INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION DEVELOPMENT BUREAU

Report of the Chairperson

ITU Global Symposium for Regulators (GSR)

14-15 November 2005

Yasmine Hammamet, Tunisia

EXECUTIVE SUMMARY

ITU's 6th annual Global Symposium for Regulators (GSR), held in Yasmine Hammamet, Tunisia from 14-15 November 2005, attracted 390 participants, bringing together regulators, policy makers and service providers from 110 countries to identify a new vision of a regulatory framework to promote broadband deployment and access in developing countries. The GSR, organized by ITU in collaboration with the Tunisian National Regulatory Authority: Instance Nationale des Télécommunications de Tunisie (INTT) and chaired by Mr Ali Ghodbani, President of the INTT.

The focus of this year's meeting was *Regulating in a Broadband World: key tools to build the information society*. The meeting specifically examined the regulatory implications of broadband, spectrum management, Voice over Internet Protocol (VoIP) and international efforts to combat spam as identified by participants in the 2004 GSR. The first day was open to regulators, policy makers, ITU-D Sector Members and other invited guests. The second day was reserved for regulators and policy makers.

As in the previous GSRs, this one reached consensus on an output document, the *Best Practice Guidelines for spectrum management aimed at promoting broadband access*. The document expresses the view of the National Regulatory Authorities (NRA) participating in the GSR that regulatory and policy decisions can serve to encourage the growth of wireless broadband technologies. This holds promise for all countries seeking to ensure the availability of access to Information and Communication Technologies (ICT) and the creation of the Information Society. Wireless broadband technologies are promising for bridging the broadband divide that exists between developing and developed countries. These technologies will also require more spectrum. Spectrum is a scarce resource that needs to be managed effectively and efficiently in order to derive maximum economic and social benefit, including encouraging growth and rapid deployment of infrastructure and services for consumers.

These *Best Practices Guidelines* were presented as a contribution to the second phase of the World Summit on the Information Society (WSIS) held in Tunis from 16-18 November 2005 (http://www.itu.int/wsis/docs2/tunis/contributions/co10.doc). The final text of the document is attached to this report.

To launch the **debate**, a series of GSR Discussion Papers on broadband provisioning, the role of regulators in promoting broadband, VoIP, spam and spectrum management were issued for the global gathering of regulators to spark a common understanding of the key regulatory issues of today's broadband environment. These discussion papers are available on the TREG website (http://www.itu.int/ITU-D/treg/Events/Seminars/2005/GSR05/documents.html) and were open for comment until 5 December 2005.

This year's symposium consisted of seven plenary sessions, focusing on multiple aspects of broadband provisioning and the role of regulators; VoIP: opportunities for consumers and service providers, and associated regulatory issues; spectrum management to promote wireless broadband; international cooperation in combating SPAM; and the way forward, along with four simultaneous break-out sessions to showcase the four modules under development in the ITU-infoDev ICT regulation toolkit.

Opening Ceremony

Mr Ali Ghodbani, President, of the Instance Nationale des Télécommunications de Tunisie (INTT) and chairman of the GSR, highlighted the technological developments taking place in the sector, the growth of information and the increasing speed of access. The world has changed so fast, he explained. We are witnessing a technological "revolution" over the last few years which is creating a new society, the *information society*. However, the development of new technologies and services are not shared in an equal way. There is a gap, within and between countries and as a result the concept of digital divide has emerged. The good news is that new technologies have provided an extraordinary opportunity for all of us to establish the information society. By using new technologies, developing countries can catch-up with the developed world. A sound regulatory framework is key in this regard. The essential role for regulators is to enable and facilitate this development, and that is why we are having this meeting on the eve of the WSIS. This year's GSR will discuss important issues: broadband, the fight against spam, spectrum management, and other Internet related issues. Broadband promotion is one of main focuses of this meeting, particularly in regards to radiocommunications which needs to be managed effectively and efficiently. Regulators must create an enabling environment to ensure that technologies are available to all citizens on this planet. The annual holding of the GSR meeting allows us to exchange information and together participate in this dialogue. The sharing of experiences was key to the development of the best practice guidelines on spectrum management to promote broadband access.

Mr Ghodbani noted that prior to this meeting, two important events occurred in Hammamet, the 1st training course for Chief Executives on Effective Regulation, led by Professor Bill Wigglesworth. And the second event was the meeting of regional regulatory associations which was chaired by J. Paul Morgan and brought together associations from around the globe to exchange experiences and information.

Mr Hamadoun I. Touré, Director of the Telecommunication Development Bureau of the ITU, noted that by the end of 2004, there were 159 million fixed line broadband subscribers. While the majority of these are in the wealthier countries, twenty-five percent of today's fixed line broadband subscribers are in developing countries. Broadband growth rates are highest in Africa, the Arab States and two Asian countries: India and Pakistan. This is a very promising trend. The pace of broadband take-up, however, hinges on the regulatory framework. In many countries, today's broadband missing link is the regulatory framework. As we gather on the eve of the World Summit for the Information Society, we face the challenge and opportunity of developing an innovative regulatory paradigm that will enable us to harness the potential of broadband. Regulators have an unprecedented opportunity to speed the uptake of broadband to enable the Information Society. This will require new thinking, and an end to business as usual. How will regulation change? Broadband regulation means a new vision of reduced regulatory burdens, innovative incentives, and coordinated efforts by all links in the broadband value chain to unleash commercial deployment opportunities. Regulations will be carefully tailored to open the door to both large and small-scale broadband providers. Broadband-promoting regulators will aim to make local communities and non-governmental organizations aware of the technologies and broadband provisioning opportunities they could seize and also coordinate with other government and public institutions, such as universities, to drive demand for broadband-enabled health, education and government services. At the same time, regulators will strive to revise outdated regulatory frameworks designed for an earlier era. The new regulatory framework could be described as a less means more, old meets new approach. Less regulatory intervention means more business

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opportunities. Time-tested regulatory principles such as transparency and open competition will be applied to new technologies and the new regulatory issues they raise.

Ms. Ghariani Khadija, *Secretary of State to the Minister of Communication Technologies in charge of IT, Internet and open softwares*, stated that broadband is one of key building blocks of the information society. The organization of the GSR in conjunction with the WSIS is proof of the importance of regulation in building an information society and underscores the importance of the need for dialogue on an international level.

Strong foundations must be put in place in order to create a knowledge based information society. It is important to establish national strategies. Tunisia believes that the information, knowledge and communication society requires a solid basis and an integrated strategy. The Tunisian President Ben Ali gives great importance to the ICT sector, as such is strengthening efforts underway, and working to modernize infrastructure based on digital networks that will cover a larger basis. The Tunisian strategy is based on communications and will include participation from all members of society.

Ms. Ghariani noted that in Tunisia a number of projects have been developed in order to provide equal opportunity to all interested parties and to facilitate equal access and diffusion. One example is an ambitious programme to enforce the idea of *Internet connection to all*, by providing connectivity to all regions of the country, which will thereby increase the rates of connectivity five fold over the next few years. This will be based on broadband access and providing this access to all with no discrimination.

Broadband services are one tool that will enable us to set up a fair information society. Tunisian President's statement to the first phase of the WSIS in 2003 had resounding effects. He affirmed that the digital divide was a divide which was related to development before it was related to technological difficulties. To overcome this, ways and means must be found to strengthen cooperation on an international level. International cooperation used on this occasion brings success to the Summit and brings benefits to all people throughout the world so that they may have development, peace and stability. She emphasized that this 6th GSR will constitute and provide opportunities for all countries so that they can together face the opportunities of these new technologies and address the digital divide.

SESSION I: HARNESSING BROADBAND TECHNOLOGIES TO ACHIEVE THE INFORMATION SOCIETY

Moderator: *Ewan Sutherland, Executive Director, International Telecommunication Users Group (INTUG)*

Presenters: ***GSR Discussion paper on Broadband provisioning:***

Dr. Michael Best, Assistant Professor, Sam Nunn School of International Affairs, Georgia Tech

Dr. Bjorn Pehrson, Professor, KTH, Swedish Royal Institute of Technology

Panelists: *Mahmoud Dasser, Director, Worldwide Business Development, Cisco Systems*

José Toscano, Director International Relations, ITSO

Mahmoud Nour, Business Development Director, TE Data

Peter Pitsch, Director, Communications Policy, INTEL

Tom Phillips, Government and Regulatory Affair Officer, GSM Association

Joseph Lawrence, Senior Director, Qualcomm Inc.

Knud Erik Skouby, Professor, Director, Center for Information and Communication Technologies, Technical University of Denmark

The moderator noted that traditionally, even in developed countries, rural areas have been the last place to see competition. The supply of services in rural areas often required government subsidies. The challenge for regulators today is to adopt a technology neutral approach to provisioning broadband for rural areas, especially in developing countries. By designing services for the great mass of un-served or *potential* consumers in rural areas, necessary economies of scale can be achieved to ensure access for the poorest in society.

Drs. **M. Best** and **B. Pehrson** presented the GSR Discussion Paper on "Broadband Provisioning for Developing Countries." Broadband has been defined differently depending on the perspective of the user. Broadband can be defined based on the services and applications that it can enable, such as interactive voice services, full motion (asynchronous) video and VoIP as well as fast downloads. The ITU defines broadband as a network whose combined capacity (up and down) sums to 256 Kbps or above. This definition is likely to be a moving target with the continuing innovation of technologies and achievement of higher data bit rate networks. Seventy-five per cent of broadband subscribers are in the developed countries of the OECD. However, the highest levels of growth of broadband subscribers are now in developing countries, in particular in Africa, South Asia and the Arab States.

There are three principle families of technologies for broadband provisioning: broadband wireline networks (e.g. DSL, cable modems, fibre to the home); broadband wireless solutions (e.g. WiMax, W-CDMA, CDMA 2000) and non-terrestrial wireless networks (e.g. VSAT). While the presentation focused on wireless and fibre solutions, all solutions are covered in the GSR discussion paper on broadband provisioning. The four main terrestrial wireless broadband solutions are upgrades to GSM such as EDGE (Enhanced GPRS), CDMA (CDMA 2000 and WCDMA), WiMax (IEEE 802.16) and IEEE 802.20. The former two come from the telecom sector, while the latter two arise from the data-networking sector. There are also other technologies, the standards for which are still under development. Regardless of the technology deployed, bandwidth costs are contingent on factors such as coverage size, congestion, spectrum fees and the cost of installing radio access equipment. Open access to fibre networks, meaning the ability to lease access at any level of a network, is also a key factor in promoting broadband access in developing countries. Likewise, shared and independent access

networks provide opportunities for local sustainable business models. Fibre networks are becoming cheaper and are already being built and operated in rural areas of developing countries (e.g. Bolivia, Laos, Malawi, etc.). Many of these fibre networks build synergies with other infrastructure projects such as railways, highways, pipelines and other utility infrastructure projects.

ITU had issued a call for presentations to the private sector to describe broadband solutions for rural areas of developing countries, and these were invited to the GSR. The full presentations are available on the GSR webpage.

- Cisco – Wi-Fi enabled Internet kiosks, which are extended to provide broadband coverage to entire villages, can impact the lives of both citizens and small businesses. Wi-Fi enabled centres can be operated as e-education facilities during the day and opened to citizens after hours at low cost. In emerging markets, broadband can deliver cost effective and scalable solutions today.
- ITSO – The Global Broadband and Satellite Initiative aims to make broadband technology universally acceptable to as many people as possible, as soon as possible and at the lowest cost possible. It seeks to encourage the development of an open transmission standard for end user equipment, establish a harmonized and minimal regulatory regime and facilitate the use of frequency bands free of interference.
- TE Data – Egypt has an initiative to provide a PC for every home. The goal is to distribute seven million PCs over seven years. The cost is recovered in installments through the telephone bill. Egypt also aims to connect schools and universities and increase literacy rates. The number of ADSL subscribers in Egypt is expected to increase dramatically in the coming years.
- INTEL - There are over 100 planned carrier WIMAX trials the world over. National regulatory authorities are encouraged to become involved in the work of ITU-R Working Party 8F and to make spectrum available for WiMAX use in developing countries.
- GSM ASSOCIATION – The wide deployment of GSM networks has created economies of scale and has significantly contributed to providing voice access in the developing world. Third generation GSM technologies are already delivering broadband services today. Regulation facilitation is required for mobile to continue providing an effective solution for rural and urban communities in developing and transitional countries.
- QUALCOMM - Enormous economies of scale will be required in order to provide affordable broadband connectivity in rural areas. There is need for an evolutionary roadmap that reduces costs to deliver voice, data and video services and preserves economies of scale for rural telecom business models.

During the interactive panel discussions that followed, the following points were raised:

- Regulatory regimes should aim to be transparent, flexible and innovative in encouraging growth of broadband as an effective solution for rural and urban communities especially in developing and transitional countries.
- There is a need for governments to encourage private sector entrepreneurs to provide low cost broadband access in rural areas.
- Wireline and wireless broadband access solutions are complementary. Every country has to determine its own strategy in order to develop broadband networks. This strategy should take into account the principle of technology neutrality and quality of service.

SESSION II: VOIP: AN OPPORTUNITY FOR CONSUMERS AND SERVICE PROVIDERS?

Moderator: *Eng. John Waweru, Director General and CEO, Communications Commission of Kenya*

Presenter: **GSR Discussion paper on VoIP:**

   Russell Southwood, CEO, Balancing Act

Panelists: *Edwin San Roman, President, Organismo Supervisor de Inversión Privada en Telecomunicaciones, Peru*
   Adel Gaaloul, President and Director General, Tunisian Internet Agency, Tunisia
   Patrick Masambu, Executive Director, Uganda Communication Commission, Uganda
   Stephen Collins, Director, Government and Regulatory Affairs, Skype, Luxembourg
   Jacquelynn Ruff, Vice President, International Public Policy & Regulatory Affairs, Verizon Communication Corp., USA.

The moderator opened the session by reporting on Kenya's experience and views on VoIP. VoIP is considered to be a disruptive technology that will break down the international settlement rate system. It also provides the long term potential for cheaper, easier to use services. Efficient use of infrastructure reduces the cost of business. Regulatory issues at stake are technological neutrality, quality of services (QoS), open networks and timely continuation of universal access. The main challenges are regulatory intercept, interconnection, VoIP cost models, consumer protection, and the effect on existing operators. In Kenya, operators are allowed to carry VoIP, and guidelines on VoIP were recently issued. As a result, most operators are carrying VoIP traffic, including telecentres connected to licensed operators. Regulators were urged to harmonize their approach, to promote investment and the full participation of citizens in the Information Society. There is a need to improve both the telephone and electricity infrastructures through technology neutrality.

Mr. R. Southwood presented the <u>GSR Discussion Paper</u> on VoIP. A handful of countries, such as Kenya, have recently legalized VoIP. These rapid legal changes have moved providers from a situation where they could be put to jail for offering VoIP to making VoIP legal. The sector is marked by changing business models. The most significant change is the shift to IP networks. There is a move from the telephony structure of networks where intelligence was located at the centre of the network to the IP structure where intelligence is at the edges. IP offers all sorts of different ways of doing business and a new range of service providers is emerging. The sector is moving from one dominated by vertical integration towards horizontally integrated markets composed of three layers: access, transmission and services.

Grey markets represent around 20 to 30 per cent of international call revenue, which means that there is competition that may not be legal. All types of organizations are emerging to provide competition now that network parts can be bought from catalogues. There is a broader shift from low volume, high margin business models to high volume, low margin businesses. Diaspora communities are the driver of these calls in developing countries. There is a shift in business practice from selling minutes to selling bandwidth. International gateways will disappear. Peering arrangements will take over. Costs will become cheaper. Users and consumers want cheap or free calling, lower international access and more competition at the consumer level. On the edge of the network, service providers could roll out mobile VoIP in rural areas through franchise style arrangements, bringing down costs. This will require a regulatory framework that creates open access to IP networks at all layers, and addresses interconnection.

Following the presentation, the floor was given to panelists:

Mr. E. San Roman informed participants of a joint meeting between European regulatory authorities that are members of the Independent Regulators Group (IRG) and Latin America regulators, members of Regulatel. The IRG-Regulatel meeting, held just before the GSR also discussed the effect of VoIP on industry and regulation. The current pricing model of charging for calls by the minute is no longer a valid business. In many countries, it has been difficult for regulators to deal with the rebalancing of tariffs that are not cost-based. With the development of broadband and VoIP regulators are beginning to see unlimited access to international and long distance calls and in some cases for local services. In Peru, this technology is assisting the regulator in providing universal access through the establishment of telecentres and cyber cafés. Peru now has one telecentre per 1000 inhabitants, and in some areas 1 per 300 inhabitants. These have created jobs. These centres will be able to provide other services than voice, including broadband-enabled services.

Mr. A. Gaaloul reported on the status of existing services in Tunisia, noting that PC-to-PC and intra-corporate VoIP is in use. PC-to-phone is not yet regulated. There are more than 3 million subscribers connected to the fixed network. Tunisia has good quality local loops. The IP infrastructure consists of a backbone network, and Tunisia has set the target of 50 per cent of the population to have access to VoIP (NGN) by 2009. VoIP is developing in the country and access to it is being implemented on a gradual and regular basis. Tunisia expects to reach 30 thousand ADSL subscribers by the end of 2005. Using VoIP will allow Tunisia to render the market more competitive and attractive.

Mr. P. Masambu reported on the status of VoIP in his country highlighting that the reform process is ten years old. Technology neutral licences were issued to two operators, authorizing them to provide the services they wanted using the infrastructure they chose. Competition was allowed from day one to increase the low levels of teledensity in a short period of time. The two licenses were granted with an exclusivity period of five years, which just ended three months ago. Up until this time, only the two network operators could offer VoIP. VoIP as technology was allowed, and now Uganda is planning to issue new licenses that will separate network and services. He indicated that they are focusing on developing a national backbone based on fixed and wireless technologies. He emphasised that it is a regulator's responsibility to ensure quality of service; it is a moral responsibility. Other issues of concerns are numbering, and legal intercept. He further indicated that Uganda's biggest worry is mobile and whether the main providers that invested in the network are prepared to switch to VoIP. If not, only a small part of the market will use VoIP. He concluded by saying that affordability is an issue as well as the development of the national backbone. This should not be left to national operators alone. the government should intervene and new players be allowed in the market.

Dr. S. Collins indicated that Skype see itself as very far from the telecoms world. Their software application allows people to communicate over the Internet. The company partners with carriers that provide all underlying services for its 'Skype out' and 'Skype in' services. From that point of view, most regulatory issues have been covered. What to bear in mind is the jurisdictional perspective. It is hard to see how to comply with the legal requirements of all different jurisdictions.

Ms. J. Ruff noted that VoIP has enormous potential to help consumers because of the lower costs associated with IP access. The value to small businesses is key as they are an important part of the economy. In the United States market today, there are many new service providers in addition to well-established companies such as Verizon. She explained that currently, most of the company's revenues come from broadband, Internet and VoIP services. She highlighted that Verizon is an established company that is transforming itself because of demand, technology, consumers, etc. She noted that the FCC, which had refrained from regulating this market up to now, has begun to look at a more detailed framework for VoIP versus social issues (universal access, etc.). She concluded by saying that one should look at the economic issues as a whole.

The floor was opened to the audience and the main focus of the discussion was how to address the transition period from PSTN to IP-based networks. Participants discussed what regulatory measures to take, notably in the area of interconnection of IP networks. They examined differences depending on whether VoIP calls originate or terminate on the PSTN and agreed that this remains an open issue at this point. Some of the other main points raised were:

- Investors often continue to seek returns on their investment from international traffic.
- Regulators seek guidance on VoIP interconnection, in particular whether IP telephony requires a review of all policies that are minute-based and a move toward capacity-based and other interconnection models.
- As a transitional measure, some developing countries that have allowed VoIP have also included license obligations such as taxes or fees based on percentage of revenues.
- VoIP is important for countries seeking to increase broadband access.
- Regulators can use the transition period to focus on the problems known today. A major challenge is how to create an environment that promotes investment in the upcoming high risk NGN market. Regulators can exercise caution in applying the circuit-switched and analogue model to IP networks.
- It is crucial for developing countries to use new technologies and move forward.
- The question is not whether to allow or not allow VoIP. VoIP is already here. There is no choice but to accept VoIP and ensure that all the proper measures to address it are developed.
- VoIP offers enormous opportunities. The transition to NGN will go even faster and will be a greater challenge for all regulators.

SESSION III - SPAM: INTERNATIONAL EFFORTS TO COMBAT SPAM: WHAT'S NEW?

Moderator	*Tom Dale, Chairman of the OECD Task Force on Spam; and General Manager, Strategic Policy Branch, Australian Department of Communications, IT & the Arts*
Presenters	***GSR Discussion paper on Spam, Stemming the tide of Spam:*** *John Palfrey, Executive Director, Berkman Center for Internet & Society and Lecturer on Law, Harvard Law School* ***Cybersecurity, ITU WSIS Thematic Meeting, Outcome and next steps:*** *Robert Shaw, Policy Advisor, Strategy and Policy Unit, ITU* ***Internet Security Initiative:*** *John Haydon, Executive Manager of Consumer Branch, Australian Communications and Media Authority (ACMA), Australia*
Panelists	*Clara-Luz Alvarez, Commissioner Comisión Federal de Telecomunicaciones Mexico* *Miguel Montero, Spam Ruling Administrator RACSA Costa Rica* *Diane Korsakaite, Director of Strategy Communications Regulatory Authority Lithuania* *Lanre Ajayi, Member of the Board of Directors AfrISPA Nigeria*

The moderator opened the session by reporting the recent main international efforts to combat spam.

Mr J. Palfrey noted that spam laws that require regulators to track down and punish spammers have failed. Several approaches such as "opt in" and "opt out" have not been very successful. This failure was in part because of lack of coordination of the laws from jurisdiction to jurisdiction since spam is an international issue. In addition many regulators in developing countries do not have specific anti-spam laws and are ill equipped in staff and financial resources for the task. An alternative 'managed industry self-regulation' approach is to give ISPs, that are more technically competent, incentives to monitor and eradicate spam. The regulators role would involve reviewing codes of conduct established by industry to ensure that such codes sufficiently protect public interests. Regulators would also enforce such approved codes of conduct with a view to eradicating notorious spammers near the source. Such enforceable codes of conduct would level the playing field between ISPs that are actively engaged in the combat against spam and those who have not acted to stop spammers on their networks, or worse, those who seek to profit from spam. The paper provides the outline of a model anti-spam law that includes such enforceable codes of conduct measures.

Mr. R. Shaw noted that with the growing dependency on ICTs in the 21st century, perceptions of cybersecurity and critical network infrastructure had continued to change. As a result, a number of countries had begun to assess the vulnerabilities of their infrastructure in order to protect them. Though joint efforts, measures to deal with cybersecurity had been reflected at national and international levels. With spam constantly mutating, the cyber security threat was now shifting to new platforms such as mobile and VoIP networks, making it difficult to curb. Identification at national levels as to what constituted "critical infrastructure and risk assessment" has led to reviews of national legal frameworks to enhance enforcement and judicial cooperation, and specific legislative measures in privacy, data and consumer protection. At the international level, the recognition of the need to enhance global cooperation had been reflected at the World Summit on the Information Society (WSIS), World Telecommunications Development Conference (WTDC), World Telecommunications Standards Assembly (WTSA) and in United Nations resolutions.

Mr. J. Haydon indicated that around 80 per cent of the world's spam is sent through compromised computers mostly owned by home-users. These machines lack firewalls,

are incorrectly configured or suffer ill maintenance by their owners. To deal with this issue, he reiterated the earlier proposal for partnerships with ISPs in the enforcement of their acceptable use policies. In this way, databases set up by ISPs such as 'spam MATTERS' would validate, sort and send data to ISPS serving the customer with a compromised machine. The ISP in turn would send a problem alert to the owner advising them to secure their computer, in default of which they would be disconnected. This action, in addition to stemming the spread of spam, would enhance the ISP's profile as a responsible provider of services. He concluded by indicating that co-operation between NRAs and ISPs could be enhanced through entering into Memoranda of Understanding （MOU) with them.

During **the interactive panel discussions** the following points were raised:

- A new approach to dealing with spam is required. Recognizing that spam does not respect borders, participants noted the need for cross-border cooperation, which would set a platform for harmonization of anti-spam laws and co-ordination of attendant background laws. In addition, the role of the enforcement authority was key in ensuring facilitation of the ISPs in their role and also in anticipating of new technologies such as SPIM, SMS and VoIP.

- As a complement to anti-spam measures, regulators can also focus on consumer education in order to enlighten users on the norms of appropriate use of technology. This would include teaching consumers about the dangers of compromised ('infected') machines. One of the key goals of consumer education is to lead consumers to embrace the view that 'computer security is my responsibility' and 'I can help reduce spam'.

SESSION IV: VoIP: TO REGULATE OR NOT TO REGULATE?

Moderator:	*Dr. Tracy Cohen, Councillor, Independent Communications Authority of South Africa (ICASA)*
Presenter:	**GSR Discussion paper on VoIP** *Olli Mattila, Finish Communications Regulatory Authority (FICORA)*
Panelists:	*Alaa Fahmy, Executive President, National Telecom Regulatory Authority and President, Arab ICT Regulators Network, Egypt* *Marc Furrer, President, Commission fédérale de la Communication, Switzerland* *Mohsen Jaziri, Vice-President, l'Instance Nationale des Télécommunications, Tunisia* *Matthias Kurth, President, BnetzA,(Federal Network Agency for Electricity, Gas, Telecommunication, Post and Railway), Germany* *Shigeki Suzuki, Director, Ministry of Internal Affairs & Communications, Japan*

The moderator, who co-authored the GSR Discussion Paper on VoIP, noted that VoIP development follows different steps. Creating an enabling environment for VoIP must be seen in the context of creating a competitive environment for ICTs. There is a need to address the high cost of calls in countries. Otherwise, regulating VoIP is tantamount to treating a symptom rather than the condition arising from the historic monopoly situation. Country experiences and precedent are quickly changing.

Mr. O. Mattila presented an overview of the key regulatory issues raised by VoIP explored in the GSR Discussion Paper on VoIP. The paper addresses the question of which services and functions should be regulated. In the short term, the analysis often hinges on which kind of VoIP service, and the extent to which these VoIP services are comparable to traditional telephone service. Over the long term, once IP networks become more prevalent, the analysis will focus more on whether VoIP requires a revolution in regulatory thinking. In between, there will be a transition period. Many telecom players are asking how long the PSTN should be maintained, and when and how is it necessary to make changes in national legislation in order to ensure legal certainty since the regulatory classification of VoIP services often depends on national legislation.

Today the following classifications of VoIP services are widely applied. The first two often remain unregulated. The third often raises more concerns for regulators:

1. VoIP on private corporate networks;
2. Internet telephony using self loaded software programs on PCs, e.g. Skype;
3. VoIP used as the gateway to PSTN;

Such classifications, however, become more complex due to the 'triple play' of voice, Internet and broadcast, and VoIP services such as 'Skype in,' and 'Skype out' which enable calls between PCs and the PSTN.

What are some of the special characteristics of VoIP that lead to regulatory challenges? One of the main issues is that VoIP service provision and data transmission can be technically and commercially separated. With traditional telephone service, the same operator offers both. This affects interconnection models. In addition, VoIP can be used nomadically, meaning that a given user can access the service from any country, wherever the user has access to the Internet. In this case, raising issues such as numbering and security should be solved.

Concerning competition and market entry, the goal is to ensure open, nondiscriminatory access to broadband Internet networks. If VoIP has the same feature and functions as PSTN telephony, will the same regulatory treatment apply? How can regulators prevent the incumbent from blocking or stopping VoIP services?

Concerning emergency calls, the main problem is the uncertainty of the location of the caller due to the nomadic nature of VoIP. Calls inside a country are easier to address due to the legal framework and the structure of emergency centres. Cross border calls are more complex due to different emergency numbers, routing arrangements and legal requirements.

Some of the numbering challenges raised by VoIP are geographic subscriber numbers or special number series, number portability between VoIP and PSTN phone numbers and arrangements for ENUM.

VoIP interconnection raises very complex issues. In the short term, VoIP calls terminated on the PSTN will likely cause no problems, since termination fees will apply regardless of the originating network. The issue of PSTN calls terminating on IP networks is more problematic, however, given the difficulty of determining the cost of network elements. In the longer term, IP-IP termination will require new interconnection models. These are already being debated, and some approaches under discussion include:

1. A Next Generation Network (NGN) approach where operators have more control over services, for example, offering different categories of guaranteed bandwidth, and the use of software that controls the interconnection of services to networks. This approach is supported by current network operators.
2. Open arrangements, such as those that apply to the Internet today, including separation of services and connectivity. Services are charged on the "bill and keep" principle (peer to peer) and connectivity between networks is based on capacity charging or another similar method. The Internet community supports open arrangements.

In the future there will likely be combinations between the different approaches, and lots of possibilities. The GSR Discussion Paper on VoIP also addresses QoS, legal interception and other issues.

Following the presentation the floor was given to the panel:

Mr. S. Suzuki reported that VoIP should be subject to light touch regulation. The user is unaware of any service difference. Users can enjoy lower cost service. As a result many people who can't afford PSTN can afford VoIP. Quick deployment can be expected. Licensing and tariff regulation of VoIP is not necessary. Social regulation, such as regulation of emergency calls and numbers, does require regulation. It is also necessary to ensure interconnectivity and interoperability of services.

Mr. M. Kurth said that VoIP is a technology and not a service. The question for regulators regarding VoIP, therefore, is to ask if VoIP is similar to existing services. If legal interception of calls is done on PSTN networks, it could be done with VoIP calls in the same way. QoS on VoIP could also be regulated. There are arbitrage problems between PSTN and VoIP systems.

Mr. M. Furrer considers VoIP as a new model. At least in the developed world, we shouldn't use the same regulatory interventions applied to the old model for VoIP. But

for developing countries, VoIP is different. Developing countries need solutions to finance networks and universal service. Wireless broadband technologies can help developing countries improve access to broadband services. The problem of international Internet charging is a political problem that should be resolved at the highest levels.

Mr. A. Fahmy reported that the common mission among regulators is to provide people with reasonably priced services. Technology neutrality is a common principle used in the VoIP arena. Regulatory treatment of VoIP depends on the situation in every single country. International VoIP is the issue. This should be tackled on a fair basis. In Egypt, data and voice services are separated. Voice, including VoIP, is offered by incumbents and data is provided by ISPs.

Mr. M. Jaziri said that today's regulatory framework was designed for specific economic and technology considerations. VoIP is a new technology. So we need to revise the regulatory framework. In Tunisia, we are looking for this in order to promote the development of VoIP.

The key points made when the discussion was opened to the floor are:

- The effect of VoIP on international gateway operators is a common problem for developing countries.
- Developed countries exchange Internet traffic on a peer-to-peer basis. The inability of developing countries to exchange Internet traffic on a peer-to-peer basis, since they have less Internet traffic, is a key challenge for developing countries.
- Interconnection is a key regulatory issue raised by VoIP. There are two different interconnection worlds, IP and voice systems. IP is not regulated in most countries, but is handled on a peer-to-peer basis. Voice is regulated with interconnection tariffs. These two worlds will merge into NGN networks. The two systems enable some companies to make unintended arbitrage profits. What is needed is a fair interconnection system, not just arbitrage that disrupts infrastructure build out. Interconnection frameworks in the voice world reflect that infrastructure has to be paid for. The next interconnection regime needs to find a fair transition between the old and new worlds.
- The main concern raised by VoIP is the fixed network. Adopting VoIP means the tariff system disappears which represents a financial loss for operators of these systems. Incumbent's margins can be expected to disappear, and investors appear more interested in Internet-related companies than telcos. We cannot, however, refuse to adopt VoIP technology. The role of the regulator is not to block the development of technology. The key is to integrate VoIP to make it beneficial to developing countries. VoIP can be introduced in public call centres. For example, it can provide low cost service to private users and create new jobs.
- The role of the regulator is foster the use of technologies, frequencies and platforms to enable access in a technology neutral way. All regulation, licensing, spectrum management, interconnection, should be technology neutral and maintain a level playing field.
- Some regulatory interventions are not necessary. Currently, we all tend to over regulate. With VoIP, we will regulate much less, but focus on social safeguards such as emergency services and universal access in both rural and urban areas.
- Regulators must ensure that end users have access to lower cost services. Consumers, who benefit from lower cost services, should be the main focus of

regulators worldwide. New technologies offer lower costs and these benefits should be passed on to the benefit of consumers.

- Regulators have an obligation to create fair competition. It's not fair to leave all obligations on old PSTN operators and apply no regulations to the new system. We need to ask why did we create existing regulations, what's the objective of regulating? We did it to create choice for consumers. Competition has caused prices to drop. The mobile experience shows us that consumers are not looking for the same level of quality as fixed line service. Mobile quality of service is less than fixed service. However, there are now more mobile subscribers.
- Regulators in developing countries will focus more on universal access/service concerns than regulators in developed countries. Many regulators from developing countries expressed concern about the impact of VoIP on infrastructure development and the migration from legacy to NGN networks. Some VoIP providers use existing infrastructure without paying for it or developing new infrastructure. Broadband wireless access may offer a solution.

Mr A. Ghodbani summarized by noting that the sector is changing very quickly. It is important to take advantage of low cost services for consumers, while also thinking about the interests of operators and investors. All broadband technologies could play a role. We need to find the right balance between competing interests and make necessary tradeoffs.

SESSION V: BROADBAND: WHAT ROLE FOR REGULATORS: INTERVENTION? FOREBEARANCE? PROMOTION?

Moderator: Gabriel Jurado Parra, *Executive Director, Comisión de Regulación de Telecomunicaciones de Colombia*
Presenter: **GSR Discussion paper on Regulating to Promote Broadband:**
           Will Bratton, Partner, Spectrum Strategy, Singapore.
Panelists: Christian Nicolai, *Subsecretary Subsecretaria de Telecomunicaciones Chile*
           Dan Georgescu, *President National Regulatory Authority for Communications Romania*
           Tomas Lamanauskas, *Deputy Director Communications Regulatory Authority Lithuania*
           Michel Feneyrol, *Member Autorité de Régulation des Communications électroniques et des postes, France*
           Mohamed El Kadiri, *Directeur central technique, Autorité Nationale de Réglementation des Télécommunications, Morocco*

The moderator opened the session by reporting that regulators have an important role to play in encouraging the roll-out of broadband.

Mr. W. Bratton noted that increasingly broadband networks were being considered as a tool to support socio-economic and political development alongside other forms of infrastructure in development plans. He indicated that evidence had demonstrated the capability of broadband in narrowing information differentials between regions, and therefore playing a positive role in the transfer of knowledge and expertise and in increased productivity in business. Given the demonstrable benefits of broadband deployment, he noted that its deployment in developing countries would be constrained without a coordinated regulatory effort and government support. In addition to adopting a technology neutral stance, governments can promote comprehensive strategies for broadband deployment with built in incentives that would promote take up of low cost broadband networks and end user terminals. A holistic regulatory approach would seek to eliminate barriers to entry as well as provide a coordinated mechanism for access to alternative fiber backbones from entities such as railways or electricity companies. He noted that incumbent ownership of backbone networks could seriously constrain competition through imposition of excessive costs and provision of inadequate bandwidth. It would therefore require a committed regulator to ensure that regulatory requirements such as quality of service and non-discriminatory access to points of interconnection were met.

Following the presentation the floor was given to the panel:

Mr. C. Nicolai noted that regulation cannot keep pace with technological developments. It is important to avoid creating obstacles to development through excessive regulation and to maintain technology neutrality and effective spectrum management. The role of regulators is to represent the consumer.

Mr. D. Georgescu in discussing technology neutrality noted that Romania's 3G beauty contest was open to all IMT-2000 technologies. He cited the importance of low license and spectrum fees to promote broadband. Over the past year and a half, Romania has enjoyed a four-fold increase in the number of Internet users and a six-fold increase in broadband users due to unbundling the local loop and allocating spectrum for wireless broadband services at low cost.

Mr. T. Lamanauskas said that the real question is whether the State should intervene in promoting broadband or leave it in the hands of market forces. There is a danger that new monopolies will be created. The State should build the case for broadband development but not favor particular market players. Lithuania introduced

tax incentives for PCs and terminals, and has promoted broadband procurement in schools to increase broadband use. In order to develop the skills of people in rural areas and raise awareness of broadband, Lithuania has also embarked on a program to deploy Internet access points in rural areas. It is important for regulators to encourage multi-platform competition, flexible spectrum management and evolve beyond legacy regulation. On the international level, it is important that ITU radio regulations adapt to the changing environment.

Mr. M. Feneyrol noted that broadband is enabling the creation of new infrastructure and services. These changes are extremely important to the role of regulators. Regulation should aim to apply the same level of treatment to different networks and services. Third generation mobile offers the triple play of voice, TV broadcast and Internet access. It is important to develop effective regulations and policies that do not need to change every six months. Consumers are changing their behavior. They are buying flat rate access to several services and also paying for selected online services and content. France has favored unbundling of copper loops and bitstream access to promote significant ADSL deployment. It is now turning to broadband development for users that cannot be reached by ADSL by promoting the deployment of new fibre networks.

Mr. M. El Kadiri explained that competition in the mobile sector has served Morocco very well and competition is expected to promote broadband deployment. The introduction of competition requires confidence in the regulatory regime and transparency, for example, in regard to spectrum management. Morocco relies on technology neutrality to enable operators to deploy alternative technologies. Competition can be introduced in a realistic fashion during a transition period. In the year 2005, Morocco opened its market to new operators with the result of increased ADSL penetration.

The key points made when the discussion was opened to the floor are:

- It is incumbent upon regulators to champion market liberalization and competition in order to spur broadband network deployment.
- There is a need to develop asymmetric regulatory regimes to prevent abuse of dominant positions by incumbent operators.
- The need for regulatory incentives was underscored. Some of these incentives were identified as:
    - Extension of license periods for large scale operators in order to encourage network development;
    - Access to universal access/service funds;
    - Reduced licensed fees, and/or flexible payment plans for fees;
    - Support from the regulator for tax incentives to operators, access to government land, etc. and
    - A commitment by the regulator to enforce license terms and conditions.
- Regulators can develop an awareness of the benefits of broadband among their stakeholders. Some of the practical approaches that they could adopt included support of ICT initiatives, small-scale deployment in rural areas and dissemination of a digital culture among consumers in order to stimulate the deployment of wireless broadband access technologies. In addition they could contribute to driving broadband demand from government and public service and in the promotion of commercial content and application development.
- It is necessary to position wireless access as central to any strategy in addition to increasing the range of alternative wireless technologies available.

- There is a need for ITU to advance the re-allocation of frequencies between broadcasting and telecommunications to respond to convergence. Participants noted that the last World Radiocommunication Conference (WRC) occurred before many broadband services came into existence. There is a need to reexamine this in advance of the 2007 WRC.

SESSION VI: SPECTRUM MANAGEMENT TO PROMOTE WIRELESS BROADBAND ACCESS

Moderator: Keng Thai Leong, *Director-General, Infocomm Development Authority of Singapore (IDA)*

Presenters: **GSR Discussion paper on Broadband Spectrum regulatory issues**:
John Muleta, *Partner, Venable LLP,*

Identifying Best Practices on Spectrum Management to Promote Broadband Access, report on the consultation (GSR 2005 best practice guidelines):
Ali Ghodbani, *President, Instance nationale des télécommunications, Tunisia*

Panelists: Donald Abelson, *Chief Int'l Bureau Federal Communications Commission, USA*
Mohamed Bongui, *General Director, National Frequency Agency, Tunisia*
Fatih Mehmet Yurdal, *Frequency Management and Regulatory Affairs, European Radiocommunications Office (ERO), Denmark*
Ernest Ndukwe, *CEO, Nigerian Communication Commission, Nigeria*
George Alexandrov, *Chairman, Communications Regulatory Commission, Bulgaria*
Rajendra Singh, *Secretary, Cum, Principal Adviser, Telecommunication Regulatory Authority of India*

The moderator opened the session by indicating that wireless broadband provides great potential and opportunities for regulators and operators. He noted that spectrum is critical and a key factor in the success of broadband deployment. Spectrum management alone is insufficient to promote broadband. It should be accompanied by regulatory measures such as an effective interconnection regime. He emphasized the need to ensure that allocation is done efficiently. He further stressed that an open and market-driven approach to spectrum is preferred to an administrative approach because it is less subjective. Because spectrum is a scarce resource, some countries like Singapore favor a market driven approach to spectrum allocation, such as auctions, in cases where demand exceeds the offered spectrum. He reported that Singapore's broadband penetration is close to 50 percent and that to proliferate broadband development further, more frequency bands were allocated this year. Singapore allocated all available spectrum in the 2.3 and 2.5 GHz bands at low fees.

Mr. J. Muleta stated that to enable wireless broadband, it is necessary to look at pragmatic tradeoffs. The goal of deploying broadband wireless access is to have broadband everywhere, all the time. We are moving from a telecom sector based on silos to a broadband environment of rich multi-media applications provided on IP platforms. These IP platforms will run on a wireless core network. Wireless is also about how humans behave. We move around. Best practices matter because implementing best practices can drive better services for the way people behave, they can also drive affordability, reduce the cost of delivery of service and further drive spectrum availability. There is a marriage between computing power and radio services. End user devices will have additional computing power so radios will have more flexibility to work in different bands. This will break down the way we regulate spectrum, meaning we need to be flexible. Spectrum resources available to a radio are determined by four factors including specified bandwidth, the allowable power or energy emission within the band, the bit error rate acceptable to the end user and the throughput desired by the consumer. Most regulators have only defined the power limits and the bandwidth and left the other two factors to be determined by the marketplace. Smart radios will make tradeoffs between all four factors to manage spectrum.

There are three basic spectrum models that have been used in the past; and each has a role in future.

- Command and control, meaning all use is defined by the regulator with no flexibility.
- Exclusive use model which allocates spectrum to certain operators.
- License-exempt model which has the advantage of allowing for affordable services, but the disadvantage of leading to overcrowding and resulting interference.

A pragmatic approach to broadband wireless access would be one that provides and values flexibility. Flexibility however should also always ensure competition for consumer services and ensure that if spectrum is not used there is an economic opportunity cost for the licensee. Opportunity costs could be achieved through auctions, secondary markets, or the use of power limits to enforce the notion that if a licensee does not use spectrum, it cannot hoard spectrum and thereby block others from using it. There are ways of sharing spectrum bands by creating rules that reduce interference. It is also important to develop efficient and transparent licensing rules.

Mauritius and Ireland were identified as two promising examples of flexible broadband wireless spectrum management. Mauritius adopted a transparent process for granting 2.4 to 2.483 GHz bands for mobile wireless broadband. Ireland implemented pragmatic solutions to enable broadband wireless access in rural and underserved areas using fixed microwave systems, after recognizing that placing obligations on nation wide operators to serve rural areas did not yield results. Instead, Ireland issued licenses for limited rural and non-urban areas with increased power limits.

2005 Best Practice Guidelines for Spectrum Management to Promote Broadband Access

Mr. A. Ghodbani, the GSR Chairperson, introduced the best practices guidelines for Spectrum Management to Promote Broadband Access to be agreed upon by the audience. He reminded participants, as they meet on the eve of the World Summit for the Information Society, of the importance of wireless technologies in light of the opportunity they offer to deliver services to isolated areas, an issue of main concern in most countries. He further noted that wireless technologies are sometimes the only technologies allowing for this access. He stressed the need to manage this scarce resource efficiently and effectively. The guidelines identify the following ten main principles: facilitate deployment of innovative broadband technologies; promote transparency; embrace technology neutrality; adopt flexible use measures; ensure affordability; optimize spectrum availability on a timely basis; manage spectrum efficiently; ensure a level playing field; harmonize international and regional practices and standards; and adopt a broad approach to promote broadband access. (The full text is attached in Annex A).

The GSR Chairperson explained that the consultation was launched in June 2005 to identify and define these best practice guidelines. Thirty-three regulators worldwide, and one regional association of regulators (representing 10 countries), contributed in advance of the GSR, and 6 other countries commented before and during the GSR. All contributions and comments are reflected in the final version. The Chairperson was pleased that all regions actively participated and also provided comments. He noted the importance of taking into account regional and international harmonization in national policy. The Guidelines were adopted by acclamation.

Following this presentation, the moderator opened the floor to the panelists.

Mr. D. Abelson talked about the advantages of licensed and unlicensed spectrum for each of the stakeholders. He explained that he sees advantages to both. Licensed spectrum provides regulatory certainty and gives licensees rights. It further provides exclusivity, flexibility and transferability. Unlicensed spectrum results in radio development of new services, and can reduce spectrum scarcity. In addition, users can deploy the technology they choose. He noted that there must be a balance between these two approaches and that fair competition rules must be established. He indicated that in the United States, auctions are used to assign commercial spectrum when there is more that one applicant.

Mr. E. Ndukwe indicated that in order to accelerate the development of wireless broadband access in Africa there is a need to embed access to broadband connection in governments' policies and not only at the regulatory level. It is important for Africa to become a major knowledge centre in the broadband age. He recommended that optic fiber backbone be developed at the regional and international level. He noted that regulators should encourage technologies that use spectrum efficiently and free up spectrum used by old technologies that do not use spectrum efficiently, for example, by introducing digital television. Regulators can also encourage technologies that enable spectrum sharing and promote flexibility through the use of unified licenses. He added that there should be adequate records identifying unutilized spectrum. He also stressed the need to look at identifying spectrum for rural areas. Regulators must encourage and ensure promotion of broadband and not discourage deployment. There is a need for competition and affordable and quality services. He reminded the participants that the regulatory environment is conducive to attracting investors and both government and policy makers have a key role to play. He concluded by saying that NCC identified broadband access as an essential tool for development.

Mr. M. Bongui reported on the actual broadband deployment in Tunisia, and the 2006 forecasts of 150'000 subscribers, and 1 million by 2009 (representing 10 per cent of the population). He stressed the need to develop a strategy and a vision to meet these expectations. As a large part of these subscribers will be connected through wireless systems, the strategy is based on technology neutrality to avoid technical constraints and encourage innovation and market development. Traditional services should not block broadband services, all players should have access to spectrum. National frequency plans should be harmonized in accordance with international agreements, and spectrum use optimized through the reorganization of frequency plans to accommodate broadband. In addition, spectrum fees should be reduced to allow widespread access to broadband in fulfillment of social and priority needs.

Mr. F. M. Yurdal indicated that in Europe, studies are currently ongoing on the flexible use of spectrum, and reforming the existing uses of frequency bands. They are trying to get agreement for secondary trading for unused bands. Europe is saying that if it is not necessary to license broadband, then don't. Some countries in Europe consider that exclusive use of bands by broadband is not possible, even though broadband services often require a lot of spectrum. It is for this reason that Europe is looking to see if some bands, e.g., 3.4 and 3.6 GHz (with a possible extension to 3.6 – 3.8 and 5.8 GHz bands) now used by other services could be freed for use by broadband. Europe's main points are to consider technology neutrality, flexible use of bands and light licensing of bands. We are asking regulators that if it is not necessary, please do not license.

Mr. G. Alexandrov reported on the auctioning of two broadband wireless frequency bands that took place in Bulgaria at the end of October 2005. The price reached was four times the initial price for the first auction, and 10 times for the second one. The regulator, he said, obviously underestimated the potential of the market. Local newspapers wrote that operators over paid for 'air'. Thus it is also important for regulators to keep in mind what the general public thinks when we auction spectrum; they think we are auctioning air. A market-based approach can be applied where markets are efficient and competition exists. Regulators in developing countries have to manage two scarce resources, spectrum and investment flows. Relying too heavily on a purely market basis can entail a danger to those who have money to invest today. Of course, giving exclusive rights to an investor that has financial resources must also be considered carefully. Regulatory safeguards should be put in place regarding competitive use of the spectrum. Standardization may be a more important way to lower costs than principles of flexibility and market approaches. Standardized equipment produced on large scale brings operator and end user equipment prices down. Application of the best practice principles should keep the country specific environment in mind.

Mr. R. Singh provided insights on the way spectrum should be managed in era of convergence. He noted that the day is not far off when radios themselves will manage spectrum and interference due to the increased computing power of radios. For this reason, TRAI recommended to the government that 3G spectrum should be treated as a continuation of 2G. It's a question of market forces. If operators have spectrum and they want to use it for 2G services or 3G services that is up to them. He added that the cost of spectrum is an important aspect and developing countries cannot afford to increase its cost. Spectrum is like a raw material for providing broadband. Developing countries cannot afford to increase the cost of this raw material. If the raw material is expensive, the end product will be expensive. It is now proven if a regulator doesn't require high cost for spectrum this will have a positive impact both for consumers and government revenues.

The floor was then open to the audience. The following issues were discussed:
- The economics of spectrum and the need to look at it internationally, to find means of determining the low value for spectrum as there is no free good.
- The need to have a minimum set of regulation for the introduction of NGN, greater harmonization of frequency, efficient use of the spectrum and also for international roaming.
- Various platforms (fixed, nomadic and mobile) should be considered when looking at harmonization. Harmonization of exclusive use of frequency bands is not easy to accomplish. Harmonization of standards and regulatory practices is to be encouraged.
- One concern is the effect of technological developments on the structure of the regulator. There are pros and cons to creating converged regulatory authorities. It is difficult to keep content separated from carriage, but convergence of telecommunications and media may be a sensitive issue for telecommunications regulators as the media area is a very political one. As content is becoming part of the regulatory agenda some regulators noted the need to do all to keep it separate.
- Convergence of the spectrum and telecommunication regulatory agencies through the merger of the two entities should be considered in light of the importance of the spectrum issues.
- The 2005 GSR Best Practice Guidelines are a significant output of this year's GSR.

ITU-INFODEV ICT REGULATION TOOLKIT, ROUNDTABLE DISCUSSIONS

During the GSR, informal breakout sessions were organized with the aim of introducing the ITU-InfoDev ICT Regulation Toolkit to the participants. In the sessions, which were led by the consulting teams of each module, the scope and content of the toolkit was discussed with the aim of generating discussion that would enrich its content. In attendance were members of the expert review committee, drawn from the regulatory community who have been involved in reviewing the various modules since inception. Smaller groups of regulators also participated in each breakout session and engaged in an informal dialogue with their counterparts and the Toolkit consultants. There was a broad acceptance of the toolkit of which four modules are under preparation: Legal and Institutional aspects of Regulation; Spectrum management; New Technologies and their impact on Regulation and Competition, Interconnection and Pricing. The toolkit is intended as an on-line resource offering best practice guidelines on several key regulatory issues. Regulators expressed their interest in continuing such informal breakout sessions to provide for greater exchange of information and best practices both between regulators and with experts.

SESSION VII: THE WAY FORWARD

Moderator: *Hamadoun I. Touré, Director, Telecommunication Development Bureau -ITU*
Presenters: ***The ITU-InfoDev ICT Regulation Toolkit:***
Mostafa Terrab, Program Manager, InfoDev,

Report on The Third Annual Regional Regulators Association Meeting:
Paul Morgan, Chairman of the Third Regional Regulators Associations meeting,
Curthbert Lekaukau, Executive Chairman, Botswana Telecommunication Authority

In commenting on the feedback received from participants in the ITU-info*Dev* ICT Regulation Toolkit breakout sessions, Mr. **Mostafa Terrab** thanked participants for the very good turn out and inputs received during the breakout sessions. He indicated that the modules currently under development would go on-line in February 2006. He also informed the meeting that additional modules focusing on universal service would be developed later. He pointed out that the Toolkit was not prescriptive, but to provide a set of tools to enable administrations to develop their individual solutions in response to issues faced in their respective sectors. He concluded by pointing out that feedback from administrations would continue to be relied on in order to enhance the content and relevance of the toolkit. In addition, ITU and infoDev plan to go beyond creating modules to provide training based on the Toolkit modules.

Mr P. Morgan noted that the way forward must involve less regulation to allow the market to respond. He reported on the Third Regional Regulators Associations meeting, held the day before the GSR opened. He informed the meeting that although regional regulatory associations were at different levels of development, they were all fairly new. In addition, their mandates and activities pointed to three similar objectives. First, is the commitment to the development and articulation of common positions. Second, building capacity through tailored training and regional initiatives. Third, harmonizing policy and forging common guidelines on licensing, universal access, etc. Mr. Morgan noted that BDT, in response to a request made by last year's meeting of the Regional Regulators Associations, had organized a high level training programme during the weekend preceding the GSR. This training was very well received by the participants and enabled the CEOs that attended to share their experiences in a free and frank manner. He further reported that the need to facilitate interaction and exchange of information among and between regulatory associations in order to secure strong linkages between regulators, policy makers and development partners. Associations were encouraged to invite each other to their meetings, and post information about their activities and meetings on G-REX. Participants had noted the need for regional regulatory associations to take a leadership role in the implementation and promotion of current projects to their members, such as The Tandem Programme, the Telecommunications Clearinghouse Project, the ITU-Info*Dev* ICT Regulation Toolkit and G-REX that are being conducted by the ITU BDT at the request of regional regulators associations. He further informed the meeting that the participants to the Associations meeting had made a recommendation for the organisation of a forum for ministers involved in ICTs together with their policy advisers, to discuss policy and effective regulation, in a rapidly changing ICT environment.

Mr C. Lekaukau launched the discussion on the way forward and the future of the GSR by proposing to institutionalize the event within the ITU framework. This proposal was well received.

This suggestion was driven by the desire to ensure that it receives adequate resources, is maintained as an annual event, and is expanded to ensure participation

of policy makers. Since the GSR was launched in 2000, ITU has focused significant attention on national regulatory authorities, fostering an exchange of best regulatory practices among the global community of regulators. From the second GSR, the meeting was expanded to include the private sector for one day, with the rest of the meeting reserved for regulators. While participants wished to see the dialogue between regulators continued and enhanced, they also wish to see it expanded to include policy makers. Many regulators fully understand the benefits of an effective regulatory framework. They wish to ensure that policy makers are equally well informed so that regulators can put the best practices learned at the GSR into action, rather than being hindered by leaders who have not benefited from the rich discussion and best practices that are shared at each GSR. Other participants suggested that the strength of the GSR lies in its informality and spontaneity, which risks being lost if institutionalized. All participants agreed that it is essential that the global gathering of regulators be continued as an annual event and accorded sufficient resources to ensure that it remains an effective vehicle for the exchange of best practices among national communications regulators around the globe, and that this exchange be expanded to include policy makers at the highest level. Participants were encouraged to make recommendations to ITU Council, the World Telecommunications Development Conference (WTDC) and the Plenipotentiary Conference (Plenipot) concerning the future structure of the GSR.

BDT Director Touré explained that it would be challenging for BDT to organize a GSR in 2006, given the WTDC and the Plenipot. A number of participants expressed their disappointment at this news and requested BDT carefully to reflect on this decision. Participants' main interest is to ensure that the future of the GSR is included on the agenda of the upcoming decision-making events scheduled for 2006.

Recommendations on themes and practices for the next GSR include next generation network regulation, and in particular interconnection with IP-based networks; the effect of convergence on the structure of regulatory bodies; focusing on broadband and VoIP from a developing country perspective; the use of case studies to facilitate best practice exchanges and reviewing regulators' implementation of the WSIS action plan. Participants also agreed that it would be preferable to focus on fewer issues to allow sufficient time for regulators to talk with each other.

At the end of the session, all participants congratulated the Chairman, Mr Ali Ghodbani, for his excellent stewardship of the GSR and for the warm and generous hospitality directed to all participants.

<u>Annex A:</u>

GLOBAL SYMPOSIUM FOR REGULATORS
MEDINA CONFERENCE CENTRE
YASMINE HAMMAMET, TUNISIA
14-15 NOVEMBER 2005

Global Symposium for Regulators 2005
Best Practice Guidelines for Spectrum Management
to Promote Broadband Access

Introduction

Wireless broadband technologies hold promise for all countries seeking to ensure the availability of access to information communication technologies (ICT) and the creation of the Information Society. The ICT sector can improve standards of living and quality of life and boost productivity and competitiveness in the global and national economies. Broadband is an essential component of ICT. It is bringing new multimedia services to consumers for work and leisure, making them better-informed and more involved citizens and promoting economic and societal progress. With the advent of digital convergence and the Internet, wireless broadband offers the prospect of faster rollout of services, portability and mobility, making a reality of the vision of 'any content, any time, any place, anywhere' in the global information society. Wireless broadband technologies are set to close the broadband divide that exists between developing and developed countries. Wireless broadband, of course, will also require more spectrum.

Spectrum is a scarce resource that needs to be managed effectively and efficiently in order to derive maximum economic and social benefit, including encouraging growth and rapid deployment of infrastructure and services for consumers. This requires innovative approaches to managing the spectrum dynamically to succeed in making spectrum available for broadband and other new services. As recognized by the 2004 Global Symposium for Regulators (GSR), within the spirit of transparency, objectivity, non-discrimination, and with the goal of the most efficient spectrum use, the onus is on legislators and regulators to adjust, alter or reform their regulatory codes, wherever possible, to dismantle unnecessary rules which today may adversely affect the operation of wireless technologies and systems. A new set of spectrum management principles and practices, within regulators' respective mandate, will enable countries to harness the full potential of wireless broadband technologies. However, this cannot be done in isolation. A broad approach, including other regulatory instruments, as outlined in the GSR 2003 and 2004 Best Practice Guidelines to promote universal access, and low cost broadband, are necessary.[1]

We, the regulators participating in the 2005 Global Symposium for Regulators, have identified the following set of best practice guidelines for spectrum management to promote broadband access:

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[1] See http://www.itu.int/ITU-D/treg/Events/Seminars/2003/GSR/WSIS-Statement.html and
http://www.itu.int/ITU-D/treg/Events/Seminars/2004/GSR04/consultation.html

1. **<u>Facilitate deployment of innovative broadband technologies.</u>** Regulators are encouraged to adopt policies to promote innovative services and technologies. Such polices may include:
   o Managing spectrum in the public interest.
   o Promoting innovation and the introduction of new radio applications and technologies.
   o Reducing or removing unnecessary restrictions on spectrum use.
   o Adopting harmonized frequency plans defined by ITU-R recommendation in order to facilitate the implementation of competition.
   o Embracing the principle of minimum necessary regulation, where possible, to reduce or eliminate regulatory barriers to spectrum access, including simplified licence and authorization procedures for the use of spectrum resources
   o Allocating frequencies in a manner to facilitate entry into the market of new competitors.
   o Ensuring that broadband wireless operators have as wide a choice as possible of the spectrum they may access, and releasing spectrum to the market as soon as possible.

2. **<u>Promote transparency</u>**: Regulators are encouraged to adopt transparent and non-discriminatory spectrum management policies to ensure adequate availability of spectrum, provide regulatory certainty and to promote investment. These policies may include:
   o Carrying out public consultations on spectrum management policies and procedures to allow interested parties to participate in the decision-making process, such as:
     ▪ public consultations before changing national frequency allocation plans; and
     ▪ public consultations on spectrum management decisions likely to affect service providers.
   o Implementing a stable decision-making process that provides certainty that the grant of radio spectrum is done in accordance with principles of openness, transparency, objectivity--based on a clear and publicly available set of criterion which is published on the regulator's website--and non-discrimination and that such grants will not be changed by the regulator without good cause.
   o Publication of forecasts of spectrum usage and allocation needs, in particular on the regulator's website.
   o Publication of frequency allocation plans, including frequencies available for wireless broadband access, in particular on the regulator's website.
   o Publication of a web-based register that gives an overview of assigned spectrum rights, vacant spectrum, and license-free spectrum, balancing any concerns for confidential business information or public security.
   o Clearly defining and publishing radio frequency spectrum users' rights and obligations, including on the regulator's website.
   o Clearly defining and publishing licensing and authorization rules and procedures, including on the regulator's website.
   o Publication of legal requirements for imported equipment and foreign investment, in particular on the relevant government agency website.

3. **<u>Embrace technology neutrality.</u>** To maximize innovation, create conditions for the development of broadband services, reduce investment risks and stimulate competition among different technologies, regulators can give industry the freedom and flexibility to deploy their choice of technologies and

decide on the most appropriate technology in their commercial interest rather than regulators specifying the types of technologies to be deployed, or making spectrum available for a preferred broadband application, taking into consideration the need for and cost of interoperable platforms.

- o Regulators can take into consideration technological convergence, facilitating spectrum use for both fixed and mobile services, ensuring that similar services are not subject to disparate regulatory treatment.
- o Regulators can provide technical guidelines on ways to mitigate inter-operator interference.
- o Regulators can ensure that bands are not allocated for the exclusive use of particular services and that spectrum allocations are free of technology and service constraints as far as possible.

4. **Adopt flexible use measures**: Regulators are encouraged to adopt flexible measures for the use of spectrum for wireless broadband services. Such measures may include:
   - o Minimizing barriers to entry and providing incentives for small market players by allowing broadband suppliers to begin operations on a small scale at very low cost, without imposing onerous rollout and coverage conditions, to enable small market players to gain experience in broadband provision and to test market demand for various broadband services.
   - o Recognizing that wireless broadband services may be used for both commercial and non-commercial uses (e.g., for community initiatives or public and social purposes) and that broadband wireless spectrum can be allocated for non-commercial uses with lower regulatory burdens, such as reduced, minimal or no spectrum fees; regulators can also allocate and assign spectrum for community or non-commercial use of broadband wireless services.
   - o Recognizing through flexible licensing mechanisms that wireless broadband technologies can provide a full range of converged services.
   - o Adopting lighter regulatory approaches in rural and less congested areas, such as flexible regulation of power levels, the use of specialized antennas, the use of simple authorizations, the use of geographic licensing areas, lower spectrum fees and secondary markets in rural areas.
   - o Recognizing that in markets where spectrum scarcity is an issue, the introduction of mechanisms such as secondary markets can in some cases foster innovation and free-up spectrum for broadband use.
   - o Recognizing the role that both non-licensed (or license-exempt) and licensed spectrum can play in the promotion of broadband services, balancing the desire to foster innovation with the need to control congestion and interference. One measure that could be envisaged is, for example, to allow small operators to start operations using licence-exempt spectrum, and then moved to licensed spectrum when the business case is proved.
   - o The promotion of shared-use bands, as long as interference is controlled. Spectrum sharing can be implemented on the basis of geography, time or frequency separation.
   - o Developing strategies and implement mechanisms for clearing bands for new services as appropriate.
   - o Recognizing the need for cost-effective backhaul infrastructure from rural and semi-rural areas, regulators can consider the use of point-to-point

> links within other bands, in line with national frequency plans, including any bands for broadband wireless access.

5. **Ensure affordability.** Regulators can apply reasonable spectrum fees for wireless broadband technologies to foster the provision of innovative broadband services at affordable prices, and minimize unreasonable costs that are barriers to entry. Higher costs of access to spectrum further reduce the economic viability in rural and under-served areas. Auctions and tender processes can also be managed to meet these goals.

6. **Optimize spectrum availability on a timely basis.** Regulators are encouraged to provide effective and timely spectrum use and equipment authorizations to facilitate the deployment and interoperability of infrastructure for wireless broadband networks. Regulators are also encouraged to make all available spectrum bands for offer, subject to overall national ICT master-plans, in order that prices are not pushed up due to restrictive supply and limited amount of spectrum made available and so that opportunities to use new and emerging technologies can be accommodated in a timely manner. In addition, special research or test authorizations could be issued to promote the development of innovative wireless technologies.

7. **Manage spectrum efficiently.** Spectrum planning is necessary to achieve efficient and effective spectrum management on both a short-term and long-term basis. Spectrum can be allocated in an economic and efficient manner, and by relying on market forces, economic incentives and technical innovations. Regulators can promote advanced spectrum efficient technologies that allow co-existence with other radio communications services, using interference mitigation techniques, for example, dynamic frequency selection. Regulators can provide swift and effective enforcement of spectrum management policies and regulations.

8. **Ensure a level playing field.** To prevent spectrum hoarding, especially by incumbents, regulators can set a limit on the maximum amount of spectrum that each operator can obtain.

9. **Harmonize international and regional practices and standards.** Regulators can, as far as practicable, harmonize effective domestic and international spectrum practices and utilize regional and international standards whenever possible, and where appropriate, reflect them in national standards, balancing harmonization goals with flexibility measures. This could include harmonization of spectrum for broadband wireless access that could generate economies of scale in the production and manufacture of equipment and network infrastructure. Likewise, global harmonization of standards to ensure interoperability between different vendor's user terminals and network equipment can be promoted. The use of open, interoperable, non-discriminatory and demand-driven standards meets the needs of users and consumers. Coordination agreements with neighbors, either on a bilateral or multilateral basis, can hasten licensing and facilitate network planning.

10. **<u>Adopt a broad approach to promote broadband access</u>**. Spectrum management alone is inadequate to promote wireless broadband access. A broad approach, including other regulatory instruments; such as effective competitive safeguards, open access to infrastructure, universal access/service measures, the promotion of supply and demand, licensing, roll-out and market entry measures; the introduction of data security and users' rights, where appropriate; encouraging the lowering or removal of import duties on wireless broadband equipment; as well as development of backbone and distribution networks is necessary.

THIRD ANNUAL MEETING OF
REGIONAL REGULATORY ASSOCIATIONS
YASMINE HAMMAMET, TUNISIA, 13 NOVEMBER, 2005
Medina Conference Centre

Chairman's Report

Introduction

1   The third annual meeting of Regional Regulatory Associations was held in Yasmine Hammamet, Tunisia on 13ᵗʰ November 2005, under the theme "Fostering a Global Network of Regional Regulatory Associations". 41 participants took part in the meeting, representing regional regulatory associations, international organisations and national administrations. Consultants working on the ITU/InfoDev ICT Regulation toolkit were also present for the meeting Mr. Paul Morgan; the Director General of the Office of Utilities Regulation in Jamaica and Chairman of the Organization of Caribbean Utility Regulators (OOCUR) chaired the meeting.

Opening Remarks

2   Brief opening statements were made by Mr Ali Ghodbani, the Director General of Instance Nationale des Télécommunications de Tunisie and Mr Hamadoun Touré, Director of the Telecommunications Development Bureau of the International Telecommunication Union.

Presentations

3   During the meeting, regional regulatory associations made presentations to identify their achievements in the past year, their challenges and future plans. Presentations were made by: West Africa Telecommunications Regulators Association (WATRA), the Organisation of Caribbean Utility Regulators (OOCUR), the Arab Telecom and IT Regulatory Authorities Network, the ASEAN Telecommunication Regulators Council (ATRC), the Telecommunication Regulators Association of Southern Africa (TRASA), the Francophone Network for Telecommunications Regulation (FRATEL) and the Association of Regulators of Information and Communications for Eastern and Southern Africa (ARICEA).

Common aspects that emerged from these presentations demonstrated:

1) Commitment by regional regulatory associations to the development and articulation of common positions where desirable, for example at international fora and promoting the common regional issues.

2) Commitment by regional regulatory associations towards building capacity of member organizations through tailored training and development initiatives.

3) Facilitating the harmonization of policy at the regional level and forging the adoption of common guidelines on issues such as licensing, universal service, interconnection etc.

4   During the second session, information on activities that had been implemented in response to recommendations made in the second annual meeting of regional regulators were made by the Regulatory Reform Unit (RRU) of the BDT and InfoDev. Presentations were made on the ITU Tandem Programme[2], the Telecommunications Decision Clearinghouse Project[3], the Global Regulators exchange (G-Rex)[4] and the ITU-InfoDev ICT Regulation toolkit[5]. Participants also gave feedback on the just concluded Executive High Level training indicating that the training had not only been timely but was also responsive to their needs.

Summary of the Discussion

5   During the discussion that followed, the following points were raised by the meeting:

o   There need to facilitate interaction and exchange of information among and between regulatory associations in order to secure strong linkages between regulators, policy makers and development partners such that co-coordinated solutions towards sub - regional, regional, hemispherical and even global issues can be identified. Regional Regulators Associations committed to contribute to and perhaps even achieve these by inviting each other to their associations' activities. The ITU also encouraged the regional associations to communicate information on their meetings in advance so that it would be posted on G-Rex.

o   Participants noted the projects under implementation: The Tandem Programme, the Telecommunications Clearinghouse Project, the ITU-InfoDev ICT Regulation Toolkit and G-Rex, that are being conducted under the ITU-BDT at the request of regional regulators associations. They noted the need to take a leadership role in the usage of resources that are already available from the ITU and to act as a clearinghouse for the dissemination and promotion of this material and facilities within their respective regions.

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[2] The Tandem programme is a global skill exchange programme for regulators. For more information see: http://www.itu.int/ITU-D/treg/Events/Seminars/2005/RegRegAssoc/Tandem_Program_Summary.pdf
[3] The Telecommunications Clearinghouse Project seeks to overcome lack of local precedent faced by regulators in dispute resolution through provide a mechanism for global knowledge sharing. For more information see: http://www.itu.int/ITU-D/treg/Events/Seminars/2005/RegRegAssoc/clearing_house.pdf
[4] G-Rex is a password protected website for use by regulators and policy makers. For more information see: http://www.itu.int/ITU-D/treg/Events/Seminars/2005/RegRegAssoc/G-REX%20Presentation.pdf
[5] The ICT Regulation Toolkit is an on-line resource for policy-makers, regulators, the telecom industry, and consumers. It provides a global overview of ICT regulation and contains practical materials highlighting case studies, experiences and results. For more information see: http://www.itu.int/ITU-D/treg/Events/Seminars/2005/RegRegAssoc/ICT%20Toolkit%20Overview%20Presentation.pdf and http://www.ictregulationtoolkit.org/

o   The need for the ITU-BDT in consultation with development partners to organize high level fora for ministers responsible for technology and communications together with policy makers with a focus on policy and effective regulation. This would enhance the diffusion of ICTs in the various regions and sensitize them to the challenges of the rapidly changing ICT environment and the imperatives for policy makers and regulators.

The meeting ended with a summary of the proceedings by the Chairman.