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PLENARY MEETING

Director of the BDT

SPECIAL ACTIONS FOR LDCs

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1 Introduction

1.1 The LDC grouping

The Least Developed Countries (LDCs) are defined as low-income countries that are suffering from long-term constraints to growth, in particular low levels of human development and severe structural weaknesses. Their distinctiveness lies in the profound poverty of their people and in the weakness of their economic, institutional and human resources often compounded by geophysical handicaps. These countries are particularly ill-equipped to develop their domestic economies which are vulnerable to external shocks and/or natural disasters.

In 1971, the international community recognized the existence of this category of countries and the United Nations General Assembly then listed 19 countries in the group which was to be accorded special assistance to help these countries pull out of their dire status. In 1981, a United Nations Conference on LDCs held in Paris promulgated a Special New Programme of Action (SNPA) for LDCs which gave renewed hopes for these countries. But ten years later, in 1991, another United Nations Conference in Paris was disappointed to find out that the situation in the most of the LDCs had actually deteriorated and that the number of LDCs had in fact grown from 19 in 1971 to 47 in 1991 indicating that other developing countries were falling behind. The Conference adopted a more modest Programme of Action for LDCs for the 1990s which is currently under implementation.

1.2 ITU past assistance

The LDCs are also among the least developed in terms of the poor state of their telecommunication networks and the limited range of services offered. The group actually represents a mixed bag: some are falling further behind while some are showing an exemplary upturn.

The ITU has since 1971 accorded special assistance to LDCs through the implementation of appropriate Plenipotentiary Conference Resolutions. Until 1992 the ITU funds were utilized on an ad hoc basis for expertise, equipment, fellowships, etc. but as from 1993, these funds were programmed and utilized for specific priority actions designed to bring about genuine improvements in the state of telecommunications development in the LDCs.

1.3 List of LDCs

Table 1.1 contains a list of 48 LDCs as currently defined by the UNGA. As from 1991, the list is updated only every three years. The updating in 1994 saw the "graduation" of Botswana and the inclusion of Angola and Eritrea. The revision of the list in December 1997 will bring about the "graduation" of Vanuatu and the surveillance of Cape Verde, Maldives and Samoa for graduation in the year 2000.

Glancing through the list one might think that some of the countries in it should never have been on the list because of their excellent endowment with natural resources, but external/internal factors such as civil strife, economic and/or natural disasters may have been principal factors at play to push them into the list of the LDCs. For the latest criteria for "inclusion" and "graduation" of countries into and from the list as devised by ECOSOC's Committee for Development Planning please refer to Annex 1 to this document.

TABLE 1.1

Countries	Africa	Americas	Asia & Pacific	Arab States	Year of Entry
Afghanistan			X		1971
Angola	X				1994
Bangladesh			X		1975
Benin	X				1971
Bhutan			X		1971
Burkina Faso	X				1971
Burundi	X				1971
Cambodia			X		1991
Cape Verde	X				1977
Central African Republic	X				1975
Chad	X				1971
Comoros	X				1977
Djibouti				X	1982
Equatorial Guinea	X				1982
Eritrea	X				1994
Ethiopia	X				1971
Gambia	X				1975
Guinea	X				1971
Guinea Bissau	X				1981
Haiti		X			1971
Kiribati			X		1986
Lao (PDR)			X		1971
Lesotho	X				1971
Liberia	X				1990
Madagascar	X				1991
Malawi	X				1971
Maldives			X		1971
Mali	X				1971
Mauritania				X	1986
Mozambique	X				1988
Myanmar			X		1987
Nepal			X		1971
Niger	X				1971

Rwanda	X				1971
São Tomé & Príncipe	X				1982
Sierra Leone	X				1982
Solomon Islands			X		1991
Somalia				X	1971
Sudan				X	1971
Tanzania	X				1971
Togo	X				1982
Tuvalu			X		1986
Uganda	X				1971
Vanuatu (graduates 1997)			X		1985
Western Samoa			X		1971
Yemen				X	1971
Congo (DR ex Zaire)	X				1991
Zambia	X				1991
Total	48	29	1	13	5

2 Implementation of Chapter III of BAAP

2.1 Background

The WTDC-94 adopted a Special Programme for LDCs in Chapter III of the Buenos Aires Action Plan. The basic strategy of the Programme was to implement augmented ITU assistance as a catalytic input to generate sustained investment in telecommunications in LDCs. The Programme sought to eliminate bottlenecks in the five key areas of critical weaknesses in order to enhance the absorptive capacity of the LDCs.

The Programme had a target of achieving an average urban ML density of 5 per 100 inhabitants and 1 ML per 10 000 inhabitants in the rural areas by the year 2000. It specified activities in generic form in each priority area.

In its Resolution 1 the WTDC-94 envisaged that some 70% of the BAAP Programme resources would be devoted towards the Special Programme for the LDCs. The Kyoto Plenipotentiary Conference took note of the WTDC Resolution and adopted the LDC Programme through its Resolution 26 but did not specifically allocate any funds for implementation of the Programme.

2.2 The priority areas

The five priority areas which the WTDC adopted were:

- 1) development of rural telecommunications;
- 2) human resources development;
- 3) management;
- 4) maintenance;
- 5) planning.

2.3 Implementation

a) Through BAAP

TABLE 2.1

Priority area	BAAP action
<p>1 Development of rural telecommunications</p>	<p>BAAP Programme No. 9</p> <p>a) Major activities included two pilot projects which were executed by consultants in Uganda and CAR. The pilot networks have been planned in detail including equipment specifications. Financing for the projects is being sought. New pilot projects are planned for:</p> <p>b) Study Group 1 in which 30 participants from LDCs took place in May and December 1995.</p> <p>Study Question 4/2 on communications for rural and remote areas is being undertaken and its outputs will benefit LDCs. Feasibility study for pilot project in Sudan. Implementation of pilot project in Bhutan. Preparation policy guidelines in collaboration of Study Group 2, Question 4/2. Preparation of contributions, case studies for Study Groups.</p> <p>BAAP Programme No. 12 Donor coordination meetings United Nations special initiative for Africa. Review of technology option.</p>
<p>2 Human Resources Development</p>	<p>BAAP Programme No. 2</p> <p>a) A training needs survey in LDCs was carried out through the use of a questionnaire. There was a poor response but work is continuing through Study Group 2 as well as the HDR Regional Officers.</p> <p>b) Training fellowships. A substantial number of training fellowships were awarded to LDCs in 1995.</p> <p>c) A large number of HRD/HRM activities not specifically designed for LDCs did in fact benefit the LDCs. three Regional TBT workshops in Maputo, Port Louis and Singapore. Direct assistance in HRM/HRD through needs identifications, interregional meetings (Nairobi), subregional workshops (Libreville, Hanoi), regional course development workshop (Sanaa) and Training Development Workshop (Haiti).</p>
<p>3 Management</p>	<p>BAAP Programme No. 2</p> <p>Mismanagement was the real matter of concern in LDCs but was also a symptom of other ills such as improper organizational structures, lack of reforms, poor training, pilferage, etc. Reform and restructuring of the sector alone would eliminate most of the management problems. Assistance was accorded as follows:</p> <p>a) BAAP Programme No. 1 Policy documents such as the Green Paper in Africa, the Blue Book for the Americas, the Arab Book and the Handbook on Regulation Guidelines in ASP will help LDCs to make appropriate policy choices and improve their management efficiency and effectiveness. Restructuring and privatization assistance was extended to several LDCs.</p>

<p>4 Maintenance</p>	<p>b) MANDEVTEL The following HRD/HRM activities were carried out in 1995 in the management area through MANDEVTEL in Africa:</p> <ul style="list-style-type: none">i) Restructuring the Telecom Sector workshop, with 25 participants (English);ii) Telecom Operators Strategies and Modern Management Techniques, with 14 participants (French);iii) Human Resource Management workshop, with 18 participant (French). <p>A total of 57 middle and top managers were trained in Africa, a majority of whom were from LDCs.</p> <p>c) Direct assistance in HRM HRD Regional Meetings were implemented in each region with experts from developed countries presenting papers at no cost to ITU. Beneficiaries in Africa and Asia and Pacific were mainly LDCs. Five Management Workshops implemented for Francophone, Lusophone, Anglophone, Arab and Asia Pacific countries in which LDCs in the area participated through fellowships.</p> <p>BAAP Programme No. 1 Major policy documents such as Green Paper for Africa and Arab Book were formally adopted during Regional Telecommunication Development Conferences and will help LDCs with management policies and choices. Preparation of Guidelines for LDCs on regulatory issues (Bangkok) Seminar on restructuring (Benin) Studies in African countries for policy/regulatory framework. Assistance in organizational structure (Yemen) Economic quantification of the impact of telecommunication on development.</p> <p>BAAP Programme No. 7</p> <ul style="list-style-type: none">a) The specific programme for LDCs includes: Identification of quality of service indicators, and performance indicators development or introduction of network management system, updating and implementation of the National Plan for Improvement of Maintenance (NIP) in Africa, support for regional maintenance projects/activities. Development of a guide on the introduction of a Computerised Subscriber Maintenance System (CSMS) activity already tackled with a partner, the Company ELM, from United Kingdom. A questionnaire was sent out at the end of 1995 to English and French speaking developing countries. The Spanish version was despatched in 1996. On the basis of the replies, two workshops were organised in 1996 in Africa and Arab States. These workshops also provided an opportunity to exchange ideas with the participants on the importance of the measures to be taken in order to ensure that the CSMS functions properly.b) Ad hoc assistance was extended to Madagascar and Sierra Leone, Yemen, Bangladesh and Nepal.
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<p>5 Planning</p>	<p>c) TCDC type assistance was given to 6 West African countries (Benin, Burkina Faso, Guinea, Niger, Mali and Senegal) for the digitalization of their inter-states network.</p> <p>d) Seminars were organized in Kenya and Italy (Triestre) and Colloquium in Togo (Lomé) in which several LDCs participated on maintenance related matters.</p> <p>Preparation of TMN based guidelines for improvement of maintenance. Development of computerised subscriber maintenance system (CSMS): appraisal of the situation in 20 LDCs in Africa and holding of coordination meeting. CSMS Symposium (Lusaka) Follow-up of MIS for networks TMN Seminar/Workshop (Windhoek)</p> <p>NB: With privatization picking up in a number of countries, it is hoped that the new enterprises will place greater emphasis on the proper maintenance of their networks if they hope to reap profits. But BDT assistance will still be required on broader maintenance philosophies and introduction of new maintenance technologies and systems. Increasingly maintenance issues will shift to the conception/planning domain.</p> <p>BAAP Programme No. 3 The Preparation of "Guidelines for the elaboration of a Business-Oriented Development Plan" (a new definition adopted by the WTDC for Master Plans including management, marketing and financing issues) was completed in 1995 but will be published in 1998. This guide will enable the countries to prepare their own short and long term plans in accordance with the objectives and strategies adopted by their governments. Telecommunication Sector studies (an essential planning requirement) were carried out in Angola, Eritrea, Uganda.</p> <p>BAAP Programme No. 5 The following LDCs benefited from PLANITU activities: Courses: Myanmar, Nepal; Additional training: Myanmar; Transfer of software: Djibouti, Myanmar, Uganda, Sudan, Yemen; Update of software: Ethiopia, Zambia. The ITU-developed computerized Network Planning Tool (PLANITU) continues to be applied in a number of countries regional courses were delivered in Sanaa, La Havana and Gaborone. Translation of PLANITU course material into a number of official languages. Installation of software and follow-up for Myanmar.</p> <p>BAAP Programme No. 3 With the completion of guidelines for the elaboration of Business Oriented Development Plans (Master Plans) in 1995, the year 1996 saw their implementation, development of training material and a start on updating some sections. Pilot project implemented for Eritrea.</p>
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b) Fellowships

The LDCs gained a very large number of fellowships through ad hoc funds in the BAAP budget to attend various meetings and conferences, seminars and workshops organized by the BDT. Without such fellowships participation of these countries in such important gatherings would have been minimal.

A large number of individual training fellowships at various institutions all over the world were also awarded to LDCs. The combined fellowships are shown in Table 2.2.

TABLE 2.2

TOTAL FELLOWSHIPS					TOTAL FELLOWSHIPS				
COUNTRY	1994	1995	1996	1997	COUNTRY	1994	1995	1996	1997
<u>Africa</u>					<u>Asia & Pacific</u>				
Angola	6	12	14		Afghanistan	0	6	4	
Benin	16	21	20		Bangladesh	9	22	12	
Botswana	4	0	0		Bhutan	15	24	11	
Burkina Faso	17	19	24		Cambodia	16	24	53	
Burundi	23	15	8		Kiribati	3	4	3	
Cape Verde	27	12	11		Lao	27	36	41	
Central African Rep	13	12	17		Maldives	8	20	11	
Chad	14	12	18		Myanmar	3	10	7	
Comoros	10	10	15		Nepal	11	27	22	
Equatorial Guinea	7	9	9		Solomon Islands	1	5	0	
Eritrea	2	9	10		Tuvalu	4	5	2	
Ethiopia	12	17	22		Vanuatu	1	1	0	
Gambia	8	14	12		Western Samoa	3	7	2	
Guinea	12	17	19		Total ASP	101	191	168	
Guinea-Bissau	10	8	11		<u>Americas</u>				
Lesotho	8	10	12		Haiti	0	13	20	
Liberia	9	8	3		Total AM	0	13	20	
Madagascar	10	8	10		<u>Arab States</u>				
Malawi	10	7	14		Djibouti	21	20	36	
Mali	31	24	50		Mauritania	19	15	22	
Mozambique	18	17	22		Sudan	15	11	21	
Niger	16	11	13		Yemen	8	10	14	
Rwanda	3	9	11		Total AR	63	56	93	
Sao Tom & Principe	12	8	11		TOTAL LDCs	528	630	727	
Sierra Leone	8	12	18		<u>As if LDCs</u>				
Somalia	0	0	0		Namibia	6	8	13	
Tanzania	14	15	20		Senegal	11	19	19	
Togo	12	11	10		Nicaragua	4	0	7	
Uganda	12	18	21		Total "As if LDCs"	21	27	39	
Congo (DR ex Zaire)	5	12	11						
Zambia	15	13	10						
Total AFR	364	370	446						

c) Telecom funds

1 During the Telecom 95 Exhibition and Forum, Telecom organized a "Programme for Development" for the LDCs and some others low-income countries. The programme which was sponsored by 13 exhibitors had a dual target of senior telecommunication engineers and personnel managers from these countries and focused on technology and human resources management.

The participants (two fellowships per country) had to visit the exhibition, attend Forum sessions, in particular the Technology Summit on Telecommunications in developing countries and take part in a workshop on technology and human resources management. The two day workshop was aimed at enabling participants to:

- combine technology and human resources management/development to improve the efficiency of their business;
- harness integrated technological/human resources solutions to the service of their countries;
- make effective use of technology and human resources development to promote telecommunications in their countries.

An internal evaluation of the programme indicated that the participants gained a lot from it. The programme for development has become a feature at subsequent Telecom Exhibitions.

2 In 1997, the ITU decided that the larger part of the excess revenue from Telecom 95 (in the order of \$US 10 million) should be utilized for specially designed, high impact and focused activities for LDCs. These activities include:

- 1) The revitalization of two centres of Excellence in Africa, namely AFRALTI in Kenya for Anglophone countries and ESMT in Dakar for the Francophone countries. The two centres are to occupy a unique role in the development of an attractive telecommunications market in Africa and render telecommunications services for the development of African society. They will develop and strengthen the capability to generate advanced level policy, regulatory, managerial and technical expertise to address the needs of the telecommunication sector in African countries.
- 2) The project, for the modernization and expansion of the Panaftel network.
- 3) The Telecommunication Industrialization Project.

d) Equipment and software

Apart from technical assistance, the ITU has donated various types of equipment and associated software where necessary to LDCs during the period under review:

- 1) In 1994, the ITU donated personal computers for use at training centres to the following countries: Benin, Burkina Faso, Cape Verde, Chad, Ethiopia, Guinea, Malawi, Sierra Leone, Uganda and Zambia. Each country received 10 PCs except Ethiopia which got 15.
During 1995-1997 Mozambique obtained software for memory extension to 1 MB, Djibouti, Ethiopia, Gambia, Lesotho, Mali and Togo got each 5 PCs, Uganda got 8 PCs and Burkina Faso got 10 PCs. Donations of PCs are pending for Central African Republic and Mauritania.
- 2) During 94-97, PLANITU software was donated to several LDCs.
- 3) During 95-97, BASMS software and PCs were donated to many LDCs.

2.4 Implementation of Resolution 1 of WTDC-94

Resolution 1 entitled Special Programme of Assistance for the Least Developed Countries (LDCs) resolved "to endorse the Special Programme of Assistance for the LDCs as contained in the Buenos Aires Action Plan".

The implementation of the programme was carried out as reported in Section 2.3 above. In addition the operative paragraphs of the resolution were implemented as per Table 2.3 below

TABLE 2.3

Operative paragraph	Action taken
<p><i>instructs the Director of the BDT</i></p> <p>1 to implement fully the special programme of assistance for the LDCs, giving priority to rural telecommunication development, to the development of strategies for mobilizing resources and to assistance for restructuring the telecommunication sector;</p> <p>2 to give special priority to the LDCs in the implementation of other BDT programmes such as missions by the Special Studies and Backstopping Division, the Human Resources Development Division, as well as fellowship funds, the Special Voluntary Programme, and the Technical Cooperation among developing countries funds;</p> <p>3 to coordinate, as necessary with the Radiocommunication and Telecommunication Standardization Sectors, implementation of the Special programme of assistance for the LDCs;</p> <p>4 to convene a mid-term evaluation meeting of this programme,</p>	<p>Implemented as far as practicable as reported in Section 2.3 above.</p> <p>Implemented as far as practicable as reported in Section 2.3 above.</p> <p>Coordination with other specialized sectors was carried out in a number of areas.</p> <p>The Kyoto Plenipotentiary Conference did not allocate any funds for such a review. However, opportunity was taken during RTDC-AF/96 and RTDC-AR/96 to review the requirements of these two regional groups of LDCs resulting in Resolutions 2 and 5 respectively.</p>
<p><i>requests the Secretary-General of ITU</i></p> <p>1 to continue and enhance the assistance provided to the LDCs in cooperation with other development partners;</p> <p>2 to bring this Resolution to the attention of the highest level of government of the LDCs;</p> <p>3 to convey to the Kyoto Plenipotentiary Conference the need to review that part of the regular budget allocated to the LDCs with a view to enabling the BDT to undertake increased responsibilities for the LDCs.</p>	<p>Done, particularly through excess revenues from Telecom.</p> <p>Done on conveyance of Final Report of WTDC-94.</p> <p>Done, but not heeded to by the Conference. No special funds were allocated for LDCs.</p>

2.5 Achievement of targets and objectives

As expressed in Chapter III of the BAAP, for the year 2000, the Special Programme for LDCs was targeted at:

- a) fully meeting the demand for telecommunication services in urban areas. This means virtually eliminating the waiting list for services by that year which translates into an urban ML density of 5 per 100 population;
- b) achieving a rural ML density of 1 per 10 000 inhabitants.

With respect to target a), figures as at 31 December 1995 suggest that the average urban ML density has reached 4.55 ML per 100 and projections show that the target could easily be attained even before the year 2000. If figures for Somalia, Rwanda, Angola, Congo (D.R. ex Zaire), Liberia, Sierra Leone Cambodia and Afghanistan are excluded because of the civil strife in those countries, urban ML density is improved to of 4.9 ML per 100, already very close to the target.

With reference to target b), the rural ML density has averaged 0.7 in December 1995 and improves to 0.8 per 10 000 inhabitants if figures for five countries cited above are excluded. The target density of 1 in 10 000 is indeed achievable. Maitland's Missing Link report had set a target of "easy access" to telecommunications services for the whole of humanity by the "early part" of the 21st Century. Both "easy access" and "early part" were not defined but a phone (a working phone) within a radius of 10 km or 2 hours walk represented fairly easy access for rural populations. The early part of the 21st Century is probably the years 2000-2020. With the advent of GMPCS, the question of easy access becomes theoretically practicable overnight. The affordability of these systems will be the delaying factor, but with communal ownership, the system should become affordable and could be proliferated in the rural and remote areas of developing countries.

2.6 Success stories

Any LDC whose average ML density has exceeded 1 in 100 countrywide and 5 in 100 population in cities may be considered as having attained reasonably good penetration of telecommunication services which permits easy access to these services. In fact any country aspiring to graduate from the list of LDCs must first closely approach the above ML density criteria.

Botswana which graduated from the list of LDCs in 1994 is a typical success story, with an ML density of 4 in 100 countrywide and 16/100 in Gaborone, its capital city. The network penetration in rural areas is remarkably good with virtually all towns and remote business concerns being linked to a modern and reliable network.

The Pacific Islands (Vanuatu, Kiribati, Solomon Islands, Western Samoa) have also developed remarkably good networks despite the onerous problem of extending services to hundreds of small, remote and sparsely populated islands/atolls strewn over large areas. The average ML density for these islands range from 1.73 to 5.04 although such densities are mitigated by the relatively small populations. **Vanuatu** which is to be removed from the LDC list in December 1997 has a ML density of 2.57 while Cape Verde, Maldives and Western Samoa which will "graduate" in 2000 have ML densities of 4.7, 6.47 and 4.62 respectively.

Resolution 1 of WTDC-94 expressed concern over the rapidly increasing number of LDCs. It is noted with satisfaction that the trend has been halted and is being reversed. The economic upturn in graduating LDCs is being led by rapid telecommunication network growth. The ML density is now widely regarded as a better economic indicator than the GDP per capita, giving wider acceptance to the assertion that **telecommunication is development**. It is expected that the number of LDCs should fall to around 40 by the year 2003 under the current criteria for listing of LDCs.

3 Status of telecommunications development in LDCs: signs of an upturn

3.1 Overview

It would be expected that the state of development of telecommunication networks and services in the LDCs would be poor. Nevertheless, there are exceptions where telecommunication networks are better developed than in non-LDCs. Several LDCs, for instance, have all-digital networks, notably Djibouti, Gambia, while others have had some of the fastest growing networks in the world over the last ten years. There exists however a very wide gap between the telecommunication facilities of developed countries and those of the LDCs. The average level of teledensity among the LDCs is 0.33, or just over one telephone for every 300 people. The total number of telephone main lines in the 48 LDCs stands at just over 1.9 million.

3.2 Regional perspectives

a) Africa

Africa has the largest number of LDCs, some with the very lowest ML density in the world i.e. below 0.2 ML/100 population. It is also in Africa where civil strife have particularly hit network development very badly in some countries, to the extent of causing negative growth to the network with the destruction of plant and equipment. But the situation is not all gloom for a number of African LDCs.

b) Arab States

Djibouti and Yemen have remarkably good telecommunication networks with ML densities in excess of 1 in 100 population. The civil wars in Sudan and Somalia have considerably affected network growth in these countries, in the latter case the network is all but destroyed. Mauritania's ML density remains feeble although it is now geared to grow at a faster rate than ever before. The overall situation in the Arab States is optimistic with the exception of the two sub-Saharan states afflicted by war.

c) Asia and Pacific

The small island states in this region have very good ML densities despite the huge problem of having to interlink small islands/atolls dispersed over large areas and with sparse populations. The larger states in the region are faring less well but the winds of the tiger economies are sweeping across the region and most of the LDCs are experiencing fast network growth. Bangladesh, the most heavily populated LDC installs some 10 000 new MLs every year but the ML density remains very low because of its very high population. Apart from Bangladesh, the other countries having ML density below 1 are Cambodia, Lao, Myanmar, Nepal and Afghanistan, the latter having been much affect by the civil war as was Cambodia.

The liberalization experience has been quite unique in the region with less of strategic partnerships but more of indigenous new operators and a strong government presence. During the next several years, a number of countries from this region will qualify to be removed from the list of LDCs.

d) Americas

The only LDC in the region, Haiti, is recovering from civil strife and a UN embargo. A number of plans are underway towards capacity building and network development which should turn years of stagnation to rapid ML growth, expansion and modernization of the network.

3.3 Persisting problems of the sector

a) General

Four years since the identification of the critical weaknesses affecting telecommunication development in LDCs and the approval of a programme designed to tackle them on a priority basis, a number of problems have persisted to varying degrees. The LDCs programme never sought to eliminate the problems overnight but they have now been sized and concerted action must continue during the next cycle to continue to improve the situation.

b) Development of rural telecommunications

Full success on this item will be realized when the "Missing Link" target of easy access to a telephone and services that accompany it by the whole of mankind" has been achieved. An alternative target ML density of 1 in 10 000 inhabitants would be acceptable for rural areas. Most of the inhabitants of the LDCs live in rural areas where most remote villages can be hundreds of kilometres from the nearest town or telephone. The Pacific LDCs are faced with populations strewn over dozens of islands/atolls spread over a large distance.

The importance of rural telecommunications needs to be better appreciated. Rural telecommunication services could be provided on a community basis which would help to attract small scale industries such as handicrafts and animal product processing. Rural telecommunication services could also support education and health programmes (tele-education and tele-medicine). These applications, together with commercial marketing of rural products, could contribute immensely in bringing higher living standards and increasing the welfare of rural populations. They could also help create new employment and thus reduce the abject poverty in these areas. These services would help stem the flow of rural migrants to urban areas with consequent reduction of urban decay in rapidly growing cities.

c) Management

In the 1994-1998 Programme, poor management was cited as a major cause of other problems within the sector. Management of all types of resources such as people, finances and networks remains a cause of great concern. More alarming is the growing culture of lack of accountability over public funds and resources.

It had been hoped that a fundamental solution to the management problem in LDCs lay in political change to bring about restructuring of their telecommunication entities through greater autonomy and clear separation of management, regulatory and policy-making functions. This would hopefully bring about an end to lack of accountability as the new stake holders would demand and obtain increased accountability and higher productivity and efficiency.

Nevertheless, the process of producing and grooming good managers must continue both for the new fledgling private companies as well as for communications regulatory authorities as may be established.

It is proposed that the problem of management be grouped together and treated under human resources development/management in the 1999-2003 programme.

d) Planning

Telecommunication planning is an important activity to ensure that network growth is sustainable and contributes to socio-economic and cultural development in a steady manner. Good planning improves efficiency through appropriate network dimensioning and timely expansion of the network and introduction of new technologies.

The long-range planning function in LDCs is generally managed by senior engineers and assisted by technicians. Their objective is to prepare telecommunication network plans with supporting costs and human resource needs to cater for a given period. These technical plans are then presented to the institutions' top management and subsequently to government for approval. There is negligible contribution to the planning process by other divisions of the organization (such as finance, personnel or marketing). Economic analysis, human resource development needs and service requirements are not given sufficient importance. Old traffic forecasting techniques are still in use in some countries with serious underestimates of both trunk and tributary traffic streams.

It is recommended that given the considerable efforts which the LDCs have accorded towards improving planning and the BDT's inputs through PLANITU and a guide for the preparation of business-oriented plans (master plans) planning should be dropped as a stand alone priority area and should be grouped with management under the HRD/M priority area.

e) Human resources development/management

HRD/M is a crucial area for any entity, especially in an era of tumultuous technological change that calls for frequent retraining of personnel. The LDCs have put in considerable effort towards training of their staff at all levels. With some 2 decades of ITU assistance in this area, national and regional training institutions have been established and are offering a wide variety of courses. But these cannot cover all areas, let alone the highly specialized ones, while some countries simply cannot afford all the required training/retraining as well as refresher courses.

It is recommended that HRD/M remains a priority area for financing under the new special programme for LDCs in 1999-2003.

f) Sector restructuring

This is an emerging area which is being urged on by the Bretton Woods Institutions that are calling for democratization, good governance and restructuring of the economic and social sectors. The restructuring of the telecommunication sector with a view to its liberalization and privatization is taking place in many countries to varying degrees and formulae. The keenness accompanying the exercise reflects the high profitability of the sector.

The BDT has provided substantial assistance to LDCs and other countries in the various complex requisites and prerequisites of sector restructuring. This assistance should continue in the foreseeable future. Even for countries where privatization has taken place, the fledgling companies and national regulatory bodies will require BDT assistance on teething problems and the strengthening of their new entities.

It is recommended that the sector restructuring be among the new priority areas for assistance by the BDT for LDCs.

g) Maintenance

Poor maintenance of telecommunication equipment and plant was identified as a major problem in LDCs. Inadequate maintenance is expensive as it causes loss of revenue due to non-functioning of

equipment and disruption of services. Poor logistics support (spare parts, tools, transport and test gear) and lack of adequately trained cadres are some of the causes of bad maintenance.

Modern equipment has features which reduce the burden on maintenance but nevertheless certain minimum standards have to be maintained so that equipment operates correctly as specified. There are also new computerized network maintenance and management techniques which help ensure the best maintenance and operability of the services. Such systems as CSMS and TMN have been a subject of several seminars organized by the BDT during the period 1994-1998.

Maintenance has been retained in order to continue the important work commenced on the improvement of telecommunication services in prior years, in particular the introduction of computerized maintenance systems and the updating of guidelines for the improvement of maintenance, with clearly defined Quality of Service indicators.

As sector restructuring is expected to bring about improved maintenance and better network management due mainly to the greater rigour of the liberalized entities, it is recommended that maintenance be dropped as a stand alone priority theme for the period 1999-2003. Activities could be grouped with the priority area of HRD/M.

4 New priority areas for the next millennium

4.1 Introduction

The new priority areas, namely:

- development of rural telecommunications;
- sector restructuring;
- introduction of new technologies;
- human resources developmentmanagement,

were selected by the LDCs themselves through a questionnaire which was sent to all the LDCs in May 1997. The results of the questionnaire are summarized in Annex 4. The priority areas are the sectors of critical importance in the development of telecommunications in the LDCs where the activities of the BDT and its development partners should be focused during 1999-2003. If these issues are adequately addressed by all concerned it is hoped that the major developmental bottlenecks will be removed and the countries will be geared to high growth of their networks. A general programme of action is proposed covering the above areas.

4.2 Objectives and targets

Objectives

- a) to reform the telecommunication sector so as to introduce new structures which are more amenable to faster and sustained telecommunication development, with well managed and modern networks;
- b) to increase the penetration of telecommunication services such as to achieve universal access to those services.

Targets

- a) fully meeting the demand for telecommunication services in urban areas. This means virtually eliminating the waiting list for services by the year 2005, which translates into an average urban main line (ML) density of 10 per 100 population;
- b) achieving a rural ML density of 2 ML per 10 000 inhabitants. This density will not as yet amount to easy access to telecommunication services as suggested in the Missing Link report, but is a bold move in that direction.

4.3 Proposed new priority areas

- a) **Development of rural telecommunications.** This priority area is designed to bring about **easy access** to telecommunication services in the rural areas where a majority of the population in LDCs lives. It should also stimulate rural industries, improve education, usher in a host of social benefits and stem population migration to cities. Ultimately it should bring about **universal access** to telecommunication services.
- b) **Sector restructuring.** The priority here is designed to continue the process of sector restructuring, to bring about liberalization and competition and, possibly, privatization as applicable. All these should induce faster network growth and better management of the sector such that countries derive higher benefits from it. The assistance will be extended to the new regulatory bodies as well as to the new fledgling companies, the latter on a cost recovery basis.
- c) **Introduction of new technologies.** It is intended to continue assisting LDCs in technological choice. The introduction of new technologies and techniques requires prudence to avoid premature retirement of old equipment as well as avoidance of in current of undue interworking penalties. Assistance will mainly be extended in the following areas:
 - **GMPCS:** in accordance with Opinion 5 of the First World Policy Forum.
 - **Internet:** to cover various aspects of a potentially complex service.
 - **Wireless Loop Access:** for extending services easily to areas not yet covered by the local cable network. Assistance will compare TDMA and CDMA advantages while cost benefit studies will include spectrum pricing.
 - **Broadband transmission over existing copper wire loops:** to increase the capacity of existing local copper cables in order to connect more subscribers to the network.
 - **Digital audio and video broadcasting:** as covered in Study Questions 1/2 and 8/2.
 - **Planning:** as covered under PLANITU and other general planning issues.
 - **Spectrum management:** as widely acclaimed in the questionnaire.
- d) **Human resources development/management:** This is an important all embracing area which must be maintained virtually *ad infinitum* because human resources are the most valuable asset of an entity. It will embrace the traditional HRD/M activities involving training and retraining of personnel as well as modern management techniques and management of telecommunication networks, including their maintenance.

4.4 Implementation strategy

The ITU assistance to LDCs will remain a catalytic input to help generate sustained investment in the development of telecommunications by, primarily, the countries and their development partners. The LDC programme will seek to eliminate bottlenecks in the selected areas which are considered critical to rapid development of telecommunications.

4.5 Review

An action programme for the LDCs should be reviewed in its mid-term to ensure that it remains relevant to the prevailing needs of that time.

5 Conclusions and recommendations

5.1 Conclusions

A considerable effort has been made towards the development of telecommunications in LDCs during the last four years. The countries themselves were responsible for most of this effort which is bearing fruit in terms of upturn in fortunes, with accelerating growth being recorded in most LDCs. Much however remains to be done in order to consolidate the work started and to increase ML density to acceptable levels.

Decision-makers in LDCs do now appreciate the all important role of telecommunications in socio-economic development and are according it due priority. However, the level of foreign multilateral and bilateral investment in the sector has remained relatively low and is even declining, which is a cause for worry. The LDCs require increased investment to make a difference.

5.2 Recommendations

As long as the international community continues to recognize the special status of the LDCs and to accord them special assistance, the ITU should also continue to maintain a special programme for this group of countries. Such a programme should however be focused on areas of critical importance in network development and modernization.

Reforms designed to bring about liberalization and privatization must be accompanied by the strengthening of the regulatory bodies and in particular the introduction of truly competitive environment.

The development of rural telecommunications must continue to receive top priority from governments and regulatory bodies with an accent on achieving universal access to telecommunication services while helping to stem population migration to urban areas through the creation of a host of job opportunities and a higher quality of life in the rural areas.

A special budget for the LDCs' special actions, within the resources appropriated for the BDT, would greatly enhance the implementation and management of an action programme for the LDCs.

ANNEX 1

Criteria for LDC grouping

1.1 Old criteria

The original set of criteria for constructing a list of countries classified as LDCs was adopted in 1971. These are:

- a) per capita income per year less than \$US 200. This figure has been revised periodically and stood at \$US 600 in 1991;
- b) share of industrial production in the Gross National Product (GNP) under 10 per cent; adult literacy rate less than 20 per cent.

A country became an LDC if it met two or more of the criteria.

1.2 New criteria

New criteria for determining LDCs were established in 1994:

- a) population less than 75 million;
- b) per capita GDP less than \$US 700 (average 1990-92);
- c) augmented physical quality of life index (APQLI) less than 47; economic diversification index (EDI) less than 26.

These criteria were elaborated as follows:

- a) **Population.** It was decided that from 1991 population size will explicitly be taken into account, and countries larger than 75 million inhabitants should not be considered for inclusion in the list of LDCs. In the last two decades, it had only been implicit that LDC classification was meant to designate countries with small economies.
- b) **Per capita GDP.** The relative level of poverty may be measured by per capita income.
- c) **APQLI.** The augmented physical quality of life index (APQLI) comprises four indicators: life expectancy at birth, per capita calorie supply, school enrolment ratio, and adult literacy rate.
- d) **EDI.** The economic diversification index (EDI) comprises the share of manufacturing in GDP, the share of employment in industry, per capita electricity consumption, and the export concentration ratio.

2 Inclusion rule

A country will qualify for inclusion if it meets all four formal criteria, namely population size, per capita income, the APQLI, and the EDI, subject to the judgement of the UN on the natural endowment index (agricultural land per capita, exports of minerals as a percentage of total exports, average rainfall, and rainfall availability), exports of petroleum as a percentage of total exports, and official development assistance as a percentage of GNP. Alternatively, a country will qualify if it meets the population and per capita income criterion, and the APQLI or EDI, and is land-locked, is a small country with a population of 1 million or less, suffers from frequent severe climatic risks such as drought, floods and cyclones. Inclusion will be subject to the judgement of the UN on other considerations. The inclusion rule is applied judiciously and a country may still be included in the

list even if it does not meet all the four key criteria but is overwhelmed by three of them. Bangladesh, with a population greater than 75 million, typifies such an exception.

3 Graduation rule

A country is considered no longer eligible for least developed status when it has exceeded the cut-off point on the per capita income criterion relevant at the time the review was carried out and the cut-off point on either the APQLI or the EDI for at least three years. The margins by which the cut-off points need to be exceeded is set at \$100 of per capita income, five points on the APQLI, and three points on the EDI. A country might also be graduated from the list if it exceeded the cut-off points by the margins indicated for both indices, even if the per capita income remained below the cut-off point. On the basis of the above rule, Botswana, with a per capita GDP of \$US 2 795, and APQLI of 55, and an EDI of 19, graduated from the list in December 1994.

4 1994 review

Henceforth, the list of LDCs will be reviewed once every three years, the latest review having been carried out in December 1994. The UN will automatically review all low-income countries, i.e. those countries with an income below the per capita GDP criterion at the time of the review. Thus it would not normally be necessary for countries to request their inclusion in the list.

At the December 1994 Review, Botswana graduated, as planned, and two new countries were added to the list - Angola and Eritrea - producing a net increase of one. There are presently 48 LDCs, of which 30 are in Africa, 13 in Asia and Pacific, 4 in the Arab Region and 1 in the Americas. There were 25 LDCs in the original group in 1971, indicating that the number has virtually doubled in 20 years.

Future growth in the list is likely to depend on three factors: the creation of new nations, the rate at which existing nations on the list grow (or decline) economically and socially, and changes in the list of criteria. It is difficult to forecast these factors with any certainty. However a simple extrapolation of past trends would seem to indicate a growth rate of approximately one new country added to the list every year.

5 1997 review

Under the 1997 review, the cut off points were: GDP per capita > \$US 865, APQLI wither > 52 or EDI > 29. Vanuatu having met these criteria in 1994 and remains well above the threshold for both GDP and APQLI, it had been recommended for immediate graduation in 1997, but at the request of its government it will be retained until 2000, while Cape Verde, Maldives and Samoa are commended for graduation at the time of the next review in 2000 provided that they continue to meet the appropriate criteria at that time Myanmar appeared to meet the criteria for graduation but the CDP considered that the GDP data did not accurately reflect the economic situation in that country and therefore recommended that it be retained in the list for a further review in 2000.

Cameroon met the criteria in part for inclusion in the list of LDCs but for reasons given in the CDP report, it was decided not to recommend it to the UNGA for inclusion.

6 Socio-economic and telecommunication indicators

- a) **Demographic and socio-economic status of the Least Developed Countries.** The LDCs account for some 595 million people, or just over a tenth of the global population, but with a life expectancy of only just over 50 years. This compares with an average for all developing countries of around 60 years. The statistics for infant mortality (deaths per 1000 live births) are also depressingly high with an average of 108 for the LDCs compared with 86 for all developing countries. Some 22 per cent of the inhabitants of the LDCs are resident in urban areas, which is lower than other developing countries. The population of the LDCs is increasing by some 2.7 per cent per year, which is somewhat faster than the average for developing countries as a whole.
- b) **Macro-economic situation in the LDCs.** Cumulatively, they have a Gross Domestic Product of \$US 226 billion, or some 0.7 per cent of the world total. This low percentage is confirmed in the average GDP per capita for this group of countries which stands at \$US 414 per year, or just 7 per cent of the global average of \$US 3 980 per year. The level of growth in GDP at the start of the 1990s has been very disappointing, just 1.2 per cent on average, and at least nine of the countries have seen GDP decline in absolute as well as real terms during this period. The rate of growth in GDP for most countries is below even the growth in the population. With the prices of their exports of goods and services falling (in real terms), most LDCs are now worse off economically than they were 30 years ago.
- c) **Level of economic dependency experienced in these countries.** A key indicator is the level of debt which is as high as 75 per cent of GDP for the group as a whole. Some eight countries, all in sub-Saharan Africa, have levels of debt which are more than twice as high as their national GDP. The cost of servicing this level of debt, let alone paying it off, often exceeds income from taxation and from exports combined. In consequence, there is a general reluctance on the part of foreign investors to put new money into these economies. The level of net foreign investment in 1992 was just \$US 245 million, equivalent to just over 1 per cent of GDP. In some countries, the recent pattern has been one of disinvestment, with a net outflow of foreign investment. However, there are a couple of bright spots, notably in countries which have a high level of tourist investment (e.g. Gambia, Solomon Islands) or in countries which still retain strong links with a former colonial power (e.g. Vanuatu, Guinea).

One of the reasons why the LDCs are failing to attract much foreign direct investment is because of their poor inflation record. No single country, of those for which data is available, has managed to keep annual inflation in single figures since 1987 and in eight of the countries, the level of inflation has exceeded 100 per cent per year.

Abbreviations

GDP	Gross National Product
GNP	Gross Domestic Product
APQLI	Augmented Physical Quality of Life Index
EDI	Economic Diversification Index
UNGA	United Nations General Assembly

ANNEX 2

Results of the questionnaire

- 1 At the WTDC-94 the Buenos Aires Action Plan included, in Chapter III, a Special Programme for the Least Developed Countries.
Does your country support the promulgation of another such a programme, specific to LDCs for the period 1998-2002? (mark one)
- 28** Yes **0** No
- 2 If yes, would you recommend that such a programme (mark one)
- 21** Have its own specific budget
- 7** Utilize part of the BDT's overall budget for its regular technical assistance as done for the period 1994-1998
- 3 If a new programme for LDCs is to be adopted as suggestion in Question one it should give priority action to the following areas (mark only 4)
- 15** Sector restructuring
- 16** planning
- 17** introduction of new technologies
- 14** management
- 24** human resources development
- 2** maintenance
- 14** development of rural telecommunication
- 16** spectrum management
- 0** other (state)
- 4 Would you support the use of ad hoc funds for unforeseen activities as done over the period 1994-1998 (mark one)
- 22** Yes **4** No
- 5 LDCs benefited from a large variety of fellowships during 1994-1998. Please give priority areas for allocation of such fellowships in 1998-2002 (mark 2)
- 13** individual training courses
- 24** group training (workshops/seminars)
- 9** participation in the work of **Study Groups**
- 14** participation in ITU Conferences

6 How did your country find the BDT activities for LDCs in your country? (mark one)

20 very useful

6 quite useful

2 of little or no significance

NOTE - A total of 28 replies were received out of 47 questionnaires sent out.

ANNEX 3

Selected indicators
