11TH GLOBAL SYMPOSIUM FOR REGULATORS (GSR)

ARMENIA CITY, COLOMBIA, 21 - 23 SEPTEMBER 2011

CHAIRMAN'S REPORT

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EXECUTIVE SUMMARY

The 11th Global Symposium for Regulators (GSR-11), organized by the Telecommunication Development Bureau (BDT) of the International Telecommunication Union (ITU), in collaboration with the *Comisión de Regulación de Comunicaciones* (CRC) of Colombia, was held in Armenia City, Colombia, from 21 to 23 September 2011.

H.E. Mr Diego Molano Vega, Minister of Information Technologies and Communications of Colombia, presided over the opening session, accompanied by Dr Hamadoun Touré, Secretary-General of ITU, Mr Brahima Sanou, Director of BDT, Mr François Rancy, Director of the ITU Radiocommunication Bureau (BR), Mr Ndongo Diao, Director-General of the *Autorité de Régulation des Télécommunications et des Postes* (ARTP) of Senegal (Chairman of GSR-10) and Mr O. Ayala, Corporate Vice-President, Microsoft (Chairman of GILF-11).

H.E. Mr Juan Manuel Santos Calderón, President of the Republic of Colombia, addressed the meeting through a holographic intervention.

GSR-11 was chaired by Mr Cristhian Lizcano Ortíz, Executive Director, CRC, Colombia. This year's event attracted 504 participants, bringing together regulators, policy-makers, industry representatives and service providers from 72 countries and seven regional and international organizations.

The theme of GSR-11 was "Smart regulation for a broadband world", and the symposium examined several aspects regulators must address in order to facilitate broadband deployment for all. It acknowledged that the advent of broadband has significantly changed the way we communicate, access information, share experiences and knowledge, do business and interact with one another. Sound broadband strategies and plans are now needed to ensure that all citizens can benefit from the new applications, services and business opportunities brought about by a broadband world. Panellists and participants examined smart regulatory measures that regulators can take to achieve broadband for all, foster innovation and address the complexities and challenges of the broadband ecosystem.

This year's symposium consisted of nine plenary sessions and a session on the way forward. GSR-11 also included a networking lunch session with two discussion tables. Furthermore, an online networking platform facilitated delegates' interaction throughout the meeting, as well as enabling them to make room reservations online.

As in all previous GSRs, the national regulatory authorities (NRAs) present reached a consensus on an output document: "Best-practice guidelines on regulatory approaches to advance the deployment of broadband, encourage innovation and enable digital inclusion for all". The final text of the Best-practice guidelines is attached to this report (**Annex A**).

A series of GSR discussion papers were issued. These discussion papers and the presentations referred to in this report are available on the symposium website at: http://www.itu.int/ITU-D/treg/Events/Seminars/GSR/GSR11/documents.html

OPENING SESSION – PRESIDENTIAL SEGMENT

The opening session, held on 21 September 2011, took the form of an interactive panel without formal speeches, and was moderated by **Mr Brahima Sanou**, Director of the ITU Telecommunication Development Bureau (BDT).

H.E. Mr Juan Manuel Santos Calderón, President of the Republic of Colombia, while unable to attend in person, welcomed participants through a holographic projection. He thanked ITU for organizing this important event for the first time in the Americas region. Highlighting the relationship between economic growth and broadband, he expressed his wish to increase broadband connectivity from 2.2 to 8.8 million people in Colombia between 2010 to 2014, bringing optical fibre to 70 per cent of the country. Broadband regulation should follow the rule of "the market up to what is possible, the State up to what is needed", and an exchange of experiences and information at regional and international levels is necessary so as to guide governments in their strategies towards intelligent regulation. He thanked CRC for hosting the event.

H.E. Mr Diego Molano Vega, Minister of Information Technologies and Communications of Colombia, spoke of the evolution and transformation of his country, which for security reasons, has experienced low economic growth but is now in a good position to attract foreign investors. He observed that 12 years ago, Armenia, located in the heart of the coffee region, was destroyed by a huge earthquake, but that the city has now been totally rebuilt. He ended his intervention by declaring the symposium open.

Mr Sanou, after thanking the minister and Mr Lizcano Ortíz, Chairman of GSR-11, recognized participants coming from all over the world, including the ministers of Colombia, Ecuador and the Dominican Republic. He noted that this year's discussion is highly relevant, as ICTs are changing peoples' lives and offering new opportunities; this progress will only be achievable, however, if there is a set of fair and transparent rules in place.

H.E. Mr Molano Vega noted that Internet is different from other services, as it involves many players, unlike the other telecom services, where only telecommunication operators are concerned. Applications are the added value that Internet brings to societies and as a consequence investments and incentives to develop them are essential. He noted that governments have two roles to play in order to ensure digital inclusion: pushing for public-private partnerships to stimulate investment, and being the first users of new technologies so as to set an example.

Dr Hamadoun Touré, Secretary-General of ITU, thanked the host country for its warm hospitality and congratulated the minister for the high economic growth achieved by Colombia, thanks in part to the growth of mobile communications and broadband. He thanked all participants for their attendance. He emphasized that the world is moving, and telecommunications play a catalytic role. Services and applications have no boundaries, and cybersecurity is an issue for everybody. The World Conference on International Telecommunications (WCIT-12) will be a great challenge to arrive at a win-win solution for all parties concerned. The cost of communications is very high in some countries, as are the costs related to roaming and interconnection. Finally, he reminded participants that the Broadband Leadership Summit organized by the Broadband Commission for Digital Development will be held on 24 and 25 October, in conjunction with ITU TELECOM World 2011 in Geneva, and invited everybody to participate.

Mr Ndongo Diao, Director-General of ARTP, Senegal, host of GSR-10, noted that certain telecommunication industries have to rethink the way they are doing business in order to remain relevant, and that the ICT sector will continue to grow if it continues providing innovation and welfare. What should be measured is not gross national product, but rather the population's welfare, on eight dimensions: e-government, e-business, e-learning, e-health, e-agriculture, e-empowerment, e-environment and e-science. He also underlined the risk of a widening of the digital divide, as many people still do not have access to mobile and broadband. In Senegal, the government has been promoting competition and universal service.

Mr Orlando Ayala, Corporate Vice-President, Microsoft, and Chairman of GILF-11, said that broadband for all is a responsibility of this generation. Broadband access should be seen as a basic principle and a fundamental human right. Industry can introduce technological innovation to lower the cost of access, such as opening up the spectrum below 1 GHz for services without licences, and using cloud computing to reduce the high cost of network installation and maintenance. Human elements, taxation and protection of intellectual property rights also need to be considered. He concluded by noting that while rural access is important, 50 per cent of the world's population lives in cities, and the problem of access in cities has not yet been solved.

In the ensuing **discussion**, it was noted that in many countries the universal service fund (USF) is collected but not utilized. A World Bank study shows that only 11 per cent of USF resources are effectively used. Governments could exploit these funds to promote investment and stimulate broadband access as part of their countries' strategies. A realistic perception of market opportunities is needed in order to allow market forces to respond to political ambitions.

Regarding public-private partnerships, it was stressed that the role of governments/parliaments is to approve the rules, and the role of regulators is to apply them. However, governments should not confine themselves merely to approving laws; they should also be the first users of e-services so as to stimulate private investment.

At the end of the session, **Mr Sanou** presented all panellists with a copy of two recent ITU publications, *Trends in telecommunication reform 2010* and the 2011 *Yearbook of statistics*. He also presented a copy of these works to Ms Roxanne McElvane, Senior Legal Adviser, United States Federal Communications Commission and Chairman of ITU-D Study Group 1, in recognition of the important work of women in the ICT sector.

SESSION I: M-BANKING AND M-FINANCIAL SERVICES: THE ROLE OF THE REGULATORS

The session was moderated by **Mr C. Lizcano Ortíz**, Executive Director, CRC, Colombia, and Chairman of GSR-11.

Ms J. Hernandez, President, Telecommunications Management Group, Inc. (TMG) and author of the GSR discussion paper on the *Regulatory landscape for mobile banking,* pointed out the need for and benefits of mobile-banking services, but noted that the latter are highly dependent on the policies and regulations in place. In countries where people have no access to conventional financial services, mobile phones and m-banking services can change their lives. Different solutions can be envisaged: one bank to one operator; one bank to many operators; and a many banks to many operators model in cases where the market is completely open. The challenge is operating in two different sectors, where the main responsibility lies with the banking regulator. In some countries, like Kenya and the Philippines, the telecom regulator has intervened in the market *ex post*, while in the United States it has acted in a pre-emptive manner. The important role of mobile operators was highlighted for issues such as data protection, as the rules governing financial information can be very strict. On the specific role of the ICT regulator in matters that concern m-banking, she noted that there is both a direct and an indirect role. The direct role is that of a facilitator, coordinating work with policy-makers and financial regulators on consumer- protection issues and sharing technical knowledge and expertise on mobile services. In addition, however, the regulator may need to support the roll-out of m-banking services indirectly by trying to increase mobile penetration, enhance universal access and coverage, increase market liberalization, promote interoperability, allow mobile-number portability and increase access to spectrum.

Mr F. Wangusi, Acting Director-General, Communications Commission of Kenya (CCK), stated that all banking regulations in Kenya are laid down by the Central Bank, and that the financial regulator sets concrete rules for mobile e-money services that apply to post offices and commercial banks. The telecom regulator deals with facilitating access to the services. Noting that 40 per cent of citizens in Kenya may not be able to access m-banking because some

operators do not allow this facility, he called for synergies between financial and telecom regulators.

Mr M. Tarazi, Senior Policy Specialist (m-banking), Consultative Group to Assist the Poor (CGAP)/World Bank, added that the World Bank has put a lot of effort into enabling m-banking. He noted that in 2012 there will be an estimated 1.2 billion people with no bank accounts but who have a mobile phone, and it is this opportunity that is motivating the work and efforts on m-banking. However, he cited the example of South Africa, where the financial regulator had relaxed customer identification requirements but at the same time the telecom regulator had increased the identification requirements to use a mobile phone; such a lack of coordination exerted a negative impact on the roll-out of e-banking services.

Mr E. Cubides, Mobile Financial Services Manager, Tigo, said that while financial models and new models offered by communication companies can co-exist, the regulations need to be flexible enough to benefit the user. Countries can start by developing models for remittances and then elaborate improved business models. Some market conditions such as number portability, facilitation of interoperability, and so forth can facilitate the introduction of banking and financial services with few changes and easily implemented initiatives. Taxes and controls also play a relevant role.

In the ensuing ***discussion***, it was stressed that m-banking is facing more challenges than solutions, notably flexibility, regulation, platforms, security and consumer protection. The question of how to harmonize the regulatory framework between countries for international m-banking services was raised. It was also recognized that m-banking is far less expensive than other financial services like credit cards, and can reach a wider proportion of the population. It was further noted that both financial and telecommunication regulations need to be coordinated in order to assure the highest profitability of the service.

SESSION II: WIRELESS-BROADBAND SPECTRUM VALUATION

The session was moderated by **Mr F. Rancy,** Director of the ITU Radiocommunication Bureau (BR).

Mr J. Alden, Vice-President, Freedom Technologies, and author of the GSR discussion paper on *Exploring the economic valuation and social value of spectrum,* underlined how regulators can influence policy in this area, both for the good of users and to attract investment in the market, and stressed the difference between valuation and value. In the near future there will be an explosive demand for spectrum. He highlighted the economic reasons for and drivers of spectrum valuation from the point of view of regulators, spectrum owners and spectrum users, and suggested that the regulations that apply to spectrum should protect network neutrality and contain safeguard rules against interference. He emphasized the difficulty inherent in spectrum evaluation, and set out a number of criteria that could help in the evaluation process, focusing on key regulatory aspects such as market structure, competition policy and the nature of the bidding process, transparency and accountability. Charging for spectrum can be seen either as "rent taking" or as legitimate cost recovery in respect of a valuable national asset.

Dr V. Rawat, Vice-President and Ambassador to ITU, Research in Motion (RIM), Canada, outlined the complexity of bringing a device to market that involves different spectrum, standards and technologies, as well as meeting consumer demands. She suggested that harmonization of spectrum is even more important for mobile broadband because manufacturers aim to simplify the design of their equipment whereas different spectrum allocations make the design extremely complex.

Mr P. Pitsch, Executive Director, Communications, Intel Corporation, United States, said that it is sometimes the non-commercial uses of the spectrum that are the most effective. Operators may be in the situation of giving the spectrum back or continuing to use it in difficult conditions. Flexibility or opportunity costs are the best ways to tackle the situation, as users are given possibilities and choices to use spectrum.

Mr D. Lučić, Executive Director, Croatian Post and Electronic Communications Agency (HAKOM), noted that in times of recession governments need to maximize revenues from spectrum, and at the same time bring in broadband services. Although Croatia has already implemented the digital switchover, some spectrum still cannot be used due to problems of regional harmonization and interference along national borders. He called for a balanced approach taking into account the needs of government, operators and customers.

Mr M. Ahmad Zia, Director-General, Office of Utilities Regulation (OUR), Jamaica, reported that the history of spectrum management and licence agreements before 2000 in Jamaica involved the postal service, a spectrum management agency and the telecommunication regulator, and this has led to legal actions by operators. In light of this situation, he emphasized the need to have a clear policy, especially on harmonization issues, for developing countries and emerging economies.

Ms E. Cassin, Vice-President, Group Spectrum Office, Orange-France Telecom, highlighted the importance of quality of service as the baseline for an operator's business plan. She also emphasized the importance of transparency, an understanding of specific national market-related elements, population and geography. Operators have a long-term view of investment, whereas governments need to maximize their revenue from spectrum auctions, which in some cases leads to lack of investment and innovation, and customer services suffer.

In the ensuing **_discussion_**, participants from the floor wondered how white space and new technologies can affect spectrum valuation. The issue of white space becomes interesting when for example it is occupied by broadcasters, who in turn are in a position to sell it. Spectrum has a price at a particular time in a particular place. In white space, the cost of the spectrum is zero because it is not used. As a result, white space is an opportunity for all in the use of the spectrum.

Regarding spectrum pricing and bidding systems, it was observed that it is not always the best bid that wins the contract. Sometimes the second highest bid, rather than the highest, is the best economic solution. Regulators should in turn monitor how operators use their spectrum, since the boom in the use of mobile for data requires that in the near future available spectrum be used with an efficiency growth of 500 times. Technology and harmonization are the key elements, but so too is the need to define clearly the aim of spectrum allocation.

In regard to reasonable price and spectrum benchmarking, cost/profit analysis and reserved prices for licence renewal are the most widely used practices. Spectrum is a public and limited resource and for this reason governments should have as their primary goals flexibility, service-oriented practices and frequency efficiency.

Mr Rancy concluded that regulators should deliver clean spectrum, with no interference, clear rules in auctions, and coverage obligations, and highlighted the work being carried out by ITU in this area.

SESSION III: SPECTRUM IN TRANSITION: SATELLITE REGULATION TO FOSTER BROADBAND ACCESS

The session was moderated by **Mr A. Soumalia**, Secretary-General, African Telecommunications Union (ATU).

Mr R. Mehrotra, Founder and Principal Consultant, Red Books, gave an overview of the GSR discussion paper on _Regulation of global broadband satellite communications_, outlining satellites as a valuable component of broadband strategy. He described the benefits that satellite communications can offer, either as a standalone service or in combination with terrestrial networks, especially in terms of their minimal cost, speed and reliability for roll-out to rural areas. However, national and international barriers remain, and he called for regulators to update frameworks to reflect international best practices.

Satellite systems already deliver broadband, but new technology being developed – such as spot-beam technologies and bit-rate increases – will both improve quality and make satellite communications 100 times more affordable than they are today. However, to improve the

situation still further, a number of issues need to be addressed, including open-sky policy implementation, international gateway liberalization and a transparent non-discriminatory procedure for satellite operators to gain access to national markets.

Mr R. Horton, Board Member, National Information and Communication Technology Authority (NICTA), Papua New Guinea, said that in establishing national broadband plans satellites are often forgotten, but if satellite broadband reaches critical mass it can be a relevant element of GDP. The Ka band can offer very efficient and economic solutions with blanket coverage to end users. The challenge for regulators is to provide a welcoming regulatory environment for investment by both service and network providers, including satellite operators, since the level of investment to create such an environment is prohibitive for most developing countries, not least when the limited funds are needed in other sectors.

Mr K. Gude, Associate General Counsel, Regulatory and Government Affairs, INTELSAT, noted the important ways in which satellite networks contribute to broadband distribution plans, especially with direct-to-home services, extending cellular networks to rural areas that would otherwise have much lower penetration levels because other structures do not exist. He also suggested that future and ongoing improvements in both speed and bit-rates will radically reduce costs and increase penetration rates of satellite services for fixed and mobile networks.

Ms A. Ornés, Senior Director, International Regulatory, Inmarsat Ltd, underlined the essential nature of today's satellite networks in reaching rural and geographically isolated areas, and their role in ensuring emergency services in times of disaster. It is important that satellite operators be included in national broadband plans.

Ms J. Read, Vice-President, Regulatory Affairs, SES World Skies, stressed the important role that regulation plays in the deployment of satellite-based broadband services, including the adoption of best-practice regulatory models such as recommendations on terminals, licensing fees and mutual recognition of equipment. She also called for simplification and liberalization of the national regulatory environment to promote broadband in both present and future bands; a flexible attitude to new application proposals that regulators deal with; development of a competitive environment to promote investment; commitment to the WTO agreements; harmonization of spectrum allocation on a national and regional level; recognition of the international nature of satellite services; and the development of clear and transparent licensing procedures; as well as other measures that will ultimately reduce the cost of deployment and subsequent cost to the users, such as avoiding duplication of type-approval.

Mr P. Masambu, Deputy Director-General and Director of Technical Affairs, International Telecommunications Satellite Organization (ITSO), added that there is an important need for national broadband plans to include satellite, but for that to happen regulators and policy-makers need to understand how. He called for regulators to ensure a level playing field and apply technology-neutral policies, as well as to ensure that satellite services are kept in mind when considering the issues surrounding spectrum resources, especially in view of the proposed changes to the International Telecommunication Regulations. The issue of emergency and disaster preparedness was also highlighted, as well as the important role of the regulator in ensuring that plans are put into place. The regulator should also take a more active role in satellite standards and interoperability issues.

The **delegate of the Republic of the Congo** intervened to correct the figures given by the GSM Association (GSMA) during the GILF session, stating that the taxation system applied in his country had resulted in a 10 per cent increase in incoming international traffic in 2010. Prices have dropped and the government has raised its revenues, allowing investments in crucial sectors like education and health. He asked if hybrid systems will bring lower costs, what cost models can be used by regulators, especially for broadband, and whether satellite will be able to offer the full range of broadband-related services.

The ensuing *discussion* outlined that hybrid systems can fill gaps in penetration, offering all broadband services, and that prices are set to fall with the introduction of new technology; however, some caution has to be exercised as not all integrated systems are interference free. Concerning the impact of satellite on access and on transit of local content, it was noted that the new generation of satellites will give Africa more control over content and access to

networks. The importance of reducing costs associated with aspects of cross-border movement of equipment such as type-approval and taxation was also underlined, as was the need for regulators to look at what brings prices down: issues such as competition, standards and economies of scale can all play a role in bringing down prices in the same way as has been done for mobile.

SESSION IV: SETTING NATIONAL BROADBAND POLICIES, STRATEGIES AND PLANS

Dr A. Badawi, Executive President, National Telecom Regulatory Authority (NTRA), Egypt, moderator of the session, kicked off proceedings by providing a brief overview of the requirements for setting national broadband policies, strategies and plans. He explained that the session intended to provide insights into the necessary elements for designing a broadband plan. Each country needs a different plan with achievable targets, appropriate ways of financing and a reasonable timetable according to national circumstances.

Mr R. Horton*, Senior Telecommunications Expert, introducing the GSR discussion paper on Setting national broadband policies, strategies and plans,* noted that there is no one set of best-practice guidelines for developing broadband plans. In the long run, the most mature markets are those that have enabled inter-platform competition. The service-based competition model can be regarded as a transitional step towards competition among networks. The broadband plan needs to be forward looking and resilient to political cycles, and should be endorsed by all policy-makers. It also needs to define targets such as universal service and economic growth, provide evidence of the benefits to end users, spell out the means of implementation, address the models of financing the broadband platform, take into account cross-sectoral considerations, adopt a bottom-up or top-down target approach, and ensure technological neutrality. He further introduced the concept of the decision tree, which can act as a checklist of principles for consideration. The six levels of decision points are: foundation, goals and targets, form of regulator, regulatory support mechanisms, investment, and industry structure. Best practices in respect of each of the decision points will be different in developed and developing countries.

Ms E. Powell, Permanent Secretary, Ministry of Public Enterprises, Communications, Civil Aviation and Tourism, Fiji, described the main features of broadband policy in Fiji. Fiji is in the final stage of development of its broadband plan, and the new policy will be launched on 10 October 2011, Fiji National Day. The plan is a living document that will be reviewed and updated annually. A committee consisting of the competent ministries, the Commerce Commission and other associated organizations has been formed to oversee its implementation. The identified target of the broadband policy is 95 per cent penetration with a minimum 2 Mbit/s by 2016, along with efforts to make broadband affordable and help rural communities. She explained that the establishment of a Fiji Internet exchange is crucial in terms of affordability. Three multiple telecentres will be launched in October and the government is developing online applications.

Mr Y. S. Nurul, Commissioner, Indonesian Telecommunication Regulatory Authority, explained how Indonesia, with thousands of islands and 240 million inhabitants, is able to connect all areas/villages with broadband. Mobile penetration is 90 per cent and there are 60 million Internet users. Thanks to competition, prices have decreased. A telecentre programme has been established using the universal service fund. Indonesia also has a public-private partnership project that will select the winner based on minimum subsidies. Through the USF, the country collects USD 1.2 billion annually, and 13 000 km of fibre-optic cable, mostly submarine, is being deployed.

H.E. Mr M. Al-Taani, Chairman of the Board and CEO, Telecommunications Regulatory Commission (TRC), Jordan, outlined the main features of a regulatory regime that supports broadband deployment. The main focus of the first version of the regulatory framework was to liberalize the market, and policy is currently being reviewed to take into account NGN and convergence. The unbundling of the local loop will take place in 2012, and a new law on public-private-partnership (PPP) is being developed. In addition, frequencies are made available for 3G and 4G post roll-out.

Mr E. Lazarus, Chief of Staff, Federal Communications Commission (FCC), United States, reported on the experience of his country in implementing its national broadband plan. He indicated that the plan contains 200 recommendations across government agencies to maximize the benefits of broadband to all Americans at affordable prices. In the area of spectrum policy, the use of mobile-satellite service (MSS) spectrum has been liberalized, unlicensed spectrum released, and a new incentive mechanism proposed that will allow current licensees to return spectrum. The universal service programme amounts to around USD 8 billion a year, and is being modernized and designed to bring broadband to all Americans. He also described a very large PPP project to provide low-income Americans with access to the hardware, software and connectivity they need.

In the ensuing **_discussion_**, it was noted that governments can help to stimulate demand through health, education and other services over the Internet. They have an important educational role that needs to be reflected in the broadband plan. It was pointed out that the use of spectrum take-back incentives proposed in the United States pertained to its legacy networks and may not be replicable as such in other countries.

In his capacity as moderator, **Dr Badawi** proposed to reach a consensus on defining "broadband". He noted that 2 Mbit/s could be a reasonable parameter for the next three years, but would need to be revised thereafter. It was also suggested that speed, international connectivity and aggregated bandwidth be taken into account when defining broadband, a definition which also needs to include actual penetration, specific speed delivery and price per Mbit. It was noted that in many developing countries basic needs such as food, water and electricity are priority elements, and although access to basic communication services to reduce the digital divide is a key factor, the zeal to deploy broadband may in some cases increase the divide instead of bridging it. The need to share best models for implementing PPP frameworks was noted.

In conclusion, he reiterated that the definition of broadband will differ from one country to another according to national circumstances, that the use of private funds should be maximized and that spectrum issues for broadband need to be tackled.

SESSION V: OPEN-ACCESS REGULATION

The session was moderated by **Mr G. Miley Rojas**, Board Member, _Superintendencia de Telecomunicaciones_ (SUTEL), Costa Rica, who noted that today's telecommunication sector constantly fosters development through a strong demand for new services in a highly competitive and regulated market, where volume of demand compensates for narrow margins, but which still needs to be regulated. While noting that in an efficient market there is no need for regulatory intervention, he also suggested that regulators have a responsibility to promote sharing in order to avoid duplication.

Mr M. Fall, Head, Regulatory and Market Division (RME), ITU/BDT, made a presentation on the importance of the revision of the International Telecommunication Regulations (ITRs), outlining the background, preparation process, expected results and other useful information on the preparation of the forthcoming World Conference on International Telecommunications 2012 (WCIT-12) to be held from 3 to 14 December 2012 in Dubai.

Mr D. Rogerson, Director, Incyte Consulting Ltd. and author of the GSR discussion paper on _Open-access regulation in the digital economy,_ said that broadband has unique requirements in each country. There is a widespread understanding of the benefits of the digital economy, and regulators need to facilitate the expansion of digital facilities available to all in a fair and equitable way, ensuring open access with public, private or hybrid investment solutions. Open access should be at the heart of the regulatory role concerning broadband development. He presented a model of three layers: infrastructure layer, transport layer, and applications and services layer. Underlining the importance of the infrastructure layer due to the unlikeliness of its duplication, he noted that if regulation exists in respect of the infrastructure layer that ensures equitable and transparent open access, then the other two layers may require very light regulation, if any. He proposed a web of regulators to learn from each other and avoid unnecessary regulations.

Mr P. Metzger, Vice-Director Telecom Division, *Office Fédéral de la communication* (OFCOM), Switzerland, said that in his country the present situation is voluntary open access, or self-regulation, of the infrastructure layer, with very strong emphasis on competition. This situation has led to a number of competing infrastructure platforms, such as cable and utilities companies competing with the telecommunication incumbent. The regulator has set up a roundtable discussion group with all stakeholders to discuss issues and find solutions to problems such as technical barriers, which has created a voluntary commitment to open access to the physical and data-link layers. The contractual agreements between players have however raised concerns for open access, and are being dealt with, not by the telecommunication regulator, but by the competition regulator.

Mr I. Sanchez, Commissioner, CRC, Colombia, informed the meeting that a new regulatory framework has recently come into force with particular focus on open access, including elements of costs, tariffs, prices, basic rules for infrastructure sharing, and technology neutrality. He added that CRC is about to issue new regulations that cover the issue of passive infrastructure sharing practices in other sectors such as energy and transportation in order to extend the telecommunication networks.

Mr P. Srihirun, Director, National Broadcasting and Telecommunications Commission (NBTC), Thailand, said that his country has deployed optical fibre but is experiencing some problems in rural areas. One single policy is not sufficient and cannot fit the whole country; an open-access policy in rural areas does not work and a separate approach needs to be adopted. However, in Thailand, the development of an innovative core network database will help by giving operators and new market entrants an idea of the available bandwidth capacity.

In the ensuing ***discussion***, it was commented that it is difficult to implement local loop unbundling and bit-streams and that developing countries should not worry about the service and content layers but should instead concentrate on infrastructure. At the transport level, the capacity may be sufficient to avoid applying open access for the moment. The question of the implications for developing countries of the signature of international agreements on free circulation of services, such as WTO and GATT agreements, was also raised.

SESSION VI: FINANCING UNIVERSAL BROADBAND ACCESS/SERVICE

Ms M. Msimang, Managing Director, Pygma Consulting, presented the GSR discussion paper on *Strategies for financing universal broadband access*. Mobile voice and data are considered as basic services. However, more than 5 billion people have never experienced the Internet or only have access to it through public or shared access. High-cost broadband networks rely on public funding that can be classified in three models: ownership or equity, public-private partnership, and provision of financial incentives and subsidies. A high return on investment relies on clear universal broadband access strategies and definitions, the right policy and regulatory framework, a combination of investments, financial incentives and subsidies, a clear idea of the supply-side and demand-side levers that need to be pushed in order to obtain the desired result and, finally, good governance and good project design, monitoring and evaluation.

Ms A. Garba, Director-General, *Autorité de Régulation Multisectorielle* (ARM), Niger, presented the advantages and disadvantages of the universal service fund in Niger, where the goal is universal access more than universal service. The main difficulties encountered include the low level of funds collected by the regulatory authority and lack of implementation of the funds, which are collected but not used. To avoid this situation, it is important to have a good, realistic and short-term strategy taking into account the needs and realities of the country with the aim of stimulating operators to invest in rural areas by all means, including public-private partnerships.

Mr G. S. Thornberry Villarán, Chairman of the Board, *Organismo Supervisor de la Inversión Privada en Telecomunicaciones* (OSIPTEL), Peru, noted that in his country a commission has been set up to create a universal access and service fund (UASF), including the institutional framework and a study of supply and demand, as well as indicators to measure the level of broadband penetration. All operators contribute 1 per cent of their turnover to the UASF, which

is managed by the Ministry of ICT, and is being used to finance the backbone infrastructure. Some incentives and tax concessions are offered to operators to encourage them to invest in underserved or unwired areas, and the goal is to have 100 per cent of schools, hospitals and government agencies connected with at least 2 Mbit/s by 2016. Satellites will play an important complementary role to cover rural and unserved areas.

Ms J. Exarhakos, Executive Director, *Instituto Dominicano de las Telecomunicaciones* (INDOTEL), Dominican Republic, stated that her country offers a good example of implementing the UASF and that a report has been released to share information on this subject. Regarding the importance of social networks and the role of the state in creating good content, in the Dominican Republic the state tries to make content attractive. On the question of infrastructure sharing, she was proud that her county had been mentioned in the discussion paper as a success story for broadband in rural areas, a win-win experience. Infrastructure sharing is a valuable regulatory instrument. The main goal is to provide access to 60 per cent of the population by 2020 (current access is stands at 10 per cent).

During the ensuing ***discussion***, participants stressed the need to take into account people's basic needs (health, food, education, electricity, drinking water, etc.), before focusing on broadband. The economic affordability and content accessibility of services also need to be considered. It was further noted that regulators often have mechanisms to collect universal service/access funds, but that the funds are frequently blocked or used for other purposes. It was emphasized that these funds should focus on ICT development while other priority sectors (health, electricity, etc.) should be financed with other dedicated funds.

SESSION VII: E-WASTE AND RECYCLING: WHAT REGULATORS CAN DO

The session was opened and moderated by **Mr R. Ashok**, Board Member, Telecom Regulatory Authority of India (TRAI), who pointed out that although the growth of ICTs is benefiting most people, it has generated an issue of obsolescence of materials and products and the subsequent problem of tangible and intangible e-waste.

Ms M. Wanjau, Principal Legal Officer, CCK, Kenya, presented the GSR discussion paper on *E-waste*. She welcomed the debate as a new step in the design of ICT policy, set out the need to raise awareness of the dangers of e-waste and to include waste management in ICT policy design at national level, and called for cooperation at the national and international level in the design and production of ICT-related products to reduce e-waste. It was necessary for developing nations to scrutinize the effects of the policy of sending old, used and obsolete products to developing nations, effectively passing on the responsibility of dealing with the e-waste generated in developed countries. Thus, instead of bridging the digital divide, a cyber-age nightmare was being created for some developing countries in the form of e-waste, bringing dangers to the populations, especially children, and creating long-term effects on the environment. Regulators should play a greater role in developing awareness and, although international and regional treaties and political instruments are in place, take a more active stance in creating policy at the national level to deal with this issue.

Mr P. VanPercy, Director-General, National Communications Authority (NCA), Ghana, said that the telecom regulator on its own is not able to fully control the matter of e-waste, but must act together with customs, ports and other interested authorities. Developing countries have failed to take the issue of e-waste seriously. E-waste is a lucrative affair for someone, and it can become a part of the criminal market. If African countries do not take drastic measures they will be inundated by e-waste. He underlined the usefulness of end-of-life products from developed countries, but also the difficulty of controlling the process so that only usable items are imported.

Ms M. Castellanos, Executive Director, *Programa Computadores para Educar Ministerio de Tecnologías de la Información y las Comunicaciones*, Colombia, highlighted the programme "Computadores para educar", whereby for the last ten years unwanted computers have been refurbished and redistributed to schools in rural areas. The programme helps the children but at the same time prevents e-waste. Although these computers will eventually become e-waste, the programme has foreseen this and will transform this material into thermoplastic, glass and

metal elements that will be given back to the industry. Up to 92 per cent of an old computer can be recycled into new electronic material, and recycling is a market in itself.

Dr B. Gwandu, Executive Commissioner, Nigerian Communications Commission, said that border control is very important to prevent importation of obsolete material. This is a moral problem for Africa that requires the coordinated action of different players. A particular case of e-waste concerns the obsolete analogue TV sets that come to Africa because analogue-to-digital television transition has not yet taken place there. For the equipment that is already on the ground, people should be educated and encouraged to start recycling and managing e-waste. Also, standardization procedures for the elimination of electronic material, e.g. incineration or separation of different parts, should be established.

In the ensuing **_discussion_**, regarding the responsibility of manufacturers to use biodegradable or recyclable materials, it was noted that in some countries manufacturers bear responsibility for the products from their design to the end of their life, whereas in many others manufacturer responsibility stops when they put the products on the market. The production of less toxic and more durable products would diminish the amount of e-waste, even when technology develops so fast that often fully functional and long-life materials are thrown away.

Mention was made of the studies conducted under ITU-D Study Group 2 Question 24 on e-waste, aimed at gathering best practices, strategies and policies in order to help developing countries put in place measures for the proper disposal or reuse of telecommunication/ICT waste material. In some countries like Colombia, preservation of the environment is included in the constitution, and both manufacturers and importers are aware of their responsibilities. The ICT industry is called on to promote the use, design and production of sustainable and recyclable materials, especially in the field of energy consumption of products, and to invest more in reducing its carbon footprint through greener energy production.

The session was brought to a close by the moderator, **Mr Ashkov**, who emphasized the importance of better regulation and of greater coordination between government sectors and among stakeholders in order to combat the rise of what is a negative aspect of ICTs that could tarnish their positive impact.

SESSION VIII: PROTECTING THE RIGHTS OF ALL STAKEHOLDERS IN THE DIGITAL ECOSYSTEM

The session was moderated by **Ms M. Ajam**, Commissioner, Board Member and Head of Information and Consumer Affairs Unit, Telecommunications Regulatory Authority (TRA), Lebanon.

Mr A. Denton, Senior Telecommunications Expert and author of the GSR discussion paper on _Intellectual property rights in today's digital economy,_ said that IPRs have an impact on telecom regulators in the areas of design, trademarks, patents and copyright, which are all creative content issues. As the world goes digital it is very easy to copy, but an over-enforcement of copyright can have negative consequences such as stifling creation and innovation and stimulating consumers' attitudes to piracy. There are a number of different options that can be employed to 'protect' copyright: technical solutions, legal definitions of what constitutes an infringement, and different ways of licensing copyrights.

He suggested that enforcement of rules against selling and distributing illegal content should be the goal of each regulator, and that international cooperation is needed because the Internet is global. A self-regulatory approach and mechanisms to address copyright infringements should be promoted through an independent body to protect industry and consumer rights. In some countries, the concept of fair use of material for such purposes as research, education, political comment, etc. is employed, and the law allows the use of material for specific non-commercial purposes. In other countries, the concept of exemptions is applied for the same purposes. It was also noted that copyright should be used to stimulate innovation.

Mr M. Vélez Núñez, Chairman, _Comisión Nacional de Telecomunicaciones_ (CONATEL), Honduras, said that the regulator's functions in regard to content need to be defined. Institutions are starting to get involved, but are very aware that the freedom of the Internet is

very important. The regulator's objective should be to protect consumers, not forgetting that content is information which should be regulated by the competent authorities, but not controlled or stopped.

Mr M. Jaziri, Vice-President, *Instance Nationale des Télécommunications* (INTT), Tunisia, said that a balance needs to be struck between legal questions and the need to preserve the right of content owners and the right of users to access content. He proposed a global licence and a mechanism allowing, when signing for an Internet service, for a percentage of the fee to go to the content's producer. He added that the principle of copyright is not threatened by the digital economy because the digital environment opens up new ways of providing information.

Mr J. Salvat, Director-General, *Servei de Telecomunicacions,* Andorra, suggested that regulation should not be too active. Internet brings many positive features and user education is the most important factor for guaranteeing proper use of this tool. In Andorra, there is a company for the protection of copyrights that safeguards rational and non-abusive use of IPRs. Even if it is difficult to harmonize copyright laws, there should be international cooperation among regulators and the model needs to evolve and adapt to the new challenges of the digital world.

SESSION IX: REGIONAL INITIATIVES AND SUCCESS STORIES TO FOSTER BROADBAND CONNECTIVITY

The debate was moderated by **Mr G. Peña**, Secretary-General, *Foro Latinoamericano de entes reguladores de telecomunicaciones* (REGULATEL), who noted that studies carried out by REGULATEL show that many countries in Latin America have not yet defined broadband or, if they have, the definitions are very different. Good and forward-looking regulation requires a clear and unanimous definition of broadband.

Mr T. Deriso, President and CEO, Mid-Atlantic Broadband Cooperative (MBC), presented the Mid-Atlantic Broadband Cooperative project for Virginia-United States that started in 2004 to bring broadband to remote, rural and high-cost unserved areas. This community project was built on public-private partnership with an open-access approach. He stressed that the main challenge was to get political support at all levels. The business plan, divided into four parts, aimed at building a fibre-optic network to span the region, connecting the region to national and global infrastructures, creating multimedia service aggregation points and enabling optical and wireless technologies for the last-mile service. The business model evolution implies open-access policy for the entire network, no last-mile technology selection, private-sector participation, flat-rate wholesale pricing and regulatory partnership, and focuses on what is best for the community. The project has had measurable results in terms of new investment, jobs and new Internet service telecom providers, and broadband availability has risen from 60 per cent in 2004 to 90 per cent in 2011, with sustainable revenues.

Ms B. Mphatso Linzie, Acting Executive Secretary, *Communication Regulators' Association of Southern Africa* (CRASA), indicated that prices for broadband in Africa have decreased thanks to the many submarine cables now serving the region, but are still high compared with other regions of the world. For this reason, the ministers of the countries of the Southern African Development Community (SADC) responsible for telecommunications decided last year to develop a broadband policy and strategy, since universal access to broadband is still a huge problem in southern Africa. CRASA has issued a review of the universal service/access guidelines, which now include broadband in the definition of universal access, and has developed a toolkit on the use of the universal access fund.

Mr L. Missidimbazi, Director, *Assemblée des Régulateurs des Télécommunications de l'Afrique Centrale* (ARTAC), said that central Africa is actually a driving market that gives many opportunities to investors. The objective is to bring broadband to all citizens of the subregion at reasonable prices, and this entails regulatory and technical challenges. For this reason, the member countries of the Economic and Monetary Community of Central Africa (CEMAC) have decided to implement common indicators.

Mr E. Rojas, Coordinator, *Observatorio de Banda Ancha*, United Nations Economic Commission for Latin America and the Caribbean (ECLAC), said that ECLAC last year launched

a forum of regional discussion and dialogue on broadband involving ten countries from the subregion. The forum concentrates on these countries' dependence on international links and the impact of this reality on end prices. The availability of information among ECLAC countries is a critical factor, and opinions and proposals are being exchanged to generate a regional broadband market.

Replying to a question from the floor on the meaning of the term "sustainable operation" mentioned in the MBC project, **Mr Deriso** said that the extra revenues produced by the project are being reinvested in the networks and in public projects like scholarships.

In the ensuing *discussion*, it was noted that in some instances where there is initially no infrastructure and no backbone facilities, investment is initiated only by the public sector, but other approaches are now being envisaged to attract the private sector for the second stage of network deployment. In other cases, like Senegal, the historical operator is strong and dominant in the market, so it is a must for the public sector to consult it before any possible decision on investment.

The 2007 ITU Connect Africa initiative aimed at mobilizing financial resources on the African continent was mentioned, and ITU was thanked for this initiative, which stimulates public-private partnerships.

CLOSING SESSION - THE WAY FORWARD

The closing session was moderated by **Mr B. Sanou**, Director of BDT.

Dr D. Pérez Taveras, Secretary of State and Chairman of the Board, INDOTEL, President of REGULATEL and Chairman of the Regulatory Associations meeting, provided feedback from the Regulatory Associations meeting, which had been attended by 53 participants from nine regulatory associations. The topics discussed included regulatory association sustainability and financial support; maintaining an effective exchange of information and experiences among regulatory authorities; and a presentation of the ICT Regulatory Decisions Clearinghouse (ICTDec). The meeting had concluded that sustainability remains a major issue and concern for all regulatory associations, that finding a long-term stable funding mechanism is essential, and that regulatory authorities' working methods must focus on precise and time-limited projects to benefit from the support and financial help of international organizations. To increase the effectiveness and depth of discussions, annual meetings could be organized for one full day prior to GSR, and a second annual meeting of regulatory associations, possibly in Geneva, should also be considered.

Mr C. Lizcano Ortíz, Executive Director of CRC, Colombia, led the discussion on the GSR best-practice guidelines on incentive regulation to promote the deployment of broadband, which were circulated and commented on by participants and are the result of a wide consultation process. He thanked all countries that submitted contributions. He stressed the need to stimulate private investment in broadband and to eliminate the obstacles to the deployment of broadband networks. He also mentioned the importance of the development of applications, services and digital content and of training, radio spectrum and IPR. He invited the symposium to accept the proposal to define broadband as a minimum of 2 Mbit/s.

The final text of the *Best practice guidelines,* contained in **Annex A** hereto, was adopted, and Mr Sanou thanked Mr Lizcano for the very good work.

Mr M. Maniewicz, Head, Infrastructure, Enabling Environment and E-Applications Department, BDT, reminded participants of the Global Regulators' Exchange (G-REX). The winners of this year's G-REX awards were acknowledged[1], and **Mr Sanou** presented the award

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[1] Comoros ICT Regulatory Body (ANRTIC); Telecommunications Regulatory Authority, Oman; National Telecommunications Corporation (NTC), Sudan; and National Telecommunication Regulatory Commission (NTRC), Saint Vincent and the Grenadines

to **Mr Ahmed Al Hadabi** of the Regulatory Authority of Oman, the only winner present in Armenia City.

Mr Sanou, Director of BDT, opened the floor to participants on the possible themes for GSR-12. Proposals were made on the following items: spectrum policies and how to expand the spectrum available for mobile applications, considering the future results of WRC-12; interconnection and roaming charges; cybersecurity; standardization of ICT indicators; notion of welfare; virtual applications; IPRs; and cloud computing. A proposal was made to consider all telecommunication/ICT cross-border and transnational items. The Director of BDT gave participants until the end of October 2011 to send their proposals to ITU.

He informed the meeting that GSR-12 will take place in the first half of the year, possibly during the last week of May, to avoid conflict with other important ITU meetings. Several countries have approached ITU with a view to hosting the meeting, and information will be sent once the decision is finalized, also taking into account rotation of the event among BDT regions.

The innovative format used this year with an opening interactive panel open to the private sector and a platform for online networking and reservation of meeting rooms seems to be the right way forward. A consultative committee composed of the previous year's GSR chairman, the current chairman, the future chairman and the chairman of the regulatory association of the region of the next hosting country might be formed for the preparation of the next GSR meeting. Wishing to give a more active role to the GSR chairman, he proposed that Mr Lizcano Ortíz bring the *Best-practices guidelines* to the attention of all forums that he deems appropriate, starting from the Broadband Leadership Summit that will be held in Geneva in October during ITU TELECOM World 2011.

Mr Rancy, Director of BR, expressed his satisfaction at having participated in a GSR where radiocommunications and wireless services were debated, because future broadband will be essentially offered through mobile.

Mr Sanou stated that GSR-11 had been an excellent and fruitful event. A total of 504 participants had attended from 72 countries and 42 private-sector members, entities and organizations. He congratulated Colombia on first-class facilities and working conditions that had been instrumental in achieving such good results. He thanked and commended the Communications Regulatory Commission of Colombia for its generosity, hospitality, professionalism and team spirit. He also thanked the sponsors for the excellent social programme, the moderators, panellists, speakers and discussion paper authors, all his ITU colleagues, H.E. the President and the Minister of ICT of Colombia, the Chairman of GSR and finally the interpreters and all participants.

Dr Touré, Secretary-General of ITU, expressed his sincere gratitude to all the organizers of the event. He thanked and congratulated the conference centre's managers and the Colombian Administration. He asked Mr Lizcano Ortíz to convey his thanks to the local authorities, who had gone well beyond ITU's expectations. Many participants are very satisfied and will take home very good memories of the meeting. He thanked the ITU staff for their hard work. He extended his sincere congratulations to all participants, and said that coming to a GSR meeting is always an enriching experience.

Mr Lizcano Ortíz, Chairman of GSR-11, said that promoting smart regulation to enhance broadband is an important message that comes out of the meeting. He stressed the importance of regulatory associations to stimulate public-private partnerships. He thanked all ITU staff, and in particular Mario Maniewicz, for their support; the minister, Mr Diego Molano Vega; the local authorities; the sponsors; and the CRC staff. He thanked participants of GILF and GSR, and expressed immense satisfaction that Colombia had hosted the GSR for the first time in the Americas region.

Mr Sanou declared the meeting **closed**.

GSR-11 BEST-PRACTICE GUIDELINES ON REGULATORY APPROACHES TO ADVANCE THE DEPLOYMENT OF BROADBAND, ENCOURAGE INNOVATION AND ENABLE DIGITAL INCLUSION FOR ALL[2]

The rapid growth of the digital economy presents huge opportunities for economic and social development, creating global markets for applications and services, improving productive capacity, reducing the cost of doing business, and unleashing creativity and innovation. The growth of broadband networks will accelerate this trend, offering the opportunity to leapfrog time and distance limitations and providing greater bandwidth across the globe.

Similarly, these networks have and will continue to provide new ways for all members of society, regardless of gender and including persons with disabilities, to obtain information that will promote greater education, employment, health, safety and security, and for economic gain. In order to reach the global potential of broadband, however, regulators and policy makers will need to embrace a global vision of these collective benefits and balance regulatory certainty with flexibility and liberalization on a global scale. The technology exists right now to create a profusion of interconnected broadband networks, with a vibrant and competitive market to access them. In an era in which broadband is increasingly considered the right of every citizen, smart regulation will continue to evolve toward greater openness and dynamism, while mitigating the associated challenges and threats.

We, the regulators participating in the 2011 Global Symposium for Regulators, recognize that there is no single, comprehensive blueprint for best practice, but agree that learning from countries' experiences is possible. Therefore, we have identified and endorsed these regulatory best practice guidelines to advance the deployment of broadband, encourage innovation and enable digital inclusion for all.

I. Funding mechanisms for promoting the deployment of broadband infrastructure

1) Leveraging partnerships

We recognize that while the private sector will play the central role in broadband development, supportive policy and good governance are essential for broadband deployment and take-up to succeed. When such deployments do not offer sufficient returns for private investment, public funds can be mobilized through public-private partnerships (PPP). Where public funds are committed to broadband infrastructure investment, or in the case of essential facilities, regulators may employ open access arrangements (i.e., unbundling) to maximize the economic benefits across as broad a base of users and suppliers as possible. The sale or lease of such infrastructure facilities should be implemented in a transparent and non-discriminatory manner, so that it does not distort the associated markets.

When combined with a regulatory framework that eliminates barriers to new entrants (both domestic and international), market-based schemes are the most effective way to promote the deployment of backbone and access networks alike. When such mechanisms are supplemented with access to the infrastructure of other industries - electricity, water supply and transportation - the costs associated with infrastructure deployment can be reduced, generating greater incentives for private investment.

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[2] The Guidelines are based on contributions from Algeria, Belarus, Colombia, Côte d'Ivoire, Ecuador, Egypt, Jordan, Lebanon, Malawi, Paraguay, Peru, Portugal, Rwanda, Switzerland, Thailand, and the United States

2) *Modernizing universal service programmes and funds*

We believe that including broadband Internet access in the universal service definition can be a first step to bridging the looming digital divide. In addition, a national universal service programme that incorporates a framework to ensure blanket access to essential broadband services can be chosen. The universal service needs to be defined in a technologically neutral manner, i.e., by defining services rather than networks or technologies.

Regulators and policy makers may consider transforming existing universal service programmes into programmes for digital inclusion that support broadband services for all citizens. Universal service programmes could be financed by revenues raised from the activities of a wide range of market players as well as from alternative sources. Smart subsidies can be used to avoid distorting the market while furthering universal service goals.

Where a Universal Access/Service Fund (UASF) exists, it could be modernized:

– To serve as a facilitator of the market, piloting innovative rural services and applications, creating demand for advanced ICT connectivity and services (i.e., through financing broadband access for schools and hospitals, and direct subsidies to users); and/or

– To serve as a funding mechanism for broadband networks into rural and high-cost areas through support both at the retail end (e.g., shared access), as well as at the wholesale end (e.g., through subsidizing intermediary network facilities such as backbones, wireless towers and other passive infrastructure).

II.   Fostering private investment in broadband through incentive regulation

Policy makers and regulators have several options to provide incentives for the private sector to invest in the ICT sector such as by adopting enabling policies, simplifying licensing regimes, making available more spectrum, reducing regulatory obligations, and offering tax incentives.

1) *Providing overall direction through a national policy*

We believe that governments need to enact a consistent and overarching ICT and/or broadband policy. This policy must clarify the government's commitment to foster broadband development across all sectors and through liberalizing the broadband market and empowering the regulator to move forward with a liberalization plan.

We are mindful that policy makers with the support of regulators need to review existing legal and regulatory frameworks in order to reduce barriers that hinder broadband roll-out and usage, i.e., revising key laws such as the ICT law, e-transaction law, intellectual property law and law on the protection of personal information.

Furthermore, there is an urgent need to recognize the challenge of climate change, including e-waste, as a priority in the political agenda of countries that have not yet done so in order to enable allocation of resources to strengthen the supervision of regulatory standards for e-waste management.

We recognize that it is best practice to use inclusive and wide-ranging public consultations when drafting national plans, policies and strategies for the development of the ICT sector in general or the deployment and take up of broadband in particular to ensure that the monumental investments ahead are based on the collective decisions of government, industry, and society. The establishment of coordinating bodies, such as a national broadband or digital inclusion commission or council, encompassing the public authorities, investors and users as well as wider range of stakeholders can serve as a platform for developing a common understanding, vision and strategy. Another way of nursing a positive relationship with all stakeholders is the creation of enabling policy incubators to crowd-source ideas and brainstorm on out-of-the-box solutions for taking broadband to the next level.

2) *Rationalizing licensing regimes*

In order to facilitate entry in the broadband market and increase competition at all network layers, licensing regulation can be simplified and a unified licensing framework can be introduced with all services unified under a single license or concession.

In order to enable ICT operators to start their activities rapidly, regulators need to consider reducing licensing fees as well as the administrative and formal requirements to enter the market and provide service. Provisional licences may be delivered free of charge (or only covering administrative costs) during a renewable trial period ahead of the delivery of the final licences.

3) Making spectrum available for mobile broadband

With the evolution of the demand for more powerful, ubiquitous and seamless broadband services, the distribution of spectrum for broadband wireless services becomes a cornerstone of future growth of the digital economy. While considering national goals, economic realities and market pressures, regulators and policy makers need to address a host of issues in order to ensure spectrum is used in the most efficient manner.

With this regard, we recognize that an incentive-based, market-driven approach to making more spectrum available for mobile broadband services is preferable, enabling inter-platform competition and spurring innovation. A wide range of new-generation spectrum auctions could be designed to extend access to broadband in unserved and underserved areas, such as voluntary incentive auctions, reverse auctions and offering all broadband spectrum bands in a single auction. Furthermore, allowing flexible use of spectrum, including spectrum refarming and secondary markets for spectrum, is key to ensuring that with market maturity and evolution spectrum moves to more productive uses, including mobile broadband. Leveraging on the "digital dividend" spectrum, the footprint of mobile broadband access can be extended while TV "white spaces" could be made available for unlicensed use enabling more powerful broadband services.

4) Removing barriers to broadband build-out and access to broadband networks

We recognize that countries with targeted policies and regulations to remove barriers to the build-out of broadband infrastructure, including those supported by government-led initiatives to stimulate demand, will be in the vanguard of the digital economy. Reducing regulatory burdens and employing the least degree of regulatory intervention is essential to lower the cost of laying infrastructure, providing services to end users and stimulating new applications and digital content. Regulatory imperatives embedded in formal instruments that cannot be revised in a timely manner to address evolving circumstances will inhibit broadband growth, particularly when they impact technology choice or the operational activities associated with broadband deployment and use. Expanding on the GSR Best Practice Guidelines 2008, regulators could act to:

– Facilitate the grant of the proper permissions to build-out infrastructure, especially where the access network requires rights of way f or fibre-to-the-home deployment as well as to accommodate the delivery of broadband multiple-play services;

– Adopt rules or promote policies and incentives conducive to and encouraging infrastructure sharing, particularly involving passive sharing of towers, ducts and other support facilities;

– Encourage the establishment of national Internet Exchange Points (IXP), enabling local Internet Service Providers (ISPs) to exchange Internet traffic at the local, national or regional levels, thus lowering the cost of content delivery and optimizing bandwidth use, especially for advanced multimedia services;

– Facilitate the establishment of Virtual Landing Points (VLP) for submarine cables. The VLP and its associated international gateway could be owned and managed by an ICT operator identified through a competitive bidding process or based on a PPP model. The VLP would be required to supply bandwidth at high capacity to all licensed operators in the country under standard market best practice terms and conditions, such as open access, non-discriminatory and transparent pricing.

5) Granting tax incentives

Regulators and policy makers need to cooperate to reduce taxes on services, devices and equipment which will in turn increase penetration levels and pave the way for increased demand of broadband services.

More broadly, targeted fiscal incentives to providers of broadband networks, services and equipment, whether fixed or mobile, can be granted to stimulate a robust and competitive broadband marketplace, such as relief from certain financial levies for a certain period (i.e., spectrum fees in specific areas of interest);

application of a single preferential import duty on equipment and materials; exemption from value-added tax on imported equipment and material that is manufactured or sold locally; and tax deductions for those directing resources at research and development of applications and digital content.

III.   Stimulating innovation and development of applications and services

1)   Nurturing the creation and adoption of applications, services and digital content

We believe that the wide diffusion of e-government and e-finance applications and services will considerably raise consumer demand for broadband. To this end, government agencies need to adopt pertinent applications and content to allow for greater participation of its citizens thus fostering the advent of a new digital culture. Many electronic applications such as e-procurement, e-payment systems, document tracking and workflow management systems can improve government business processes while increasing citizen participation in the country's socio-economic development. Applications such as e-Health, e-Agriculture, and e-Education initiatives help governments achieve critical national goals, for which it becomes indispensable to promote confidence in the use of ICTs.

We also believe that there is a role for policy makers and regulators in the broadband ecosystem to create the environment in which dynamic digital content creation, dissemination and adoption can thrive. As a first step, a thorough and forward-looking review of the regulatory framework of the ICT sector is essential to assess necessary changes to permit new and emerging services and applications, such as m-banking and social networks.

2)   Spurring investment in R&D activities

Innovation is essential to the growth of the broadband economy and for ensuring the right to access, use and create digital content.

We believe that private investment in Research and Development (R&D) should be encouraged by all possible means. In addition, when resources are available, investment should be channeled to public research and development. UASF, for instance, could be used to provide partial funding for R&D activities. Furthermore, government agencies, including regulators, the private sector and non-governmental organizations can cooperate to provide incentives for the public to develop innovative digital applications and content.

We are mindful that governments can encourage innovation to address specific challenges, notably to spur the local content deployment in local languages and domain names, and establish training centres to encourage students' technological innovations. Of equal importance to the local social and economic development is the creation and maintenance of ICT innovation incubators and business development centres to provide hi-tech hosting, training and advice to small and medium enterprises and offer funds and other assistance to start-up ICT companies.

3)   Enforcing Intellectual Property Rights

We recognize that it is essential to protect intellectual property, as this empowers researchers and inventors to lead the way to a smart and innovative digital economy. Innovation can be encouraged through intellectual property regimes that balance monopoly use of inventions with building a rich public domain of intellectual materials.

In addition, we believe that ensuring there is a balanced, proportionate and robust mechanism for content owners to address copyright infringement endows a stable and solid basis for innovation and creation. Designing rules and procedures for copyright enforcement while harboring consumer privacy fully means finding a delicate balance that both stimulates and protects all the different stakeholders in the digital economy.

IV.   Expanding digital literacy

We recognize that digital literacy has become an essential personal and professional asset as the global economy evolves into one that is open, competitive and digital. Countries with high levels of digital literacy are more innovative and productive and are capturing a greater share of the world's trade, investment and jobs.

We are mindful that regulators and policy makers have a role to play in promoting a first-class training system in all countries to provide creative human resources. It is crucial to facilitate investment in all forms of education and particularly in ICT education from early training to advanced instruction notably in the area of R&D, ICT knowledge transfer and the development of digital applications and content (in particular those related to the local culture). Sufficient and sustainable funding should be provided to universities, computer labs and other public research institutions, leveraging international partnerships when possible and advantageous.