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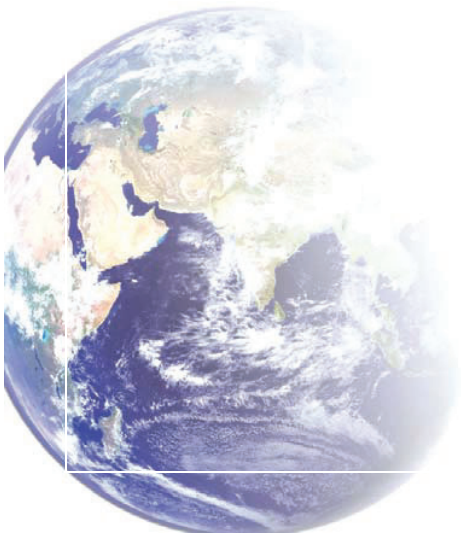

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COMPUTER AIDED SPATIAL PLANNING

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INHALTSVERZEICHNIS / TABLE OF CONTENTS

Civic Networks of the Srem District – Overcoming or Indicating the Digital Divide?

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1 INTRODUCTION

The phenomenon of digital divide has been examined recent years from many different viewpoints. There is still a variety of definitions and a range of propositions for its examination and measuring. According to the OECD reports: "digital divide refers to the gap between individuals, households, business and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies and to their use of the Internet for a wide variety of activities". Civic networks are regarded as one of such activities, where the Internet has been used to reflect civic life of the particular region.

Measuring the digital divide is mainly based on comparative statistics, primarily in an international context. In this paper, results of qualitative observations of the civic networks are considered as a possible indicator of the digital divide overcome in a regional context.

2 STATISTICAL INDICATORS OF DIGITAL DIVIDE IN SERBIA

In Serbia, it is still not possible to measure more precisely the effects like digital divide because of a lack of relevant detailed statistical information, but there are some observations, data and estimations published out of official statistical institutions:

Fixed plus mobile telecommunication paths - There is 2 700 000 fixed telephone lines in Serbia and 1.5 million users of the mobile telephony. Considering the fact that there are 10 million inhabitants in Serbia this gives about 23 fixed and mobile access paths per 100 inhabitants. Compared with the OECD countries (Figure 1) it is one third of the OECD average and three times more than Non-OECD average.

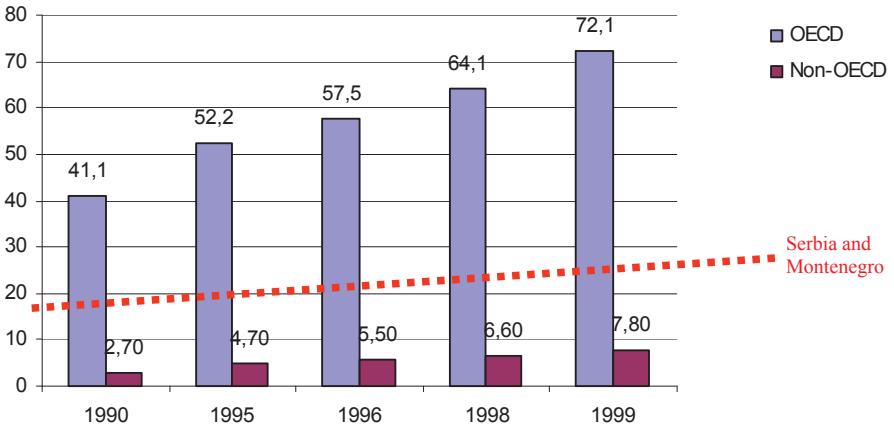


Figure 1 Fixed plus mobile telecommunication access paths per 100 inhabitants in Serbia and Montenegro compared with OECD and non-OECD countries (source OECD, 2002)

Internet access – Serbia and Montenegro has been (re)connected to the Internet in February 1996 via the academic links. In next couple of years, numerous providers appeared offering different Internet based services. "The history of Internet in Yugoslavia begins in 1996 when the Yugoslav Academic Network was connected to the Internet through the provider BeoTelNet. All Internet services became available to users in Yugoslavia, but the user population was confined to academic circles (faculty and scientific institute associates). That very year, first national providers operating on a commercial basis started working, making Internet available to non-academic users as well. As early as 1997, the first scientific conference on Internet was held (SITJ, 1997). By 2002, the number of Internet providers had risen to 60. The major ones are Eunet (http://www.EUnet.yu, capacity of terrestrial link – 34Mbs, capacity of satellite link – 45Mbs), in private ownership, and PTT Srbija NET (http://www.ptt.yu, capacity – 16Mbs), in state ownership (Figure 3, left). Seventeen magazines oriented towards computer and Web users are being published (the best one is *Svet kompjutera*, http://www.sk.co.yu), some ten odd search engines are in operation (most thorough, most popular and most efficient being Krstarica, http://www.krstarica.com.yu), while the number of registered domains rose to 13 thousand in April 2002. In relation to the size of its population, according to the aforesaid index, Yugoslavia lags behind Slovenia and Croatia, is slightly ahead of Macedonia and considerably ahead of Bosnia and Herzegovina (http://www.yutrend.com, 2002)." (Bacevic, 2003).

At the moment the Internet is accessible via modem connections from any place equipped with phone lines. Individual users of the Internet are charged approximately 0,3 € per hour plus phone call prices, which is still quite expensive comparing with average incomes. For a limited number of users in certain urban areas (Berlgrade) the Internet is accessible via cable connections and some experimental wireless services are started to appear as well.

According to some recent estimations, **number of the Internet users** in Serbia ranges from 300 000 (Jovanovic, 2002) to 500 000 (Jokanovic, 2002), where more of a half uses the Serbian Academic network.

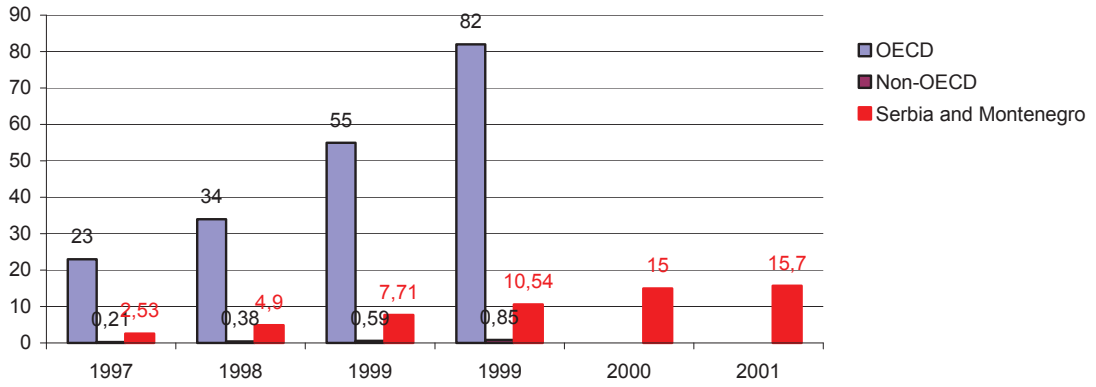


Figure 2 Internet hosts per 1000 inhabitants in Serbia and Montenegro (source World Resources Institute, 2003) compared with OECD and non-OECD countries (source OECD, 2002)

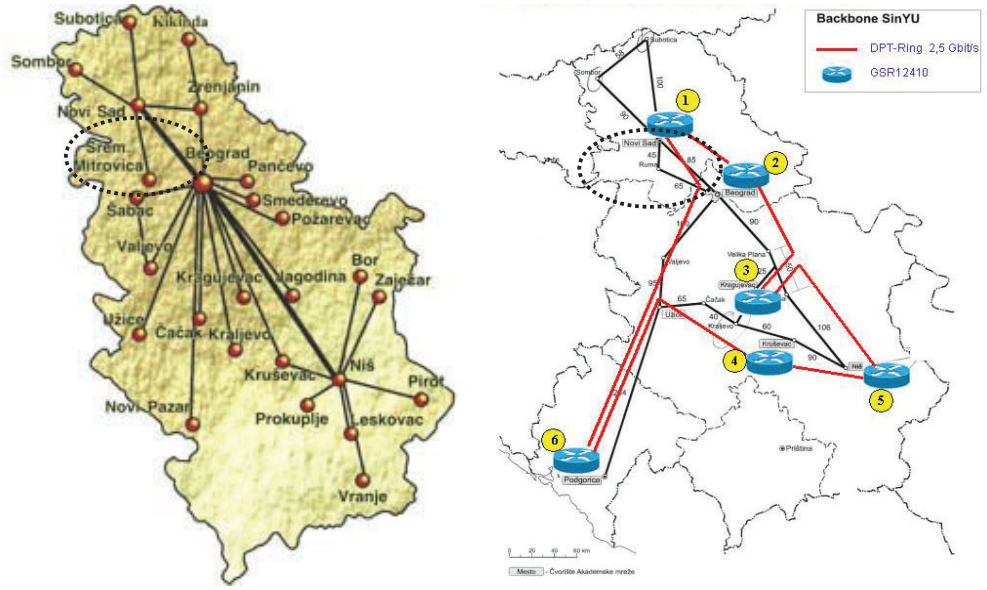


Figure 3 Topology of the Internet access nodes of the PTT YU provider (left) and the new academic SinYU Backbone (right), with the Srem region highlighted

Figure 4 Civic networks of Serbia and Montenegro in 2000 (source Bajic Brkovic, Milovanovic 2000) and actual entry pages of the civic networks of Belgrade, Novi Sad, Subotica and Niš

3 CIVIC NETWORKS OF THE SREM DISTRICT

The Srem district is part of Vojvodina region (Serbia and Montenegro). It is situated at the northeast part of the country, between two branches of the Pan-European communication corridor X, tangenting two important nodes, Belgrade (the capital of the country) and Novi Sad (the capital of the Vojvodina region). The district is administratively divided into seven municipalities – Sremska Mitrovica, Stara Pazova, Ruma, Indjija, Sid, Pecinci and Irig (Figure 5).

Figure 5 Map of the Srem District (source Camber of Economy of Srem - http://www.rpksrem.co.yu/index_eng.php) with indicators of civic networks

The detailed statistics relevant for the digital divide examination (number of the Internet hosts, number of households and individuals with the Internet access, level of the Internet using, etc.) are not available on the regional level. Certain statistics, however, like the one indicating the percent of inhabitants living in agricultural households (Figure 6, right), could be taken as an indicator of the digital divide on the regional level.

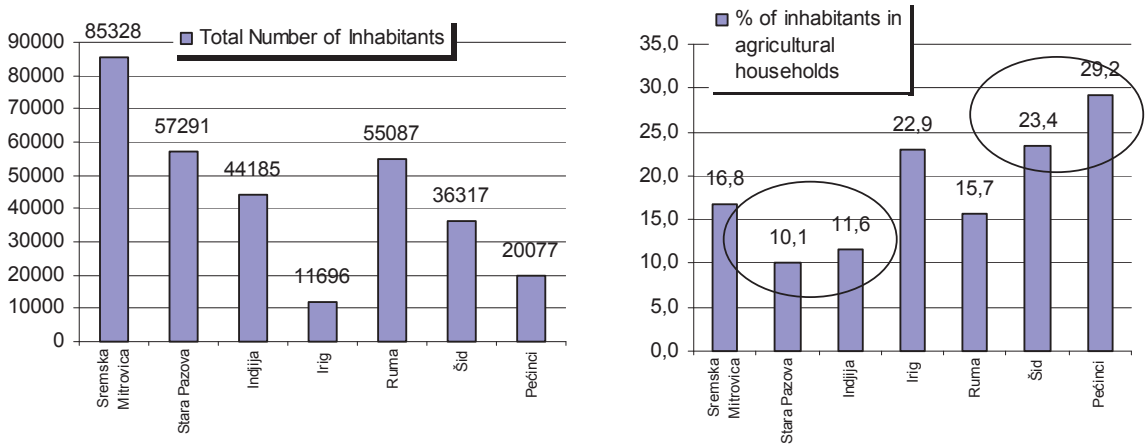


Figure 6 Total number of inhabitants in the Srem District municipalities and the percentage of inhabitants living in agricultural households

A topography of civic networks in Serbia and Montenegro in 2000 (Figure 4, left, according to Bajic Brkovic, Milovanovic 2000) show a significant concentration of civic networks in the region of Vojvodina and metropolitan area of Belgrade. In terms of the civic network development, the Srem district, remain isolated until 2001 when a considerable number of civic network initiations grew up (Figure 9).

3.1 Background

All civic networks in the Srem district appeared after 2000, four years from the country reconnection to the Internet. An observation of the Srem district civic networks started in 2002, when there were eight cases of civic networks (in six towns and two villages) and one newsgroup operating since 1999. Their appearance was a promising indication of an activity towards overcoming the digital divide. At the end of 2003, however, it was surprise to find out that some of analyzed civic networks disappeared (Šid, Novi Banovci). Reasons for that we could find in a lack of foundings, a low interest of local communities and a low level of usage of information technologies in the region.

3.2 Cases

In the table below (Table 1) an overview of all civic networks that ever appeared in the Srem district is given. Among the civic networks founders, the most important role certainly play enthusiastic individuals, either working independently (Irig, Vojka, Beška) or affiliated with local institutions (local radio/newspaper (Stara Pazova), city council (Novi Banovci). A very important influence have local Internet providers, launching presentations independently (Sremska Mitrovica) or in collaboration with city councils (Ruma). The latest cases show intentions of city councils to engage specialized institutions to develop information systems fully serving citizens in their quotidian communication with official bodies (Indjija).

Municipality	Founder				Year
	Internet provider, IT consulting firm	Local radio / newspaper	Individual	City council	
Sremska Mitrovica	http://www.mirtovica.co.yu				2001 - now
Stara Pazova		http://www.stara-pazova.org.yu/			2000 - now
Vojka			http://utenti.lycos.it/vojka1416/prva.htm		
Novi Banovci			http://www.banovci.co.yu*		2002 - 2003
Indjija				http://www.indjija.net	2002 - now
Beska			http://www.beska.net		1999 - now
Ruma	http://www.ruma.co.yu				2001 - now
Irig			http://www.yumreza.org.yu/irig		2001 - now
Šid	http://www.sid.co.yu*				2001 - 2003
Pecinci	-				

*not available anymore

Table 1 Civic Networks of the Srem District

Sremska Mitrovica – The official presentation of Sremska Mitrovica, the biggest city and a sort of capital of the Srem district, hardly belongs to the civic network category. It is a "city postcard" type of presentation with a strong orientation towards historical and cultural subjects. It is designed and maintained by the regional Internet provider Net022.

Stara Pazova – This is the first civic network of the Srem district. It appeared in 2000, after its founder attended a seminar titled Management and the Internet. Although not fully institutionalized yet, a significant part of this civic network maintenance is going on within the local informative centre (local radio station). It is still more oriented towards information delivery, than to an interaction on the civic level. The network offers access to all forms and instructions important for communication with the city council, but an electronic submission of documents and requests is still not available.

Within the municipality of Stara Pazova two villages appeared on the Internet independently of the official web site.

Vojka – Web site of the Vojka village is a presentation containing just couple of pages, offering basic information related to this old settlement and its history, as well as some specific information like index of family names or virtual gallery of paintings. This presentation is based on an individual initiative and it is hosted on the Italian free Lycos server, so it shows up a bar with the Lycos advertisements.

Novi Banovci – The civic network of Novi Banovci is not available anymore. The most important part of this presentation was quite well conceptualized public forum with a range of important local topics offered for the public discussion.

Indjija - There was a trial to establish a civic network in 2001, and an entry (only) page of this old trial is still available on the Net (http://www.indjija.com). The current system (http://www.indjija.net) is the second version of the civic network funded by the actual city council of Indjija. This is the last in the range of civic networks of the Srem region, launched in 2002, and the only one that appeared on the direct request of the city officials.

Beška – The Beška Group is a special case in this study. It is actually a news group, based on the Yahoo e-Groups system, gathering networked citizens of Beška and the ex-citizens of this village currently residing around the world. It is founded in 1999. The dynamics of information exchange varied over the time, but it never stopped, so the system remains active five years. The most intensive communication, according to the Group statistics (Figure 7), is registered during the NATO bombing of Yugoslavia, from March to June 1999.

Description **Category:** Yugoslavia (Serbia and Montenegro)

Grupa Bescana iz zemlje i inostranstva. Ako zivite, ziveli ste ili poznajete nekoga u Beski, ovo je prava grupa za vas.

Most Recent Messages

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2003	44	61	28	7	9	27	1	24	3	3	6	
2002	51	69	169	45	35	72	50	15	104	26	102	70
2001	78	31	80	33	38	38	21	40	96	80	70	82
2000	83	130	115	87	74	108	63	15	49	52	84	95
1999		32	119	209	117	115	99	153	42	123	243	198

Group Email Addresses

For more information: www.beska.net

Figure 7 The amount of messages exchanged since 1999 within the Beška group

Ruma – A similar case as Sremska Mitrovica, the civic network of Ruma is created by the local IT consulting firm, but all information is copyrighted by the Municipality of Ruma. Another "postcard like" presentation with a small amount of information dedicated to the citizens with no tools for a real interaction.

Irig – The case of Irig is an exception in this study. A town presentation with just a few attributes of civic network, sustained for more than two years as a result of the effort of an IT literate individual being originally from Irig but residing elsewhere.

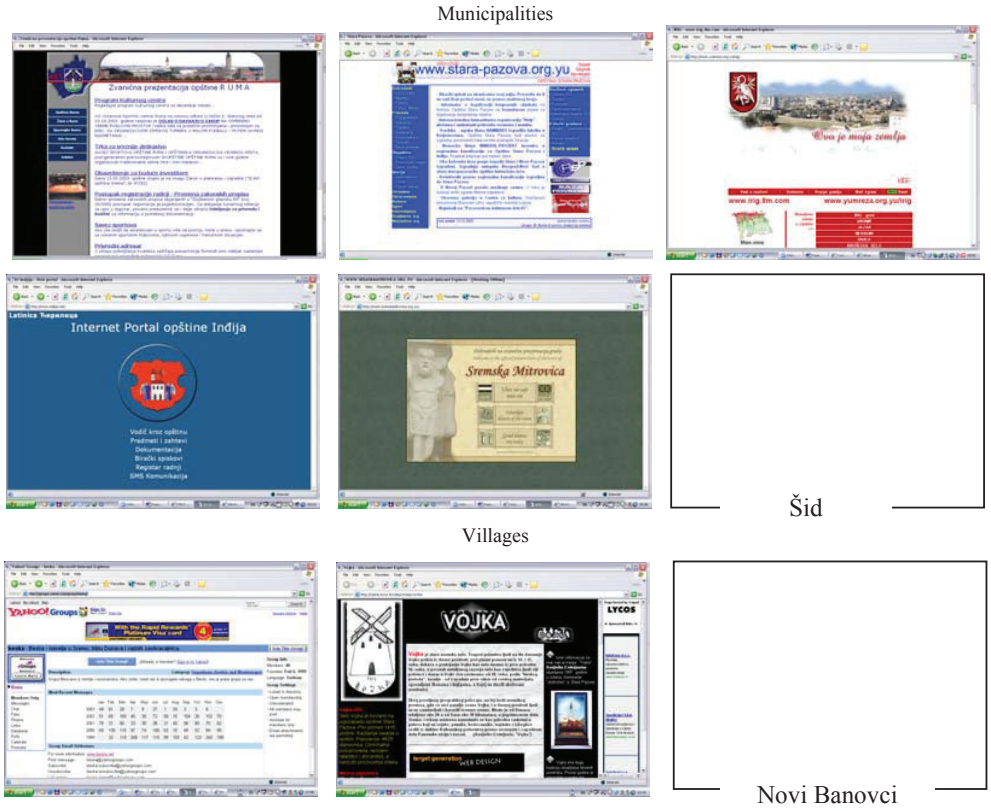


Figure 8 Entry pages of the Srem district civic networks (the empty fields belong to the civic networks that existed but disappeared in the meantime)

The entry pages of the Srem district civic networks (Figure 8) compared with the ones of Belgrade and Novi Sad (Figure 4, right), indicate a lower dynamics of information exchange, less sophisticated interfaces and a general absence of professional, methodological approach to the civic network creation and maintaining.

Next systematization (Table 2) has been done according to the following five criteria for evaluation of civic networks (Bajic Brkovic, Milovanovic 2000): areas and topics they cover, their internal structure, types and quality of communication (internal and external) they provide, population groups they serve, and level (if any) of interactiveness that is built in.

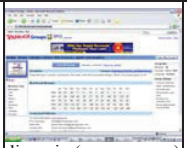
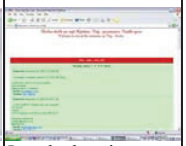
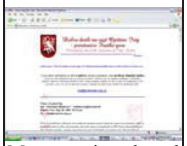
	The Entry Page	Particular areas and topics	Internal Structure	Communication	Target Groups	Interactions
Sremska Mitrovica	 static	 An interactive gallery of the city photographs	**News**, **Forum** **Municipality**, City, Economy, Education, Culture Religion, Tourism Health, Sport, Media	"City postcard" Info broadcast.	Visitors Citizens	 Forum
Stara Pazova	 dynamic (update)	 Map of industrial zone - investment opportunities	**Citizen service** Welcome (**news**) **Municipality** History, Health, Education, Culture, Sport, Media, NGOs, **Business Database**	Info broadcast. Citizen service	Visitors Citizens Investors Business	-
Vojka (village)	 static	-	A single page presentation - Important phone numbers, Index of family names, Gallery	"Village postcard"	Visitors	-
Indjija	 static	 Municipality news (updated)	**Municipality guide, Communication with Municipality official bodies, SMS ommunication Business Database**	Citizen service	Citizens Visitors Business	 Personalized access to the communication area
Beska (village)	 dinamic (news group)	-	-	-	Ex-citizens Citizens	The system is based on interaction among a group of members interested in issues related to the village
Ruma	 dynamic (old news)	 Interactive map	About the City; Economy, Culture and Sport; **Citizen info**; Contacts; Site index	"City postcard" Citizen service	Visitors Citizens	-
Irig	 static	 Local advertisements	**News**; **Advertisements** Settlements; History; Inhabitants; Economy; Events; Geography; Other	"City postcard" Citizen service	Visitors Citizens	 Message pinup board

Table 2 – Main characteristics of the Srem district civic networks

3.3 Civic Networks of the Srem District as Indicator of Digital Divide

In the case of the Srem district, the civic networks indicate an early development stage, with the contents progressing slowly and inefficiently. Majority of them belong to the category of city presentations, with rare functionalities of civic networks. A perspective for their continuity and further development is uncertain. A lack of funding and general support caused interrupting of the activity of two civic networks (Šid and Novi Banovci) while one municipality within the district (Pećinci) has never been presented on the Internet (Figure 9).

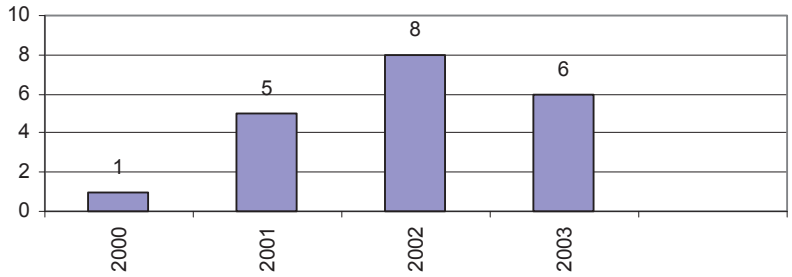


Figure 9 Number of Civic Networks of the Srem District

Behind a majority of civic network initiatives of the Srem district, there is activity of enthusiastic individuals having a sort of natural need to present their towns on the Internet. Depending on their IT skills, professional affiliations and ability to sustain with their activities for a critical amount of time, the initial city presentations develop and acquire attributes of civic networks. Collaboration with city councils is an important step in the city networks progress.

There is no clear evidence of the civic networks usage, like daily/monthly access, the most frequently visited contents, etc.

More than 90% of all contents represent a one-way communication, i.e. information delivery. A significant part of information is static, and has not been changed for a couple of months, in some cases since the civic network establishment. Participation of citizens in the electronic civic life is modest and limited to the topics of general importance rather than to the particular local problems.

4 CONCLUSION

In the case of the Srem district that has been observed for two years, there seems to be a correlation between some statistical data indicating the level of digital divide (Figure 6), and development of civic networks on the regional level. Municipalities with a high percent of agricultural households (Pecinci – 23,4 and Šid – 29,2) are the ones where civic networks never existed or disappeared during the time. On the other hand, municipalities with the lower percent of agricultural households (Indjija – 11,6 and Stara Pazova – 10,1) develop the most promising civic networks. This correlation needs to be examined further once the other statistics are available (number of the Internet hosts, number of PCs, the Internet usage, etc.) in this and other districts of the region, with aim to find out whether a development of civic networks could be a certain indicator of the digital divide overcome.

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Internet resources:

Anem – Association of Independent Electronic Media – www.anem.org.yu

Bridges.org – http://www.bridges.org

Camber of Economy of Srem - http://www.rpksrem.co.yu/index_eng.php

World Resources Institute - http://earthtrends.wri.org