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TELECOMMUNICATION DEVELOPMENT BUREAU

ITU-D STUDY GROUPS

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STUDY GROUP 1

SOURCE: TELECOMMUNICATION DEVELOPMENT BUREAU (BDT)

TITLE: DEFINITION OF QUESTIONS

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Please find hereafter the definition of Questions 6/1 to 15/1 for the Study Period 1998-2002.

Q. 6/1 Interconnection

1 Statement of Problem

The key to development of a telecommunication infrastructure and to the promotion of competition generally is the determination of an interconnection framework and interconnection charges. Interconnection is essential for new entrants, as it is the only way to reach customers of existing telecommunication networks. The pricing of interconnection, unbundling the network and the basis for establishing interconnection arrangements are the critical factors affecting the speed with which competition and choice develop in a liberalized telecommunications market. This is the case regardless of the competitive model which is adopted or the Member State's level of economic development.

This Question is directed toward providing details and practical suggestions for implementation of interconnection regimes in an increasingly competitive market for telecommunications services. In fact, as the developing countries open up their telecommunications sector for competition, the incumbent telecommunications operators will be required to provide the necessary communication facilities without discrimination and at fair prices.

Many new issues provoked by these facts did not exist in a monopoly status.

The international telecommunications operators will be keen to enter into these markets, and due to their long experience in competitive markets and negotiation skills, they may put the incumbent operators at a disadvantage while negotiating the interconnection agreement.

Many developing countries are not prepared to face these changes. With the pressure of liberalization, it is becoming crucial that the developing countries have the tools necessary to handle these changes.

Setting interconnection charges, establishing cost accounting systems, defining the scope of interconnection and making sure that interconnection is actually available at any technically feasible point of the network are all practical problems facing ITU Member States.

2 Question or issue proposed for study

The study group should establish a set of best practice guidelines for countries to take into consideration when developing policies, legislation and regulations to address the critically important issues involving interconnection. The study group should build on the work already done for Questions 2/1 and 3/1 for the 1994-1998 study period and other available materials. To establish best practice guidelines, the study group should:

1) Describe the legislative and regulatory framework that would be needed to implement appropriate interconnection arrangements, unbundling, collocation, and interconnection pricing. Identify the technical facilities major suppliers are required to provide in order to offer interconnection to new competitors.

2) Identify the most common approaches for interconnection pricing, cost accounting, unbundling, describing the advantages and disadvantages of each approach thereby taking into account the guiding principles for interconnection pricing, such as cost-orientation[, long-run incremental costing] and transparency.

3) Identify the most common approaches for arriving at interconnection arrangements, including those set by the regulator and those arrived at through commercial negotiations. With regard to commercial negotiations, identify the most common approaches to dispute

resolution procedures, timetables for completion of negotiations, sanctions for failure to comply, likely outcomes if regulatory arbitration or determination is necessary. Take into account the guiding principles for interconnection arrangements, such as non-discrimination, transparency, publication of interconnection charges, availability of cost information.

4) Create a model interconnection agreement.

5) Provide for liaison with ITU-T study groups on key items to be identified, e.g.:

- Numbering plan of ITU-T SG 2 (E.164) with the new facilities (freephone, premium rate services, international shared-cost services), the data country code of ITU-T SG 7 (X.121), the SANC code assignment for Signalling System No. 7 by ITU-T SG 11 (Q.708) and the non-standard services and facilities of ITU-T SG 8 (T.35).
- Number portability as studied by ITU-T SGs 2 and 11. For the international freephone, there is the ITU-T database for assignment.
- The interconnection, the establishment of interfaces, the access to networks, and interworking are being studied by ITU-T SGs 2, 11, 13, and 15 - technical standards have already been developed.

3 Description of Expected Output

The output produced during the study of the question should be divided into two stages. The first stage would be mainly descriptive and would provide an overview of currently existing approaches to interconnection pricing, unbundling and interconnection arrangements. This information would provide background on alternatives for achieving interconnection objectives for government officials and telecommunication operators. This information would also serve as a framework for developing detailed procedures to implement an effective interconnection regime. It could also serve as a stimulus for legislative or regulatory action to address the issues associated with interconnection.

The second stage would focus on practical information that would be directly applicable to regulators, administrators and telecommunication operators at the working level in order to implement and operate an interconnection regime. The information obtained during the first stage would be used to establish best practice guidelines and recommendations for determining interconnection pricing, implementing cost accounting and unbundling requirements, establishing interconnection arrangements either through regulatory action or commercial negotiation, and creating dispute settlement procedures and models of regulatory intervention in those disputes.

4 Required Timing of Expected Output

Because the information gathered for the Question will be very useful for countries introducing competition, it should be disseminated as early as possible and without waiting for a final work product. By the end of the first year of the study period, the first stage of the output should be completed. The second stage should be distributed as soon as practicable after the first stage but not later than the third meeting of the Study Group during the 1998-2002 study period.

5 Proposers/Sponsors of the Question

This Question is a result of the study of Question 2/1 during the study period 1994-1998. There was a consensus that the issue of interconnection is of tremendous importance to all countries, particularly developing countries, and that a study should continue on that particular aspect of Question 2/1. *Further, the ITU World Telecommunication Policy Forum urged ITU Member States*

to share experience in the implementation of WTO commitments and invited the ITU to serve as a depository of information on the experiences of Member States

Contributions from ITU-T Study Group dealing with related issues is required.

6 Sources of Input Required for Carrying Out the Study

The major source of input will be the experiences of those countries that have introduced competition and addressed the question of interconnection. Contributions from Member States and Sector Members will be essential to the successful study of this issue. Interviews, existing reports and surveys should also be used to gather data and information for distillation into a comprehensive set of best practice guidelines for administering interconnection. Materials from regional telecommunication organizations and working groups should also be utilized to avoid duplication of work. Close cooperation with ITU-T and other activities within ITU-D is required and highly important.

7 Target Audience for the Output

a) Indicate expected types of target audience, by noting all relevant points on the matrix which follows

	Developed Countries	**Developing Countries**	**LDC's**
Telecom Policy Makers	Interested	Highly interested because of lack of experience	Highly interested because of lack of experience
Telecom Regulators	Interested and experienced with different models	Highly interested and some countries have immediate need for information	High interest but may need specific models
Service Providers (Operators)	New entrants, regardless of size, extremely interested. Major suppliers cautious and usually beneficiary of status quo	New entrants, regardless of size, extremely interested. Major suppliers cautious and usually beneficiary of status quo	New entrants, regardless of size, extremely interested. Major suppliers cautious and usually beneficiary of status quo
Manufacturers	High interest as will promote development of infrastructure	High interest as will promote development of infrastructure	High interest as will promote development of infrastructure

b) Target Audience - Who specifically will use the output

Based on the foregoing evaluation matrix, a broad range of telecom policy makers, regulators, and service providers from LDC's and developing countries will all be highly interested in the results of this Question. Policy makers and regulators from developed countries may be interested in the compendium. Manufacturers will also have a high interest in the Question since appropriate interconnection measures will promote development of infrastructure.

c) Proposed methods for implementing the results

The study should be carried out and distributed in the traditional manner at the ITU-D Study Group meetings. However, given the importance of this issue, the BDT could also conduct regional seminars and meetings, perhaps in conjunction with regional telecommunication organizations and together with the VAP Programme 1, to disseminate the results of the Question. The results could be published by the ITU for wider distribution.

The participants in the study will learn the experiences of the various practical examples and will be able to study their own cases.

8 Proposed method for handling this Question

Proposed method for handling this Question

Because the issue of interconnection is of such great importance to many countries, the lead study of this Question should be within a study group over a multi-year study period with interim results.

The Questionnaire should be sent to the ITU-D Members seeking information on their existing experience. This Questionnaire could be incorporated in the ITU Annual Regulatory Survey.

The interaction and participation by experts from around the world in this issue will result in a useful product for developing countries. However, some items might be entrusted to focus groups to achieve interim results within an appropriate time-frame.

9 Coordination Requirements of the Study

Because the issue of interconnection is related to other issues being studied by the ITU, coordination will be required within the ITU-D Study Groups and programmes (Valletta Action Plan Programme 1) as well as with the Study Groups from other ITU sectors. In particular, work carried out by ITU-T Study Groups working in the field of numbering plan (Study Groups 2 and 11) and tariff issues (Study Group 3) is to be taken into consideration.

Close coordination will also be required between the BDT and those responsible for this Question. Regional organizations such as CITEL and APEC are also currently considering issues regarding interconnection. Thus coordination with those organizations should be undertaken to reduce duplication of efforts.

Q. 7/1 Universal Access/Service

1 Statement of Problem

One of the greatest challenges for all countries is ensuring that an ever larger proportion of their population has access to affordable telecommunications, which is often called universal access/service. Whether the specific goal is to provide telecommunication access to a particular portion of the population, to achieve certain levels of telecommunication penetration, or to ensure that specific services are provided to a particular group, all telecommunication policy makers must address the universal access/service needs of their countries. For further information see the annex.

2 Question or Issue Proposed for Study

The Study Group should establish a set of best practice guidelines for developing countries to take into consideration when developing policies, legislation, and/or regulations to address the critically important issues involving universal access/service. To efficiently and effectively study the issue of universal access/service, the Study Group should build on the work already done by ITU and in particular work already done for Questions 2/1, 3/1, 4/2, and 6/2 for the 1994-1998 study period of the ITU-D and other available materials, e.g., the 1998 World Telecommunication Development Report. To establish the best practice guidelines, the Study Group shall:

1) Identify the goals, impacts and expected benefits of existing different universal access/service policies, explaining the rationale for making these determinations.

2) Describe the use and the regulatory implications of new technologies and services in order to maximize the benefits that these technologies can provide for the expansion and improvement of telecommunication services.

3) Identify the most common, as well as the most innovative, approaches to achieving universal access/service goals when the private sector is responsible for implementing the telecommunication development initiatives, describing the advantages and disadvantages of each approach.

4) Identify guiding principles for raising, allocating, and administering universal access/service programmes, such as transparency, equitable distribution and access, competitively and technologically neutral allocation, and targeted to users.

5) Describe the legislative and regulatory frameworks that would be needed to implement universal access/service programmes or initiatives.

6) Identify and analyse the relationship that universal access/service policies have on other key telecommunication issues that arise as countries transition to increased competition, such as access charges, interconnection frameworks and agreements, accounting rates, and tariff rebalancing.

3 Description of Expected Output

The output produced during the study of this question should be divided into two stages. The first stage would be mainly descriptive and would provide a review of currently existing universal access/service mechanisms described in tasks 1-4 above. This information would be suitable for providing the necessary background and information on alternatives for universal access/service mechanisms for government officials and telecommunication service providers. This part of the output would focus on casting a framework that could be used to develop detailed procedures to

implement a universal access/service programme. The information contained in the first stage of the output could serve as a stimulus for legislative sectors of government to address the issues associated with providing universal access/service.

The second stage would focus on practical information that would be directly applicable to regulators, administrators, and telecommunication service personnel at the working level in order to implement and operate universal access/service programmes. The information obtained during the first stage of the output would be used during the second stage to establish best practice guidelines and recommendations for regulators, administrators, and telecommunication service providers for implementing universal access/service programmes.

4 Required Timing of Expected Output

Because the information gathered for the study question will be useful for countries introducing or reassessing their universal access/service programmes, it should be disseminated as early as possible and without waiting for a final work product of the question. By the end of the first third of the study period, the first stage of the output should be produced. The second stage should be released as soon as practicable after the first stage but not later than the last meeting of the Study Group during the 1998-2002 study period.

5 Proposers/Sponsors of the Question

This Question is a direct result of the study of Questions 2/1 and 4/2 during the study period 1994-1998. There was consensus that the issue of universal access/service is of tremendous importance to many countries, particularly developing countries, and that study should continue on those particular aspects of Questions 2/1 and 4/2, as well as other related Questions such as 3/1 and 6/2. The Rapporteurs for Question 2/1 and 4/2 proposed the specific question, in addition many Member States and Sector Members have also expressed great support for the continued study of this issue.

6 Sources of Input Required for Carrying Out the Study

An important source of input will be the experiences of those countries that have made the greatest gains in establishing universal access/service concepts, including the use of new technologies, programmes and funds. In addition contributions from Members and Sector Members will be essential to the successful study of this issue. Interviews, existing reports, ITU materials including previous work of Study Group questions, Colloquia, and surveys should also be used to gather data and information for distillation into a comprehensive set of best practice guidelines for administering universal access/service programmes. Materials from regional telecommunication organizations should also be utilized to avoid duplication of work.

7 Target Audience for the Output

a) Indicate expected types of target audience, by noting all relevant points on the matrix which follows

	Developed Countries	**Developing Countries**	**LDC's**
Telecom Policy Makers	Interested	Highly interested because of unmet needs	Highly interested because of critical

			and unmet needs
Telecom Regulators	Interested and experienced with different models	Highly interested and some countries have implemented innovative approaches	High interest but often no legal framework to implement policies
Service Providers (Operators)	Small operators interested Large operators cautious and usually beneficiary of status quo	Private sector, particularly new technologies, highly interested but government monopolies less so	Government monopolies relatively unsuccessful
Manufacturers	Moderate interest	Moderate interest	Significant Interest

b) Target Audience - Who specifically will use the output

Based on the foregoing evaluation matrix, a broad range of telecom policy makers, regulators, and service providers from LDC's and developing countries will all be highly interested in the results of this question. Policy makers and regulators from developed countries may be interested in the compendium of approaches. Manufacturers will be interested in potential equipment and system sales, as well as in technology transfer opportunities, involving the manufacture of equipment and systems in developing countries under mutually beneficial partnership and joint venture arrangements.

c) Proposed methods for implementing the results

The results should be distributed in the traditional manner at the ITU-D Study Group meetings. However, given the importance of this issue, the BDT could also conduct regional seminars and meetings, perhaps in conjunction with regional telecommunication organizations, to disseminate the results of the question. The results could be published by the ITU for wider distribution.

8 Proposed method for handling this Question

a & b) How and Why

Because the issue of universal access/service is of such great importance to all countries, the study of this question should be within a Study Group over a multi-year study period with interim results as indicated above.

9 Coordination Requirements of the Study

Because the issue of universal access/service is closely related to other issues being studied by the ITU, a great amount of coordination will be required within the ITU-D Study Groups as well as the Study Groups from other ITU sectors. Close coordination will also be required between the BDT and those responsible for this question. Regional organizations such as CITEL and APEC are also currently considering issues regarding universal access/service. Thus, coordination with those organizations should be undertaken to reduce duplication of efforts.

Q. 8/1 Establishment of an independent Regulatory Body

1 Statement of Problem

Reform in the telecommunication sector is occurring at an unprecedented rate. Technological developments have created new opportunities for communication and the globalization of the telecommunications market. Consistent with these developments, many countries have begun to examine the structure of their telecommunication sector. In the past five years, many countries have limited the role of monopoly service providers and have begun to introduce liberalization, privatization, and competition in the industry. Many other countries are preparing to engage in such reform in the near future. In a liberalized industry structure, the role of the regulatory body assumes a crucial position to ensure that new entrants can compete fairly with major suppliers.

As part of this process, a central issue is the separation of different functions, namely the operational and regulatory function as well as the ownership and policymaking function. Adopting these distinctions allows the government to demonstrate that its telecommunication sector is regulated in a fair and open decision-making manner.

Regulatory reform and the resulting institutions will reflect the broader environment of the country, and its historical legal, social, political, and economic foundations. The unique national circumstances will influence the method of, and results of, reform in each country. These factors include: the overall level of economic development; the state of development of the national network; the historical framework of the institutions; constitutional provisions; the legal system; the national tradition of public administration; and the roles and diversity of interest groups.

2 Question or Issue Proposed for Study

The Study Group should identify guidelines for countries to take into consideration when developing an independent regulatory body. To efficiently and effectively study the issue of regulatory reform, the Study Group should build on the work already done for Question 2/1 for the 1994-1998 study period and other available materials. To accomplish this, the Study Group shall:

1) Identify methods and criteria that may be used to develop a governmental telecommunication policy and to assess the extent of legislative and regulatory reform necessary to implement a national telecommunication policy.

2) Continue identifying regulatory models for a telecommunication regulatory body, describing the legal, economic, and social factors that may lead to the adoption of one regulatory approach over another.

3) Describe the range of administrative activities that a regulatory body may engage in, such as rulemaking and enforcement, licensing and concessioning, and management of scarce resources.

4) Describe key regulatory issues that a regulatory body may address, such as the provision of service, interconnection, universal access/service, tariffing, quality of service, standardization/type approval, numbering, and competitive safeguards (this may include frequency allocation and assignment as well as broadcasting, however some countries create different bodies for the later issues).

5) Identify criteria that may be used to determine the size of the regulatory body, including staff and appointed members of the decision-making body, taking into account the size of the

industry, the scope of the regulator's mandate, the degree of initiative the regulator will undertake, and the level of resources necessary for implementation.

6) Identify sources of funding for resources, including independent funding mechanisms, as well as a multi-step implementation approach that considers resource limitations and the need to develop regulatory credibility at the outset.

3 Description of Expected Output

The output produced during the study of this Question should be a set of best practice guidelines for countries in transition to more liberalized telecommunications market to establish its independent regulator.

4 Required Timing of Expected Output

Because the information gathered for this Question will be very useful for countries reassessing their regulatory approach or introducing an independent regulator, it should be disseminated as early as possible, preferably by the second Study Group meeting. During the study period, the results should be disseminated widely and early so that countries that are or soon will be establishing independent regulators can reference these materials when creating a regulator.

5 Proposers/Sponsors of the Question

This Question is a result of the study of Question 2/1 during the study period 1994-1998. There was a consensus that the issue of regulatory reform is of tremendous importance to all countries, particularly developing countries, and that a study should continue on that particular aspect of Question 2/1 - the establishment of an independent regulatory body.

6 Sources of Input Required for Carrying Out the Study

An important source of input will be the experiences of those countries that have made the greatest gains in establishing an independent regulatory body. Contributions from Member States and Sector Members will be essential to the successful study of this Question. Interviews, existing reports, ITU materials including previous work of Study Group Questions, Colloquia, and surveys should also be used to gather data and information for distillation into a comprehensive examination of this question. Materials from regional telecommunication organizations should also be utilized to avoid duplication of work.

7 Target Audience for the Output

a) Indicate expected types of target audience, by noting all relevant points on the matrix which follows

	Developed Countries	Developing Countries	LDC's
Telecom Policy Makers	Interested	Highly interested	Highly interested
Telecom Regulators	Interested and experienced with different models	Highly interested and some countries have implemented innovative approaches	Highly interested
Service Providers (Operators)	Small operators interested Large operators cautious and usually beneficiary of status quo	Private sector, particularly new technologies, highly interested but government monopolies less so	Government monopolies cautious and usually beneficiary of status quo
Manufacturers	Moderate interest	Moderate interest	Moderate interest

b) Target Audience - Who specifically will use the output

Based on the foregoing evaluation matrix, a broad range of telecom policy makers, regulators, and service providers from LDC's and developing countries will all be highly interested in the results of this question. Policy makers and regulators from developed countries may be interested in the compendium of approaches. Manufacturers will also have some interest in regulatory reform, for example, with regard to the extent that standardization/type approval is considered.

c) Proposed methods for implementing the results

The results should be distributed in the traditional manner at the ITU-D Study Group meetings. However, given the importance of this issue, the BDT could also conduct regional seminars and meetings, perhaps in conjunction with regional telecommunication organizations, to disseminate the results of the question. The results should be published by the ITU for wider distribution.

8 Proposed method for handling this Question

a & b) How and Why

Because regulatory reform is of such great importance to all countries, the study of this question should be within a Study Group over a multi-year study period with interim results as indicated above. Obtaining the widest possible participation will enhance the study of this question and because the Study Group brings together a diverse group of Member States and Sector Members in a unique setting, it is the best forum to address this issue. The interaction and participation by experts from around the world in this issue will encourage active debate and new ideas from the meetings.

9 Coordination Requirements of the Study

Because regulatory reform is closely related to other Questions being studied by the ITU, a great amount of coordination will be required within the ITU-D Study Groups, programmes as well as the Study Groups from other ITU sectors. Close coordination will also be required between the BDT and those responsible for this question.

Q. 9/1 Impact of the introduction and utilization of new technologies on the regulatory environment of telecommunications

1 Statement of Problem or Situation

New technologies (satellites, optical fibre, intelligent networks, cellular mobile communications, etc.) have brought about a rapid development of new telecommunication products and services to satisfy the increasingly diverse requirements of customers.

In the face of this change, current legislation often does not allow market access to the new suppliers or operators who are better equipped to provide these services than the traditional operators.

The developing countries should in due course have access to information and studies which will enable them to evaluate the regulatory impact of introducing and using new technologies and services in the telecommunication sector.

The first World Telecommunication Development Conference (WTDC-94, Buenos Aires) responded to this problem and adopted Question 3/1 "Impact of the introduction and utilization of new technologies on the commercial and regulatory environment of telecommunications".

This Question was to explore:

> "*What effects might the introduction and utilization of new technologies have on the supply and regulation of telecommunication services?*
>
> *How can a developing country reconcile the utilization of these new technologies in a more competitive commercial environment with the objective of guaranteeing access to basic services at a reasonable cost throughout its territory?*"

with the objective to prepare a report and guidelines by mid-1997.

Taking into consideration the importance of this issue, Study Group 1, convinced of the importance of this Question, decided to propose the following update of Question 3/1 for the next cycle, with more focus on the regulatory aspects.

2 Question or Issue Proposed for Study

Continue to study the effects of introducing and utilizing new technologies on the regulation of telecommunication services.

3 Description of the Expected Output

An updated report by mid-1999 (1/195(Rev.2)) with relevant recommendation(s).

4 Required Timing of the Expected Output

Mid-1999.

5 "Proposers/Sponsors" - Those who requested study of the Question or Issue

Study Group 1 participants.

6 Sources of Input Required, in carrying out the Study

Member States, Sector Members and concerned regional organizations (e.g., relevant papers of the European Commission, etc.).

7 Target Audience for the Output

a) Indicate expected types of target audience, by noting all relevant points on the matrix which follows:

	Developed countries	**Developing countries**	**LDCs**
Telecom policy makers	*	*	*
Telecom regulators	*	*	*
Service providers (operators)	*	*	*

c) Proposed Methods for the Implementation of the Results:

Policy makers and Regulators will take that into consideration in adapting and formulating national policies/regulations to foster the introduction of the application of these technologies to the benefit of users.

8 Proposed Method of Handling this Question or Issue

a) How? Indicate the suggested handling of the proposed Question or Issue

1) Within a Study Group

– Question (over a multi-year study period) ÿ X

Why? Explain why you selected the alternative under a) above

This is a regulatory Question which requires good understanding among all Regulators and Operators.

9 Coordination Requirements of the Study

– Study Group 1 - Questions 1/1, and 2/1, if continued. Study Group 2 - Question 1 /2, if continued.

– Regional organizations, as appropriate - European Commission, CITEL, CTU, APT, ASEAN, PATU, PTC, etc.

– Relevant work in progress in the other Sectors of the ITU.

Q. 10/1 Regulatory impacts of the phenomenon of convergence within the telecommunications, broadcasting, information technology and content sectors

1 Statement of the problem

The telecommunications, broadcasting, information technology and content sectors are undergoing increasing convergence, as evidenced by the Internet, among other examples, which raises a number of important policy and regulatory issues. The issue of convergence is of great interest to both developed and developing countries.

- Until now, these sectors have come under different regulatory regimes. The challenge now is how to regulate hitherto separate industries and sectors because increasing convergence makes it increasingly difficult to determine under what regime convergent industries should be regulated, if at all, and if so, how best to do so.
- Global, interconnected, vertically and/or horizontally integrated industries as manifestations of a high degree of convergence call into question whether any single nation state in developed and developing countries can adequately regulate the new players.
- While competition may exist between convergent industry players in the most advanced industrialised countries, the mega-corporations (vertically and/or horizontally integrated) and international alliances may completely overwhelm industries and network capacity - even as it can be acknowledged that the convergent industries offer services which create many new opportunities for even those in the less developed countries, who have not previously had access to such a rich array of information, information-processing and communications capabilities.
- The right to communicate issue leads to the right to access to network and applications using networks. A good example is the issue of the Internet.
- Liability.
- Copyright and intellectual property rights.
- Questions of treatment in situations where some industries are regulated (e.g., telecoms) while others have been subject to little or no regulatory oversight (the Internet), yet both provide effectively the same or functionally similar services.
- Interconnection and payments by one service provider or infrastructure provider to another.
- Network capacity.
- Regulatory jurisdiction - e.g., where a service is supplied from one country but provided in another.
- Fraud and security.
- The blurring of the distinction between content, service provision and infrastructure.
- Etc.

It is important to emphasize that while convergence may create many regulatory conundrums, from the user's point of view, convergence yields hitherto undreamed-of opportunities and instant access to a wealth of information, entertainment and communication at relatively low and declining cost. While convergence may be awkward for policy makers and regulators, the benefits to users are legion.

2 Question

Examine the issues associated with convergence to determine what actions countries may take to optimise their regulatory regimes in order to deal adequately with these issues.

3 Expected output

A report with recommendations.

4 Timing of the expected output

First interim report in two years. Final report for the last Study Group 1 meeting before the next WTDC.

5 Proposers and sponsors

Study Group 1. The Rapporteur's Group should comprise, in the first instance, a core group of representatives from the Study Group who are willing and able to devote some serious time in reviewing existing studies, the trade press, etc., and to extract from such material the key points where regulatory impacts or consequences are evident. Preparation and distribution of the interim report may stimulate and/or warrant additional inputs to or representation in the Rapporteur's Group.

6 Sources of input required in carrying out the study

- KPMG studies commissioned by the European Commission.
- The EC's forthcoming Green Paper on Convergence.
- Inputs from Sector members.
- Web and trade press searches.
- Studies prepared for other organizations, e.g., 1996 ITU Regulatory Colloquium on Convergence, the EC Study on Convergence (1996), Current studies by WIPO on the economics of property rights, the forthcoming Survey of the CTU member states, UNESCO, etc.

7 Target audience

a) Types of target audience

	Developed countries	**Developing Countries**	**LDCs**
Telecom policy makers	*	*	*
Telecom regulators	*	*	*
Sector members	*	*	*

b) Who will use the output?

The ITU and telecom policy makers and regulators around the world.

c) Proposed methods for the implementation of the results

Dissemination of the two reports (interim and final) to ITU-D members and sector members. Administrations may wish to consider whether the results of the study are such that some optimization of their regulatory regimes would be appropriate.

8 Proposed method for handling this Question

1 Within a Study Group	[✓]
– Question (over a multi-year study period)	[ ]
– Focus Group (12 months duration maximum)	[ ]
2 Within a regular BDT activity	
– Programmes	[ ]
– Projects	[ ]
– Expert consultants	[ ]
3 In other ways - describe (e.g., regional, within other organizations, jointly with other organizations, etc.)	[✓]

A study on the phenomenon of convergence should be tightly focused on key issues, especially in regard to the interim report. A review of existing reports and studies should form the basis for identifying the key regulatory impacts and subsequent consideration by Study Group 1 of what recommendations it might wish to make to ITU-D members. While participation in the study of this Question should be open to any member, it may be useful to see if the study could be supported by university researchers and/or regional organizations such as APT, CITEL, the European Commission, etc. In particular, it would be useful to see if experts from the US FCC, NTIA and European Commission would be willing to participate in the Rapporteur's Group.

It would be useful to have the draft report-in-progress available on the ITU-D's Web site so that anyone on the World Wide Web could provide comments and/or inputs to the study.

9 Coordination requirements of the Study

None.

10 Other relevant information

None.

Q. 11/1 Factors to create a climate favourable to investment

1. Statement of problem

The implementation of modern telecommunication infrastructures and the offering of new services in developing countries requires considerable investment, the volume of which usually exceeds the financing capacities of the concerned national administrations or operators.

New sources of investment financing are often needed to ensure the development and modernization of telecommunication infrastructures in developing countries over a reasonable period of time.

Given this situation, the concerned administrations or operators must gain an overall view of the different possibilities offered in financing policies and techniques, as well as of factors which can create a climate favourable to investment, taking into account the current process of liberalization and globalization in the telecommunication sector.

2. Question

To what financing policies, methods and techniques might administrations or operators in developing countries have recourse in order to secure the investment necessary for developing their telecommunication infrastructures ?

What conditions must be observed for obtaining certain types of finance ?

What factors (national legislation, structural aspects, regulatory framework, price control policy, etc.) might help to create a climate favourable to investment?

Study Group 1, in close liaison with the BDT, should study the possibility of contributing to the emergence, in developing countries where it is difficult to make telecommunications profitable, of regional or subregional telecommunication markets with sufficient critical mass to enable returns on infrastructure investment on a larger scale than on the local level.

It would be useful to encourage the harmonization of the rules governing national and foreign investment, and the implementation of appropriate regulations at regional and subregional level.

3. Expected results

Preparation of a report and guidelines by mid-2000.

4. Liaison

In order to study this Question, contacts should be established inter alia with the financing agencies, development banks and other international, intergovernmental or regional organizations concerned with the financing of development projects.

Q. 12/1 Tariff policies, tariff models and methods of determining the costs of national telecommunication services

1 Statement of the problem or situation

The level and structure of telecommunication tariffs have an important role to play in at least creating internally generated funds which in most cases is ploughed back towards the development programme and also used in meeting recurrent expenditure requirements of telecommunication entities. The tariffs can also promote efficient use of the network and services, enhance universal service provision and generate multiplier effects in the rest of the economy as telecommunications is both a traded service and facilitator of economic development. The role of tariffs would be enhanced by various countries putting into place appropriate and suitable telecommunication tariffs.

The trends and development in the telecommunications environment have important repercussions for telecommunication tariffs. In fact, the gradual opening up to competition of the telecommunication sector will oblige incumbent operators to develop tariff policies which take greater account of the actual costs of providing telecommunication services at both the national and international levels.

The pressure for efficient and cost-orientated tariffing has become a prerequisite for enhancing the role of telecommunication tariffs on a sustainable basis.

Most developing countries lack adequate experience and skills in formulating efficient and cost-orientated tariffing to enable them to benefit fully from telecommunication tariff policies, strategies and practices.

Developing countries need assistance in formulating efficient and cost-orientated tariff levels and structure for terrestrial-, space- and submarine-based telecommunication services including accounting and settlement rates, transit fees and interconnection charges.

They will need methods and tools for determining and calculating costs, in the context of the stage-by-stage implementation of analytical accounting systems similar to those developed by operators in the industrialized countries.

The use of these tools should be supplemented by an analysis of tariff models in order to assess the conditions in which implementation of a tariff restructuring and rebalancing policy might be both desirable and feasible

2 Question or issue proposed for study

Having regard to the outcome of the second ITU World Telecommunication Policy Forum (Geneva, 16-18 March) and to the work of ITU-T Study Group 3 and its Regional Tariff Groups, the study group should:

1) Consider the general evolution of tariff structures in countries which have implemented a policy for rebalancing their telecommunication tariffs, following a preliminary analysis to be carried out by the BDT on the subject.

2) Identify the principal methods of determining and calculating the costs of telecommunication services, taking into account work already carried out by ITU-T Regional Tariff Groups.

3) Identify, collate and/or develop suitable costing and tariffing models for applying cost-oriented telecommunication tariffs in developing countries, taking into account the evolution

of the regulatory framework and certain economic, financial and social constraints, and ensuring the provision of universal services.

4) Develop necessary policies and regulations required for ensuring cost-oriented tariffs for national telecommunication services.

5) Prepare appropriate guidelines and recommendations in implementing cost-oriented tariffing of various telecommunication services.

3 Expected output

1) Policy and regulation document on efficient and cost-orientated tariffing of telecommunication services.

2) Guidelines and recommendations on efficiency and costing considerations for formulating levels and structure of telecommunication tariffs.

3) Tariffing and costing models for use in formulating efficient and cost-orientated telecommunication tariff levels and structure.

4) Comparative tariffing and costing models for a developed country and a developing country.

4 Required timing of the expected output

End 1999 or middle 2000.

5 Proposers/sponsors of the question or issue

This Question is one of the results of the Study Question 4/1 during the study period 1994-1998, combined with a proposal from Kenya.

6 Sources of inputs required in carrying out the study

– Member States.

– Sector Members.

– Regional Organizations.

– ITU Sectors.

7 Target audience for the output

	Developed countries	**Developing countries**	**LDCs**
Telecom policy makers	*	*	*
Telecom regulators	*	*	*
Service providers (operators)	*	*	*
Manufacturers	*	*	*

The output will be particularly useful for service providers, telecom regulators and telecom policy makers.

The implementation of the results should be through a number of channels including information dissemination, seminars, workshops, conferences, etc.

8 Proposed method of handling this Question

Within a study group for items 1), 2), 4) and 5); Expert Group within BDT activities for item 3).

9 Liaison and coordination

To secure the required coordination, there should be close liaison with ITU-T Study Group 3 and its regional tariff groups, as well as with other international or regional organizations concerned with the study of problems relating to tariffs for telecommunication services.

Q. 13/1 Promotion of infrastructure and use of the Internet in developing countries

1 Statement of situation

Currently referred to as the "network of networks, "the Internet is widely considered to be a prototype of the Global Information Infrastructure (GII) or Global Information Society (GIS) of the not-so-distant future. The national and sub-national networks that comprise the Internet are considered by many to be the present and future models for National Information Infrastructures (NIIs). The technical, policy, economic, and societal challenges posed by the Internet and the global connectivity it facilitates reflect the challenges and opportunities inherent in creating the global village. For this reason, multilateral organizations like the ITU will continue to carefully consider Internet issues as they mediate and coordinate multinational issues affecting telecommunications.

While ITU statistics indicate that the Internet has sustained annual growth rates in excess of 100% over the last ten years, approximately 97% of Internet users are in the high-income countries which account for just 15% of the world's population. As of January 1997, Africa had 0.6% of the Internet hosts in existence; Latin America and the Caribbean, 1.0%; and Asia, 6.3%. The ITU has estimated that among low income countries only 17 persons out of every 1 million have Internet access. Given the well-known benefits of access to information and telecommunications development, it becomes clear that if the prospect of a global village is ever to be truly realized, increased participation by developing countries is crucial. The ultimate object of studying this issue, then, will be to produce and facilitate the creation of first-class information citizens in developing countries - providers as well as consumers of information - via bandwidth-rich networks capable of handling advanced digital applications.

A key challenge for developing countries in the Information Age will be to build the infrastructure necessary to capture the full social and economic benefits of the Internet. To date, such efforts have been hampered by the lack of underlying infrastructure and human resources. The ITU-D can help foster the development of the Internet in developing countries by helping to create a pro-competitive, policy environment that attracts private investment and results in low user costs. In cooperation with other international organizations and the private sector, the ITU may also help developing countries build capacity for technical expertise by training personnel in relevant information technology.

Certain unique characteristics of the Internet that account for its rapid evolution may well be instructive for infrastructure development generally. In particular, its freely distributed, standardized protocols, packet-switched, digital architecture, interoperability of diverse networks, decentralized administration, and extensive coordination among interested parties, may be most relevant. Developing countries looking for innovative ways to build their network may find that some of these characteristics can inform their decisions on infrastructure deployment. More importantly, the development of a network suitable for Internet service will extend existing infrastructure, thus tangibly contributing to nationally-defined universal service aims. Moreover, the Internet holds the promise of making access to information widely available on a profound scale, furthering economic and social benefits. Telecommunications and access to information have proven to be key determinants of international competitiveness. The correlation between information, communication, and economic growth is well known.

The Internet is providing new opportunities for distance learning, telemedicine, and electronic commerce that could particularly benefit citizens of developing countries. Through the Internet, children are able to access the digitized contents of libraries around the world. Schools are able to expand their course offerings by sharing their instructors over the Internet. In the health field,

telemedicine allows medical specialists to bring their expertise to patients around the world. Rural para-professionals equipped with an Internet link can consult medical databases remotely.

The Internet is also a low-cost gateway to the global economy. As the ITU noted in its World Telecommunication Development Report for 1996, "the beauty of commerce over the Internet is that it links millions of potential buyers and sellers around the world regardless of geographical and temporal boundaries." Small, medium, and large businesses stand to benefit from much-lowered transaction costs and will have access to national, regional, and global markets. This will benefit business users and consumers alike.

The potential benefits to agriculture are also great. Through the Internet, farmers can determine market prices as well as locate and communicate with buyers worldwide at a very low cost. In a global market, access to timely market information is crucial in getting the best price for goods. Such information allows farmers to make informed decisions about the type and amount of crops they should plant for the coming season. The Internet also gives farmers access to up-to-date information on crop production, disease prevention and marketing information. Numerous agricultural research institutes maintain World Wide Web sites containing extensive information on agricultural production and related topics.

Developing countries stand to benefit from deployment of the Internet both in network build-out and in the economic and social development that naturally occurs with greater access to information. A blueprint or template describing the best methods to achieve Internet development would increase participation by developing countries in this powerful medium for information distribution, and help secure their place in the emerging GII.

The explosive development of Internet in recent years is causing new problems when it comes to establishing management models and charging worldwide traffic. The present model, developed for voice telephony, is absolutely inadequate for the new traffic generated by Internet.

Most international traffic generated by communications through Internet shows a great imbalance in cases where one end of the communication is a country with a large number of Internet Service Providers.

The big flow difference in both directions conditions the distribution of revenues generated by this traffic, since it allows operators and providers, who are mainly information generators, to impose their conditions on countries who mainly request information.

This balance of relations means that it is precisely the less developed countries that lose out and end up financing the more economically-developed countries.

On the other hand, the shortage of content and information providers in less developed countries causes the requests for information to emigrate to developed countries; thus the promotion of local and regional information providers would redress this imbalance to some extent.

2 Issue proposed for study

This question is directed toward providing practical suggestions for increasing Internet infrastructure build-out and use. In particular, it focuses on how to create a capital-attracting, pro-competitive policy environment that will foster infrastructure build-out, as well as the policy environment suited to best foster Internet development. This question is also geared toward developing human capacity in technical expertise related to the Internet.

The study group would:

1) develop a set a guidelines for government officials to use in creating a policy environment that fosters development of Internet infrastructure;

2) identify the technological options available to achieve Internet build-out, and prepare a technology-neutral guide to options for Internet build-out;

3) determine how best to build human capacity for technical expertise in the private sector and among developing country officials;

4) develop the criteria and principles of local and regional traffic concentration and economic implications of the Internet, as well as its possible impact on network traffic;

5) suggest mechanisms to expand and develop local and regional providers of content and information.

Among the issues to be examined are:

- all communications infrastructure, including degree of digitization, number of Internet host computers, number of personal computers;
- teledensity;
- plans for network build-out;
- universal service goals;
- the regulatory environment i.e. policies regarding liberalization, privatization, competition, interconnection and pricing policies, Internet technology and service, access to information, Internet service provider licensing policies, taxes and customs duties on information technology.

3 Description of expected output

The output produced during this study should be divided into three parts that correspond to the three issues proposed above for study: a best practices guide to creating an Internet-friendly policy environment; a technology-neutral guide on Internet build-out options; and a strategy and work plan for building capacity in technical expertise among private sector and government officials in the developing world.

Based on the best practices recommendations, a given country could gauge its "Internet readiness" and identify which aspects of its sector need modifying or restructuring in order to facilitate Internet development. "Internet friendly zones" could be identified so that countries most ready for Internet deployment could be linked with members of the private sector prepared to assist in this development. In addition, strategies for regional approaches could be identified and facilitated.

The output of the proposed study should be:

a) Criteria to guide relations between countries and operators involved in each communication, so that the traffic can be balanced or compensations can be foreseen to avoid the situation where ISPs of developed countries are being financed by Internet users from less developed countries.

b) Management and routing criteria of IP traffic that are not disadvantageous to developing countries.

c) Principles of reasonable distribution of the revenues from Internet traffic.

d) Mechanisms to expand and develop local and regional generators of content and information.

4 Required timing of the expected output

Because of the dynamic nature of Internet developments and the immediate need to address access shortfalls in the developing world, information gathered for the study should be disseminated without waiting for a final product. Information should be made available at a special Web site as the study group completes discrete segments of its work.

- Develop and distribute survey questions within 2 months of the beginning of the study period.
- Obtain results within 4 months of the beginning of the study period; post survey results on the World Wide Web as received.
- Release a preliminary report based on survey results describing the best policy environment for Internet development within 6 months.
- Release the final report containing recommendations on best practices and "Internet-friendly zones" within 10 months from the beginning of the study period.
- Receive contributions on technological options for Internet development and relevant training available within 4 months of the beginning of the study period.
- Post technology-neutral descriptions on the World Wide Web within 6 months of the beginning of the study period.
- Release final report on technology options within 10 months of the beginning of the study period.
- Compile a list of the training resources made available by the private sector, international organizations and elsewhere for government and private sector members. Post on the Web site within 6 months of the beginning of the study period.

5 Proposers/Sponsors requesting study of the issue

Many countries in the Asia-Pacific region expressed an interest in exploring Internet issues to assist them in understanding the implications of the Internet on their regulatory regimes and to help them formulate workable policy regarding the Internet. In response, the ITU plans to organize an electronic discussion forum to consider Internet issues. The United States suggests that an additional component be included in the ITU's study of these issues - the lessons learned and impact that the Internet will have on infrastructure development.

In addition, this question builds on the work undertaken under the Buenos Aires Action Plan, specifically Programme 12 (Development of Telematics and Computer Networks) and WTDC-94 Recommendation 1 (Applications to Health and Other Social Services).

The study of this Question is also requested by Telefónica de España.

6 Sources of input required for carrying out the study

The study of this question requires knowledge of Internet traffic distribution flows between countries involved in such communications.

This question provides an opportunity for substantial participation by the private sector, not only in contributing information on technology options and private sector sources of training available for Internet development, but to share their perspective on the best policy or regulatory environment for Internet development.

By identifying countries that are most ready for Internet development and linking them with private sector members prepared to assist such countries in both infrastructure development and sustainable human resource capacity building through appropriate training, this endeavor may assist the ITU in its partnership initiatives.

Input will be needed from administrations, the private sector, and PTTs.

Relations and agreements between operators and providers of Internet services should be analysed.

Moreover, the tariff policies of Internet circuits used should be taken into account.

ITU telecommunications indicators; other existing reports from the ITU and other international organizations like the OECD, colloquia, interviews, and materials from regional telecommunications organizations would be used where available.

7 Target audience for the output

a) Matrix

	Developed countries	**Developing countries**	**LDCs**
Telecom policy-makers	XX	XX	XX
Telecom regulators	XX	XX	XX
Service providers	XX	XX	XX
Manufacturers	XX		

b) Target audience - who specifically will use the output

ITU membership, the private sector, developing and developed country administrations, national policy-makers from around the world, global policy makers, regional telecommunications organizations, the international business community, the international donor community, the academic community, NGOs interested in sustainable development particularly through telecommunications, the Internet Society, ITU staff.

Besides the above-mentioned categories, this output may be useful to those study groups of the Standardization Sector of ITU involved in management, routing, regional traffic, charging, etc. when drawing their conclusions.

8 Method proposed for handling this issue

Two surveys would be sent to the ITU membership; one to Administrations seeking: a) information on their existing policies etc., as described above in section 2; and b) asking that they identify their training needs associated with Internet service and facilities.

In developing the recommendations of best policy practices, particular attention would be given to those countries having a high degree of Internet penetration or high Internet growth rates.

A second survey would be sent to private sector members, seeking: a) their perspective on the optimal policy environment for Internet development; b) information on various technological

options for providing Internet services; and c) asking that they identify training offered by their company that would be relevant to Internet service or network deployment.

A project group or task team would be responsible for directly contacting non-ITU organizations in order to determine what relevant training opportunities they make available to developing countries. The project team or Task Force could act in concert with BDT staff.

9 Coordination requirements of the study

The project team should coordinate with ITU-D Study Group 2 Question 3/1 on network development and with the Telecommunication Standardization Sector study question on the GII (ITU-T SG 13).

Q. 14/1 The role of telecommunications in social and cultural development, including the protection and promotion of indigenous culture and identity.

1 Question for study

The role of telecommunications in social and cultural development, including the protection and promotion of indigenous culture and identity.

2 Statement of the situation

The development of telemedicine and distance learning facilities are already recognized as providing significant social benefits. In a similar way access to and participation in improved telecommunications facilities can provide significant benefits in the cultural development of a country. This is particularly so when indigenous people are not the majority culture of a country.

3 Question or Issue for study

What are the barriers to access telecommunications systems and facilities by indigenous peoples.

4 Description of output expected

Identification of any existing barriers, together with a recognition that policies and development activities will need to take account of any barriers.

5 Timing

Study period 1998-2002.

6 Project sponsors

WTDC2-Malta.

7 Sources of input

Member States, NGOs and other organizations representing indigenous peoples, UNESCO.

8 Target audience

Policy-makers, telecom regulators, national planning authorities, wherever cultural development of indigenous peoples are being considered.

9 Methods of handling question

Within study groups - over study periods and within all regular BDT activity.

10 Coordination

With regular ITU-D studies, other study group questions and regional organizations.

Q. 15/1 Technology transfer and informatization

1 The predecessor Question on industrialization and technology transfer culminated in clear elements of need for developing countries:

- a listing of basic elements as guidelines for developing countries in engaging in technology transfer;
- lessons of reference to be drawn from actual selected developing countries doing successful technology transfer e.g., Brazil, China, India, etc. which can be useful to other developing countries.

The new theme proposed addresses the major telecom area where technology transfer is taking place - information technology (e.g. software development) - and includes the processes of informatization, now taking place in developing countries, arising from the telematics industry, social economic and technology issues.

It raises the further issue of property rights - procedures, licences, issues of licences, fees and ownership of content.

A major driver today is the trade negotiations under the WTO, schedules to be established in the year 2000.

The study groups activity can elicit information and develop issues which may be helpful to developing countries preparing for the year 2000 negotiations.

2 Question proposed

Technology transfer and informatization

Tasks

- Identify examples and experiences of technology, transfer relating to the IT industry.
- Select from country studies and data examples of how informatics is leading or not leading to technology transfer.
- Assess trends in the software industry, as they effect technology transfer in developing countries.
- Assess the management and utilization of it, as they are transferred to countries.

Expected outputs

1) Identify all technological challenges which developing countries need to incorporate in their telecom planning.
2) Refection on the informatization sectors and their implications for developing countries.
3) Provide information related to intellectual property right issues.
4) Developing guidelines for developing countries.
5) Recommending actions on proposals for technology transfer.
6) The output is expected in four phases one should be ready early in the year 2000.

Country studies and cases will be pursued over the full four-year period.

Sources of input

- UN specialized agencies : ILO, UNESCO, WIPO, UNCTAD, WTO, UNDP, etc.
- Research institution in firms and laboratories.

Target audience	Developed countries	Developing countries	LDC
Telecom policy-makers		X	X
Telecom regulators		X	X
Service operators	X	X	X
Manufacturers	X	X	X

Method of handling the Question

Study group activity.

Coordination requirements of the study

- rapporteur;
- associate rapporteurs;
- linkages with appropriate research institutions.

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