Seminar on the economic and financial aspects of telecommunications and Meeting of the Regional Group for Latin America and Caribbean (SG3RG-LAC)
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Final report of the seminar

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1. Introduction

The Seminar on the Economic and Financial Aspects of Telecommunications, organized by the Regulatory and Market Environment (RME) unit within the framework of implementation of BDT's Action Plan, was held in conjunction with the meeting of ITU-T's Study Group 3 Regional Group for Latin America and the Caribbean (SG3RG-LAC), in Asunción, at the kind invitation of the National Telecommunications Commission (CONATEL). The seminar was followed on 14 and 15 March 2012 by the regional meeting of SG3RG-LAC. The events were attended by 60 delegates from 12 countries of Latin America and the Caribbean.

The opening was attended by Dr Jorge Seall Sasiain, President of CONATEL, who noted that, within the framework of the national and international sector regulatory strategies and mandates that motivate all concerned to strive for standards of justice, rationality and quality of service, the present meeting was concerned with forging ahead with the construction and consolidation of a consensus agenda focusing on commonly-agreed objectives. Within that context, the National Telecommunications Commission performed the key governmental function of telecommunication regulatory body, with a broad mandate covering telecommunication services, broadcasting and administration of the radio-frequency spectrum. As such, it bore major responsibilities both in the regulatory sphere and in terms of promoting the development of that vital sector of the economy. He then went on to note the significance of the present event, which, in today's globalized world, where telecommunications were a tool for technological development and a key component in the household economy, it was necessary to analyse the impact of costs and tariffs in the interests of achieving wider connectivity and accessibility to ICTs. Ms Carmen Prado-Wagner, representing ITU, took the opportunity to thank CONATEL for having agreed to host the events and for all the support given in order to provide such excellent conditions. She pointed out that such events served as an excellent platform for exchanging ideas and experiences on key issues related to regulation and the economic and financial aspects of telecommunications and ICTs. Finally, Mr Facundo Fernández Begni, Chairman of RG-LAC, stressed what an honour it was to be meeting again, in a context of dialogue, with representatives from Latin America and the Caribbean. He thanked the authorities of the Administration of Paraguay, especially CONATEL and its entire team, for having accepted the offer of ITU and the Chairman to host both the seminar and the RG-LAC meeting. Mr Luis Fleitas, Planning and Development Manager with CONATEL, was appointed Chairman of the Seminar.

2. Outcomes

The agenda of the seminar was drawn up in coordination with the RG-LAC management team. The agenda items focused on the activities and objectives of the component of Programme 3 "Enabling environment" relating to economics and finance, including costs and tariffs, and on the work of ITU-T Study Group 3, specifically in relation to SG3 RG-LAC. The results of each session are briefly summarized below.

Session 1: Tariff policy trends within the region
Carmen Prado-Wagner (ITU/BDT)

This presentation looked at the statistical results of ITU surveys with respect to regulation, tariff policies and ICT statistics.

It focused on aspects related to global and regional broadband penetration, service prices at the user level and the regulation of retail and wholesale telecommunication service tariffs.

Some of the results showed cost modelling for determining cost-based or cost-oriented tariffs to be a widely used methodology both globally and in the LAC region. This information is accessible via ITU's ICTeye database.

Session 2: Tariff regulation: pricing in a converged environment
Antonio García Zaballos

In this presentation, the focus was on general market trends with respect to the revenue derived from traditional services in a context of ever-shorter product life cycles and the resulting impetus for innovation and creation of applications in the ICT sector. The speaker briefly described the key aspects of convergence, especially technological, as seen in the convergence of telephone equipment, services and networks, and how that was resulting in market convergence. Turning to the alternative regulation of tariffs, he presented the trends and the methods applied within the region, referring also to the case of Europe. He concluded by observing that the availability of cost models was key to having at least an understanding of what the costs of termination really were. In some cases, regulatory bodies, as had happened in the context of the European Union, had designed and implemented a particular glide path for the setting of retail and wholesale price caps throughout the regulatory period. In that regard, having a proper costing model, be it bottom-up or top-down, would be key to at least obtaining a proxy of the actual costs and would facilitate the determination of a price cap.

Session 3: Interconnection: cost modelling and calculation
Antonio García Zaballos

The main trends and challenges in the Americas Region included low penetration of fixed telephony, mobile penetration at 100 per cent, differing sociodemographic and economic conditions, destructive innovation due to frequent technological change, and the existence of a gap between the mobile penetration rate and mobile broadband penetration, which undoubtedly represented an opportunity for market growth.

The speaker explained the regulatory situation of NGNs, which were facing differing evolutions owing to traditional remedies and strategic regulation, which had to take account of the relationship between services and networks.

The main challenges for the cost modelling of interconnection services included: definition of spectrum policy, implying more efficient spectrum use as well as higher telecom service penetration (refarming, digital dividend); definition of regulatory policy that incentivized investment and shareholder return (risk remuneration depending on the risk assumed); access network transformation, substituting traditional networks for broadband networks; consideration in the market analysis of geographic segmentation, network deployment and operators with significant market power; and, finally, new commercial and pricing policies, based on capacity and different kinds of user devices (intelligent telephones, tablets, etc.). The conclusions included the observations that a new investment cycle was ushering in new models such as real options and that NGN investments were opening up discussion as to remuneration of the risk assumed by operators to deploy the network.

Session 4: Individual country and organization experiences within the region

- **Brazil - Helio Mauricio da Fonseca, National Telecommunications Agency (Anatel)**

The speaker gave a brief historical overview of the situation of Anatel with respect to its goals for the establishment of a cost-modelling project to determine cost-based tariffs. The main activities under that project comprised the following phases: data validation, including the gathering of operator information, reviewing the quality of the information and validating the data. Work would then begin on elaboration of a bottom-up model, followed by implementation of a top-down model to determine wholesale and leased-line tariffs. The project was being implemented in coordination with ITU. It was important to have a well-rounded team that included economists, technical, financial and IT engineers and marketing and legal experts. Cost modelling was a complex process calling for a series of interrelated activities and accompanying regulatory measures, as well as for operator participation and commitment.

- **Costa Rica – Deryhan Muñoz, Superintendency of Telecommunications (SUTEL)**

In her presentation on Costa Rica's experience with telecommunication sector price and tariff regulation, the speaker gave a historical overview of the country's tariff situation, pointing out that, prior to liberalization of the telecommunication sector, the body responsible for setting all telecommunication service prices and charges had been the Public Services Regulatory Authority, that function having now been taken over by the Superintendency of Telecommunications (SUTEL). Prices were set using the rate of capital return methodology. She explained very clearly the process of market liberalization that was currently taking place within the country, a process that had begun with the CAFTA (Central America Free Trade Agreement) negotiations. The tariffs that were currently regulated in Costa Rica were interconnection tariffs and end-user tariffs. Wholesale or interconnection tariffs were calculated using a cost-oriented LRIC bottom-up methodology, defined by SUTEL, on the understanding that they were freely established between operators, with SUTEL intervening in the event of there being no agreement between operators. With respect to end-user tariffs, these were set by SUTEL pending the declaration of effective competition within the market for a given service, also using cost orientation with price caps based on LRICs. It was important to point out that tariff-setting could be at the request of the operator or decided by SUTEL in response to changes in market conditions. The regulations stipulated the steps to be followed when calculating end-user tariffs, based on the principle of cost-orientation. Regarding the ultimate challenges, those were: in the short term, to estimate new end-user tariffs; in the medium term, to optimize the process for estimating interconnection charges; and, in the long-term, to follow through on the market dynamics with a view to declaring deserving markets as being competitive. Operators had not been consulted on the methodology, the regulator having simply analysed the methodologies and imposed its decision on the operators. There was currently very close cooperation with the incumbent operator with respect, for example, to definition of the WACC in regard to certain service costs. Other operators were consulted only on account of their new infrastructures.

- **Trinidad & Tobago, Cynthia Reddock-Downes, Telecommunications Authority of Trinidad and Tobago (TATT)**

In her presentation on the implementation of a long-run average incremental cost (LRAIC) model in Trinidad and Tobago, the speaker provided a general overview of the main challenges that Trinidad and Tobago had faced during the LRAIC modelling process, highlighting some of the factors having led to its completion. With a population of 1.3 million, Trinidad and Tobago had a mobile penetration rate of 137.2 and a fixed Internet penetration rate of 14.6 in terms of population. Regular updates of the current cost accounting (CCA) models and of the LRAIC model were being planned for the future in the interests of ensuring that the results of the models were in line with latest market developments. The current modelling process was based on CCA LRAIC, top-down. The inclusion of new concessionaires in future cost estimates was also being considered. The results of the cost modelling would be discussed with operators

and concessionaires. TATT held a copyright on the model, limiting its distribution to operators. However, operators had access to certain macros and information from the model, without having the model itself.

- **Mexico - Lucio Mario Rendón Ortiz, Federal Telecommunications Commission**

In his presentation entitled "Interconnection tariffs and cost models – the experience of Mexico", the speaker briefly described the background of tariff regulation in Mexico, explaining that COFETEL had set efficient interconnection tariffs with a view to avoiding a situation whereby access to essential resources became an entry barrier for all operators, and to providing operators with sufficient incentives to maintain and upgrade their infrastructure. The cost model for mobile and fixed network interconnection services was based on a bottom-up model. In that regard, with respect to interconnection tariffs applicable to the incumbent operator, COFETEL, in accordance with the agreements signed with the World Trade Organization, had set interconnection tariffs based solely on the results of the cost models applied since 2002.

In 2010, the Analysys consultancy firm had developed for COFETEL a cost model for the NGN fixed termination service. That model had been used to resolve interconnection disputes in 2011 with the incumbent operator, when a tariff of MX$ 0.03951 (USD 0.0032) had been set.

The speaker described the regulatory provisions, in which it was established that the interconnection tariffs applicable as from 2012 would be set on the basis of a cost model in conformity with the guidelines for the development of cost models. The cost models had been developed by an internationally recognized consultancy firm (Analysys Mason). Elaboration of the project had taken four months, having been completed in December 2011. In Mexico, cost models would be shared with operators as from the development process stage.

Session 5: Evolution of COPACO towards triple-play services
Teodoro Salas (COPACO, Paraguay)

The speaker presented the current situation with respect to COPACO's development of triple-play services, giving a very clear overview of the current technologies and the future technologies now being installed, and providing various figures with respect to the number of installed GSM, fixed and mobile lines. Where the Internet service was concerned, COPACO had commenced activities in 2005. The Internet market was open to competition. In the area of IPTV, COPACO had for some time been working to upgrade its Internet systems and equipment to be able to provide its residential and corporate customers with the service for which ADSL was intended, the idea being to work with video on demand (VoD). The intention was to achieve nationwide coverage, and the dimensioning work was under way despite the budgetary restrictions in force. The speaker described the basic arrangements for delivering COPACO's services to customers' premises and presented the basic cost structure for broadband services. Content and investment costs were very high at that initial stage. COPACO was currently in the process of engaging a consultancy firm to look into the costing of its services. The firm would be responsible for modelling the costs of COPACO's conventional and NGN networks, to which end it would use the ABC cost model and, in view of the requirements set out in the regulations on interconnection, the LRIC model for interconnection charges. The model would also need to take into account the opportunity cost of capital calculated for COPACO S.A. CONATEL was in the process of engaging a consultant to conduct a regulatory accounting study. Ecuador and Honduras gave brief presentations on their experience in the implementation of triple play.

Session 6: Preparing the national broadband plan – a checklist for regulators
Raul Katz (Columbia University)

Prior to the presentation, the representative of BDT informed delegates that, within the framework of the Global Symposium for Regulators, held in Armenia in September 2011, ITU had carried out a study on the establishment of national broadband policies and strategies.

The speaker gave a general overview of how, in recent years, numerous countries had developed national broadband plans, laying particular emphasis on the case of Latin America and on the best practices and goals to be achieved, bearing in mind that most countries had by now elaborated their own broadband plans. It was very important to be aware that the first step in formulating a national plan was to define the vision and establish goals in line with the public policy perspective. It was also essential to define the objectives in terms of desired coverage, having regard to factors such as minimum download speed for the residential and industrial sectors, to be determined on the basis of consumption parameters. The coverage and service-level goals must also be defined on the basis of a rigorous analysis of the investment cost and social and economic returns, at the same time bearing in mind the definition of a competition model. With the competition and technology models defined, the next task was to establish the funding parameters for implementation of the plan, which in turn had to take into account the investment required to satisfy the goals, operator participation, the universal service fund and the State, through possible financing models. A number of best practices, both regional and international, were presented. The speaker concluded by stressing that the involvement of civil society – achievable through workshops, consultations and public presentations – was a key factor in ensuring a consensus around the national plan. The National Broadband Plan was concerned not only with the telecommunication sector, but was also a social topic to be considered by all ministries and other government sectors.

Session 7: The deployment of mobile broadband – economic and social impact
Raul Katz (Columbia University)

Broadband had a significant impact in three spheres of the economy: productivity, innovation and enhancement of the value chain. The speaker explained that the economic impact of broadband was particularly evident in three areas: positive externalities, creation of a consumer surplus, and contribution to employment and production as a result of broadband deployment, as well as, in part, investment in infrastructure deployment. Studies had shown, for example, that a ten per cent increase in broadband penetration could add 0.16 points to GDP growth in Latin America, making it clear that the economic benefits increased in line with the penetration rate. The mobile communication services industry also needed increased access to the radio spectrum. The digital dividend was highly desirable, since spectrum reallocation provided a boost to the economy.

A significant barrier to fixed broadband penetration in emerging countries was price: in developed countries, broadband amounted to 1 per cent or less of the average monthly per capita income, whereas in some developing countries the equivalent figure could be as high as 100 per cent. The representative of BDT informed the meeting that some of the results of the study would be published in ITU's Broadband Universe Portal.

Session 8: Presentation of results from the Latin America Mobile Observatory
Matías Fernández Díaz (GSMA)

The Mobile Observatory compiled the latest market development statistics and constituted a point of reference for all mobile industry players. In his presentation, the speaker analysed the current status of the industry, its achievements, the situation with respect to competition, and innovation as seen in new products, services and technologies. Also mentioned was the industry's contribution to the economic and social development of Latin America, the impact of which was reflected in the 1.5 million people employed within the sector. Mobile telephony was boosting employment in all economic sectors worldwide, and it

was mobile broadband that was now spearheading the industry's development. The major barrier to such development was not price, but education, an example of which was the fact that the population in various rural areas was unaware of how or why mobile broadband could be useful. The speaker explained how mobile broadband could contribute to economic growth, strengthening industries with high transaction costs, enhancing the consumer surplus and cutting down on transportation times. On the employment front, the benefits were to be found in the development of ICT industries, improved facilities for the self-employed, the expansion of teleworking (resulting in increased workforce availability) and creation of new companies and services.

Session 9: Enhancing effective broadband access in the Caribbean: a status report and recommended strategic approaches
Hopeton Dunn (The University of the West Indies)

The rate of Internet penetration continued to be a problem, including in the countries of the Caribbean. An ICT indicators and broadband survey had been conducted in Jamaica in 2012 on the basis of data collected through a study that was referred to in the meeting agenda and whose results were presented by the speaker. It was interesting to note that the barriers to domestic access to broadband services in the Caribbean were, first and foremost, equipment cost, followed by lack of interest, and with high connection service costs coming only in third place. Less significant factors were network availability within the region and knowledge/experience of the technologies. An interesting fact was that women in Jamaica made more use of mobile broadband than men.

Five Caribbean countries were currently developing broadband plans, having achieved differing levels of progress.

Session 10: Individual country and organization experiences

- **The broadband national plan in Paraguay: lessons learned**
  National Telecommunications Commission (CONATEL), Paraguay

The main purpose of the National Telecommunication Plan (PNT), drawn up over one year in collaboration with ITU, was to boost the development of telecommunication infrastructure and services, with support from sector enterprises aimed at enhancing levels of public participation, opportunities, employment and public well-being. The PNT, initiated in 2011 and with a completion date of 2015, included goals and objectives relating to broadband, regulation of the interconnection of IP-based telephone networks and creation of fibre-optic infrastructure for long-distance broadband transmission, as well as upgrading and modernization of fixed and mobile telephony, the national numbering plan and quality of service, and the regular publication of development and coverage indices.

Among the key objectives for 2013 were IP interconnection for anyone requesting it, spectrum auctions and expansion of the fibre-optic transmission infrastructure to towns that did not yet have it, enabling the education, health and or governance sectors to become connected under their responsibility.

- **Broadband projects of the Interamerican Development Bank (IDB)**
  Antonio García Zaballos (IDB)

The speaker described the pillars underpinning IDB's support for broadband development, namely:

1. Development of a broadband plan and public policy.
2. Development of regulatory strategies – pricing/affordability plus availability – through discussion documents (White Papers) on key regulatory strategies, particularly in the areas of access and interconnection, tariffs, spectrum, universal service and costing.

3. Infrastructure deployment – Development of broadband maps to assist in identifying demand and proposing changes in the normative framework (rights of way), in the interests of expediting the rise in the penetration rate for broadband services.
4. Creation of capacity (skills) and applications (content and use).

The Bank was already conducting analyses and providing country support.

Session 11: Results from the ITU/BDT study on broadband and international Internet connectivity – Oscar Messano

The purpose of the presentation was to foster discussion on the economic and technical aspects of interconnection in Latin America and the Caribbean and with the rest of the world. The speaker briefly outlined the locations of the network access points (NAPs) for both Latin America and the Caribbean and how they were being handled in the countries in which they were located. He drew attention to the impact of those national and regional NAPs in terms of support for small and medium-sized enterprises (SMEs) in the context of economic development. There was discussion of the possible development of a regional backbone, taking into account the use of convergence and IP services. Emphasis was laid on the pricing disparities between the developed and developing countries, and attention was drawn to the main obstacles to development, including the high cost of interconnection at both the national and international levels, low bandwidth, low level of service for the end user, and difficulties for market growth. Those obstacles were due to the following factors:

- Lack of investment in the upgrading and expansion of basic telecommunication infrastructure.
- Market concentration in a small number of companies, resulting in a low level of competition in the different market segments.
- Economic and financial situation with serious difficulties globally, particularly with respect to the companies in that sector.
- Almost exponential growth in the worldwide use of broadband, and the pressure that put on the incumbents and large companies, which could not keep up with such growth.
- Lack of competition.

Proposed solutions for overcoming those obstacles included:

- Development of broadband through the development of NAPs and backbone networks.
- Increasing capillarity was very important, with broadband being essential at the level of infrastructure.
- Achievement of international competitiveness to enable ISPs to develop and expand.
- Improved quality of service and better pricing for the end user.

Session 12: Trends in mobile broadband – towards the networked society Facundo Fernandez Begni (Ericsson Latin America)

The presentation began with a summary of the main indicators discussed during the two days of the seminar, and the associated prospect of a connected society with an anticipated 50 billion connected broadband mobiles.

Assignment of the digital dividend to mobile services would generate tremendous economic benefits, owing to: acquisition of spectrum, infrastructure and services, as well as, over and above those factors, the possibility of closing the digital divide and promoting social inclusion, above all in rural areas, with the provision of new social services, for example telemedicine, tele-education and e-government. The mobile industry urgently required much more spectrum for the competitive development of broadband services and to ensure user connectivity. To that end, the UHF band represented a historic opportunity for closing

the digital divide. By 2020, anything that stood to benefit from connection would be connected, with the three fundamental pillars being mobility, broadband and cloud.

Session 13: Revision of the International Telecommunication Regulations (ITRs) and the World Conference on International Telecommunications (WCIT) – Richard Hill (ITU/TSB)

The speaker explained the purpose of the International Telecommunication Regulations (ITRs), recalling that they established general principles relating to the provision and operation of international telecommunications, facilitating global interconnection and interoperability and promoting the efficiency, usefulness and availability of international telecommunication services. Discussions on their revision had been held in 1998, 2002 and 2006, and work was now actively in hand to make such revision effective. The ITRs were important since they established general principles for the provision and operation of international telecommunications, facilitated global interconnection and interoperability, underpinned the harmonious development and efficient operation of technical facilities, promoted the efficiency, usefulness and availability of international telecommunication services and fulfilled the need for treaty-level provisions with respect to international telecommunication networks and services. The need to revise the ITRs stemmed from the fact that the international telecommunication environment had significantly evolved from both the technical and policy perspectives, and continued to evolve rapidly. The revised ITRs would help countries to reach new levels of economic and social development by means of efficient telecommunication services. The LAC region was urged to put forward its views on possible changes to the ITRs.

3. Closure of the seminar

In his concluding remarks, the Chairman, Mr Luis Fleitas, summarized the topics addressed and discussed during the course of the seminar. He thanked all the participants, particularly the speakers for their active participation, as well as BDT for having organized a seminar that had focused on topics of great interest to the region.

The Chairman of LAC informed participants of the excellent collaboration that existed with BDT, in regard both to the topics addressed by the seminar and to the studies and data provided by BDT in support of the regional group's work. He called for the seminar to be held every year, in conjunction with the LAC Group's meeting, since it represented an excellent platform for the exchange of experience and knowledge, as well as for the provision of feedback on the latest developments in the ICT sphere.

All of the presentations made during the seminar, the outcomes and the list of participants were available on the web at: www.itu.int/ITU-D/finance.

4. Follow-up of regional activities by ITU/BDT in coordination with the SG3RG-LAC regional group

The discussions held during the meeting of Study Group 3's LAC Group included the following topics, of relevance to the economics and finance, including costs and tariffs, component of Programme 3 "Enabling environment":

1. With respect to the agenda item 6 sub-item on review of the SG3RG-LAC cost model and study of cost modelling, including NGN, Paraguay presented Document TD 105 on the results of the survey conducted in the LAC region. The representative of BDT requested that the document be transmitted to BDT Study Group 1 (Question 12-3/1) for inclusion in the work being done in that regard.

2. Under agenda item 7, on accounting in international telephony, and specifically the sub-item on mobile termination charge and mobile roaming, BDT presented Document TD 103 “Study on encouraging the harmonization of mobile telephone roaming services in Central America”, which had been prepared by ITU-D at the request of COMTELCA. Under this topic, mention was made of the problems of roaming in border areas, in which regard Brazil promised to provide information for BDT to transmit to COMTELCA. In response to a query by Trinidad and Tobago as to the possibility of BDT conducting a similar study for CARICOM, the procedure for requesting such assistance was outlined.

3. A presentation was made of the BDT study on international Internet connectivity (IIC), which was subsequently analysed by the LAC Group and the Ad-hoc Group on IIC. The study will be published once comments have been received from the members of the LAC and AFR Groups. The deadline for such comments is 30 April 2012.

4. BDT played an active part in the work of the Ad Hoc Group on cost models and statistics for telecommunication market regulation.

5. The outcomes of the work of the LAC Group were summarized in the report of the group’s meeting, in Document TD87 (PLEN/LAC).

   During the course of the discussions, participants suggested topics of interest to the region which could be considered for inclusion in the agenda for next year’s seminar.

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