MDG # 8 BROADBAND SERIES MILLENNIUM DEVELOPMENT GOALS PARTNERSHIP

REGULATORY & MARKET ENVIRONMENT

STRATEGIES FOR THE PROMOTION OF BROADBAND SERVICES AND INFRASTRUCTURE: A CASE STUDY ON TFYR MACEDONIA

BROADBAND SERIES

BROADBAND COMMISSION FOR DIGITAL DEVELOPMENT

ITU

Strategies for the promotion of broadband services and infrastructure: a case study on TFYR Macedonia

May 2012

BROADBAND COMMISSION
FOR DIGITAL DEVELOPMENT

ITU

This report has been prepared for ITU by Mr. Heinrich Otruba, Vienna.
This study was funded by the ITU and the Broadband Commission for Digital Development.

It is part of a new series of ITU reports on broadband that are available online and free of charge at the Broadband Commission website: http://www.broadbandcommission.org/ and at the ITU Universe of Broadband portal: www.itu.int/broadband.

Please consider the environment before printing this report.

Table of Contents

Page

Preface

The past twenty years have been an extraordinary time for the development of information and communication technologies (ICTs) – with the 'mobile miracle' we have brought the benefits of ICTs within reach of virtually all the world's people. Through its technical standardization and spectrum management work, ITU has been at the forefront of technological change and is today committed to continue to drive positive change in the ICT sector and beyond. It is now time to make the next step, and to ensure that everyone – wherever they live, and whatever their circumstances – has access to the benefits of broadband. This is not just about delivering connectivity for connectivity's sake, or even about giving people access to the undoubted benefits of social communications. It is about leveraging the power of broadband technologies, and especially mobile technologies, to make the world a better place.

In 2010, ITU, in conjunction with UNESCO, launched the Broadband Commission for Digital Development to boost the importance of broadband on the international policy agenda and believes that expanding broadband access in every country is key to accelerating progress towards these goals by the target date of 2015. The Commission is co-chaired by President Paul Kagame of Rwanda and Carlos Slim Helú, President of the Carlos Slim Foundation. Some 60 Broadband Commissioners representing governments, industry, academia and international agencies contribute the benefit of their insights and experience to the Commission's work. At the Broadband Leadership Summit held in October 2011 in Geneva, the Broadband Commission recognized broadband as a critical modern infrastructure contributing to economic growth and set four clear, new targets for making broadband policy universal and for boosting affordability and broadband uptake. Innovative new models that promote competition, innovation and market growth are now needed to make the broadband opportunity reachable for all world citizens.

At ITU, the United Nations specialized agency for ICTs and telecommunications, we are committed to playing a leading role in the development of the digital economy through extending the benefits of advances in broadband and embracing the opportunities it unleashes. The three ITU sectors – Radiocommunication, Standardization and Development – are working together to meet these challenges and our collective success will be a key factor in ensuring the provision of equitable broadband access throughout the world. The ITU Broadband Reports represent one tangible contribution towards this commitment.

Dr Hamadoun I. Touré
Secretary-General, ITU

Foreword

Broadband has become a key priority of the 21st Century, and I believe its transformative power as an enabler for economic and social growth makes it an essential tool for empowering people, creating an environment that nurtures the technological and service innovation, and triggering positive change in business processes as well as in society as a whole. Increased adoption and use of broadband in the next decade and beyond will be driven by the extent to which broadband-supported services and applications are not only made available to, but are also relevant and affordable for consumers. And while the benefits of broadband-enabled future are manifest, the broadband revolution has raised up new issues and challenges.

In light of these developments, ITU launches a new series of ITU Broadband Reports. The first reports in the series launched in 2012 focus on cutting edge policy, regulatory and economic aspects of broadband. Other related areas and themes will be covered by subsequent reports including market analysis, broadband infrastructure and implementation, and broadband-enabled applications. In addition, a series of case studies will complement the resources already made available by ITU to all its many different types of readers, but especially to ICT regulators and policy-makers.

This new series of reports is important for a number of reasons. First of all, the reports will focus on topical issues of special interest for developed and developing countries alike. Secondly, the various reports build on ITU's recognized expertise in the area augmented by regular feedback from its Membership. Last but not least, this series is important because it provides a meaningful contribution to the work of the Broadband Commission for Digital Development. The findings of the ITU Broadband Reports will trace paths towards the timely achievement of the ambitious but achievable goals set recently by the Commission as well as provide concrete guidelines. As broadband is a field that's growing very fast, we need to constantly build knowledge for our economies and societies to thrive and evolve into the future.

For these reasons, I am proud to inaugurate this first series of the ITU Broadband Reports and look forward to furthering ITU's work on the dynamic and exciting broadband ecosystem.

Brahima Sanou

Director, ITU Telecommunication Development Bureau

1. Plan of the study

The major goal of this study is to analyze and review TFYR Macedonia's progress in deploying broadband networks and services, particularly in the context of various regional initiatives (such as eSEE, eSEE+ and bSEE) and European Union (EU) efforts to promote the development of ultrafast broadband, as well as other relevant aspects of the Digital Agenda. This case study focuses on legal and regulatory developments, while referring to other important SEE initiatives and the Digital Agenda.

Section 2 briefly summarizes key demographic, political and economic variables for The Former Yugoslav Republic of Macedonia. Section 3 addresses the situation of broadband in TFYR Macedonia, giving an overview of fixed and mobile broadband markets. Section 4 discusses the current legal and regulatory frameworks, while Section 5 describes Macedonia's obligations deriving from EU and regional initiatives. Finally, Section 6 draws conclusions and summarizes the lessons learned from TFYR Macedonia's experience deploying broadband.

2. Demographics, Political and Economic Context

2.1 Demographics and political context

The (Former Yugoslav) Republic of Macedonia is one of the six successor states of the former Socialist Federal Republic of Yugoslavia. It declared its independency after a referendum on 8 September 1991. Its landlocked territory covers some 25'000 km^2, while the last official estimate from 2009 gives a figure of 2,050,671 inhabitants. According to the last census of 2002, Macedonians comprise the largest ethnic group, followed by Albanians and other smaller minorities.

The Republic of Macedonia has applied for NATO Membership (in 1999) and Membership to the European Union (in 2004). Both procedures have not yet reached their full conclusion. An unresolved political conflict persists between Greece and TFYR Macedonia over the use of the name "Macedonia" as a constitutional name, since it is considered by Greece to be a Greek name. TFYR Macedonia is a Member State of the United Nations; in 2004, the United States officially recognized TFYR Macedonia by its constitutional name, the Republic of Macedonia, and to date, 133 other nations have also recognized the newly independent Republic[1].

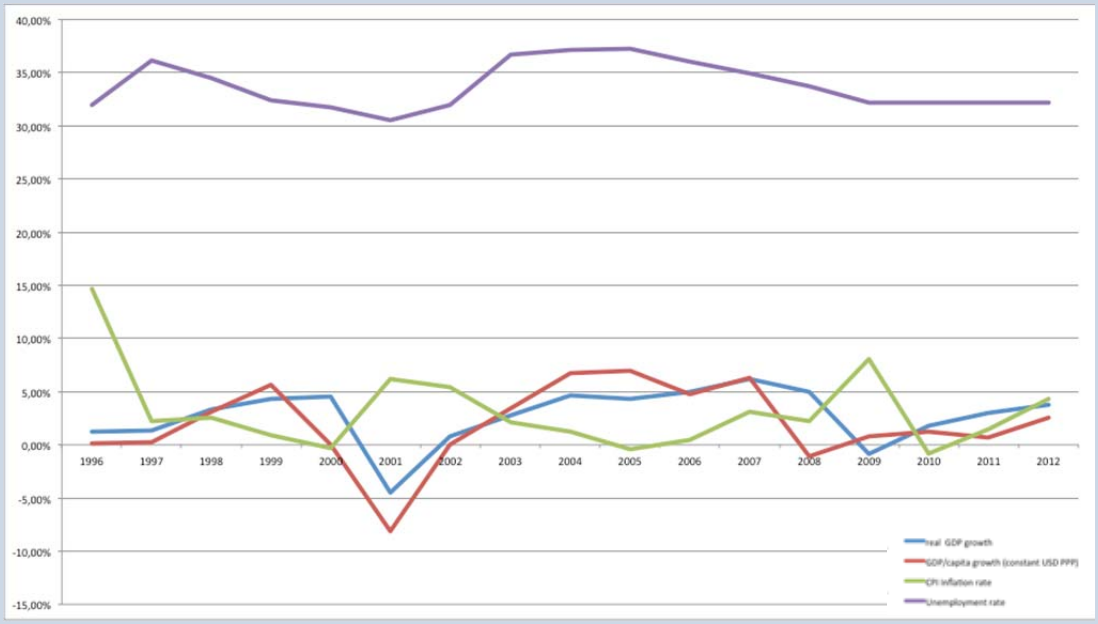
2.2 Economic Conditions

Since independence, the economic development of the Republic of Macedonia has broadly been characterized by economic instability caused by the interruption of traditional trade relations, generally adverse economic conditions of the whole area after 1991 and by a slow recovery after the mid-1990s. There was a marked crisis in 2001, caused by the ethnic insurgency of the Albanian minority. The global economic crisis of 2008/9 also had a negative impact on TFYR Macedonia's economic growth**.** Taking into account that TFYR Macedonia was one of the poorest parts of the former Yugoslavia, its difficult economic situation continues.

[1] See: Central Intelligence Agency, The World Factbook, at: https://www.cia.gov/library/publications/the-world-factbook/geos/mk.html.

Macedonia's most pressing economic problems include high and persistent unemployment, in particular among younger age groups and a low level of GDP per capita, around some 10'000 USD per year, measured in real terms by PPP. For 2010, the World Bank[2] estimates TFYR Macedonia's GDP per capita at the current exchange rates as 4'500 USD per capita per year. There are strong indications that significant value creation occurs in the "shadow" economy, which changes the picture into a more favorable one in terms of personal income per capita. The impact of the shadow economy is significant, but cannot be readily quantified.

Figure 1: Main economic indicators, TFYR Macedonia 1996 – 2012



Source: IMF Statistics.

3. Broadband Ecosystem and Broadband Country Profile

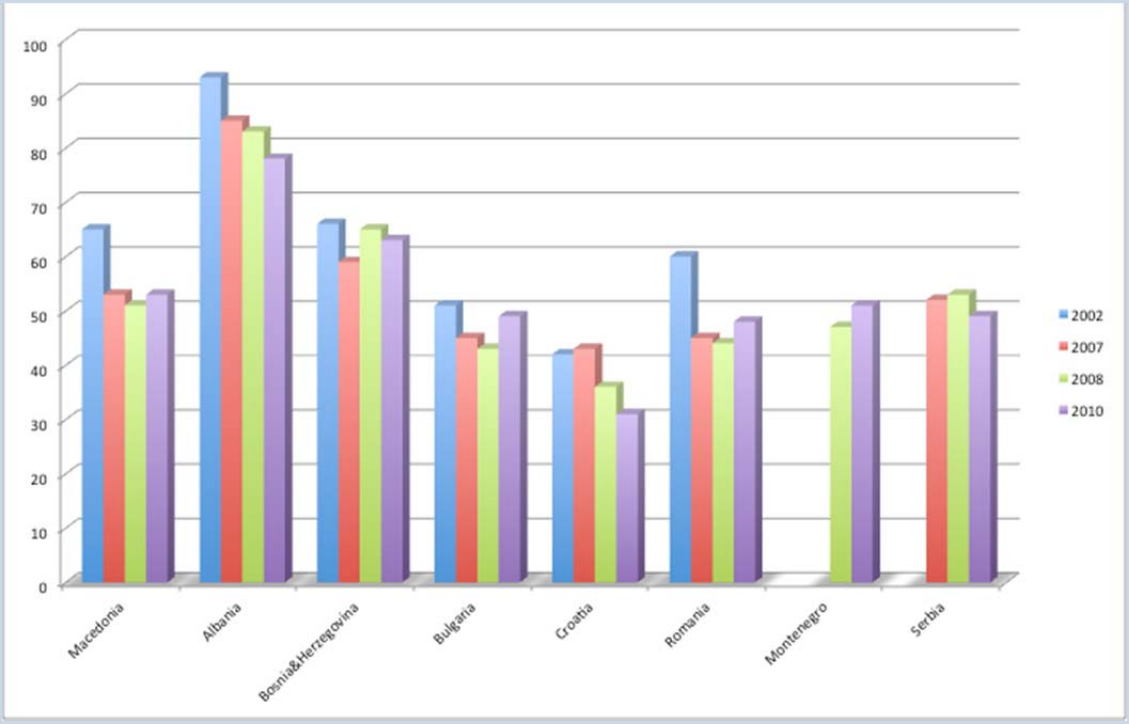
Broadband penetration depends crucially on several factors including ICT skills, use and access. In a series of reports,[3] ITU-D has developed and published a compound index, which measures the state of broadband for developed and developing countries. The ICT Development Index (IDI) can be used to compare the state of broadband development in the Balkan region (as shown in Figure 2). Figure 2 shows the rankings of a group of Balkan Countries for the period between 2002 and 2010 – the lower the value of the ranking, the better the broadband situation in a country.

[2] See: The World Bank: http://data.worldbank.org/country/macedonia-fyr.

[3] ITU-D: Measuring the Information Society 2009; Measuring the Information Society 2010; Measuring the Information Society 2011

Among the chosen sample, Croatia is the leading broadband country. FYROM ranks in a middle group, while Albania and Bosnia have lower rankings. Both Romania and FYROM experienced a marked improvement between 2002 and 2007 and have been able to maintain their positions since i.e., they have continued to improve at the average speed of their immediate peers. Other countries show constant improvement from a lower level (e.g., Albania) or even rather more unsteady development (e.g., Bulgaria, Montenegro). Most Balkan Countries rank among the top quartile or best fifty broadband countries of the world.

Figure 2: Balkan Countries, ITU ID Index 2002 – 2010



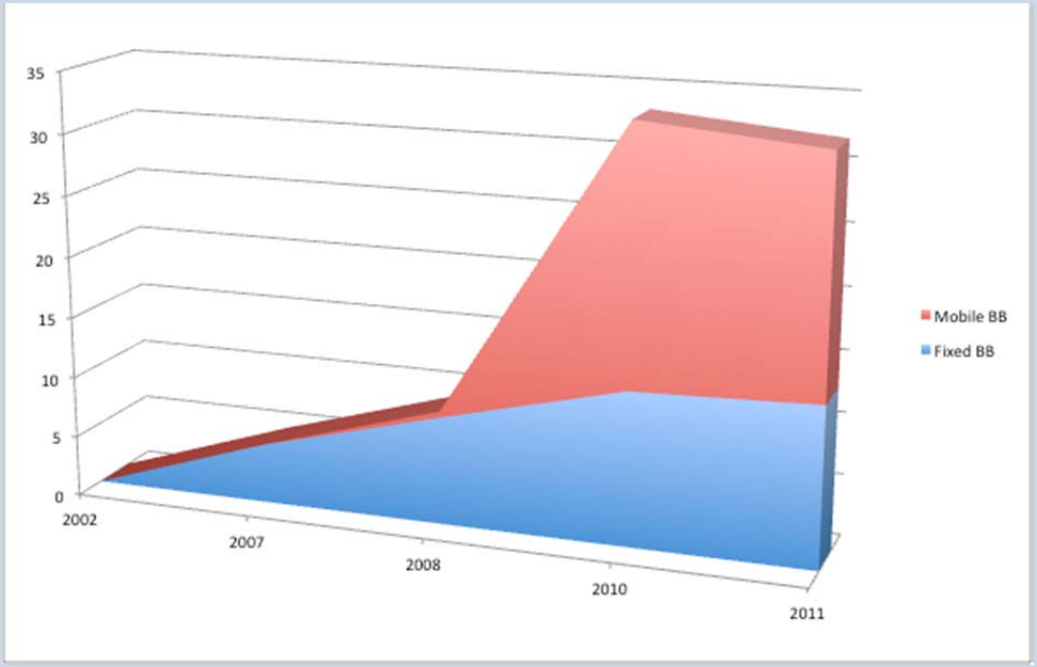
Source: Author, based on ITU data.

In terms of TFYR Macedonia's broadband market, a range of operators offer broadband access over both fixed and mobile networks. In 2002, there was no commercial broadband available in TFYR Macedonia. For the fixed network, in 2011 the National Regulatory Authority of TFYR Macedonia (AEK - Agency for Electronic Communications) reports 105 operators offering Internet access, the most important being Macedonian Telekom, CATV operators and the operator ONE, as well as a large number of small, regional and local operators.

In addition to fixed broadband access, all three Macedonian mobile operators (T-Mobile, ONE and VIP) offer mobile broadband. After having been awarded with an authorization for 3G/UMTS, ONE was the first mobile operator to launch its mobile broadband service in August 2008, while T-Mobile introduced their 3G services almost one year later, on 11 June 2009, closely followed by VIP offering mobile broadband based on resale/national roaming of T-Mobile wholesale products. Mobile broadband subscriptions have grown significantly since the launch of competitive services in 2008, with mobile broadband subscriptions exceeding fixed broadband subscriptions in 2009.

Unfortunately, the data available do not clearly indicate the bandwidth that can actually be used by end-users, which tends to artificially inflate the number of mobile broadband users. However, considering the low prices of modems and dramatic increase in smartphones, the actual bandwidth experienced by end-users should be closer to broadband capacity, meaning that this bias should disappear and the statistics should become more accurate over time. The development of broadband access in TFYR Macedonia is shown in Figure 3.

Figure 3: Broadband Penetration in TFYR Macedonia, 2002 – 2011



Source: ITU and AEK.

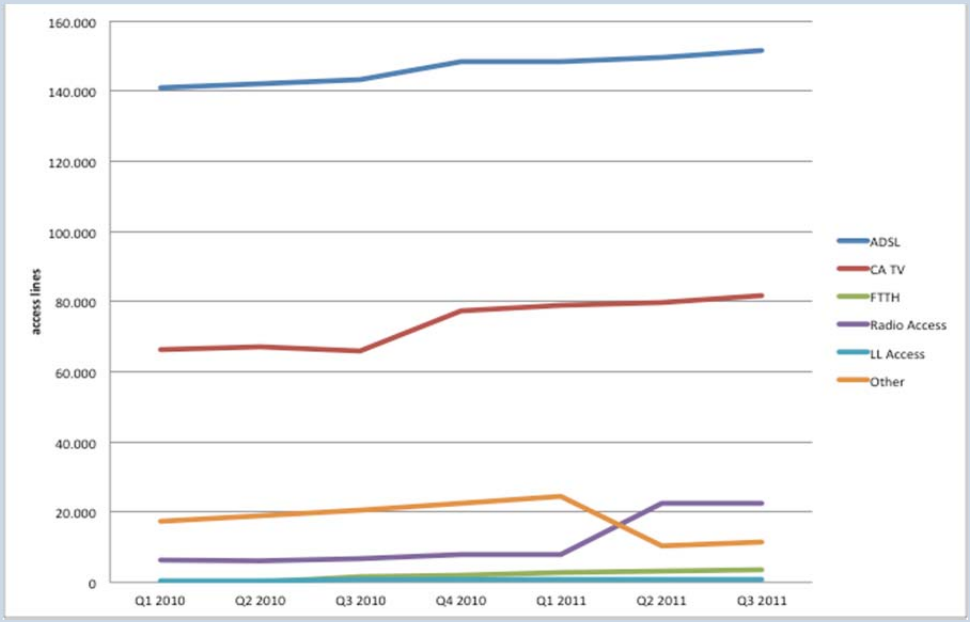
Fixed (wired) broadband developed gradually until 2010, when the growth rates started to decline. Mobile broadband continued to grow rapidly until 2010, when subscriber numbers started to decrease, which appears to be a statistical artifact due to the redefinition of the term "active SIM card", which is used to calculate mobile broadband access figures. In 2011, broadband penetration (fixed and mobile) reached more than one third of the population, with over half the population online[4].

The development of broadband access in TFYR Macedonia is characterized by rather slow growth of fixed network broadband and a rather more dynamic growth in mobile broadband, even despite redefinition of the term "active SIM".

Fixed network broadband can be analyzed further by technology, since AEK regularly monitors the market development for different technologies (Figure 4).

[4] ITU World Telecommunication/ICT Indicators database.

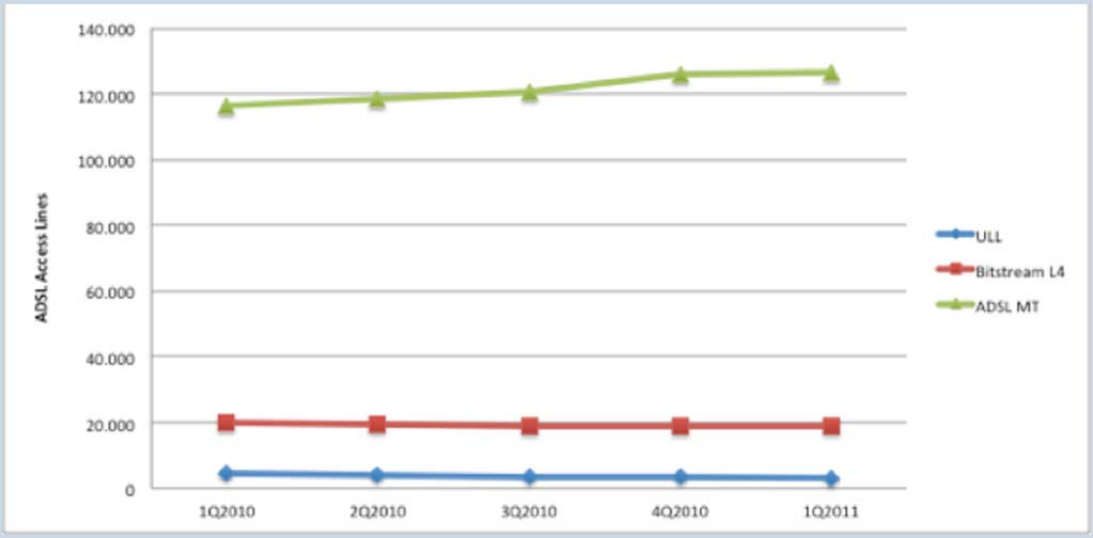
Figure 4: Fixed Broadband Access in TFYR Macedonia 2010 – 2011



Source: AEK.

Figure 4: Fixed Broadband Access in TFYR Macedonia 2010 – 2011 shows that ADSL-based access still remains dominant in the country, with over half of the market. However, CATV-based broadband access and radio access are also increasingly important. The step-change in "other access" in Figure 4 is due to a change in definition of "radio access" and "other access", which can be seen clearly in the diagram. The diagram also shows that ULL access (here LL-access) is nearly non-existent, with just a few unbundled lines, and that FTTH access is already available in TFYR Macedonia.

Figure 5: ADSL Access in Macedonia 2010-2011



Source: AEK.

In terms of ADSL access, Macedonian Telekom offers the vast majority of ADSL lines to the public as the incumbent operator, whereas other fixed network operators using ADSL technology (including "Bitstream Level 4") engage in reselling Macedonian Telecom's wholesale products.

4. Current Legal and Regulatory Framework

4.1 Current legal framework

The current telecommunication regulatory framework of TFYR Macedonia is based on the *EU 2003 Regulatory Framework*. The EU 2003 Regulatory Framework was implemented under Macedonia's Electronic Communications Law, enacted in 2005 and amended in five subsequent stages from January 2007 until June 2010. These actions are an obligation of TFYR Macedonia as a Candidate Country under the *Acquis Communitaire*, whereby the implementation of the EU Regulatory Framework of 2003 is mandatory. Beyond that, the Government of TFYR Macedonia has concrete plans for implementing the complete *EU 2009 Regulatory Framework* in an amendment of the existing Electronic Communications Law 2005. Some provisions of the *EU 2009 Regulatory Framework* have already been transposed with an amendment to this law in 2010.

According to some analysts[5], the Electronic Communications Law 2005 is already well-aligned with the EU 2003 Regulatory Framework; the general impression is that due to several amendments, the Law is longer and somewhat more detailed than other comparable national telecommunication laws. In addition, the Republic of Macedonia was first among the South-east European countries to adopt an electronic communications law based on the *EU 2003 Regulatory Framework* and overall, Macedonia's information society legislation is well-aligned with the *Acquis Communautaire*.

4.2 Government and Regulatory Strategy

4.2.1 Strategic Leadership by Government

The Government of TFYR Macedonia decided on its Information Society Strategy already in 2005 with their *National strategy for the development of electronic communications with information technologies, Strategic Directions, (Ministry of Transport and Communications), 2005*[6]. The execution of these Strategic Directions is developed further in their strategic document, *Broadband Nation; National Strategy for Development of the Next-Generation Broadband Internet with an Action Plan (Ministry of Transport and Communications), Draft 2009*. Both documents make a clear statement and commitment to the development of the Information Society.

The National Strategy for the development of electronic communications with information technologies can be characterized as a national plan to promote progress in the broad area of electronic communications and IT. It calls for activities and efforts for:

[5] International Regulatory Affairs Consulting (2011): Development of a Regulatory Strategy for AEK; Assessment Report, Vaduz December 2011.

[6] The need for adopting a National Strategy for Development of Electronic Communications and Information Technologies stems from the Law on Electronic; Communications (Official Gazette of RM 13/2005).

> "Enabling aggressive introduction and massive and efficient use of electronic communications and information technologies that will contribute to make the Republic of Macedonia a part of the global networked economy and to achieve a significant leap frogging in the economy[7]".

The second document can be seen as a National Broadband Strategy, as requested by the European Commission in its i2010 policy framework for the information society and media.

As a consequence of the first National Strategy, the "National Council for Information Society" was established in 2008 by the Government to monitor the implementation of the National Strategy for Electronic Communications. As the body in charge of electronic communications policy, the Ministry of Transport and Communications monitored the implementation of the measures of the strategy that referred to electronic communications, whereas the Ministry of Information Society was monitoring the activities that referred to Information Society services. By 1 January 2012, all responsibilities relating to ICT had been transferred to the Ministry of Information Society and Administration.

4.2.2 Regulatory Strategy

As part of the National Strategy, the regulator AEK was required to develop its own Strategy and Action Plan. The final draft of the 2011-2016 AEK strategy[8] has been consulted with the market parties in January 2012 and, in addition, was the subject of a public hearing on 15 February 2012 in Skopje, TFYR Macedonia. The draft that has still to be adopted by AEK is composed of two major parts, a fixed network strategy and a mobile network strategy. This separation of fixed and mobile markets follows the EC approach to relevant markets, which distinguishes fixed from mobile services.

International Regulatory Affairs Consulting (IRAC) suggest a two-step regulatory strategy in both market segments. The first step should be used to correct existing regulatory decisions to be better aligned to EU regulation, while the second step is targeted on the introduction of very high speed internet.

4.2.2.1 AEK's Fixed Network Strategy

IRAC identified areas where existing regulatory decisions should be amended to be fully aligned with EU regulation. In particular, AEK should create a consistent and non-distorted set of access prices, call prices and wholesale access and bitstream prices and should adjust fixed termination rates to the "pure" LRIC cost standard. These amendments are scheduled to be finalized by the end of 2012. Even before officially publishing their strategy, AEC[9] succeeded in putting in place the complete revision of access prices for retail and wholesale markets. Now retail access to the public telephony network and wholesale access, as well as unbundled local loops and bitstream services, are priced consistently under a cost oriented regulatory scheme.

These changes of access prices are demonstrated in the following Figure 6: Access Prices in Macedonia: changes in 2012. In addition to the correction of the price for unbundled local loops, which corrects the inconsistencies between retail access, Wholesale Line Rental and prices of ULL, AEK managed to reduce Bitstream prices significantly by 27% and to reduce fixed termination prices by 25%. These changes will

---

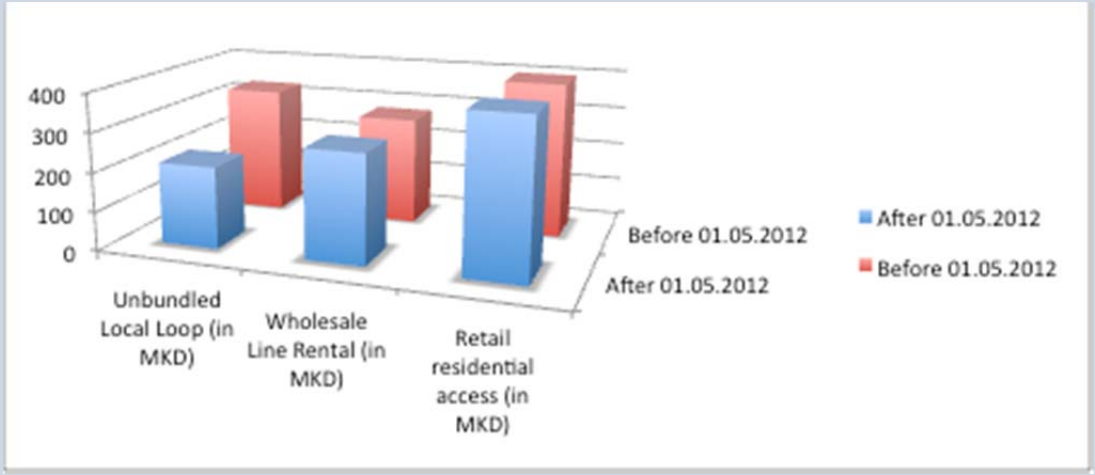
7 See: Mission of the National Strategy; Strategic Directions, p2

8 AEK commissioned International Regulatory Affairs Consulting (IRAC) to prepare their regulatory strategy for 2012 to 2016

9 AEK Press Release, April 2012

help to create a level playing-field for intra-platform competition in the xDSL platform, by removing a margin squeeze for unbundled access and will help new entrants to terminate traffic in MT's network at significantly lower cost.

Figure 6: Access prices in TFYR Macedonia – changes in 2012



Source: AEK.

The second step of the fixed network strategy was designed to prepare for high-speed broadband access (standard broadband being covered already by Step 1 of AEK's Fixed Network Strategy). The core of this strategy is the complete and timely implementation of the EC Recommendation on NGA[10] access. The core of the EC Recommendations consists of provisions for access to civil engineering infrastructure, terminating segments of fiber loops, access to fiber loops and access to vertical (in-house) infrastructure according to the provisions of the EU Regulatory Framework 2009. In addition, respective bitstream products should be provided on the market for wholesale broadband access.

These provisions should be supported by adequate measures to allow for a non-discriminatory transition into the new regulatory phase.

4.2.2.2. AEK's Mobile Strategy

AEK will implement "pure" LRIC for mobile termination rates already in 2012, to be aligned with the EC Recommendation on fixed and mobile termination rates. The second step of AEK's mobile strategy focuses on the implementation of high-speed broadband services in mobile communication networks, in particular LTE (4G) services. The strategy includes a change in spectrum policy by replacing high annual spectrum usage fees and beauty contests by spectrum fees that cover the operation costs of AEK11 and by auctions as allocation procedure for mobile communication spectrum. The strategy also includes "refarming" of 900MHz and 1800MHz spectrum to 4G services. It is suggested that refarming should be allowed under the precautions of the EU against competitive distortions.

[10] Commission Recommendation of 20 September 2010 on Regulated Access to Next Generation Access Networks (NGA), Official Journal of the European Union, (2010/572/EU), L 251/35, Brussels, 20 September 2010.

[11] See: Strategic Directions (2005), p17.

Finally, AEK will allow infrastructure sharing with the exception of frequency sharing under the condition that the only equipment used is equipment guaranteeing competitive independency.

4.2.3 Conclusions

On the level of legislation, TFYR Macedonia has implemented the Acquis Communitaire, by transposing the European Regulatory Framework of 2003 into national law and by establishing AEK as the National Regulatory Authority for electronic communications networks and markets. TFYR Macedonia has gone even further to implement large parts of the Revision of the EU Regulatory Framework 2009 and plans to complete the transposition in 2012. The strategic documents of the Macedonian Government show their commitment to transforming the country into an inclusive information society and to moving the Macedonian economy towards a modern knowledge-based economy. In a series of decisions, AEK has implemented regulation according to the European Regulatory Framework.

TFYR Macedonia's regulation is concentrated on strategically important wholesale markets such as interconnection, access to physical access network infrastructure, leased lines, bitstream markets and retail access. As indicated above, some inconsistencies persist between wholesale and retail access prices, have already been remedied in the first quarter of 2012. TFYR Macedonia's broadband retail markets are characterized by steady growth and significant inter-platform competition between mobile and fixed platforms and between xDSL and CATV-based access modes. There is relatively little intra-platform competition in the fixed network, contrary to the intensive competition in mobile broadband retail markets. Total broadband penetration (fixed and mobile combined) has reached 32% of the population, comparable to the average penetration rate of EU Member States in 2009[12]. AEK is focusing on promoting high-speed broadband over fixed networks, as well as over mobile networks. AEK's planned regulation is fully aligned with EU Legislation and EC Recommendations.

5. Regional harmonization and cooperation under the Stability Pact for SE Europe, eSEE, eSEE+, bSEE and the EU Digital Agenda

"The Stability Pact for South Eastern Europe" was launched in 1999 as the first comprehensive conflict prevention strategy of the international community, aimed at strengthening the efforts of the countries of South Eastern Europe (SEE) in fostering peace, democracy, respect for human rights and economic prosperity."[13] The Member States of the Stability Pact agreed on the eSEEurope Agenda for the Development of the Information Society in 2002[14] and bSEE Taskforce[15]. In 2007, they agreed on the eSEE

[12] See: European Commission (2011): 15th Implementation report, Part 2; Brussels 25.08.2010, Chapter 4

[13] See: http://www.stabilitypact.org/, as of 02.03.2012; http://www.stabilitypact.org/wt2/eSEEWG.asp

[14] eSEEurope Agenda for the Development of the Information Society a cooperative effort to implement the Information Society in South Eastern Europe; see: http://www.stabilitypact.org/e-see/eSEE%20Agenda%20for%20the%20Development%20of%20Information%20Society.pdf

[15] Stability Pact for SEE: Memorandum of Understanding on the development of a unified market of broadband networks fully interconnected to the European and global networks - Initiative for 'bSEE' -

Agenda+ for the Development of the Information Society in SEE 2007 – 2012, as the successor to eSEE. Following the Stability Pact, all its activities have been transferred to its successor organization, the Regional Co-operation Council[16]. The RCC Working Plan[17] mentions a determination to continue efforts focusing on regional ICT research and closer links to the private sector.

5.1 Obligations under the regional contracts: eSEE, eSEE+, bSEE

eSEE focused on Government actions on most of Information Society policies. The eSEE countries committed themselves to the eEurope process by agreeing on a harmonized approach to implementing the EU legal and political provisions to promoting the transition to an Information Society.

This declaration is associated with a series of actions to be accomplished by the signatory countries. These actions obliged TFYR Macedonia to implement the EU Regulatory Framework of 2003 as the legal basis for the liberalization and regulation of electronic communications markets. This also included the establishment of an independent National Regulatory Authority.

The eSEE+ Agenda was designed to continue efforts to create a Single Information Space in SEE, strengthen innovation and investment in ICT research and achieve an inclusive Information Society. It aims to boost the penetration of broadband services and infrastructure roll-out for establishing a regional high-bandwidth backbone connected to the EU, as well as establishing domestic Internet Exchange Centers by 2009. Special attention was given to efficient radio spectrum management and regional harmonization. However, according to recent research results[18], there is not yet an IXP in the South-West Balkan Region.

Since broadband is seen as a major factor contributing to the primary goals of both eSEE initiatives, SEE countries have agreed on bSEE as special initiative to promote the development of broadband networks in SEE. The bSEE Action Plan is based on a Memorandum of Understanding of the SEE Member States signed in Thessaloniki in 2005. It deals with similar issues as the eSSE+ Agenda with a special focus on broadband. The relations between bSEE and eSEE+ are shown in the following

---

Broadband South Eastern Europe signed in Thessaloniki on 1st July 2005 http://www.stabilitypact.org/esee/Terms%20of%20Reference%20for%20bSEE%20Taskforce.pdf

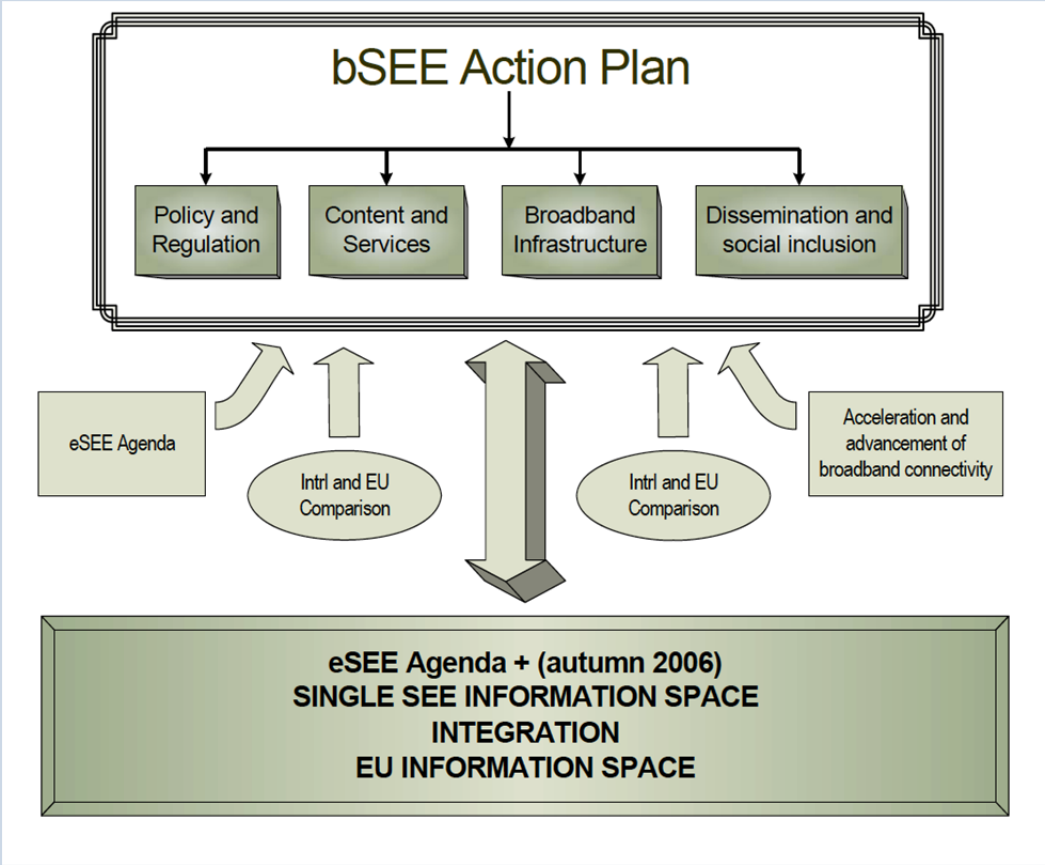
[16] For details of the transition from the Stability Pact to RCC see: From a conflict prevention and confidence building initiative in South Eastern Europe to a regionally-owned Regional Co-operation Council: http://www.stabilitypact.org/about/SPownershipprocessPortal.asp

[17] See: Regional Cooperation Council, Sarajevo, 17 June 2010: Strategy and Work Programme 2011 – 2013, p 13.

[18] Stephanie Silvius: Internet Exchange Points; Amsterdam, January 2011

Diagram 1: eSEE+ and bSEE in Relation, which shows the main interrelations between these different initiatives.

Diagram 1: eSEE+ and bSEE in Relation



Source: bSEE Action Plan, Version 1.5.

Contrary to eSEE and eSEE+ focusing on compliance with EU legislation and standards, the bSEE Action Plan and should provide support to Member States of SEE "in order to define the most appropriate road for the implementation of the bSEE MoU[19]".

5.2 Obligations for TFYR Macedonia under the EU Digital Agenda

The basic reference for regulation and broadband access can be found in Chapter 2.4 ("Pillar IV") of the Digital Agenda for Europe[20], which comprises several Actions[21] to promote the roll-out of high-speed

[19] bSEE Action Plan, Version 1.5, p1

[20] See: EUROPEAN COMMISSION, Brussels, 26.8.2010, COM(2010) 245 final/2: A Digital Agenda for Europe; Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions

[21] For details, see: http://ec.europa.eu/information_society/newsroom/cf/pillar.cfm?pillar_id=46&pillar=Very%20Fast%20Internet

Internet connections (enabling services such as HDTV and HD videoconferencing). These priorities are also included in the EU Broadband Communication, which is completely covered by the NGA Recommendation of the European Commission[22].

The Common EU Spectrum Policy refers to the "Radio Spectrum Policy Programme[23]" (currently under reconciliation between the European Parliament and the Council), and requests Member States - among other measures - to promote efficient use of spectrum, promote competition, avoid spectrum hoarding and other anti-competitive practices and allocate available spectrum in the 800MHz band and in the 2.5–2.69 GHz and 3.4–3.8 GHz bands. Allocations of spectrum of the 800MHz band should encourage broadband roll-out in less populated areas by means of license conditions.

Although TFYR Macedonia is not legally obliged to follow these provisions, Macedonian policy-makers are aware of these initiatives and may respect them as guidance for policy and regulation.

6. Conclusions and lessons learned

6.1 Legislation and Regulation

With regard to legislation, TFYR Macedonia appears having achieved all relevant tasks. As shown in Section 4.1, with its existing Telecommunication Act already incorporating the EU Framework of 2003. This has already been recognized by the European Commission,[24] as well as various other sources[25]. These sources suggest that Macedonia has not only transposed the EU Regulatory Framework of 2003, but also most of the EU Regulatory Framework of 2009. According to AEK and the Ministry of Information Society, TFYR Macedonia is now planning a revision to the Telecommunications Law for 2012 to completely implement the EU Regulatory Framework of 2009.

The National Regulatory Authority (AEK) was established by the provisions of the Telecommunications Act of 2005 and has, according to the European Commission (2010b), almost completely implemented the Regulatory Framework. This means that all regulatory provisions for competition on electronic communication networks and services markets are now in place, resulting in significant competition between different platforms (mobile, fixed PSTN, fixed CATV, fixed wireless) for broadband services. Intra-platform competition has been facilitated by the recent review of access prices to the public telephony network.

---

[22] European Commission (2010): Commission Recommendation on Regulated Access to Next Generation Access Networks (NGA), Official Journal of the European Union, (2010/572/EU), L 251/35, Brussels, 20 September 2010

[23] European Commission (2010a): Proposal for a DECISION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing the first radio spectrum policy programme COM(2010) 471 final; 2010/0252 (COD), Brussels, 20 September 2010

[24] European Commission (2010b): COMMISSION STAFF WORKING DOCUMENT, THE REPUBLIC OF MACEDONIA, 2010 PROGRESS REPORT; Brussels 9 November 2010; SEC(2010)1332, Chapter 4.10, p41

[25] Cullen International (2010): Enlargement Countries Monitoring Report IV – December 2010, ASTEC (2011): Study of the Regulatory Authorities in Telecommunications and Media, March 2011; ASTEC (2011): Study of the Regulatory Authorities in Telecommunications and Media, March 2011 ; IRAC (2011): Development of a Regulatory Strategy for AEK: Assessment Report, Chapter 2.1, pp5

6.2 Information society and broadband promotion initiatives

A first report on the achievements of eSEE[26] was delivered by October 2004. A more recent update of the achievements in eSEE and eSEE+ is available on the Stability Pact Webpage [27]. The bSEE Task Force reported on progress made in the Member States under the bSEE Initiative in February 2008[28]; no more recent bSEE progress reports appear to be publicly available[29]. The Ministry of Information Society of Macedonia has also provided two comprehensive "Matrix Reports" on the progress of TFYR Macedonia in the fields covered by the SEE Initiatives. These reports do not cover regulation extensively, but demonstrate that TFYR Macedonia has made huge progress in the implementation of eSEE, eSEE+ and bSEE initiatives and certainly ranks high in the implementation rankings in SEE with regard to e-Government and a long list of other information society services..

Further, additional reports measuring the progress of SEE countries in the development of the information society[30] are highly favorable to the efforts undertaken by TFYR Macedonia to promote the Information Society, Digital Agenda and e-Government.

In particular, in the area of Internet access for schools, WiFi-based Internet access points have been rolled out in remote areas, as well as an academic broadband network. Students in schools throughout TFYR Macedonia now have Internet access, with 1.45 pupils per computer. Meanwhile, Macedonian universities and academics can access knowledge and research resources via the academic network MARnet.

Perhaps the most visible of these three initiatives is the Ministry of Information Society project for free wireless hotspots in rural areas. This project provides Internet kiosks in rural areas, as well as access points with free "Wi-Fi" Internet. This project aims to prepare Macedonian citizens for the modern IT-based economy. It intends to increase the percentage of Internet users in the Republic of Macedonia, making the Internet an available tool for all citizens. 680 kiosks should be installed throughout Macedonia's territory. To date, around 570 Internet kiosks are in use in the rural areas of TFYR Macedonia.

---

[26] eSEEurope Regional Information and Communications Technologies Sector Status and Usage Report: Building an Information Society for All, Sarajevo, October 2004

[27] http://www.stabilitypact.org/e-see/eSEE%20Matrix%20February%202008%20short%20version.pdf

[28] See: Report on implementation of bSEE Action Plan, February 2008 ; http://www.stabilitypact.org/e-see/bSEE%20Matrix%20February%202008.pdf

[29] Unfortunately, this latest report does only cover: Bosnia and Herzegovina, Croatia, Montenegro, Romania and Serbia. Albania, Kosovo and Macedonia are not covered by this report.

[30] See: Going the extra mile for the Digital Agenda; e-Leadership efforts in SEE. http://www.eseeinitiative.org/images/stories/pub/e-Leadership.pdf

and: e-Governance and ICT Usage Report for SEE; http://www.eseeinitiative.org/images/stories/pub/eGovernance_and_ICT_Usage_Report_for_South_East_Europe.pdf

6.3 Digital Agenda

The Digital Agenda is an EU programme designed to improve conditions for the development of the Information Society. Its regulatory aspects focus on high-speed Internet and spectrum policy.

AEK's Strategy will implement all provisions of the NGA Recommendation, including access to civil engineering infrastructure (in 2012) and access to fibre networks (in 2013). AEK has already implemented a cadaster of all telecommunication infrastructure as information base for potential investors in fiber-based access networks, while an additional one-stop shop system for building licenses for telecommunication infrastructure is on its way.

AEK plans to undertake the necessary steps to create a favorable market environment for the deployment of LTE and other high-speed mobile data services. These steps include a fundamental change in procedures for frequency allocation (which will require a change of the Telecommunication Law), measures to support cost savings in network roll-out as infrastructure sharing, and "refarming" of 900MHz and 1800MHz spectrum. In addition, AEK considers license obligations for 800 MHz licenses to promote the roll-out of 4G services in less densely populated areas.

AEK has already made plans for freeing the frequencies between 792MHz and 863MHz (so-called "Digital Dividend" spectrum) by 1 June 2013 and has started procedures to allocate these frequencies to mobile communication services.

Summing up, there are a few gaps that remain to be closed in the existing legislation and it is up to AEK to implement and execute their strategy to be completely compatible with the major EU initiatives and programmes. With regard to the obligations under the Digital Agenda, TFYR Macedonia has already taken almost all the requested actions to promote the goals of the Digital Agenda in the area of regulation and respective legislation.

6.4 Lessons learned

Considering the gaps in technology, infrastructure, legislation and income levels which existed at the start of TFYR Macedonia's rapprochement to the EU in 2000, the development of the electronic communications markets and Information Society services can be seen as a considerable success in TFYR Macedonia. TFYR Macedonia initiated the necessary legal steps for the liberalization of its electronic communication markets as early as 2005. The implementation of the EU Regulatory Framework from 2005 onwards triggered competition in both fixed and mobile network markets, leading to a steady development of market volumes, diversity of services and affordable prices. The broadband penetration rate of 32% of the population indicates that a relatively broad public can afford broadband services.

Meanwhile, regional initiatives promoted the idea of harmonization to benefit the population of the SEE countries. Many actions have been driven by developments in the European Union and the political will of SEE countries to ultimately become Member States of the EU. TFYR Macedonia and its neighboring countries have sought to adopt a legal framework compatible with the EU framework and other SEE countries.

AEK has undertaken the necessary steps to have comparable powers as the NRAs of some other EU Member States and will continue to take further steps to create favorable market conditions for electronic communications companies and most importantly for the Macedonian citizens.

The strongest driving force towards broadband development is TFYR Macedonia's decision to apply for EU membership, which has triggered many subsequent legal and regulatory activities. Regional initiatives have enabled the development of Information Society services to thrive. In particular, e-Government services have been developed in parallel in most SEE countries allowing easier border controls, regional trade, etc.

Regional co-operation, combined with the determination and commitment of participating countries to meet the demanding goals of EU-Membership, have provide favorable conditions for the development of broadband markets in TFYR Macedonia and will help build Macedonia's future competitiveness in the digital economy of tomorrow.

International Telecommunication Union
Place des Nations
CH-1211 Geneva 20
Switzerland
www.itu.int

Printed in Switzerland
Geneva, 2012

05/2012