

**COMMISSION ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT (CSTD)**

**Fourteenth Session  
Geneva, 22 to 27 May 2011**

**Submissions from entities in the United Nations system and elsewhere on their  
efforts in 2010 to implement the outcome of the WSIS**

Submission by

**UNECE**

This submission was prepared as an input to the report of the UN Secretary-General on "Progress made in the implementation of and follow-up to the outcomes of the World Summit on the Information Society at the regional and international levels" (to the 14<sup>th</sup> session of the CSTD), in response to the request by the Economic and Social Council, in its resolution 2006/46, to the UN Secretary-General to inform the Commission on Science and Technology for Development on the implementation of the outcomes of the WSIS as part of his annual reporting to the Commission.

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ОБЪЕДИНЕННЫЕ НАЦИИ  
ЭКОНОМИЧЕСКАЯ КОМИССИЯ  
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UNITED NATIONS  
ECONOMIC COMMISSION  
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## UNECE report on WSIS implementation

### Summary and policy considerations

The UNECE region as a whole is progressing towards a knowledge-based economy. Although transition countries are catching up with western developed countries in fundamental dimensions of the digital divide (e.g. in the use of mobile phones and access to dial-up Internet), they are still lagging behind in broadband Internet. Thus, the digital divide in the UNECE region has become the largest and fastest growing in the world, apart from Western Asia.

This paper describes the situation in the region using the International Telecommunication Union (ITU) Information Development Index (IDI). It reviews specific developments related to accessing Internet through fixed or mobile broadband networks. It also reviews the definition of measurement indicators and technological standards, and examines current bottlenecks.

It suggests that a differentiated allocation of low-frequency spectrum bands to mobile-broadband networks could help reach remote rural areas, and that infrastructure-sharing requirements (open-access policy) are key to fostering competition. As Internet providers have a growing incentive to integrate vertically in order to provide users with as seamless access to the Internet, such open access policies have become a key instrument to mitigate the risk of excessive market power.

Finally, it draws attention to the Council of Europe initiative to legally define in a treaty the key principles of the World Wide Web (e.g. net neutrality or freedom of expression) in order to better protect the Web from corporate interests and political tampering.

### Policy recommendations

- In view of the large and widening digital divide unfolding in the UNECE region, more **technical and financial assistance** should be provided to transition economies to develop their ICT infrastructure, especially broadband networks, and follow best practice in policy design.
- **Mobile broadband technologies** should be used as a tool to increase access to Internet in remote areas and in countries with little fixed line capacity, in order to progress towards an inclusive information society.

- Regulators can use the attribution of frequency **spectrum** bandwidth to service providers as a means of moving towards an inclusive information society. For instance, licences for operating on low frequency bands (that have longer range and thus lower deployment costs) could be tied to more stringent deployment requirements so as to increase penetration beyond that of a free market. The attribution of spectrum bandwidth should be done in a harmonized way across countries for the benefit of users, operators and equipment vendors.
- To foster **competition**, regulators should allow vertical integration between operators of fixed, mobile and nomadic broadband services so as to encourage new and more efficient business models, and simultaneously keep strong open-policy requirements for infrastructure sharing.
- Public authorities should take further steps to defend **key principles** of the world wide web in order to protect it from corporate interests and political tempering

### General situation

According to the latest Information Development Index (IDI), eight out of the ten top performers are Western European countries (the Republic of Korea and Japan are ranked 3 and 8). This aggregate index describes the level and evolution over time of information and communication technologies (ICT) developments in countries and relative to other countries. The yearly value (on a scale from 1 to 10) ranking the 159 countries represented in the index equals the weighted average of 10 indicators tracing ICT access, use and skills.<sup>1</sup>

The latest data, from 2008, shows that Nordic countries are leading, followed by other Western European countries. The United States and Canada occupy rank 19 and 21, followed by the Baltic States, and large Eastern European countries such as Poland, Bulgaria or Romania are classified just before the Russian Federation (48), which is the best performing country in the Commonwealth of Independent States (CIS).

The least advanced countries among UNECE member States perform relatively well compared with other developing countries. Uzbekistan and Tajikistan are rank 110 and 111. However, this result is driven by the high literacy rate prevailing in Central Asian countries, not by a more developed infrastructure or use of information

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<sup>1</sup> IDI indicators are the following: Access: (1) Fixed telephone lines per 100 inhabitants (2) Mobile cellular telephone subscriptions per 100 inhabitants (3) International Internet bandwidth (bit/s) per Internet user (4) Proportion of households with a computer (5) Proportion of households with Internet access at home; Use: (6) Internet users per 100 inhabitants (7) Fixed broadband Internet subscribers per 100 inhabitants (8) Mobile broadband subscriptions per 100 inhabitants; Skills: (9) Adult literacy rate (10) Gross enrolment ratio (secondary and tertiary level). For more details on the IDI index, see the report of the ITU (2010), Measuring Information Society.

resources. Although no UNECE member State is represented at the very bottom, the index nevertheless reveals that the digital gap between countries of the region is the largest and fastest growing among the regions of the world (apart from Western Asia). Initiatives by multilateral institutions are therefore needed to help transition economies make long-term ICT-development plans, especially for broadband networks.<sup>2</sup>

### Specific developments

The overall leadership of European countries in the IDI index does not prevent other regions of the world from developing much faster in dimensions not covered by the index. As an example, the deployment of fibre-to-home networks is occurring at a much faster pace in the Republic of Korea (15% of the population) and Japan (12%) than in Europe (1%). In the area of mobile broadband development, Europe, which accounts for about one third of the world's subscribers, also ranks behind these countries. However, the definition of statistical indicators and data collection is not yet sufficiently advanced to allow for precise country comparison.

According to the initial (and now obsolete) ITU-OECD definition of mobile broadband recording subscriptions providing *access* to such networks, the number of mobile broadband subscribers (640 million) already surpassed the number of fixed broadband subscribers (479 million) in the world in 2009. However, discounting the former figure by ignoring *inactive* subscriptions, it shrinks by more than half, reversing the initial observation.<sup>3</sup>

Undeniable progress is being made in deploying next generation mobile broadband networks (4G networks), but many claims made by operators tend to exaggerate developments happening on the ground. In several countries of the UNECE region (e.g. Sweden, Finland, Latvia, Lithuania, United States), operators have recently claimed to provide access to 4G networks. Most, however, are relying on Long Term Evolution (LTE) or Worldwide Interoperability for Microwave Access (WiMAX) technologies, which are slightly below the 4G standard as defined by the ITU, and should be referred to as 3.5G or 3.9G. In the near future, many of those operators may upgrade their stations to LTE Advanced or WiMAX 2, which slightly exceed 4G requirements.<sup>4</sup>

Beyond the issue of defining a performance threshold distinguishing the 3G from the 4G standard, the development of mobile broadband networks requires the freeing up

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<sup>2</sup> Recently, the World Bank announced its readiness to assist Belarus with the development of broadband access in order provide 100 Mbps broad-band access to around 75% of the population in the nearest future. See <http://news.belta.by/en/news/society?id=552012>

<sup>3</sup> The UNCTAD (2010) Information Economy Report reports that in the European Union, only 37 per cent of the 173 million mobile broadband subscriptions reported on 1 July 2009 were *active*, and that in the United States, this proportion was of 42 per cent only between June and December 2008. See also the presentation made by the OECD at the 8th World Telecommunication/ICT Indicators Meeting, Geneva, Switzerland, 24-26 November 2010: <http://www.itu.int/md/D10-WTIM8-C-0024/en>

<sup>4</sup> See <http://www.ispreview.co.uk/story/2010/11/02/itu-finally-agrees-a-4g-mobile-broadband-definition-and-lte-does-not-qualify.html>

of additional spectrum frequency bands. This will enable operators to increase access to and performance of existing networks, but it is also tightly related to competition issues and requires the attention of regulators.

In 2010, the European Commission called on its Member States to complete the issuing of mobile broadband licences by the end of 2012 both on a harmonized basis (800MHz, 900MHz, 1.8GHz, 2.4GHz, and 3.4-3.8GHz bands) and on the basis of such principles as spectrum efficiency and flexibility, technology and service neutrality, competition, with the possibility to trade and share licences. While Germany has already attributed available licences and the United Kingdom is also doing so, the speed at which the spectrum is being freed up varies across countries.<sup>5</sup> Lack in harmonizing attributed frequencies could lead to interoperability issues, with higher costs to equipment providers, operators and consumers.<sup>6</sup>

High and low frequencies have different characteristics: the former entail higher capacity, the latter have a longer range. Service providers operating on lower frequency bands thus entail lower costs to reach to remote consumers, as they need to deploy a smaller number of radio masts compared to providers operating on higher frequencies.<sup>7</sup> To avoid creating unfair competition, regulators must take this into account when deciding to attribute additional spectrum bands to ICT operators.

However, this has not happened in every country. In the United States, for example, GSM operators were attributed low spectrum bands in the 1990s and can now use them for mobile broadband. Such flexible use of spectrum bands is forbidden in the EU, and regulators are now thinking about how best to allow the use low spectrum bands previously allocated to GSM operators for mobile broadband without distorting the competition among operators. Particular attention should be paid by regulators in geographically vast countries that these frequencies be used to reach poorly serviced remote rural areas, in accordance with the objective of progressing towards an inclusive information society. One way to achieve this would be to tie the attribution of lower frequency bands to more stringent requirements for the spatial deployment of radio masts. By designing smart policies, regulators can play a role in expanding the mobile broadband penetration beyond what the market alone would achieve.<sup>8</sup>

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<sup>5</sup> <http://www.rethink-wireless.com/2010/09/21/eu-wants-key-mobile-broadband-spectrum-opened-2013.htm>

<sup>6</sup> Kevin J. O'Brien, "Little Enthusiasm for chance to speed up European networks", *International Herald Tribune* (5 April 2010).

<sup>7</sup> <http://www.electronicweek.com/Articles/2010/09/22/49497/sort-your-mobile-broadband-spectrum-by-2012-ec.htm>

<sup>8</sup> A series of case studies in the Berkman report has shown that, in countries where regulators tied the attribution of spectrum bands to stringent deployment requirements, mobile penetration has been maximized. In Sweden for instance, the willingness of regulators to press of the implementation of deployment requirements, even by imposing fines if necessary, proved an efficient way to achieve results that would not have been possible without the involvement of public authorities. See Berkman Center for Internet & Society (2010), *Next Generation Connectivity: A review of broadband Internet transitions and policy from around the world*.

Recent trends in broadband development show the widening gap in access to broadband Internet between transition countries and more developed western countries. They also show that western consumers access the Internet increasingly through broadband networks, abandoning dial-up solutions as inadequate for proper handling of recently developed content.

Individuals also tend to make an integrated use of fixed, mobile and nomadic (versions and extensions of Wi-Fi hotspots) Internet access modes to achieve seamless connectivity.<sup>9</sup> However, specific access modes can also be associated with specific uses. Evidence thus shows that people are using 3G networks mostly to access news and related services. 4G networks invite users to consume more data-intensive and leisure-oriented digital content such as films and online games.<sup>10</sup> Although offering access to online gaming on mobile devices is hardly a public policy priority, the development of 4G networks could have beneficial effects for consumers. By allowing people to channel all communications through 4G networks, multiple subscriptions to broadband services (fixed, mobile, nomadic) would become unnecessary, which would lower the amount consumers spend to access Internet.

### Internet governance

In the context of the Internet Governance Forum (IGF) a proposal from the Council of Europe has been put forward to draft a treaty to legally define the Internet principles of open standards, net neutrality and freedom of speech and expression, as well as to protect the net from corporate interests and political tampering. This is all the more urgent as evidenced by the recent debate in the United States over the proposal to give commercial content priority over non-commercial content in future data traffic arrangements, or by phenomena such as Wikileaks. The more precise definition of these principles could cut incentives or at least make it harder for specific actors to endanger the founding principles of the World Wide Web by reinterpreting them on an ad hoc basis.

### Programmes

ICT applications are a fundamental part of UNECE activities at the sub-programme level. In some programmes, ICT application constitutes the main activity or project, while in others it may serve mainly as a tool to help attain objectives.

The efforts to implement ICT in sectoral activities are particularly related to the programmes on: (a) environment, (b) trade, (c) transport, (d) statistics and (e) economic cooperation and integration.

### Environment

*The Aarhus Convention, PRTR Protocol and electronic information tools*

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<sup>9</sup> See the report of the Berkman Center for Internet & Society (2010), Op. cit.

<sup>10</sup> See OECD (2010), Information Technology Outlook.

The Aarhus Convention<sup>11</sup> establishes procedures and international standards for access to information, public participation in decision-making and access to justice in environmental matters. The Parties to the Convention encourage the use of electronic information tools to foster its implementation.

The Protocol on Pollutant Release and Transfer Registers (PRTR) to the Aarhus Convention<sup>12</sup> is the first legally binding international instrument on this subject. Its objective is to enhance public access to information through the establishment of coherent, nationwide pollutant release and transfer registers.

The effective implementation of the Protocol will increase public access to information about sources of environmental pollution in the UNECE region.

The Aarhus Clearinghouse for Environmental Democracy<sup>13</sup> showcases information on laws and practices relevant to the public's right to access information, to participate in decision-making and achieve justice in environmental matters. At the end of 2010 a jurisprudence database was incorporated improving the availability of information related to access to justice on environmental matters.

The global portal on pollutant release and transfer registers, PRTR.net<sup>14</sup>, provides multilingual information on activities from countries and organizations around the world. It aims to assist countries in the development, implementation and improvement of PRTR programmes.

In 2010, the Aarhus Clearinghouse and the PRTR.net were upgraded to improve their technical capacities including the content management systems.

UNECE organized a Workshop on Electronic Information Tools to Support the Implementation of the Aarhus Convention in South-Eastern Europe. The workshop was held in cooperation with the Regional Environmental Center for Central and Eastern Europe and hosted by the former Yugoslav Republic of Macedonia. It gathered regional authorities with political and technical responsibilities, as well as representatives of civil society, and promoted the use of electronic information tools in the region.

### *Internet governance*

The Council of Europe, the Association for Progressive Communication and UNECE have jointly developed a **Code of Good Practice for Internet Governance** which is inspired by Aarhus Convention and the idea of environmental democracy. They also organized a workshop during the fifth Internet Governance Forum (in Vilnius, September 2010), entitled “Applying a Code of Good Practice on Information, Participation and Transparency in Internet Governance”. The discussion

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<sup>11</sup> UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (adopted in June 1998 in Aarhus, Denmark).

<sup>12</sup> UNECE Protocol on Pollutant Release and Transfer Registers (adopted in May 2003 in Kiev and entered into force in 2009).

<sup>13</sup> <http://aarhusclearinghouse.unece.org>

<sup>14</sup> <http://www.prtr.net>

focused on how developing/transition countries could use the code for capacity-building related to their national Internet governance structures.

### Trade

UNECE, under its Committee on Trade and subsidiary body the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT), undertakes work aimed at facilitating national and international trade and business transactions. Its work supports the achievement of Millennium Development Goal 8 "to develop a global partnership for development". In particular, UNECE activities support Target 5, aiming at "making available benefits of new technologies, especially information and communications in cooperation with the private sector", and Target 2, aiming at "developing further an open, rule-based, predictable, non-discriminatory trading and financial system".

Since 1989, UNECE has developed and maintains the United Nations Electronic Data Interchange Standard (UN/EDIFACT). This standard facilitates the exchange of information in many areas, including transport, customs, government and business procurement, just-in-time manufacturing and finance. UN/CEFACT issues and continues to develop a host of data codes for exchanging information. These include the United Nations Location Code (LOCODE); recommendations such as the United Nations Layout Key for Trade Documents; the Single Window Recommendation (Number 33), launched in 2004 to enhance the efficient exchange of information between trade and government; and a Core Component Library (CCL) and related products.

Building upon the success of its Recommendation 33, UN/CEFACT issued three new "supporting" recommendations in 2010:

- Recommendation 35 - Establishing a legal framework for international trade Single Window
- Recommendation 34 - Data Simplification and Standardization for International Trade
- Recommendation 37 - Signed Digital Evidence Interoperability.

It updated several other recommendations relating to codes for: units of measure used in international trade; passengers, types of cargo, packages and packaging materials; freight costs; and types of means of transport. Other instruments it updated or improved included: the Core Components Technical Specification, the CCL, UN/EDIFACT, the electronic Cross Industry Invoice and other electronic messages and code lists used in international trade.

Priority work areas for UN/CEFACT in 2010 were capacity-building and increasing the participation of transition economies. It held two briefings on its work for diplomats from Geneva-based Permanent Missions and for technical experts from transition and developing economies. It also organized several activities in the context of the UN Network of Experts for Paperless Trade in Asia Pacific (UNNExT). This is a joint UNECE/UNESCAP initiative to promote networking, policy dialogue, knowledge sharing and capacity-building among developing and transition member



countries of both regional commissions in order to support the implementation of trade-facilitation instruments and standards.

Training packages (including the *Business Process Analysis Guide to Simplifying Trade Documents*) were prepared to support the UNNExT's capacity-building activities for creating a Single Window for trade. Joint events organized included workshops, or peer review meetings on:

- Data Harmonization for Paperless Trade (with the World Customs Organization)
- Mongolian Master Plan for implementation of a Single Window
- Single Window interoperability in Azerbaijan
- Asia Trade Facilitation Forum in Kuala Lumpur for knowledge-sharing on trade facilitation implementation (in collaboration with the Asian Development Bank).

Under a joint research project funded by the European Union (ITAIDE), UNECE has also helped to develop a Single Window Implementation Framework. UNNExT is now developing a customized version of this for Central Asia.

### Transport

In 2011, UNECE will publish the Road Map on Intelligent Transport Strategy (ITS), and will concentrate on the most feasible actions that can be taken to deploy the strategy internationally. It is also developing provisions for advanced driver assistance systems through the work of the World Forum (WP.29) and its subsidiary bodies.

The provisions include lane departure warning systems and advanced emergency braking systems, which are expected to become stand-alone UNECE regulations in 2011. The European Union estimates that the mandatory introduction of these devices could save around 5,000 lives and prevent 35,000 serious injuries per year across its 27 member States.

In September 2010, the UNECE Working Party on Noise, a subsidiary body of the World Forum for Harmonization of Vehicle Regulations, decided to develop requirements for sound generating systems (e.g. broadband sound generators) to be installed on Quiet Road Transport Vehicles. Quiet vehicles may be electric or hybrid vehicles - during electric mode - that do not emit noise caused by combustion engines.

While these will greatly contribute to reducing carbon emissions and rising consumer awareness about climate change, they will pose a big risk for pedestrians and other vulnerable road users. A proposal for a draft regulation is expected at the latest by February 2012.

In relation to regulations on inland **transport of dangerous goods**, work is in progress to see how ITS applications such as Telematics can make the transport of dangerous goods safer. The purpose is to identify systems that could be standardized for multimodal applications in the transport of dangerous goods and to propose amendments to the legal instruments administered under the auspices of UNECE to regulate the use of Telematics and to require necessary related equipments in transport units used for transporting dangerous goods.

In September 2010, the Working Party on the Transport of Dangerous Goods adopted a proposal on how to use Telematics for this purpose. In 2011 the Working Party will consider how Telematics can provide information; the necessary parameters, procedures, responsibilities, control of access to data and interfaces; and in 2012 it will conduct a cost/safety benefit analysis. Effective implementation is not expected before 2015.

This work is complemented by ongoing projects on electronic transport documentation. Electronic Data Processing and Electronic Data Interchange transmission techniques are included in the regulations on the transport of dangerous goods as an alternative to paper documentation. Amendments to these regulations were recently adopted for better harmonization between modes of transport of the related prescriptions in this matter.

The UNECE **Working Party in Inland Water Transport** promotes the use of ICT to increase safety and reliability of inland navigation. Of particular significance in this area are River Information Services (RIS), i.e. the harmonized information services to support traffic and transport management in inland navigation, including interfaces to other transport modes.

Using a variety of technological solutions (including VHF radio, mobile data communication services, GNSS, Internet), these services enhance information exchange between parties in inland navigation, such as fairway information services, traffic information services, traffic management, calamity abatement reports, transport logistics and law enforcement agencies.

UNECE resolutions in this area are based on internationally harmonized standards on the general RIS framework and specific RIS tools, such as Inland Electronic Charts Display and Information System, electronic ship reporting, electronic data transmission to skippers, and inland Automatic Identification Systems, which are drawn up and maintained by international expert groups.

### Statistics

UNECE recently created a high-level group to consider issues relating to enterprise architecture in national statistical organizations. The group will consider developments in business process modelling and organization, as well as models for information and technology architectures. It will oversee the work of several teams of specialists working in related areas.

Participants from 35 national and international statistical organizations attended a meeting on the Management of Statistical Information Systems (MSIS)

held in Daejeon, Republic of Korea. The meeting was organised by the UNECE Statistical Division, in cooperation with UN-ESCAP, the OECD and the statistical office of the European Union (Eurostat). Cloud computing and the Semantic web were two of the main themes discussed.

Delegates were particularly interested in the potential for significant increase in efficiency through software development being shared between statistical organizations. They welcomed the recent UNECE initiative to create a Sharing Advisory Board to provide support for software sharing and joint development initiatives.

UNECE has also continued to develop and promote standards for statistical data and metadata, including a Common Metadata Framework, a Generic Statistical Business Process Model and standards for data and metadata exchange. The user interface for its Statistical Database (<http://w3.unece.org/pxweb>) has been upgraded to offer improved functionality and more possibilities to link data to other applications such as Google Maps. Finally UNECE staff have been working with Google on other ways to improve the visibility of our data, including through the Google Public Data application

### *Economic Cooperation and Integration*

In support of Governments and other stakeholders of the Information Society, the Committee on Economic Cooperation and Integration implemented the technical cooperation project “Capacity-building for ICT Policymaking” jointly with ESCAP from 2006 to 2009. The project aimed to support ICT policymakers located in five Central Asian countries and Azerbaijan for their endeavor to develop national e-strategies.

The secretariat organized a policy-oriented conference on “Technological Readiness for Innovation-based Competitiveness: Promoting an Enabling Information and Communication Technology Policy and Regulatory Framework” in 2009. The conference contributed to raise awareness of policymakers on emerging issues related to ICT policy for promoting innovation-based competitiveness.

Central Asia is one of the most disadvantaged subregions, with access to Internet severely limited. The secretariat participated in and implemented the project entitled “Knowledge Networks through ICT Access Points for Disadvantaged Communities” in Central Asia jointly with ESCAP from 2006 to 2010. This is a global project, implemented by five United Nations regional commissions, and administered by the Economic and Social Commission for Western Asia. The project supported the transformation of selected ICT access points in Central Asia into the networked knowledge-hubs. It also facilitated the creation of the *Eurasian Telecentre Network*, which includes ICT access point leaders from Central Asia and neighbouring countries.

Many of the above activities were carried out in the framework of the United Nations Special Programme for the Economies of Central Asia (SPECA). UNECE has been supporting the SPECA together with ESCAP since 1998. SPECA promotes

regional cooperation in Central Asia and neighbouring countries: Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan and Afghanistan.

Since 2005, UNECE has been providing secretariat support to the SPECA Project Working Group on ICT for Development as well as the Project Working Group on Knowledge-based Development. The secretariat organized a number of capacity-building activities on ICT policy development as well as on knowledge-based development for SPECA member countries. It also supported the creation of the SPECA Network of Policymakers on Knowledge-based Development and has been providing web-based secure networking tools for the participating policymakers to share best practices and experiences.