

Economic and Social Commission for Asia and the Pacific (ESCAP)	Mr. S.A.M.S. Kibria, Executive Secretary.
	Mr. Fachri Mahmud, Chief, Transport, Communications and Tourism Division.
	Mr. K. Rahman, Special Assistant.
United Nations Development Programme (UNDP)	Mr. Gamil Hamdy, Resident Representative, New Delhi, India.

SPECIALIZED AGENCIES

International Civil Aviation Organization (ICAO)	Mr. Kamal P. Rimal, Technical Officer, Communications, Bangkok, Thailand.
United Nations Educational Scientific and Cultural Organization (UNESCO)	Mr. B. Jaijongkit, Programme Specialist, New Delhi.
	Mr. P.R. Gulati, Programme Specialist, New Delhi.
World Meteorological Organization (WMO)	Dr. N. Sen Roy, Additional Director General India Meteorological Department, New Delhi.
Universal Postal Union (UPU)	Mr. P.S. Ragavachari, Director General of Posts and Secretary (Posts), India.

FUNDING ORGANIZATIONS

Asian Development Bank (ADB)	Mr. Yubo Akatsuka, Manager, Telecoms Division, Manilla, Philippines.
The World Bank	Mr. Dinshaw Joshi, Telecommunications Consultant.
Finnish International Development Agency (FINNIDA)	Mr. Matti Junnila, Manager (Projects)
Canadian International Development Agency (CIDA)	Mr. R.C. Kamo, Commercial Officer, Canadian High Commission, New Delhi.
Friedrich Ebert Stiftung (FES)	Mr. Wilhem Wiegreffe, Deputy Secretary General of AMIC, Singapore.
Societa Finanziaria Telefonica (STET)	Mr. Mario Bondioli-Osio, Minister.
	Mr. Rinaldi Adolfo, Director, Internal Orerations.
European Economic Community (EEC)	Mr. Michael Hardy, Director, Commission of the European Communities.
	Mr. Heinz Helmert, Acting head of Telecommunication for South East Asia.
	Mr. Vikram Roy, Adviser, New Delhi.

INTERGOVERNMENTAL ORGANIZATIONS

Asia-Pacific Telecommunity (APT)	Mr. Chao Thongma, Executive Director, Bangkok, Thailand.
South Pacific Bureau for Economic Cooperation (SPEC)	Mr. Philip L. Holloway, Telecommunications Programme, Suva, Fiji.
International Telecommunications Satellite Organization (INTELSAT)	Dr. Joseph Pelton, Director, Special Projects & Studies.

ITU REPRESENTATIVES

Mr. R.E. Butler	Secretary General
Mr. J. Jipguep	Deputy Secretary General
Mr. A.E. Embedoklis	Chief, Technical Cooperation Department
Mr. T. Srirangan	Senior Counsellor
Mr. D.M. Westendoerpf	Director, Centre for Telecommunications Development
Mr. T. Ras-Work	Special Policy Adviser
Mr. P. Hogendijk	Coordinator, Group of Engineers
Mr. M.A. Ansari	Head, Asia and Pacific Division
Mr. S.N. Rahim	ITU Senior Regional Representative, Bangkok
Mr. S.K. Lindquist	Regional Training Development Expert
Mr. R. Motion	ITU Team Leader/Regional Adviser, Suva
Mr. S.L. Desai	ITU Area Representative, Colombo
Mr. G.J. Davey	ITU Area Representative, Jakarta
Mr. M. Anwar	ITU Project Coordinator, Bangkok
Mr. W. Borkenhagen	Project Officer
Mr. W.L. Brown	Project Officer
Miss E. Miles	Secretary
Mrs. A. Endel	Secretary
Miss M. Leybourne	Secretary

ASIA AND PACIFIC TELECOMMUNICATIONS DEVELOPMENT CONFERENCE

ANNEX F

LIST OF DOCUMENTS

NEW DELHI, INDIA, 22–26 FEBRUARY 1988

Documents Presented

050 Series - General Information Documents

Number	Title or description	Source
051	Agenda	
052	Statistical Summary from data provided by administrations	ITU
053.1	Order of the Day	
054.2	List of Participants	
055.1	List of Documents	

100 Series - Statements by regional and inter-governmental organizations

Number	Title or description	Source
101	Statement by Mr. S.A.M.S. Kibria, Exectutive Secretary, ESCAP	S.A.M.S. Kibria - ESCAP
102	Statement by Mr. G.M. Hamdy, Resident Representative, UNDP	G.M. Hamdy - UNDP
103	Statement by Mr. Chao Thongma, Executive Director, APT	Chao Thongma - APT
104	Statement by Mr. Michael Hardy, Commission of the European Communities	M. Hardy - EEC
105	Statement by Mr. K.P. Rimal of ICAO	K.P. Rimal - ICAO
106	Statement from the Islamic Republic of Iran	Hossein Mahyar - Iran(Islamic Rep.)
107	Statement from the Republic of Korea	K.C.Park - Republic of Korea
108	Statement from Ministry of Foreign Affairs Italy	M. Bondioli-Osio Italy
109	Statement from Vanuatu	Seru Victor Korikalo - Vanuatu

200 Series - Presentation of the Arusha Declaration

Number	Title or description	Source
201	Presentation of the Arusha Declaration	S. Abdulrachman - M.P.T. - Indonesia
202	Presentation of the Arusha Declaration	S.G. Pitroda - India

300 Series - Review of Telecommunications in Asia and the Pacific

Number	Title or description	Source
301	Role of CTD in promoting Telecommunications	D.M. Westendoerpf - ITU
302	Follow-up of the Missing Link Report	T. Srirangan - ITU
303	Development of Telecoms in the South Pacific; the Role of the South Pacific Bureau for Economic Cooperation	P.L. Holloway - SPEC
304	The State of Telecommunications in Indonesia and some major development issues	R. Peranginangin - P.T. Indosat, Indonesia
305	Telecommunication Services in Nepal	R.P. Sharma - P.T. Nepal
306	Review of the Past ten years of the Telecommunication Changes in India and Assessment of the Current Situation	S.M. Prasad - India
307	Telecommunication Development in Thailand	Rianchai Reowilaisuk - Thailand
308	Telecommunication Services in Malaysia	Mohamed Ali Yusoff - Malaysia
309	Summary on State of Telecommunication in Bangladesh	Kazi A. Rouf - Bangladesh
310	Telecommunications Development in the Asia Pacific Region in the last decade	Chao Thongma - APT

400 Series - Telecommunication requirements at the beginning of the next century

Number	Title or description	Source
401	Rural Telecommunications in China's Remote Areas	Liu Zhongen - China
402	Satellite Service in the South Pacific	R. Motion - ITU
403	Trends in Digital Switching	P. Hogendijk - ITU
404	Development of Telecoms in Asia-Pacific Region	Makoto Miura - Japan
405	Progress and Strategies for Development of Broadcasting in Asia and Pacific	S.P. Bhatikar - All India Radio
406	Telecommunication Requirements Including Usages, Plans, Alternatives and Changes at the beginning of the Next Century	N.K. Mathur - India
407	Telecommunications Requirements at the beginning of the next Century - an Australian Perspective	Bob Horton - Australia
408	Rural Telecommunication in Bangladesh	Kazi A. Rouf - Bangladesh

500 Series - Strategy for Future Telecommunication Development in the Region

Number	Title or Description	Source
501	The NTT Experience: Our Views on Telecommunications Development in Asia and the Pacific	Shigemaro Aoki - NTT, Japan
502	Technical Cooperation among Developing Countries (TCDC) in Telecommunications	S.L. Desai - ITU
503	Investments in Telecommunications and their financing	Dinshaw F.D. Joshi - World Bank
504	From a PTT Administration to a Telecom Enterprise (Policy Considerations)	T. Ras-Work - ITU
505	Telecommunication Development - from a Human Resource Perspective	S.K. Lindquist - ITU
506	Developmental Communications: Intelsat's Programmes - Past, Present and Future	Joseph N. Pelton - INTELSAT
507	The Role of Telecommunications in the Economic and Social Development of the Asia-Pacific Region	F. Mahmud - ESCAP
508	Strategy for Future Telecommunication Developments - The Indonesian Perspective	A. Djiwatampu - P.T. Indosat, Indonesia

500 Series - Continued

Number	Title or description	Source
509	Telecommunications Development in least Developed Countries of Asia Pacific Region	R.P. Sharma - P.T. Nepal
510	International Telecommunications - Srategic Considerations for Development	T.H. Chowdary - India
511	Collective Self-Reliance in Telecommunication Technology Amongst the Developing Countries	G.B. Meemamsi - India
512	Strategy for Future Telecommunication Development in the Region	N.R. Hiregange - India
513	ADB Operations in the Telecommunications Sector	Yuzo Akatsuka - ADB
514	Multilateral Cooperation Amongst Developing Countries	Y.L. Agarwal - India
515	Philippines Country Report	K.G. Heceta and M.F. Garcia - Philippines
516	Information Document - Outline of Telecommunications Policy being Considered for Adoption by India.	N.R. Hiregange - India

600 Series - Technological Changes and their Impact on ITU Activities

Number	Title or Description	Source
601	Technological Changes and their impact on ITU Activities	C.K. Reddi & M.K. Rao - India
602	Cooperation between the ITU and the regional organizations	S.N. Rahim - ITU
603	The Impact of Technological Changes on ITU Technical Cooperation Activities in Asia and the Pacific	G.J. Davey - ITU

700 Series - Review of Progress in the Implementation of the Transport and Communications Decade

Number	Title or Description	Source
701	Regional Telecom Planning in the Context of the Transport and Communications Decade (1985-1994) in Asia and the Pacific	M. Anwar - ITU
702	Transport and Communications Decade for Asia and the Pacific 1985-1994	F. Mahmud - ESCAP

ASIA AND PACIFIC TELECOMMUNICATIONS DEVELOPMENT CONFERENCE

ANNEX G

STATISTICAL SUMMARY

NEW DELHI, INDIA, 22–26 FEBRUARY 1988

ASIA AND PACIFIC TELECOMMUNICATIONS DEVELOPMENT CONFERENCE

NEW DELHI - 22-26 FEBRUARY 1988

Statistical Summary from Data Provided by Administrations

country	Population (millions)	GDP/Capital (US$)	Number of D.E.L.s 1976/7	(1) 1986/7	Penetration dels/100	Staff Per 1000 del Technical	Total	finance % Inc/Expend	International CCT Total	Regional	Management Structure
Afghanistan 2)	17.7	N.A.	22,200	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Australia 2)	15.85	8188	3.7m	6.36m	40	7.33	14.5	8.8	N.A.	N.A.	N.A.
Bangladesh 2)	98.73	130	76,000	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Bhutan	N.A.	-	-	-	-	-	-	-	-	-	-
Brunei 2)	0.224	15,600	7200	20,808	9.3	16.3	31.7	56	N.A.	N.A.	N.A.
Burma 2)	37.6	N.A.	26,500	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
China 2)	1046	310	3.45m	6.02m	0.57	26.3	160	44	N.A.	N.A.	N.A.
Cook Islands 2)	0.0176	N.A.	N.A.	1817	10.3	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Fed.States of Micronesia	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Fiji 2)	0.708	1927	17,400	29,830	4.22	24.3	45.5	15.6	N.A.	N.A.	N.A.
Hong Kong 2)	5.47	6330	0.994m	1.74m	31.8	4.55	8.22	33	N.A.	N.A.	N.A.
India	776	221	1.6m	3.6m	0.46	N.A.	98	73	1314	270	N.A.
Indonesia	164	450	241,000	838,555	0.51	22.7	50.1	18.5	1021	659	Pub. Sect Corp
Iran 2)	44.2	N.A.	814,000	1.345m	3.04	4.08	28.7	-16.7	N.A.	N.A.	N.A.

Country	Population (millions)	GDP/Capita (US$)	Number of D.E.L.s 1976/7 (1)	1986/7	Penetration dels/100	Staff per 1000 del technical	total	finance % Inc/Expen	International CCT Total	Regional	Management Structure
Japan	121.4	18,000	34.4m 2)	46.3m	38.1	N.A.	6.6	16	3524	2529	Private Sector
Kiribati 2)	0.064	332	N.A.	669	1.04	61.3	179	-34	N.A.	N.A.	N.A.
Korea (PDR)	N.A.	-	-	-	-	-	-	-	-	-	-
Korea (Rep.of)	41.2	2369	1.3m	9.3m	22.6	4.0	5.2	5.3	1551	729	Private Sector
Lao PDR 2)	3.6	N.A.	5700	5961	0.17	N.A.	134	14.2	N.A.	N.A.	N.A.
Maldives	0.182	400	540	3000	1.65	60	83.3	40	28	22	N.A.
Malaysia	16.5	1688	194,000	1.1m	6.7	9.7 1)	26.7 1)	40	696	395	Private Sector
Mongolia	N.A.	-	-	-	-	-	-	-	-	-	-
Marshall Is.	N.A.	-	-	-	-	-	-	-	-	-	-
Nauru	N.A.	-	-	-	-	-	-	-	-	-	-
Nepal	18	160	8600	25,885	0.14	59.1	114	24.4	97	86	Pub. Sec Corp
New Zealand 2)	3.28	6510	1.05m	1.3m	39.6	9.9	18.4	26	N.A.	N.A.	N.A.
Niue	N.A.	-	-	-	-	-	-	-	-	-	-
Pakistan	101	304	242,000	584,000	0.58	58.8	72.5	24	960	613	Govt.Dept
Palau	N.A.	-	-	-	-	-	-	-	-	-	-
PapuaNewGuinea	3.5	2500	18,400	30,000	0.85	58.1	90.6	25	188	161	Govt.Dept
Philippines 2)	54.4	409	304,000	478,000	0.88	7	54.5	6.5	N.A.	N.A.	N.A.

ASIA AND PACIFIC TELECOMMUNICATIONS DEVELOPMENT CONFERENCE

VOLUME I

FINAL REPORT
RECOMMENDATIONS AND RESOLUTIONS

NEW DELHI, INDIA, 22–26 FEBRUARY 1988

Country	Population (millions)	GDP/Capita (US$)	Number of D.E.L.s 1976/7 (1)	1986/7	Penetration dels/100	Staff per 1000 del technical	total	finance % inc/expend	International CCT Total	regional	Management Structure
Samoa	N.A.	-	-	-	-	-	-	-	-	-	-
Singapore 2)	2.6	6500	250,000	800,000	31	7.5	16	39.3	N.A.	N.A.	N.A.
Solomon Is. 2)	0.267	N.A.	N.A.	2234	0.84	33.6	70.7	N.A.	N.A.	N.A.	N.A.
Sri Lanka 2)	15.65	360	N.A.	74,000	0.47	75	129.6	N.A.	N.A.	N.A.	N.A.
Thailand	53.4	860	261,000	456,964	0.85	17.3	31.1	52	651	388	Govt.Dept
Tokelau	N.A.	N.A.	-	-	-	-	-	-	-	-	-
Tonga 2)	0.1	N.A.	500	2567	2.57	32.3	70	26	N.A.	N.A.	N.A.
Tuvalu	0.0086	368	N.A.	120	1.39	67	208	9.5	1	0	Govt.Dept
Vanuatu	0.14	753	1100	2056	1.47	25.8	53	167	29	27	N.A.
Vietnam 2)	58.6	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

NOTES:

N.A. Information not available from any source at time of printing.

(1) 1976 or 1977 value of number of D.E.L.s obtained from the 14th Edition of Yearbook of Common Carrier Telecommunication Statistics (ITU, Geneva 1987)

(2) Country Statistics not received in time for printing. All statistics obtained from 14th Edition of Yearbook of Common Carrier Telecommunication Statistics (ITU, Geneva 1987).