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PLENARY MEETING

Director, Telecommunication Development Bureau

**REPORT ON THE IMPLEMENTATION OF THE 12 PROGRAMMES OF
THE BUENOS AIRES ACTION PLAN**

The Buenos Aires Action Plan for the global development of telecommunications (BAAP) was adopted by the first World Telecommunication Development Conference (WTDC, Buenos Aires 21-29 March 1994). The BAAP comprises three chapters: I - Programme for cooperation among members of the Telecommunication Development Sector; II - Plan of action by the BDT for assisting the developing countries; III - Special programme for the LDCs.

This document reports the implementation of Chapter II which contains 12 programmes that provides a focus for the work of the ITU Development Sector in the period 1995-1998. At this date the programmes have not yet been completed as 1998 is still largely before us. Nevertheless, the results that can be reported are highly significant.

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Programme 1: Policies, Strategies and Financing

The purpose of this programme was to develop models and guidelines for the harmonization of national policies, regulations, financing, and institutional structures conducive to accelerated and balanced development of telecommunication systems worldwide. The programme was divided into two sub-programmes (Programme 1R - Regulation and Programme 1F - Financing). Most efforts during the first full year of implementation were dedicated to general policy and regulatory issues. Financing and related policy issues were then initiated during the second half of the programme cycle.

Programme 1R - Regulation

Activities

1.1R Document national telecommunication policies, strategies and regulation in the world

- A Telecommunications Sector Survey was developed and distributed to all members of the Development Sector in May 1995. Over 120 responses were received. The responses were analysed and the initial results were presented to the Working Parties of Study Group 1 in September 1996. The survey was redefined in 1996 to specifically address regulatory and policy issues and was disseminated in early 1997. The information gathered from the two surveys has been incorporated into a database, the *ITU/BDT Regulatory Database*. A summary of the results will appear in the forthcoming publication, *General Trends in Telecommunication Restructuring: 1998*.
- The revised *Telecommunication Policies for the Americas (The Blue Book)* was presented to and approved by the Americas Regional Policy meeting in Montevideo, 5-8 December 1995. The final version was published in March 1996.
- The revised *African Green Paper: Telecommunication Policies for Africa* was presented to and approved by the African Regional Telecommunication Development Conference (AF-RTDC, May 1996). The final version was published in October 1996.
- The revised *Telecommunication Policies for the Arab Region (Arab Book)* was presented to and approved by the Regional Telecommunication Development Conference for the Arab States (November 1996). It was published in January 1997.

1.2R Studies and analyses

- The BDT carried out a study on Trade in Services in Africa together with UNCTAD's Coordinated African Programme for Assistance in Services (CAPAS). Field studies were carried out in Ghana, Guinea, Senegal, Tanzania and Uganda. The resulting report was presented to and approved by the 1996 AF-RTDC. The final document has been distributed among economic, financial, legal, and planning bodies in the African region. A project document based on this study was elaborated on the "General Agreement on Trade in Services and Institutional Reform of the Telecommunications Sector in Africa". Project implementation is underway.
- A global study on the Impact of New Technologies and Services on Policies and Regulation was carried out with case studies undertaken in Malaysia, Mexico, and Morocco. The final report was a significant input document to Study Group 1 - Question 3/1.
- Using funds from Programme 1R, the work of the UNDP programme for the Asia Pacific (RAS/93/035) was expanded to cover all countries in the ASP region. The results of this

joint activity were a report on policy, legislation, and regulation in the Asia-Pacific region and "Guidelines for Regulators".

- Guidelines on regulation for least developed countries have been developed. These guidelines were based on those prepared for the ASP regional project. Case studies were undertaken to assess the present situation, needs and requirements.
- A study on the role of telecommunications in promoting social and cultural cohesion was elaborated and was presented to the Rapporteur Group meeting on Question 1/1 in September 1996.

1.3R Round tables and seminars on telecom policies and strategies

- A Regional Symposium for franco-phone Africa was held in Burkina Faso (October 1997) on the economic and legal aspects of the restructuring of the telecommunication sector.
- BDT held two meetings together with the South Asian Association for Regional Cooperation - SAARC (Maldives, October 1996 and Nepal, May 1997). The purpose of these meetings was to facilitate the exchange of information on policy and regulatory experiences. The SAARC countries include Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka.
- BDT held two coordination meetings for the Asia Pacific region (Malaysia, November 1996 and Philippines, August 1997). The first meeting addressed the status of implementation of the decisions taken at the 1993 Regional Telecommunication Development Conference for Asia and the Pacific, and the second meeting served as a preparatory meeting for the 1998 World Telecommunication Development Conference.
- The Subregional Telecommunication Regulators Meeting for Laos, Viet Nam, and Cambodia was held in Cambodia (November 1995), Viet Nam (October 1996), and Laos (November 1997). This annual meeting is convened by the ITU/BDT to discuss harmonization of regulatory and operational matters.
- Three annual meetings were held with the Caribbean Telecommunication Union (CTU) on various topics including, policy developments in the Caribbean, information infrastructure, the *Americas Blue Book*, Trade in Services and GMPCS (St. Vincent, July 1995; St. Lucia, August 1996; St. Kitts, August 1997).
- The BDT co-sponsored the first *Americas Regional Regulators Meeting* (Peru, May 1996) together with OSIPTEL, to discuss various regulatory issues, including competition, interconnection, universal service, and licensing.
- The Americas Regional Policy Meeting (Uruguay, December 1995), organized by BDT and CITELE, was held to discuss policy and regulatory developments in the Americas region, the *Americas Blue Book*, and the collection and use of indicators.
- An *Arab Book Meeting* was held (Syria, March 1995) to discuss the draft *Arab Book* and establish a plan for its completion. Subsequently, the Group of Experts met in Geneva (August 1995) to revise the text.
- A workshop, co-sponsored by the BDT and the OECD, was held on Monitoring and Enforcement of Licenses in the Newly Independent States (Ukraine, May 1995).
- A workshop was held together with the ICTP in Trieste, Italy (March 1996), on the Economic Quantification of the Impact of Telecommunication on Development.

1.4R Training

- The BDT provided fellowships for training in regulatory matters to Bhutan, China, Gambia, Honduras, Hungary, Kenya, Kiribati, Lithuania, Nepal, Pakistan, Tanzania, Thailand, Trinidad and Tobago, Viet Nam, and Zimbabwe.
- A feasibility study was carried out on the establishment of an Advisory Unit for regulatory and policy advice for Central and Eastern Europe. The project document is under review. The Hungarian Administration has indicated strong interest in hosting this Unit.
- A workshop on Restructuring the Telecommunication Sector was organized together with Programme 2 (HRD/HRM) for anglophone African countries (Mozambique, November 1995).

1.5R Policy assistance to countries

- Assistance was provided to Mali in drafting new telecommunication legislation/laws (July 1996).
- Assistance was provided to Rwanda in regulation and privatization options (June 1996).
- Assistance was provided to Tanzania on the consolidation of Telecommunications, Broadcasting and Information Technology (March 1996).
- A three month study was undertaken in Zimbabwe to assist the government in restructuring its telecommunication sector (September - December 1995).
- An investment analysis was carried out for Laos, Cambodia, and Viet Nam (September 1995). Regulatory support was subsequently provided to Laos (October - November 1995).
- A study on regulation and tariffing in value-added services was completed for Bangladesh (October - November 1995).
- A type approval study was conducted in Indonesia (October - December 1995).
- A regulatory and financial assistance study was undertaken in Nepal (October 1995).
- Assistance was provided to Yemen in the organization and structure of the sector (January 1996).
- A study was undertaken in Djibouti to address tariffing, policy, and restructuring (December 1995).
- A consultant was contracted to advise the Government of Haiti on aspects of liberalization and their financial implications (January 1995). This was followed-up by additional regulatory assistance in November 1996.
- Assistance was provided to Ecuador in the establishment of a Quality Control Laboratory (July 1996).
- Regulatory Assistance in Frequency Management was provided to Kyrgyzstan (September 1996).

Achievements of the Programme 1R

The information concerning the activities of Programme 1R have been provided in detail above. The following highlights some of the major outputs and achievements.

Two telecommunication surveys were prepared and disseminated. The information was analysed and a regulatory database was developed. The *Americas Blue Book*, the *African Green Paper* and the *Arab Book* were published.

Several studies were undertaken on the following subjects: Trade in Services in Africa; Policies, Legislation and Regulation in the Asia Pacific region; Role of Telecommunications in Promoting Social and Cultural Cohesion; Impact of New Technologies and Services on Policies and Regulation; and Regulatory Issues for Least Developed Countries.

Several seminars and workshops were organized at the regional and subregional level on various topics of regulation/policy.

A training workshop on restructuring the telecommunication sector was carried out together with Programme 2 (Human Resource Development and Management). In addition, several fellowships were provided to various countries to attend training courses organized by other institutions.

Twenty-one countries received direct assistance on a range of regulatory and policy topics, including interconnection, licensing, frequency management, numbering, organizational structure and establishing a regulator.

Conclusions

Since the first WTDC, reforms in the telecommunication sector have continued to progress at an impressive rate, due in large part to the introduction of new technologies and services, pressure from new players and the emergence of a comprehensive multilateral trade framework. In addition, some sixty-nine governments made commitments to liberalize certain market segments at the World Trade Organization's Group on Basic Telecommunications. Most of those countries made specific regulatory commitments.

ITU/BDT has been successful in providing support and guidance to its membership through the *African Green Paper*, *Arab Book*, *Americas Blue Book*, and the *Asia Pacific Guidelines on Sector Reform*. These reports are intended to serve as a tool to assist countries in facing the many challenges encountered in reforming the telecommunication sector. In addition, the forthcoming *General Trends in Telecommunication Restructuring: 1998* provide detailed analysis of trends in the telecommunication sector.

We have seen through the work of the Policies, Strategies, and Financing Programme and the various meetings of the ITU-D Study Group 1 Question 2/1, "*Telecommunication policies and their repercussions at the level of institutional, regulatory and operational aspects of services*", that there is no single recipe for success and that many complex issues remain to be resolved in the area of sector reform.

Programme 1F - Finance

Activities

1.10F Seminars/Colloquia/workshops on telecom financing policy and strategies/economics/trade

- The African Telecommunication Finance Colloquium (Abidjan, Côte d'Ivoire) was held in May 1996. More than 150 persons attended.
- The Arab States Telecommunication Finance Colloquium (Amman, Jordan) was held in September 1996. More than 110 persons attended.

- The Latin American and Caribbean Telecommunication Finance and Trade Colloquium (Brasilia, Brazil) was held in July 1997. More than 135 persons attended.
- The Asia and Pacific Telecommunication Trade and Finance Colloquium (New Delhi, India) was held in November 1997. More than 250 persons attended.
- The Telecommunication Trade and Finance Colloquium for Europe (Geneva, Switzerland) was held in December 1997.
- The Telecommunication Trade and Finance Colloquium for CIS (St. Petersburg, Russia) was held in February 1998.
- Seminar on "Telecommunication Service Tariffs and the Role of Regulation in Setting and Controlling Tariffs", (Dakar, Senegal) was held in April 1997.
- Seminar on "Telecommunication Service and Tariffs and the Role of Regulation in Setting and Controlling Tariffs" (Harare, Zimbabwe) was held in February 1998.
- Two experts on Privatization and Resulting Effects of the GATS have participated in the seminar of the Cooperation Council for the Arab States of the Gulf (UAE) was held in February 1997.
- Participation to the CTU Seminar (Nassau, Bahamas) on Tariff Issues in September 1997.
- Seminar on two Commercial Aspects (WTO - Tariffs) of Telecommunication Future (Cairo, Egypt) in March 1997.

1.11F Training of national policy-makers on economic and financing issues

- Workshop on Costs and Tariffs (New Delhi, India) from 28 April - 2 May.
- Fellowships were provided to attend the various colloquia and seminars:
 - Africa Telecommunications Finance and Trade Colloquium organized in Abidjan: 39 fellowships.
 - Arab States Finance and Trade Colloquium: 10 fellowships.
 - Latin American and Caribbean Finance and Trade Colloquium: 9 fellowships.
 - Asia Pacific Finance and Trade Colloquium: 12 fellowships.
 - Europe Finance and Trade Colloquium: 9 fellowships.
 - St. Petersburg Finance and Trade Colloquium: 14 fellowships.
- Fellowships were provided for studying Tariff and Accounting Rate Issues:
 - Dakar: 20 fellowships.
 - Cairo: 7 fellowships.
 - Harare: 18 fellowships.
- Workshop on Telecommunication Sector Governance (Fiji, South Pacific), October 1997, co-sponsored by the United Nations Development Programme.

1.12F Direct assistance to countries

- Tariff studies (Djibouti) in December 1995.
- Consultant was to advise Yemen on Tariff Issues.
- Assistance to Colombia on Accounting Rates issues (May 1997).

- Assistance to Colombia on Economic Aspects of Long-Distance Privatization (September 1997).
- Assistance provided to Colombia to set up a Finance Information System (December 1997).
- Assistance was provided to Haiti for Privatization Process (1996-97).
- Assistance was provided to Bosnia to set up a Restructuring Policy (1997).

1.13F Other activities (seminars, workshops, etc.) as might be recommended by SG and the forthcoming WTPF-98 and WTDC-98

1.14F Direct coordination with Question 4/1 of Study Group 1

- Work under this Question and with 1F were supportive to each other and were coordinated on a regular basis.

1.15F Follow-up of Finance and Trade Colloquia, RTDCs F and all related Restructuring Issues

Colloquia (RTDC Preparatory Meetings on Finance) and Regional Telecommunications Development Conferences related to Finance Policy Issues (see item 1.11F).

Outputs and achievements of the Programme

The following highlights some of the major outputs and achievements:

Six colloquia were organized at regional and subregional level (Reference to the document "Summary Report on Finance and Trade Colloquia") and several seminars were organized, mostly on tariffs. To make available the participation of national policy-makers from developing countries, several fellowships were provided.

Major issues and trends in telecommunication finance and trade were identified in five regions by the participants of the Regional Telecommunication Finance and Trade Colloquia.

Innovative investment strategies and promising partnerships that lead to real network growth and better access, including in the underserved regions where identified. The outcome of the Colloquia is used as an input to WTDC-98.

Survey to identify the Macro and Micro economic telecommunication sector status was carried out in 1995 and 1996.

The work on the Global Telecom Finance Handbook has started. The chapter on Financing Institutions was issued and distributed and the chapter providing integration of the major issues discussed and the conclusions and recommendations adopted by each colloquium were issued. The publication of the whole book is expected in 1998.

Database of worldwide corporation contact was developed.

Case studies illustrating the conditions in which developing countries could implement cost-oriented accounting rates have been contracted out. These studies were completed on 31 January, 1998, and will be available at the World Telecommunication Policy Forum (Geneva, March 1998), as well as for WTDC-98 (Valletta, March/April 1998).

The French version of the Feasibility Study Report on the Strategy for Fund for the Development of Telecommunication in rural and isolated areas is ready. The English and Spanish versions are under preparation.

The Study on financial and economic implications of the GATS is being developed and the interim study was presented at the Arab States Finance and Trade Colloquium.

Publication of new BDT brochure to enhance better awareness of BDT activities and partnership potentials in five languages.

Conclusions

Based on the resolutions and recommendations of the Regional Conferences and taking into consideration the integrated conclusions of the Finance and Trade Colloquia, the opinions of the Second World Telecommunication Policy forum and the wishes of the various workshops on tariffs, follow-up Action Plan has to be drafted and implemented in the next four years.

Programme 2: Human Resources Management and Development (HRM/HRD)

Activities

2.1 MANDEVTEL (Management Development for Telecommunications)

The objective is to develop manuals with case studies and to implement training for senior and top managers in modern management techniques, through joint ventures, with interested partners. Substantial contributions were received from Brazil, Chile, Colombia, Costa Rica, Portugal, Switzerland, the University of Zilina, Slovak Republic and the Thunderbird University. This cooperation resulted in the production of manuals, workshop material and case studies. The manuals produced are:

- Competitive Transformation of Telecom Operators (Spanish, English, French, Arab).
- Financial Planning and accountability for Telecom Operators (Portuguese, English).
- Tariffs Strategy for Telecom Operators (Portuguese, English).
- "Politiques et strategies de developpement des telecommunications dans un environnement axe sur le marche (French).
- "Systemes appiques d'information de gestion" (French).
- Case Studies on Telecommunications in Central and Eastern Europe (English, shortly in Russian).

In addition to the manuals, a set of management workshops were developed and implemented in order to train middle and top level managers in modern management techniques. The workshops are: Restructuring the Telecom Sector; Total Quality Management; Management for Success; Competitive Transformation of Telcos; Corporate Planning; Marketing; Business Management & Planning; Tariff Strategies, Financial Management, Development Telecom in market-oriented environment, Elements on MIS.

Manuals and workshop training materials were used to train managers from the different regions, as follows:

Region	Target indicator full period (1995-1999)	Outputs for the period 1995-1997	Estimation 1998	Totals
Africa	400 managers	297	75	372
Asia	200 managers	96	25	121
Americas	100 managers	285	50	335
Arab States	200 managers	125	20	145
East-Europe	100 managers	154	40	194
TOTAL	1 000 managers	957	210	1 167

As the main objectives for the full period were to develop at least six different manuals and to train at least 1 000 managers in the different regions, we believe that the objectives have been fulfilled.

2.2 TELEPROJECT

The objective is to provide assistance to telecom organizations in the use and production of TBT/CBT materials. During the period 1995-1997 there was an increase in the number of countries/organizations that participated in the project. In addition, better software, hardware and communication facilities were provided to create a true virtual office, thus allowing new working methods (distance working, intensive use of information technologies, etc.).

Assistance is provided at distance through TIES. Pilot trials at distance are also going on with some partners. A Virtual Training Centre was developed and installed at ITU Geneva with links with the similar ones already established in Costa Rica and Colombia.

Presently, the Virtual Training Centre (VTC) is fully operational in the Web, and it is being consulted by 55 to 60 organizations from developing countries. Several distance learning courses with tutoring services were already implemented, in addition to those stand-alone, available in the VTC.

2.3 Identification of training needs, provision of training

The objective is to enhance the ITU fellowships programme by establishing bilateral and/or multilateral agreements to provide the necessary training (technical and managerial) and to negotiate special agreements with training providers, in order to share the costs of fellowships.

Seven special training agreements with AICEP (Association of Lusophone telecom organizations), Cable and Wireless, Intelsat, Swedtel, TEMIC (Canada), Swiss PTT (today Swisscom), TRT-Philips, and Thunderbird University were signed.

2.4 Distance learning system for technicians

The objective is to organize and coordinate the operation of a Distance Learning System on a global basis by pooling existing resources in the Telecommunication Community, aimed at training technicians in different aspects of telecommunication. To this end, the VTC (Virtual Training

Centre) concept was created and nodes established at ITU Geneva, Colombia and Costa Rica. Presently, the VTC has more than 400 courses available.

2.5 Standards and guidelines on HRM/HRD

The objective is to continue developing standards, models and guidelines in the areas of HRM/HRD, Organization and Management Development, with the aim of providing support to Telecom organizations in defining their own strategies, objectives, working procedures, etc., to improve their management. Various guidelines were updated and validated.

In addition to the managers trained under Mandevtel, more than 376 persons were also trained through different workshops in the use of the different guidelines.

2.6 Global Telecommunication University

The objective is to organize and coordinate the operation of the Distance University Learning System, on a global basis, by pooling existing resources in the Telecom Community. The aim is to train professionals in different aspects of telecommunications. A feasibility study was undertaken. As a following step, the HRD Division began to implement some recommendations. With the additional resources coming from the TELECOM Surplus, the establishment of agreements with different universities have started, the aim being to create the virtual organization named GTU/GTTI (including the Distance Training System for technicians).

2.7 Training in the areas of research & development

At ICTP (Trieste, Italy), BDT and BR have been engaged in consultancy and training of scientists/engineers from developing countries, with topics frequently focusing on aspects of spectrum management and propagation. In the Arab Region, a two day meeting was organized in December 1997. However this programme is not attractive or a priority for developing countries. It will be cancelled next year.

2.8 Direct assistance

Direct assistance in the area of HRM/HRD, Organization Development and Management Development was provided to numerous developing countries, especially to the LDCs.

A very high percentage of the requests were met, thanks also to the support of experts from industrialized countries, who participated at no cost for ITU. Intensive use was also made of experts from developing countries, under the TCDC programme.

2.9 Integrated rural education and training

The objective is to assist in the organization of distance training and education programmes using rural telecommunication facilities, in coordination with UNESCO and the Ministries of Education in the interested countries. No activity was undertaken in 1995. In 1996, the Director decided to shift this activity to the BAAP Programme in Rural Telecommunications.

The above-mentioned activity was replaced with the organization, together with TELECOM Department, of the TELECOM DEVELOPMENT WORKSHOPS, latter named Telecom Development Symposiums. In 1995, a workshop on New Technologies and Human Resources in Geneva (TELECOM 95) was organized; in 1996, the workshop on Rural Telecommunications (Americas Telecom 96); in 1997, two symposiums: Network Interconnectivity for Asia and Pacific

Region (ASIA Telecom 97), and Preparing Developing Countries for the Information Society (Geneva INTERACTIVE Telecom).

2.10 Information system on training and HRM/HRD (International Sharing System)

The objective is to continue operating the International Sharing System as an information system on resources available on HRM/HRD, Organizational Development and Management Development.

- Information is available on-line and in printed form on traditional training material, TBT (Technology-Based Training) courseware and Training Opportunities. It is updated every year.
- Several case studies in Management Development were collected and developed.
- Four issues of the HRD were published.
- The identification of training needs in different regions is carried out every year, by the HRD Regional Officers. The information is centralized at headquarters. The results of Study Group 2, Question 5/2 are included, as the group made an identification of priority training needs.
- The databases on traditional training material, TBT courseware and Training Opportunities are now electronically available through TIES-Gopher, as well as through the VTC (Virtual Training Centre) in the World Wide Web.
- Lists of resources were published and distributed twice each year, as annexes to the HRD quarterly (HRDQ), which was also made available in the World Wide Web.

Major achievements of the Programme

MANDEVTEL - Training managers on modern management techniques. The production of manuals and the implementation of workshops were successfully received by developing countries. In many cases, they were the starting points to negotiate further actions: conception of a project document, assistance to implement the project, etc., in areas such as transformation of former administrations in competitive operator companies; the introduction of Total Quality Management philosophy in operator's companies, etc.

VIRTUAL TRAINING CENTRE - use of information technologies for distance training and distance working. This idea, today a fully operational training centre in the web, offers more than 400 courses. A continuous effort is still required to change attitudes and training habits of developing countries, in order to increase the use of these resources.

GTU/GTTI Project (Global Telecommunication University/Global Telecommunication Training Institute) is a virtual organization that provides distance learning programmes at university level, in continuous education as well as at supervisory level, in task oriented training. Included in the BAAP period 1995-1999 were the feasibility study and some pilot courses, as tests. Today, the interest it has arisen in many countries is making the idea a reality. A pool of universities and training institutes is underway and will be legally established during 1998.

HUMAN RESOURCE DEVELOPMENT QUARTERLY: is a publication that today is considered as one of the most valuable sources of information on management techniques as well as in HRM/HRD, by Telecom Organizations from developing countries and, in particular, by Telecom Organizations from LDCs.

Programme 3: Guidelines for the Elaboration of a Business-oriented Development Plan

The short-term objective was to produce a manual on the elaboration of business-oriented development plans, adding financing and business plan aspects to the traditional Master Plan approach. The long-term objective is to enable planning engineers from national Administrations to produce and update business-oriented development plans.

Outputs and achievements of the Programme

3.1 Preparation of guidelines

Draft guidelines (15 chapters, 800 pages) were written by a group of specialists, and are available since February 1995; copies have been sent to Administrations, development banks and other financing institutes for their comments.

3.2 Preparation of training material

Training material corresponding to the Guidelines has been developed and tested in the trial seminar in India, and is now being converted into a distance learning course.

3.3 Field trial

A two week field trial took place in Ghaziabad, India, in October 1995, attended by 24 participants from 13 countries in the ASP region.

3.4 Revision of guidelines and training material

As a result of the field trial, and taken into consideration the comments received from Administrations and financing institutes, the guidelines and training material have been revised extensively.

3.5 Translation to French and Spanish

Not yet done.

3.6 Regional seminars on the use of the guidelines

A regional workshop on Future networks and services was held in Bangkok, Thailand, in May 1996, and lecturers were made available for several seminars in Colombia.

3.7 National development plans (pilot projects)

Several pilot projects were undertaken:

- Update of Master Plan for Laos in 1995.
- A pre-investment study offer for WorldTel, in 1995.
- Preparation of guidelines for Holding Co., Mongolia, in 1996.
- A business-oriented development plan for the district of Rajkot, India, in 1996, in collaboration with BAAP Programme 9; the results are very encouraging, and should serve as a model for similar projects.
- Development of Corporate Plan for Tuvalu Telecommunication Corporation, in 1997.

Programme 4: Development of Maritime Radiocommunication Services

The objective is to provide facilities for:

- i) the efficient operation of maritime transport systems essential for the countries' import/export activities.
- ii) the introduction of the GMDSS (Global Maritime Distress and Safety System) to be implemented until 1 February 1999, according to the International Convention for Safety of Life at Sea (SOLAS).
- iii) maritime activities, such as commercial fishing, off-shore oil exploration, tourism, and general transport of people, animals and goods.

Activities

4.1 Training of national engineers

The training was accomplished by means of seminars. The seminars were supported by extensive training material, including the publication: "Guide to Elaborate a National Master Plan for the Maritime Radiocommunication Sector". This guide was prepared for the specific environment of the concerned region.

AFRICA

The training courses for Africa had been realized before the WTDC-94, as follows:

- Seminar in Maputo, Mozambique, December 1991:
17 countries and 25 participants.
- Seminar in Cotonou, Benin, June 1992:
17 countries and 27 participants.

AMERICAS

There was a training course but only for the Caribbean countries:

- Seminar in Bridgetown, Barbados, November 1996:
21 countries and 47 participants.

ARAB STATES

The training course for the Arab States was realized, as follows:

- Seminar in Sana'a, Yemen, June 1996:
12 countries and 32 participants.

ASIA & PACIFIC

There was a training course but only for the South Pacific countries:

- Seminar in Suva, Fiji, June 1995:
10 countries and 15 participants.

4.2 Preparation of radiomaritime master plans

To assist countries in the preparation of master plans, workshops and direct assistance were provided.

The workshops aimed to discuss and propose improvements for the master plans prepared by the national engineers. Some workshops had been held before the WTDC-94. The following workshops were realized:

AFRICA

Some workshops had been held before the WTDC-94. The following workshops were realized:

Place	Date	Countries	Participants
Bissau, Guinea-Bissau	November 1992	6	10
Port Louis, Mauritius	June 1993	17	27
Yamoussoukro, Côte d'Ivoire	December 1993	15	33
Trieste, Italy	February 1994	14	19
Lisbon, Portugal	May 1994	6	11
Trieste, Italy	November 1994	17	25
Kampala, Uganda	August 1995	3	36
Libreville, Gabon	December 1995	13	55
Maputo, Mozambique	April 1994	3	12

Direct assistance to countries was provided by correspondence and field missions. It was effectuated 7 field missions to 4 countries.

AMERICAS

Direct assistance to countries was provided by correspondence and field missions. It was effectuated 2 field missions to 2 countries.

ARAB STATES

Some direct assistance by correspondence was provided.

ASIA & PACIFIC

The following workshops were realized but only for the South Pacific countries:

- Workshop in Sydney, Australia, February 1996:
11 countries, 15 participants.
- Workshop in Suva, Fiji, August 1996:
12 countries, 15 participants.

Direct assistance to countries was provided by correspondence and field missions, but only for the South Pacific countries. It was effectuated 11 field missions to 10 countries.

EUROPE & CIS

It provided direct assistance to Malta by means of 3 field missions.

4.3 Revision of radiomaritime master plans

In addition to the assistance provided in 4.2 for the preparation of the master plans, several countries requested the BDT to revise, translate and publish their master plans.

AFRICA

The master plans for the following countries were revised: Angola, Cape Verde, Equatorial Guinea, Gambia, Guinea-Bissau, Sao Tome and Principe, Senegal, Sudan, Zaire and Zambia.

ASIA & PACIFIC

The master plans for the following countries were revised and published: Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Niue, Papua New Guinea, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu and Western Samoa.

EUROPE & CIS

Master plan for Malta.

4.4 Resource mobilization for implementation of plans

Activities related to the mobilization of resources to implement the master plans were very limited.

AFRICA

The only resource mobilization activity was the one for funding the implementation of Lake Victoria master plan. The funding process is very well advanced and may result in soft loans for the three lake countries (Kenya, Tanzania and Uganda).

ASIA & PACIFIC

Great efforts have been spent in searching funds to implement the South Pacific master plans. However, up to the present moment, there is no funding for any of the countries.

Outputs and achievements of the Programme

At the end of the four-year period, the situation of maritime radiocommunications in the concerned countries is the following:

- Most of countries in **Africa** and the **South Pacific** have now draft master plans for the maritime radiocommunication sector. The master plans were prepared by national engineers, trained within the scope of the BAAP programme, with assistance of ITU experts. However, with a few exceptions, the master plans documents need to be revised; but only for editorial improvement, since the quality is quite acceptable.
- The **Arab States** and the **Caribbean** countries have now engineers trained by the BAAP programme and, therefore, prepared to elaborate national master plans for the maritime radiocommunication sector.
- A few countries participating in the BAAP programme succeeded in obtaining funding to implement the master plans. However, up to now the programme actions to assist countries in the search for funding were quite limited.
- Nowadays, the main incentive for Administrations to invest in maritime radiocommunications is to fulfil international obligations (SOLAS Convention) concerning the GMDSS. Therefore, a good parameter to measure the development of this sector is the level of GMDSS implementation. The table below presents an estimation of implementation status of the GMDSS shore-based facilities in those countries targeted to participate in the BAAP programme.

REGION	NUMBER OF COUNTRIES	AT LEAST ONE GMDSS ELEMENT	NO GMDSS IMPLEMENTATION
AFRICA	37	5 (13%)	32 (87%)
AMERICAS	32	4 (13%)	28 (87%)
ARAB STATES	17	5 (29%)	12 (71%)
ASIA & PACIFIC	32	8 (25%)	24 (75%)
EUROPE & CIS	20	12 (60%)	8 (40%)

Conclusions

In view of the above, the following conclusions can be drawn:

- a) It is clearly shown that implementation of the GMDSS shore-based facilities, particularly in Africa and Americas (around 13%), is very low. What means that in most of the concerned countries the situation of maritime radiocommunications is still *highly deficient*.
- b) The BAAP Programme 4 was competent in the realization of several activities, except those concerning assistance in the search for funding. *The conclusion is that, in addition to the technical activities to prepare plans, it should be given more attention to resource mobilization.*
- c) Draft master plans are completed for Africa and the South Pacific and being prepared, in a very preliminary phase, for the Caribbean countries and Arab States. The programme was not applied to other countries. Since the BAAP programme 4 was designed to serve all regions, *the elaboration of master plans should continue.*
- d) The preparation of master plans by national engineers, after adequate training, proved to be perfectly feasible. Although most of the documents need to be revised, the costs are much less than those related to experts missions to every country. *Therefore, the conclusion is that the strategy of the programme to prepare master plans was adequate and should continue.*

Programme 5: Computer-aided Network Planning

The long-term objective is to develop telecom network planning capabilities in all interested organizations, particularly in developing countries, in order to increase their self-reliance in this field. Participation in these activities primarily reduce network costs; furthermore, it will promote the acceptance of globally standardized tools for planning of telecom networks, reduce duplication of software development and maintenance, and facilitate cooperation between participants.

Outputs and achievements of the Programme

5.1 PLANITU courses

Regional courses (5 weeks) and national courses (2-3 weeks) on computer-aided network planning were held in:

New Delhi, India in January 1995 (6 countries);

Paramaribo, Suriname in April 1995 (8 countries);
San Jose, Costa Rica in December 1995 (9 countries);
Tashkent, Uzbekistan in March 1995 (6 countries);
Sana'a, Yemen, March 1996 (8 countries);
Tunis, Tunisia in June 1996;
Havana, Cuba, in September 1996 (11 countries);
Bangkok, Thailand in October 1996;
Gaborone, Botswana, in November 1996 (11 countries);
Bogotá, Colombia, in April 1997 (4 countries);
Kathmandu, Nepal, in April 1997;
Nassau, Bahamas in November 1997 (paid by BATELCO);
A subregional course on SS No. 7 was held in Havana, Cuba, in February 1997.

5.2 Pilot projects

These projects are usually carried out in three steps:

- initial training, transfer and installation of computer hardware (for LDCs) and software, selection of suitable planning object;
- collection of data for forecasting and planning;
- investigation of network development, evaluation and presentation of results.

Pilot projects, partly financed from outside sources, were undertaken in Bahamas, Botswana, Colombia, Cuba, Czech Republic, India, Indonesia, Kenya, Mauritania, Mongolia, Morocco, Nepal, Palestine, Slovakia, Suriname, Thailand, Tunisia, Viet Nam.

5.3 Software development and documentation

- Software development: A new WINDOWS version of PLANITU was developed by ITU and by FUNDASOFT in Costa Rica.
- The PLANITU course documents were translated into Russian by the Telecom Institute of Uzbekistan, into French by translators in Morocco, and into Spanish by a translation bureau in Honduras. Costa Rica has produced a Users' Guide in Spanish.

All documents for the PLANITU courses (see 5.1) are now available in electronic format in English, French, Spanish and Russian, and are fully accessible through the World Wide Web.

Following the demand by many countries, the PLANITU was ported to WINDOWS 95/NT. Other associated software, such as forecasting of subscribers, traffics and new services, has been made available on the same platform. For more user-friendly data entry, and as a link to planning activities in other BAAP programmes, a database structure has been defined earlier this year, and software for import/export of data is currently being designed.

5.4 Software transfer and follow-up

PLANITU and associated software and documentation has been transferred to:

Algeria, Bahamas, Belize, Bhutan, Bolivia, Botswana, Bulgaria, Brazil, Chile, China, Colombia, Costa Rica, Côte d'Ivoire, Croatia, Cuba, Czech Republic, Djibouti, Ecuador, Egypt, Estonia, Ethiopia, El Salvador, Finland, Greece, Honduras, India, Indonesia, Iran, Israel, Japan, Jordan, Kenya, Kuwait, Libya, Malta, Mauritania, Mongolia, Morocco, Mexico, Myanmar, Nepal, Palestine, Papua New Guinea, Paraguay, Peru, Poland, Qatar, Romania, Saudi Arabia, Senegal, Slovakia, Slovenia, Sri Lanka, Sudan, Suriname, Sweden, Syria, Thailand, Tunisia, Turkey, Uganda, United Kingdom, Uruguay, Uzbekistan, Venezuela, Viet Nam, Yemen, Yugoslavia, Zambia.

In addition, the software has been transferred to a number of training institutes and universities, as well as several ITU-D Sector Members. However, no marketing activities to private entities have been undertaken.

Conclusions

This programme has reached a stage where countries with long experience are able and willing to help less advanced countries in the same region to acquire expertise in this field through TCDC arrangements. This should be encouraged further.

Programme 6: Frequency Management

The objective was to assist developing countries in computerizing their spectrum management. To this end, a Basic Automated Spectrum Management System (BASMS) was developed. The expected outcome included: the establishment of national spectrum management units in Administrations, the installation of software for national computerized spectrum management, and the training of staff in computerized spectrum management.

Activities

6.1 Development of design guidelines and software for BASMS

In collaboration with the Radio Sector Study Group 1, design guidelines and specifications for BASMS were achieved. In 1995 the first version of BASMS was produced, training was conducted for a group of engineers from all regions.

The Basic Automated Spectrum Management System was developed and distributed to more than 100 countries.

6.2 Training on BASMS

- The ITU Regional Seminar on BASMS for English-speaking African countries was conducted from 27 November - 8 December 1995 in Kenya.
- A training Seminar on BASMS was held in the United Arab Emirates for the Arab countries in September 1996.
- The Subregional Seminar on BASMS for Europe was organized in Hungary in June 1997.
- The training workshop on BASMS for Asia and Pacific Region was held in September 1997 in Thailand.

6.3 Training programmes

- The BDT provided a number of fellowships for participation on the courses on frequency management organized by USTTI.

WinBASMS multilingual version

The development of this version was completed in July 1997 in three languages, English, French and Spanish and distributed to more than one hundred countries.

Achievements of the Programme

The WINBASMS multilingual version is in hand. Training on this version was conducted through two seminars held in Budapest and Bangkok for English speaking countries in Europe and Asia. A training programme for French speaking countries in Africa and Arab countries was scheduled for December 1997 but was delayed to February 1998 at the request of the host country. Several seminars are scheduled for other regions during 1998. Over 100 Administrations have now trained engineers and introduced BASMS into their National Spectrum Management System.

Programme 7: Improvement of Maintenance

The objective is to improve the organization of maintenance, including the Management Information Systems (MIS) designed to monitor quality of service, handling of customers' complaints and fault repair, and to improve material and spare-parts management in developing countries. It is also planned to develop maintenance guidelines, support software and pilot maintenance organizations and centres in some 10-20 countries in developing regions, with priority given to the LDCs.

7.1 Development of guidelines and handbooks

7.1.1 Guidelines for a new approach using Telecommunications Management Network (TMN)

They were prepared by a team of experts brought together by the BDT. The first draft was completed in English and distributed in July 1997 to English speaking countries. The French, and Spanish versions are being prepared and will be distributed during the first quarter of 1998. A new version improved by comments expected from the countries may be published in 1998/1999.

7.1.2 Guide on the introduction of a Computerized Subscriber Maintenance System (CSMS)

A first draft was prepared in September/October 1997 by a team of two BDT experts with the participation of two partners: France Telecom/Sofrecom (from France), and EML (from United Kingdom). It is expected to publish Guide during the first quarter of 1998 in English, French, and Spanish languages.

7.2 Development of management systems for maintenance

7.2.1 Development of an MIS for maintenance

- A Project document which aims at preparing the specifications of Management System model requirements tailored to the developing countries was prepared. A search for partners to contribute to this project has not succeeded so far.

- A national MIS pilot project was carried out in Benin in 1995.
- MIS missions have been carried out on request in some countries.
- In Asia-Pacific region, a consultant worked on the further development and field testing of outside plant and service order applications of the Management Information System which started under project RAS/86/165. The product will probably have a very high commercial application in view of the envisaged liberalisation of the access network globally.

7.2.2 Development of software model(s) for CSMS (The CSMS programme is related to the specific BAAP LDC programme)

- A questionnaire has been prepared and distributed to all developing countries in 1995/1996 to appraise the situation of outside plant and of implementation of CSMS in their countries. On the basis of the replies collected from the countries, CSMS symposiums or seminars were organized in Africa, in Latin America regions, and in Arab States.
- The development of a software model(s) has not yet started. BDT will only play a catalytic role. Preliminary exchange of views with interested partners (France Telecom/Sofrecom, EML and ChanLx from the USA) indicated that many issues have to be examined carefully, such as, the ownership status of the final product, its cost, how to sell/distribute it, etc. The BDT is envisaging to own the software product. The conditions of ownership will be negotiated with the interested partners. All these issues will be considered during the first months of 1998.

7.3 Maintenance organization

Different types of activities were organized in this field such as specific meetings, assistance to countries or to sub-regions to:

- implement maintenance centres (feasibility study for regional maintenance centres);
- improve their maintenance organization (subregional meetings on management, operation and maintenance, ad hoc assistance to countries);
- organize user group meetings that bring together users of the same type of equipment;
- implement pilot projects;
- etc.

A data purification pilot project is being implemented in Cotonou (Benin's) outside plant, using EML equipment. This project was presented to participants in the CSMS symposium held in Benin from 16 to 22 November 1997.

7.4 Training courses, seminars and workshops

Seminars, workshops and symposia were organized at regional, subregional and national levels in fields such as Signalling System No. 7, outside plant maintenance, TMN, SDH, CSMS, etc.

Outputs and achievements of the Programme

Maintenance problems are one of the most important in the developing countries. The needs expressed are enormous compared to BDT possibilities. Many pilot projects could not be organized due to lack of resources.

Maintenance activities are not so attractive for manufacturers. However, many of them participated with interest in the user group meetings, seminars and symposium organized this year. Some

partners have shown their interest in activities such as development of software model(s) for CSMS. We hope that their contributions will go increasing.

The main achievements are the following:

- Two Guidelines have been prepared, one is TMN oriented, and the second is oriented towards Introduction of CSMS.
- Regional, subregional and national Seminars, symposia or workshops, user group meetings were organized on subject of interest to the countries such as: TMN, Signalling System No. 7, SDH, CSMS, etc.

Conclusion

This Programme contributed to draw the attention of the beneficiaries to the need to shift from old methods of maintenance to new maintenance approaches which address maintenance as part of management in a multivendor multi technology environment. Telecommunication management covers a wide variety of activities such as, e.g. operation and maintenance, administration, planning including provisioning of activities and services.

Future actions should focus on:

- Management activities rather than on maintenance only.
- The organization of training activities in the field of network management, TMN, SDH, management of Outside plant, in other fields such as, ISDN, IN, ATM, marketing techniques, new services, (introduction of new services network management for new services, service management, etc.), planning the development of the network, etc. taking into account the new trends in telecommunication environment.
- Development of appropriate guidelines.
- Development of pilot projects.

Programme 8: Mobile Cellular Radio Telephone Systems

The goal of the Programme was to prepare manuals that would assist in planning and engineering of mobile cellular radio telephone systems; using manuals and handbooks train engineers from developing countries; compile software tools for planning and engineering and provide training programme on such software tools.

Activities

- In addition to contributions in kind, Motorola contributed \$US 25 000 to the development and preparation of manuals on Mobile Cellular Radio System for developing countries. Several Administrations and the private sector have also been approached to contribute to the preparation of the manuals.
- A seminar on Mobile Cellular Radio Systems for African French-speaking countries was conducted with the support of Motorola and Alcatel in Côte d'Ivoire in March 1995.
- A joint Arab/African French speaking countries seminar on Mobile Communication was held in June 1997 in Tunis for more than 25 countries. Leading industries are expected to participate in this forthcoming seminar.

Achievements of the Programme

The Manual on Mobile Communication Development has been completed. It is available in English. Translation in French and Spanish will be completed by the end of 1998.

A seminar on mobile communication was conducted for Arab and African French-speaking countries. This was held in collaboration with the private sector. Proceedings were published (1997).

Programme 10: Broadcasting Infrastructure

The immediate objective was to produce guidelines that serve both the nation-wide service providers and the independent broadcasters and, in particular, to develop and test in a real environment, software, manuals and procedures to improve the planning of the sound and television broadcasting services. The experience gained has been shared by means of Symposiums/Seminars enabling the transfer of know-how and encouraging technical cooperation.

Activities

10.1 Elaboration of guides for development of master plans

- The contractual arrangements for the preparation of a Design Guide for Sound and TV Production Centres for Broadcasters from Developing Countries were made in December 1997.
- A Design Guide in Special Lighting for TV broadcasting is planned to be produced by mid-April 1998.
- Work on the English version of the Planning Guide for Digital Television Contribution and Distribution Networks started in 1996 and will be ready for publishing in 1998.
- Action and preparation of the Guidelines for the Tendering and Procurement of Broadcasting Systems and Equipment began in November 1996 and is to be published in English in the first quarter of 1998.
- ITU-R Study Group 10 "Sound Broadcasting" and BDT collaborated in the preparation of two practical planning manuals: The "Handbook on HF Broadcasting System Design" and on "LF/MF Broadcasting Design System".
- The Generic Project Proposal and Strategy for the Application of Interactive TV in developing countries has been created, endorsed by TDAB and was supported by the United States Department of State who donated \$US 50 000 towards the advancement of future national pilot projects. National Task Forces have been established in India, Morocco, Cape Verde and are in the process of setting up for other countries. All of them are assisted with advice, guidance and consultations made available to them from both UNESCO and ITU/BDT. A donor meeting was held in Rabat, Morocco, 9-11 December 1996.
- A Guideline outlining Detailed Model Law for Public Service Broadcasting as well as for Commercial Broadcasting is now under preparation and will be made available in English in 1998.
- Assistance in Broadcasting Network Planning was provided to Malawi, Mali, Nepal and Uganda (all with LDC status).

10.2 Guidelines for Broadcasting Management

The possibility of the creation of a multidisciplinary forum dealing with the advances in digital TV technology was discussed by a team of highly-qualified broadcasting professionals in Tunis, Tunisia in May 1996. A core group of eight nominated experts was set-up for the purpose of examining this proposal (including experts from ITU-R and ITU-D and World Broadcasting Unions).

Up to now no agreement for follow-up has been reached.

10.3 PC Software for FM/TV frequency and network planning

The BR and BDT cooperated in preparation of an action plan concerning the specific requirements for creation of Digital Terrain Data Bases (DTDB) suitable for the developing countries. The benefits of producing DTDBs for developing countries as well as the launch of a joint project aimed to give guidance and assistance in its preparation in developing countries in a well-defined time-frame has been discussed and recognized by the Secretariats of the Radiocommunication and Development Sectors of the ITU. Suitable path loss prediction method(s) and an optimized channel assignment method(s) were to be prepared and endorsed by the ITU-R Sector.

This task was found to be of multidisciplinary nature and of interest to all radiocommunication terrestrial services within the frequency range 30 MHz - 3 GHz. Recognizing the considerable benefits to developing countries in the planning of their services, RA-97 has adopted Resolution ITU-R 40 "Worldwide Databases on Terrain Height and Surface Features" which resolves that a terrain database with 30 arc second horizontal resolution is suitable for worldwide methods of propagation prediction and that such databases should be encouraged to be produced and made available to ITU. ITU-R WP 3K considers that a finer resolution may be necessary but that it may lead to practical difficulties regarding data acquisition, data storage and handling. Study Group 3 of ITU-R is currently studying the appropriate propagation methods to be recommended for use by the terrestrial radiocommunication services.

10.4 Regional seminars on new technologies in sound and television broadcasting

- A joint ABU/FES/ITU regional seminar on "Adaptation of New Media Technologies, Trends, Opportunities and Issues" was organized in Malaysia in February 1995. Thirty lecturers presented papers to 137 participants from 47 countries.
- A joint AIR/ITU regional seminar on Digital Broadcasting and Audio Refurbishing Techniques was held in India in December 1995 for 23 participants from 12 countries of Asia.
- ASBU/FES/ITU Symposium on the Impact of New Technologies on TV Broadcasting in the Arab States was jointly organized in Tunisia in October 1996. Twenty-four lecturers shared their experience and know-how with 99 participants from 28 countries.
- FES/PRO-AV AFRICA/ITU successfully organized a Symposium on New Technologies in Sound and Television Broadcasting in February 1997 in South Africa. The know-how of 47 authors was presented and experience shared with 65 international participants from 53 countries, predominantly LDCs.
- A copy of Proceedings of every Regional Seminar/Symposium has been sent to every Public Sound and/or TV Broadcaster with LDC status.
- The ITU provided 8 fellowships, supplemented by 5 fellowships from the Friedrich Ebert Stiftung from Germany for the technology and management modules of the International Academy of Broadcasting in Montreux, Switzerland.

10.5 VHF/UHF Propagation measurement campaign for the tropics

- With direct contribution and guidance from ITU, the Asia and Pacific Broadcasting Union (ABU) has launched such campaign for their membership.
- A similar campaign was accomplished in Senegal in 1995.
- Senegal campaign data analysis was successfully completed by the ITU-R in cooperation with the ITCP in Trieste, Italy.
- ABU propagation campaign analysis is to be finalized during 1998.

Lack of external support for measurement equipment and professional expertise did not allow us to expand the planned propagation measurement campaign elsewhere.

Achievements of the Programme

A number of manuals/handbooks, focusing on needs of the broadcasters from the developing world will be made available as ITU publications.

Advice and practical guidance was made available to developing countries within this programme.

In collaboration with UNESCO Interactive Television Distance Learning pilot projects were launched in Morocco and India and assistance was provided to other countries in this pioneering endeavour.

Four workshops and symposiums on New Technologies in Sound and Television Broadcasting were organized for the broadcasters from different regions.

Specialized technology and management training in the field of broadcasting was made available predominantly to fellows from the LDCs by BDT and FES from Germany. Further fellowships offers have been made for management training programmes with the IAB.

With the excellent cooperation of the ITU-R Sector a number of practical manuals of considerable interest to developing countries were produced and appropriate follow-up action was coordinated with the objective of developing PC planning software based on use of databases of terrain height and surface features for terrestrial radiocommunication services in the range of 30 MHz - 3 GHz.

In close collaboration with the Radiocommunication Bureau, contributions to the VHF/UHF Bands planning in tropical areas were made available through the output of a propagation measures campaign in the Asia-Pacific Region and Senegal.

Conclusions of the Programme

Because of priority and technology progress considerations within the broadcasting industry during the reported period, some handbooks or manuals initially planned at the start of BAAP have not been produced. The worrisome uncertainty of upcoming formats, standards and systems designed to serve the broadcasting industry, in spite of the fact that all are based on digital technology, would not yet justify investment in production of the manuals/guidelines.

Integrated PC software for FM/TV frequency and network planning on Digital Terrain Modules (DTM), satisfying the requirements and needs of developing countries, is a very attractive objective. However, important funding (or in-kind contributions) would need to be made available in order to proceed further with such a task. Up to now, such an idea was not enthusiastically received by the majority of companies marketing similar products. By virtue of its mandate, the ITU-R is considered the most appropriate Sector to accomplish such a task.

The limitations of the rigidly structured Buenos Aires Action Plan became evident once the Interactive Distance Learning Applications requests from UNESCO was to be met and action taken.

Another limiting effect of a rigidly structured action programme has become evident with regard to the output requirements of the ITU-D Study Group 2 Question 8 "Public Service Broadcasting Infrastructure" and requests for assistance have already been received from developing countries. A solution was found in arrangement being made for a suitably qualified expert to produce a Guideline outlining a Detailed Model Law for Public Service Broadcasting as well as for Commercial Broadcasting.

The donor meeting for the ITU/UNESCO Pilot Project on "Educational Applications of Interactive TV " showed that NGO's and bilateral assistance agencies were interested in provision of training opportunities and the offers exceeded the needs foreseen in the ITVDL project document of Morocco, but adequate commitments for technological resources needed were not made by the donors present. Predominant part of project funding in India and Morocco is foreseen to be made available as national input. Governments in both countries are giving high priority to the life-long interactive television distance learning in order to overcome the unsatisfactory situation of the existing classical education approach, particularly in remote areas. The World Bank is evaluating the government request for supplementary funding in Morocco and is very likely to provide the funds requested for the pilot phase of the project. India is also approaching potential donors for commitments (Government Departments for Education and Communications are providing 69% of the project budget). It is very likely that the funding sought will be made available in early 1998 and implementation started.

These developments are encouraging the manufacturing industry and telecommunication services providers to be actively involved. A Seminar on New Interactive Applications of Media Reach Technologies will be held in Israel in April 1998 where the industry will provide substantial intellectual, logistical and financial input in order to exchange know-how on latest technological products and systems.

A number of countries are awaiting the results of pilot projects implementation in order to consider the appropriate ITVDL action nationally. This approach of focusing actual work and operational planning responsibilities of a national task force was quite productive and cost-efficient and is to be continued during the next four year cycle. A limited contribution by the US State Department and funds from the Programme 10 budget were used for guidance, consultation and advice. Experience clearly shows that developing countries would also need professional advise and assistance in search of funding and due provision should be made for this in the activities planned for the next cycle.

Current BAAP activities, associated with the application-oriented (rural telecentres, telemedicine, life-long distance learning, etc.) technological systems are to be integrated with the development of telecommunication networks during the next cycle with the aim of improving project sustainability and enabling system standardization.

Programme 11: Information Services

The long-term goal of this programme is the establishment of a comprehensive databank of information including: broad coverage of the communication sector, organizational profiles, responsibilities and activities; regulatory environments; multilateral and bilateral project assistance; private sector activities and financing indicators.

11.1 Database

- The World Telecommunication Indicator database and indicator reports were improved.
- Over 600 questionnaires sent, processed and data entered into database. Over 50 000 data items updated during the year.
- A new version of World Telecommunication Indicators database is available and is being used by Administrations, academic institutions and researchers worldwide to track telecommunication development. The database is also now available over the Internet.

11.2 Information gathering, research and publications

The following documents have been published:

- *World Telecommunication Development Report 1996/97*, published to coincide with the conclusion of the World Trade Organization (WTO) agreement on telecommunication services. The report explores the theme of Trade in Telecommunications. The data in the report were used extensively by the WTO during the negotiations.
- *Asia-Pacific Telecommunication Indicators 1997*, prepared for Asia Telecom '97. This report was utilized as the standard reference during the Asia Telecom '97 and widely sourced by the press. It explored the emergence of new telecommunication companies in the region and the implications for network development and regulation.
- *ITU Yearbook of Statistics 1997*, was taken over from the Telecommunication Standardization Bureau. It was completely redesigned and the data were extensively checked and reviewed.
- Various reports and presentations made for journals and at international conferences and seminars.

11.3 National and regional databases

Technical assistance was provided to several countries on the establishment of national telecommunication database.

11.4 Processing requests

Well over 1 000 external requests for information, from all over the world were processed, taking up considerable time and resources.

11.5 Informational workshops

11.6 Collaboration

Joint work on statistics definition, exchange and dissemination took place with the following organizations during the year:

- Statistical Office of the European Commission (EUROSTAT).
- The World Bank.
- TeleGeography.
- OECD.

The ITU/BDT Indicator Programme was presented at the Eurostat meeting on Communication Statistics.

Outputs and achievements of the Programme

Overall, the major accomplishment of the Programme has been to enhance the basic information for analysing global telecommunications. This includes:

- Ongoing enhancements and updating to the World Telecommunication Indicator database enhancing the ability of regulators and researchers worldwide to analysed telecom developments by providing them with a quality set of data. Widespread dissemination of the data in reports, diskette and on-line.
- Numerous reports containing analysis and statistics on the development of global telecommunications. These reports are the standard industry source, widely referenced.
- Assistance to external organizations requiring information on the telecommunication sector including processing thousands of requests and making arrangements for discussions at headquarters.
- Numerous presentations and meetings presenting developments in global and regional telecommunications and disseminating information for regulators and market researchers and the most appropriate indicators to use for analysis, comparison and establishing development targets. Providing definitions.
- Technical assistance to countries on enhancing national telecommunication statistics to enable them to better understand and regulate their telecommunication sector.
- Close collaboration with other agencies involved in telecommunication statistics to better leverage resources and minimize duplication.

Programme 9: Integrated rural development; and

Programme 12: Development of Telematics and Computer networks

Introduction

The overall goal of P9 is to promote development of rural telecommunications and, more specifically, to catalyze the development of ICT by means of pilot projects, including Multipurpose Community Telecentres (MCTs), as means of providing access to ICT and user support. This includes access to telematics services and applications, which meet the needs of the rural population through computer networks, and particularly the Internet. The programme sets out to evaluate the sustainability of MCTs and the social, economic and cultural impact of provision of access to ICT in rural and remote areas.

The BAAP Programme No. 12 is also designed to support the development of Telematics and Computer Networks, but not only in rural areas. Both these programmes were farsighted and visionary at the time. It should be remembered that they were drafted before Mr. Al Gore made his famous speech on Information Highways in the WTDC-94 and when the use of the Internet was still limited to, essentially, the academic and research community.

Both of them recognize that the full potential of telecommunications, as tools for development, will be realized only if relevant applications and *services*, which meet the needs of developing countries are available and if people are aware of, and capable of using modern ICT, also for developing their

own "content". Arguably, these programmes are precursors to, and catalyzed a number of similar initiatives by other development agencies.

Hence, Programme Nos. 9 and 12 are highly interdependent and mutually supportive. Moreover, both programmes include similar activities, i.e. policy and awareness development, planning of network and access, implementation of pilot projects, training and evaluation.

In practice, these two programmes have therefore gradually merged into one single programme, with a strong focus on Integrated Rural Development, championed by the BDT, since 1992. Therefore, and in order to avoid unnecessary repetitions, the following report cover activities and outputs of both Programme Nos. 9 and 12 (P9/12).

Activities

9.1/12.1 Development of Policy Guidelines

- P9/12 cooperates closely with the ITU-D Study Groups in the development of policy guidelines, particularly in the Question 2/4 on Rural Telecommunications but also:
 - Question 1/1, Role of telecommunications in economic, social and cultural development;
 - Question 6/2, Impact of telecommunications in health-care and other social services;
 - Question 7/2, Telecommunication support for the protection of the environment; and
 - Question 2/2, Preparation of handbooks for developing countries, all of which have some impact on policy development.
- Feasibility studies for rural telecom pilot projects and promotion of the concept of Multipurpose Community Telecentres (MCTs) in various international fora.
- Contributions to development of the policies and strategy guidelines provided in *Africa's Information Society Initiative (AISI)*. This framework document, developed by the High Level Working Group (HLWG) on Information and Communication Technologies (ICT), was adopted by the UNECA Ministers' Conference (April/May, 1996), and endorsed by the ITU/BDT Regional African Telecommunication Development Conference (May 1996).
- Participation in the development of the World Bank's InfoDev initiative.
- Assessment of needs for telemedicine.
- Development of a draft handbook on Rural telecommunications.

9.2/12.2 Coordination and collaboration with international partners, including the private sector, and with national and local partner

In 1995, the BDT was instrumental in establishing the African Networking Initiative (ANI), an informal network of international partners involved in ICT development in Africa. The ANI partners were, besides BDT, UNESCO, UNECA and the International Development Research Centre (IDRC, Canada).

A number of activities aiming at bringing Africa into the Information Society were jointly implemented by the ANI partners 1995-1997. Examples of such activities implemented in partnership with the above organizations are:

- the Regional Symposia on Telematics for Development, Addis Ababa, 1995, and in Tunis ("The Arab World and the Information Society", Tunis 1997).
- development of the above-mentioned *Africa's Information Society Initiative (AISI)*.

- *Africa's Information Society Initiative* is now the framework for the "Harnessing Information for Development" (HITD) component of the United Nations System-wide Special Initiative for Africa (UNSI). In a coordination meeting in Addis Ababa (October 1996) the ITU was designated as (co-)lead agency for the following components of the HITD/AISI: *Internet Connectivity, Democratization of Access to the Information Society, Training and National Information and Communication Infrastructure (NICI) Plans* (i.e. for 4 out of 7 components).
- Development of proposals for the *Internet Connectivity* and the *Democratization of Access to the Information Society* components. These programmes are proposed to be carried out in partnership with concerned development agencies, NGOs and national organizations (public and private) in 1997 and onwards.
- Collaborative development of rural MCT pilot projects;
 - Development and implementation of a MCT pilot project in Suriname (started in 1995) in partnership with TELESUR, the Dutch Ministry for Cooperation and Berocan International Inc., Canada;
 - Agreement with SIDA, Sweden, to jointly fund and implement a MCT pilot project in Viet Nam in partnership with national partners and with Ericsson, Siemens and SAT, Other agencies who have expressed their interest in participating in this project include FAO, UNESCO, UNIDO and the Federation of Red Cross/Red Crescent;
 - Development and implementation of MCT pilot projects in Africa. ITU, UNESCO and IDRC, Canada, have agreed to jointly fund and implement MCT pilot projects in five African LDCs (Benin, Mali, Mozambique, Tanzania and Uganda) in partnership with national and local stakeholders. The ITU is expected to contribute, in total, some \$US 500 000 (from BAAP P9 and the Telecom Special Development Fund), the UNESCO with \$US 600 000 (Danida contribution) and IDRC with \$US 200 000, initially to this programme. FAO recently decided to become a partner in the Mali project and in a large number of other development agencies have indicated keen interest in participation in these projects. This programme is intended to kick-start the *Democratization of Access* component of the Special Initiative;
 - Preparatory assistance, aiming at the establishment of a MCT pilot project in Honduras in collaboration with UNDP. Other agencies are expected to join as partners in this project.
- Organization, in collaboration with UNCTAD and the US State Department of the Donor/Executing agencies Coordination Meeting (Rabat, 1997), preceded by a survey on ongoing and planned ICT initiatives in Africa. This meeting resulted in the creation of an enlarged forum for collaboration, called Partnership for Information and Communication in Africa (PICTA).
- Besides the ANI partners, mentioned above, PICTA Members include, the members of the African Internet Forum - AIF (the Internet Society, UNDP, USAID, US State Department, the World Bank and Carnegie Corporation), Agence de la Francophonie (ACCT), Bellanet International Secretariat, British Council Secretariat, COMNET-IT Foundation, FAO, the Global Information Infrastructure Commission (GICC), WK Kellogg Foundation, UNCTAD, UNITAR, WHO, WTO and SIDA, Sweden. However, the Forum is open to all organizations funding and/or executing significant ICT programmes and projects in Africa and more agencies are likely to join. A web site, including prototype databases with information on participating organizations and their current and planned initiatives in this

field has been developed by one of the partners, Bellanet, Canada, which also supports a number of listservers used by PICTA partners to coordinate programme planning and implementation. A second PICTA meeting was organized by ECA in Addis Ababa in October 1997.

- Collaborative development and implementation of pilot projects to provide access to telematics facilities implemented in the Caribbean (Barbados, St. Lucia, St. Vincent and the Grenadines) with Commonwealth of Learning, PAHO, UNESCO and UNDP (started in 1995 and still ongoing) and in Ghana in partnership with UNESCO and UNDP (started in 1996 and still ongoing with perspective of additional funding from InfoDev).
- Organization of seminars on rural telecommunications in partnership with the Canadian Government and Canadian telecommunication equipment manufacturers and service providers; in Brasilia 1995 and Mexico 1996 and with Philips TRT in South Africa and Ukraine in 1996.
- Design and implementation of training a course for French speaking countries on Internet applications development in Mali sponsored jointly with SOTELMA, UNESCO and AUPELF-UREF in 1997.

9.3/12.3 Planning of networks and Community Telecentres

- Planning and implementation of a microwave links, cell sites and access networks (in collaboration with the supplier) in previously unserved areas in the interior for the Suriname MCT pilot project;
- Preliminary surveys of existing infrastructure and plans for connecting MCTs for the pilot projects in Bhutan, Benin, Mali, Sudan, Tanzania, Uganda and Viet Nam;
- A pre-feasibility study and business plan has been prepared for a large scale rural pilot project, including the establishment of 12 MCTs, has been done for the Rajkot district in India (in collaboration with BAAP Programme No. 5 - Business oriented development plans);
- A pre-feasibility study for a MCT pilot project in the Maldives;
- Assistance in planning of rural networks to the Central African Republic and Uganda;
- Assistance in *planning Internet Nodes* (and training of nationals) to Zimbabwe, Sierra Leone, Ethiopia and Cameroon. These countries (with the exception of Sierra Leone) now have full Internet connectivity;
- Assistance in planning a VSAT network was provided to Nepal;
- Assistance in planning of a *telemedicine* network in Chile;
- Surveys of infrastructure, and need for *telemedicine* and proposals for applications in Bhutan Cameroon, Mozambique, Tanzania, Thailand, Uganda and Viet Nam in 1996;
- A *telemedicine* pilot project is now being implemented in Mozambique;
- A proposal for a *telemedicine* pilot project in the Republic of Congo (former Zaire) and Uganda has been developed and submitted to EC for funding in partnership with the European TeleMedicine Group. This proposal was approved in principle but is not among the priorities; so its funding is not yet secured. *Telemedicine* applications are also envisaged in all the MCT pilot projects;
- Survey of information and communication infrastructure in the Arab States and preparation of a proposal for and action plan;

- Development of a proposal for ATM standards for the Grupo Andino.

9.4/12.4 Implementation of pilot projects

- The above-mentioned pilot projects *for provision of access to telematics services* in the Caribbean and in Ghana have been implemented. Follow-up actions are planned.
- Implementation of the first phase of the MCT pilot project in Suriname is now completed.
- The MCT Pilot Project in Bhutan is being implemented (the building is being refurbished and some equipment has been shipped).
- The process of identifying needs, mobilizing partners and designing the project is really also part of the pilot project (and some valuable lessons have already been learned during the development of the various pilot projects). In this sense, implementation of the Benin, Mali, Uganda, Tanzania and Viet Nam MCT pilot projects has also started. The final project documents (partnership agreement) for the Mali and Uganda projects have been signed by all partners.

9.5/12.5 Capacity building (training)

- Informal training of national counterparts has been provided by consultants involved in planning of networks, Internet nodes and MCTs throughout the period.
- Training of content developers and users has been provided in the above-mentioned pilot projects on access to telematics facilities in the Caribbean and in Ghana.
- The subregional course on Internet in Mali; the RAITNET Executive Committee meeting and subregional Arab workshop on "Designing & Building and Information" has been provided (jointly with UNESCO).
- Internet training activities organized by the International Centre for Theoretical Physics, Trieste.

9.6/12.6 Evaluation

A methodology for the process and impact evaluation of MCT pilot project is currently being developed collaboration with partners. Baseline evaluation will be conducted shortly in some of the projects.

Achievements

Policy and awareness development - catalyzing investment in ICT and rural telecom development

Programmes Nos. 9 and 12 have been very successful developing awareness of the potential benefits of information and communication technologies as tools for development and the crucial role of telecommunications (and the ITU) in the emerging Information Society. They have contributed to policy development and, no doubt, catalyzed many new initiatives and considerable investment in this field. The goal of *universal access* is increasingly interpreted as access to ICT (not only basic telecommunication services).

Today, collaboratively developed policy guidelines strongly promote development of ITC and telematics services, including the Internet, for the population at large and, particularly for those in rural areas. A very large number of initiatives aiming at ICT development have been launched by a number of development organizations, notably by the World Bank, UNCTAD and the UNDP.

Many developing countries, including some LDCs, have now launched very ambitious *rural telecom development* programmes, usually with private sector participation. The concept of Multipurpose Community Telecentres (MCT), championed by the BDT, has gained wide acceptance as means of providing access to telematics services in rural and remote areas and in deprived urban areas. This concept has given a new impetus to rural telecom development and put it high on the agenda, at national as well as international levels.
