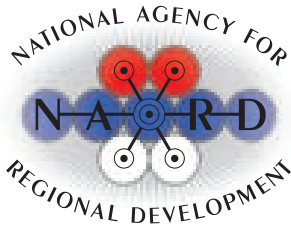


Analysis of Business Support Infrastructure in the Republic of Serbia

Dragiša Mijačić





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2011

PREFACE

This report, Analysis of Business Support Infrastructure in the Republic of Serbia is the outcome of a detailed research on business support infrastructure in the Republic of Serbia, conducted in September and October 2011. The analysis was carried out with financial support from the National Agency for Regional Development, as a part of project tasks from the agency's Annual Plan for 2011.

The content and conclusions in the publication are the responsibility of the Author and do not represent official views of the National Agency for Regional Development.

I wish to thank all the representatives of clusters, business incubators and industrial zones who completed questionnaires and to extend a special thanks to participants in the interview process for their time and useful information that significantly contributed to the quality of this text. I also particularly want to thank my associate, Tatjana Potežica, for the support she provided in the overall process of developing the analysis.

Dragiša Mijačić, Author

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ABBREVIATIONS

ADA	Austrian Development Agency
APV	Autonomous Province of Vojvodina
BRA	Business Registers Agency
BBI	Building Business Incubators
BIC	Business Incubation Centre
VBF	GIZ Private Sector Development Programme in Serbia (Programm für Wirtschafts- und Beschäftigungsförderung)
VIP	Vojvodina Investment Promotion Fund
VMC	Vojvodina Metal Cluster
GIZ	German Agency for International Development, formerly known as GTZ (Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH)
DTI	Democratic Transition Initiative
EU	European Union
IZ	Industrial Zone
IP	Industrial Park
ICT	Information and communication technologies
IMT	Machinery and Tractor Industry
InTER	Institute for Territorial Economic Development
IPA	Instrument for Pre-Accession Assistance
IT	Information technology
PIU	Project Implementation Unit
LEDIB	Local Economic Development in the Balkans
LED	Local Economic Development
MERD	Ministry of Economy and Regional Development
MIN	Mechanical Industry Niš
MIR	UNDP Municipal Improvement and Revival
MISP	EU Municipal Infrastructure Support Programme
SMEs	Small and medium-sized enterprises
SMEE	Small and medium-sized enterprises and entrepreneurship
NARD	National Agency for Regional Development
NIP	National Investment Plan
OSCE	Organisation for Security and Cooperation in Europe
RSEDP	Regional Socio-Economic Development Programme
PRO	UNDP Programme for Municipal Development in South West Serbia
USA	United States of America
SECEP	Support to Enterprise Competitiveness and Export Promotion
FZ	Free zone
TP	Technology park
UNIDO	United Nations Industrial Development Organisation
USAID	US Agency for International Development

1. INTRODUCTION

1.1 HISTORY OF BUSINESS SUPPORT INFRASTRUCTURE DEVELOPMENT

Development of business support infrastructure in Serbia is in line with the processes of economic transformation towards a market-oriented economy. The pioneering steps in business support infrastructure development were initiated through the project interventions of numerous international organisations, and later on continued through the activities of the line ministry, the National Agency for Regional Development¹ and many development agencies and associations active at a national, provincial/regional or local level. In many cases business infrastructure was developed without receiving support from the public institutions, based on the initiative of private agencies, non-governmental organisations, or as individual initiatives by people who wanted to put their personal effort into the promotion of economic development in their communities.

Strengthening of business infrastructure is mentioned in many strategic and programme documents of the Government of the Republic of Serbia, the Government of the Autonomous Province of Vojvodina, and local governments. Business infrastructure development has mostly been recognised through its contribution to the competitiveness of small and medium-sized enterprises and entrepreneurship, and is consequently mentioned in official documents and programmes in that context. However, it should be emphasised that there is no unique document focused only on business infrastructure development, and this field is divided between several strategic documents and programmes.

One of the first documents dealing with business support infrastructure development is the National Economic Development Strategy of the Republic of Serbia for the period 2006 -2012, as the first development document consistently and comprehensively defining the basic development priorities of the country and the ways to achieve them in the following years.

In 2006, the Ministry of Economy, Serbian Agency for the Development of Small and Medium-sized Enterprises and Entrepreneurship and the Norwegian organisation SINTEF² prepared the Programme for Development of Business Incubators and Clusters 2007 – 2010, which included recommendations for the establishment of at least 15 business incubators and the national umbrella association of business incubators, the establishment of at least one technology park and 10 clusters. This document is linked to the implementation of the SME and Entrepreneurship Development Strategy 2003 - 2008, National Economic Development Strategy 2006 - 2012, as well as the Serbian Government's Plan for Promotion of Small and Medium-sized Enterprises and Entrepreneurship 2005 - 2007.

The Strategy for Development of Competitive and Innovative Small and Medium-sized Enterprises for the period 2008 - 2013 also supports the implementation of programmes for the development of business incubators and clusters and emphasises the necessity to improve institutional support for the development of entrepreneurship and small- and medium-sized enterprises.

The Regional Development Strategy of the Republic of Serbia for the period 2007 – 2012 is the first strategic development document focused on regional development in Serbia, with the goal to improve polycentric regional development of Serbia through entrepreneurship and SME development policies in Serbia, in order to reduce differences in regional development through “better economic links among regions (cluster associations and connections between enterprises, establishment of business and technology incubators in local municipalities and science and technology parks in university centres)”.

The recently adopted Strategy of Industrial Development of the Republic of Serbia 2011 – 2020 also considers the necessity to develop business support infrastructure in its section focusing on

1 National Agency for Regional Development was established in 2009 and it is a legal successor of the Serbian Agency for the Development of Small and Medium-sized Enterprises and Entrepreneurship.

2 Norwegian institute SINTEF implemented the Entrepreneurship, Training and Services Program “ENTRANS”, funded by the Government of the Kingdom of Norway.

regional development. According to this Strategy, the term “business support infrastructure” includes mapping, constructing and equipping industrial zones, industrial parks, business incubators, clusters, logistic and business centres and tourist infrastructure. It is important to underline that this Strategy provides the first map of business support infrastructure in the Republic of Serbia.

The Government of the Autonomous Province of Vojvodina has recently adopted the Business Incubator Development Strategy for Vojvodina for the period 2011 – 2015, with the goal to ensure a better environment and conditions for the development of business incubators of different profiles (incubators for economic development and technological incubators), to improve their links and provide support for the development of a business incubation system. The Strategy’s vision is defined as “the development of a complete and coherent infrastructure that will support the opening of new enterprises and development of competitive, innovative and export-oriented small and medium-sized enterprises”³.

The need for business support infrastructure development is also recognised by those EU institutions that have, in different ways, supported numerous project initiatives throughout the Republic of Serbia. In addition to that, business support infrastructure is recognised as one of the measures for the development of competitiveness within the Economic Development Operational Programme 2012 - 2013 of IPA component III⁴.

Business support infrastructure development has been significantly contributed to by many bilateral organisations, primarily the ENTRANS programme, implemented by the organisation SINTEF, and funded by the Government of the Kingdom of Norway, that initiated the development of business incubators and clusters in Serbia, as well USAID who have been active in this field for several years through several projects, the Government of the Kingdom of Denmark through the LEDIB⁵ programme, implemented in the territory of Nišava District, and finally the Austrian Development Agency, active in business incubator development in Vojvodina.

1.2 DEFINITION OF BUSINESS SUPPORT INFRASTRUCTURE

In order to increase competitiveness, it is necessary to target specific regions, and through development and transformation of business infrastructure and by establishing industrial and technology parks and industrial zones, to identify independent, private companies, specialised in a certain field, and linked through joint technology and knowledge. The concentration of similar and/or complementary business activities in an area, with mutual synergy effects and joint strategic approaches, enables a dynamic development of those activities, through competitive products. When selecting the basic direction of economic development, an advantage is given to those activities where available resources, market conditions and technical advancements provide for a faster development.

Even though “business support infrastructure” is often mentioned in specialised literature and the official documents of different levels of authorities, there is no unique definition of this term. The term “business support infrastructure” includes a network of institutions and organisations providing services to potential entrepreneurs, entrepreneurs or small- and medium-sized enterprises for the development of their business capacity (human, organisational, marketing, etc) or providing physical facilities for business operations.

3 Strategy for Development of Business Incubators in Vojvodina for the period 2011-2015, p. 45-46.

4 Within the Economic Development Operational Programme 2012-2013 of IPA Component 3, support to local economic development and development of business infrastructure are recognised as Measure 3.3 of the Priority 3 - Competitiveness (p. 153). The goal of this measure is support to a balanced regional development in Serbia and strengthening of economic activities by developing business support infrastructure, together with business support services, that will increase investments and the number of enterprises, as well as contribute to their faster development.

5 LEDIB is abbreviation for Local Economic Development in Balkans programme. LEDIB is a five-year programme for support to local economic development with a focus on development of the Small and Medium-sized Enterprise (SME) Sector. The Programme is financed by the Government of the Kingdom of Denmark, it is in line with the strategy of the Danish Neighbourhood Programme, and it is implemented in Nišava District. The development objective of the programme is socially balanced economic development and job creation in the Nišava District.

In terms of capacity, structure and purpose, business support infrastructure should be in accordance with local and regional development potential, as well as market demands. The primary goal of business support infrastructure development is the overall economic development at local, regional and national level, with a special emphasis on polycentric development.

Business support infrastructure operations are often geographically limited, mostly to municipalities and cities, but sometimes also to broader geographical units, such as districts and regions. Business support infrastructure rarely provides services across the whole territory of a country, which is also the case in the Republic of Serbia.

In the context of this analysis, business support infrastructure includes business incubators, clusters, industrial zones and technology parks, active on different territorial levels and spread throughout the Republic.

1.3 GOAL AND METHODOLOGY USED FOR THE ANALYSIS

The goal and methodology used when conducting this analysis were precisely defined by the Contract on the Provision of the Analysis of Business Support Infrastructure, signed between InTER and the National Agency for Regional Development.

The goal of the analysis is an overall review of the situation and the level of development of business support infrastructure units: business incubators, clusters and industrial zones and technology parks in the Republic of Serbia, their efficiency in operations and the level of their impact to local economic development. Data, conclusions and recommendations from the analysis will be used in the preparation of strategic documents for support to business support infrastructure development in the Republic of Serbia.

The methodology for the analysis included four linked stages, each contributing equally to the quality of the text in its own way.

The first stage was collecting and analysing the existing academic and technical literature, including a review of strategic documents, laws and by-laws of the Republic of Serbia, as well as documents of different local and foreign organisations and programmes promoting business support infrastructure development. During the first stage, initial data was collected about the number of business support infrastructure entities in the Republic of Serbia for use in the following stages of the analysis.

The second stage included preparation and distribution of the questionnaire to those business support infrastructure entities that had been identified in the previous stage. In order to ensure that the data collection was thorough and comprehensive, three different questionnaires were prepared, for clusters, business incubators and industrial zones/technology parks respectively. The questionnaires contained points regarding all segments of respondents' operations relevant to the analysis. It was sent to 15 business incubators, 43 clusters and 14 industrial zones and technology parks. Completed questionnaires were returned by 12 incubators (80% of the total number of questionnaires sent), 29 cluster (67% of the number of questionnaires sent) and 7 zones and parks (58% of the number of questionnaires sent).

The third stage included organisation of meetings with people authorised to manage business incubators, clusters and industrial zones/technology parks throughout the Republic of Serbia. Due to the limited time for this stage, meetings were scheduled only with a certain number of business support infrastructure representatives, as well as a number of experts in this field. During October 2011, meetings were organised with 33 representatives of clusters, business incubators and industrial zones and parks, the line ministry, the National Agency for Regional Development, and other experts in this field.

The fourth and final stage involved the processing of collected primary and secondary data and collating conclusions and recommendations into this report.

The structure of the analysis follows the elements of business support infrastructure in such a way that separate chapters analyse business incubators, clusters and industrial zones and technology parks.⁶ Apart from the analysis, each chapter also contains conclusions and underlines opinions and recommendations for the future development of business support infrastructure in Serbia.

Conclusions are made at the end of the document, analysing in a comprehensive way all three different types of business support infrastructure.

1.4 LIMITATIONS TO THE RESEARCH

The biggest limitation to the research was the lack of a central register of business support infrastructure in the Republic of Serbia. Data about different business support infrastructure entities were collected from secondary sources (strategic and programme documents, reports and publications, web pages, etc) or through direct communication with different stakeholders throughout the Republic of Serbia. It is difficult to determine the exact number of business support infrastructure entities because the total quantity is in constant flux due to numerous initiatives from different actors at the national, regional and local levels. This analysis identified 92 industrial zones, 2 existing and 4 planned technology parks, 4 existing and 4 planned free zones and 66 brownfield locations, 85 cluster initiatives and 23 business incubators in Serbia.

The second limitation was the relatively short period of time designated for the implementation of such a broad study. The solution to this limitation was found in the adaptation of the methodology and combination of questionnaires with direct meetings with representatives of business support infrastructure in Serbia. The final results significantly represent the real situation in business support infrastructure in Serbia.

6 In the context of the analysis, industrial zones and technology parks are analysed as integrated elements, and they are presented within the same chapter.

2. BUSINESS INCUBATORS

2.1 INTRODUCTION TO BUSINESS INCUBATORS

Business incubator is a business entity providing physical space for business operations, administrative, technical and other services, mostly to newly established businesses, potential entrepreneurs or innovative organisations, which provides an opportunity for their business start not to be burdened by high investments in infrastructure, but to focus all the necessary funds on business and innovation activity, in order to market new products and services as soon as possible.

The space within a business incubator is usually provided with subsidized fee that is most often gradually increased until the end of the incubation period, when it reaches (in some cases goes beyond) the market value of the business space. The incubation period varies among incubators and it is usually between three and five years. The goal of this limitation to the possible length of stay of tenants in business incubators is to achieve their complete and fast independence and thus make them leave the space for new users of incubation services.

However, business incubators in developed countries have evolved in time, reducing the period of providing services of physical incubation, that is expensive and requires subsidies from the public sector (usually from the local governments' budget) and expanding the offer of other services for promotion of successful business. Trend in previous years includes so called "virtual" incubation services, which include provision of business support services without physical incubation.

Users of business incubators' services are often called "tenants", due to the nature of primary services provided by business incubators, i.e. provision of physical space.

Even though there are different classifications of business incubators, most applicable classification is the one based on admission criteria and objectives of provision of services, where business incubators can be classified in two basic groups:

- Multifunctional (mixed) business incubators, where all businesses can be admitted if they satisfy the basic market and technology standards, i.e. admission criteria defined by each individual incubator;
- Specialised business incubators, focused on a certain group of business activities, e.g. information and telecommunication technology, creative technologies, as well as services, production, etc.

In accordance with this classification, business incubators' names often include a word related to the basic activity in incubation. This means that they are often called business and technology incubators, business and innovation, production, service incubators, etc. A special type of incubators is a science and technology park, established with the goal to link science and businesses in order to encourage innovation and raise the overall competitiveness of the economy. Science and technology parks are linked with universities (usually faculties of technical science and technology of a university), business entities and local government units, where they can be both founders and beneficiaries as members of the incubator.

The first business incubator in the world, the "Batavia Industrial Center"⁷, was established in 1959 in Batavia, New York, USA. However, a higher demand for business incubation services emerged with the economic crisis in the seventies and especially in the eighties, in the 20th century. This is when incubators were established in most developed countries in the west as a local reaction for the solution to social and economic problems due to closure of large factories and mines, restructuring of the economy and deindustrialisation. One of the first business incubators in Europe was established in 1975 in Great Britain, *British Steel (Industry) Ltd*, as a reaction to failure of large steel factories, and with a goal to create new jobs for redundant workers (OECD, 1999).

⁷ More information about this incubator at their website: <http://www.bic4biz.com/>

The number of business incubators today is estimated at around 5,000, of which more than 1,000 in Asia, around 1,000 in North America, somewhat less (around 900) in Europe, and the rest on other continents (infoDev, 2008). Business incubators are united in 60 national and regional associations, most significant being the National Business Incubation Association, with more than 1,900 members from 60 countries around the world, majority from the USA⁸. The biggest association of business incubators in Europe is the European Business & Innovation Centre Network with more than 240 members from the European Union and 11 from other countries⁹. There is an active network of business incubators in Serbia, gathering all business incubators in our country.

2.2 DEVELOPMENT OF BUSINESS INCUBATORS IN SERBIA

Development of business incubators in Serbia started through ENTRANS Programme for Development of Entrepreneurship, financed by the Government of the Kingdom of Norway. Within the project for development of incubators, ENTRANS Programme closely cooperated with state institutions, primarily with the Serbian Agency for the Development of SMEs and Entrepreneurship¹⁰ and the Ministry of Economy and Privatisation of the Republic of Serbia¹¹. As a result of cooperation, in 2006, the Centre for Support to Business Incubators was established within the Serbian Agency for the Development of SMEs and Entrepreneurship, in order to develop a unit within the institution with a focus on business incubation. At the end of 2006, ENTRANS provided technical assistance to the Ministry of Economy and the Serbian Agency for the Development of SMEs and Entrepreneurship for the creation of the Programme for Development of Business Incubators and Clusters in the Republic of Serbia 2007-2010, adopted by the Government of the Republic of Serbia, which proposed the establishment of at least 15 business incubators and the national association of business incubators as an umbrella organisation.

8 More information about the National Business Incubation Association on their website: <http://www.nbia.org/>

9 More information about the European Business & Innovation Centre Network on their website: <http://www.ebn.be/>

10 Later the National Agency for Regional Development

11 Later the Ministry of Economy and Regional Development of the Republic of Serbia

Figure 1: Network of business incubators in Serbia



Source: Serbian Network of Business Incubators and the data collected in the field research.

In cooperation with the Serbian Agency for the Development of SMEs and Entrepreneurship and the local authorities, ENTRANS established the first business incubator in Niš, in September 2004. The incubator was established in the premises of the mechanical industry factory “Mašinska industrija Niš” (MIN), covering the area of 2,100 m² and including 14 incubation units, with the incubation period of 4 years. In May 2005, Business Incubator Centre was established in Knjaževac, in the premises of the cultivator factory IMT - Knjaževac. This incubator was established by the association

of citizens “Timok Club” (Timočki Klub) and this is the first private initiative for business incubation in the Republic of Serbia¹².

However, in 2007, Ministry of Economy and Regional Development did not set support to incubators as a priority, which resulted in development of incubators based only on *ad-hoc* initiatives from local government and some donors.

Some of the first incubators established in the following years include those in Subotica, Zrenjanin, Prokuplje and Vranje, and after that, incubators in other towns of Serbia.

Austrian Development Agency ADA supported the development of incubators in Vojvodina through BBI initiative (*Building Business Incubators*) implemented within a multiannual programme “Integrated Regional Development Plan of AP Vojvodina”. BBI initiative created a fund for support to business incubators in Vojvodina providing financial support to incubators on annual basis. After the implementation of the programme, the Government of AP Vojvodina continued to provide grants to incubators in Vojvodina, with 9.5 million RSD provided in 2010. In November 2011, the Government of Vojvodina opened a new call for grants financing development of business incubators in the territory of Vojvodina, with the total value of 12,850,000 RSD.

USAID was also active in support to development of incubators in Serbia, by financing physical construction of space or technical equipment for incubators in Kruševac, Zaječar, Prokuplje, Novi Sad and Kragujevac.

Support to incubators in Serbia was provided by OSCE (investment in Business and Technology Incubator of Faculties of Technical Sciences Belgrade) and SPARK (investment in incubators in Vranje, Belgrade, Kragujevac and Užice). Government of the Republic of Slovakia and the EU Programme Exchange supported the development of the incubator in Bački Petrovac. With the funds from the National Investment Plan of the Serbian Government, the business incubator in Kruševac was built and the space of business incubator in Vranje was reconstructed. Business incubator in Vranje was also supported by BAT funds¹³ that financed the procurement of a substation for the incubator’s needs.

There are 23 incubators in Serbia, spread throughout the country (Figure 1). Majority of incubators were established in the territory of Vojvodina, eight in total, in the following towns and municipalities: Novi Sad, Subotica, Zrenjanin, Bački Petrovac, Pančevo, Senta, Kanjiža and Beočin. The fact that there are more incubators in Vojvodina than the rest of Serbia is a result of BBI Programme and investments of the Government of Vojvodina for this sector’s development. In the Eastern and Southern Serbia region seven incubators were established, in the following towns and municipalities: Niš, Vranje, Zaječar, Bor, Knjaževac, Prokuplje and Medveđa. There is an initiative in this region to establish two more incubators, in Majdanpek and Kladovo. In Šumadija & Western Serbia region six incubators were identified, four existing and two initiatives for incubators. They are based in the following towns and municipalities: Kragujevac, Rača, Kruševac, Užice, Valjevo and Kraljevo. There are two incubators in Belgrade region, in the city municipalities of Zvezdara and Rakovica.

2.3 ANALYSIS OF BUSINESS INCUBATORS IN SERBIA

Even though there are incubators in 23 locations in Serbia, this chapter analyses only the incubators that completed and sent the questionnaire, as well as those whose representatives have been interviewed. This includes incubators in 12 towns and municipalities: Subotica, Bački Petrovac, Novi Sad, Zrenjanin, Belgrade (Zvezdara), Kragujevac, Užice, Kruševac, Niš, Zaječar, Prokuplje and Vranje. Other incubators are included only in some parts of the analysis, when data made this possible.

¹² This initiative was initially supported by the Open Society Fund, CHF International and OSCE

¹³ BAT - British American Tobacco

Business incubators in Serbia have mostly been established with the initiative of local governments, supported with financial donations from the Government of the Republic of Serbia, mostly through NIP, and numerous donors, primarily the Government of the Kingdom of Norway through ENTRANS Programme, then USAID, ADA and the Dutch organisation SPARK. Setting up of some incubators in Vojvodina was also supported by VIP fund for investment support.¹⁴ A number of incubators was established as an initiative from large companies in the process of restructuring the labour force, and such examples are in Pančevo (established on the initiative of the Refinery), Beočin (initiative of the cement factory La Farge), Vranje (initiative of the local government and the factory Yumco), etc. As previously mentioned, the incubator in Knjaževac was established as the initiative of the NGO “Timok Club”. Establishment of incubators is in accordance with the objectives of local economic development strategies.

The first business incubator was established in Niš in the end of 2004, after that in Knjaževac in 2005. The majority of incubators in Serbia were established in 2006: in Subotica, Zrenjanin, Belgrade, Prokuplje and Vranje. In 2008, three incubators supported by NIP were established, in Kragujevac, Užice and Kruševac, and they are the most technically equipped incubators in Serbia. In 2009, incubators in Zaječar and Bački Petrovac were established, former with support from USAID and the Ministry of Economy and Regional Development, and the latter with support from SlovakAID¹⁵ and the EU Exchange project. Finally, in 2010, the incubator in Novi Sad was established with support from ADA project.

All incubators are registered as limited liability companies, where ownership is shared among local governments, business entities, universities or NGOs. Local governments’ share ranges from 45% in Bački Petrovac¹⁶ and 49% in Vranje to as much as 100% in Kruševac¹⁷. Business entities are co-founders of incubators in Vranje, Subotica and Prokuplje, faculties and colleges have their share of ownerships in incubators in Novi Sad and Belgrade, and NGOs are co-owners of incubators in Knjaževac (“Timok Club” - *Timočki klub*), Bački Petrovac (“Academy of Female Entrepreneurship” - *Akademija ženskog preduzetništva*), Prokuplje (“Initiatives” - *Inicijative*) and Belgrade (“Initiative for Democratic Transition” - *Inicijativa za demokratsku tranziciju*). Regional Agency for Šumadija and Pomoravlje is a co-owner of the incubator in Kragujevac and SME agencies from Subotica and Niš are co-owners of incubators from those towns. It is interesting that the association for regional development Horna Nitra Prievidza from Slovakia is a co-owner of the incubator in Bački Petrovac.

Annual budgets of incubators in 2010 range from 2.7 million RSD in Prokuplje to 29.7 million in Belgrade. Apart from Belgrade, only the incubator in Subotica had the budget over 20 million, and incubators in Vranje and Zrenjanin over 10 million RSD. Annual budgets of the remaining seven incubators are between 5 and 9 million RSD. Revenues from rent are significantly low in relation to the incubators’ annual budgets. Only in case of incubators in Niš, Kruševac, Kragujevac and Belgrade, they are over 10%. Revenues from other services are much more significant than the revenues from rent. These revenues are mostly related to the implementation of projects financed by international organisations or the revenues from renting conference halls.

Significant revenues of incubators are also grants from their founders, primarily local governments. Incubators in Vojvodina also received funds from BBI Programme, first financed from ADA Programme, and then from the budget of the Vojvodina Government. In November 2011, the Government of Vojvodina opened a call for financing business incubators in the territory of AP Vojvodina with the

14 VIP Fund is a co-owner of the incubators in Zrenjanin, Subotica and Novi Sad

15 SlovakAID is the Slovak Agency for International Development Cooperation.

16 Municipality of Bački Petrovac owns 35% of incubator’s shares, and the local community Backi Petrovac owns 10%, which is 45% in total.

17 It is important to mention that it was not possible to determine the ownership shares in incubators that did not complete the questionnaire.

total value of 12,850,000 RSD. Through current transfers to other levels of authorities, the City of Subotica transferred 850,000 RSD for operational costs of the business incubator in that city. Other funds of 12 million RSD were granted to incubators in Novi Sad, Subotica, Zrenjanin, Kanjiža, Bački Petrovac and Senta.

Donations for incubators were mostly related to reconstruction and adaptation of space, construction of access roads, electricity supply and communal equipment, etc.

Table 1: Revenues of incubators in Serbia (RSD)

Incubator	Annual budget in 2010	Revenues			
		Revenues from rent	Revenues from additional services	Founders' grants	Donations
Subotica	28,059,299	1,000,000			6,761,545
Bački Petrovac	5,630,000	263,000		310,000	5,057,000
Novi Sad ¹⁸	5,000,000				5,000,000
Zrenjanin	11,600,000	500,000	100,000	5,500,000	5,500,000
Belgrade - Zvezdara	29,754,797	3,093,685	25,661,112		
Kragujevac	8,430,000	2,050,000	1,110,000	4,450,000	1,083,000
Kruševac	6,300,000	2,141,398 ¹⁹	1,214,107	3,952,295	
Užice	6,000,000		1,500,000		
Niš	5,650,000	990,000	1,090,000	2,400,000	
Zaječar	7,300,000			4,300,000	3,000,000
Prokuplje	2,713,551	2,420,875	1,046,082		5,624,461
Vranje	12,300,000	280,000	300,000		11,000,000

Source: data from completed questionnaires received by representatives of incubators

Incubators' expenditures are the highest in programme costs, reaching 17.2 million RSD in Belgrade. Significant funds are also allocated for operational costs of incubators and salaries of their employees.

Table 2: Expenditures of incubators in Serbia (RSD)

Incubator	Annual budget in 2010	Expenditures				
		Salaries	Operational costs	Programme costs	Investments	Other
Subotica	28,059,299					
Bački Petrovac	5,630,000		2,500,000	2,400,000	400,000	330,000
Novi Sad	5,000,000					
Zrenjanin	11,600,000	2,300,000	2,800,000	5,900,000		
Beograd-Zvezdara	29,754,797	5,057,772	6,315,557	17,245,247		707,105
Kragujevac	8,430,000	65%	25%	10%		
Kruševac	6,300,000					
Užice	6,000,000	1,500,000			2,500,000	
Niš	5,650,000	3,451,000	1,032,000			1,167,000
Zaječar	7,300,000	2,000,000	300,000		5,000,000	
Prokuplje	2,713,551		3,642,000	3,196,000		3,550,000
Vranje	12,300,000	1,000,000	300,000	4,500,000	6,500,000	

Source: data from completed questionnaires received by representatives of incubators

In the previous year, some incubators spent funds for investments and adaptation of space. Apart from that, most incubators in Serbia plan to expand the incubation capacities, which will certainly increase the amount of investments.

18 Reconstruction of the space of business incubator in Novi Sad was finished at the beginning of 2011. A 5,000,000 donation was received on December 30, 2010.

19 Revenues from rent are paid directly to the founder's account (local government).

Majority of incubators have a business plan, vision, mission and strategic goals. Incubators do not own certificates. Incubators in Serbia are joined in the Serbian Network of Business Incubators that organises regular meetings of managers in order to discuss different issues related to the development of incubators.

Table 3: Number of employees in incubators

Incubator	Total number of employees	Number of full-time employees	Number of part-time employees	Number of outsourced associates
Subotica	4 (3 women)	3 (3 women)		1 (0 women)
Bački Petrovac	2 (1 woman)			2 (1 woman)
Novi Sad	9 (4 women)	1 (1 woman)	2 (1 woman)	6 (2 women)
Zrenjanin	3 (1 woman)	2 (1 woman)		1 (0 women)
Beograd-Zvezdara	10 (8 women)	5 (5 women)	5 (3 women)	
Kragujevac	7 (2 women)	7 (2 women)		
Kruševac	4 (1 woman)	4 (1 woman)		
Užice	3 (2 women)	3 (2 women)		
Niš	5 (2 women)	3 (1 woman)	2 (1 woman)	
Zaječar	3 (1 woman)	3 (1 woman)		
Prokuplje	4 (3 women)	3 (3 women)	1 (0 women)	
Vranje	3 (1 woman)	1 (1 woman)	2 (0 women)	1 (0 women)

Source: data from completed questionnaires received by representatives of incubators

Number of employees in incubators ranges between two and ten. Only the incubator in Bački Petrovac has no full-time employees, and the activities are carried out by two outsourced associates. Other incubators have at least one full-time employee, and the incubator in Kragujevac employs seven people. Most full-time employees are women, whereas men are majority among part-time employees, as well as outsourced associates. The structure of employees is satisfactory, most of them being highly educated people of different profiles, with IT skills and English language knowledge.

Type of incubators in Serbia depends on the type of space where incubator was established. Namely, in cases where incubators were set up in factory halls (Niš, Subotica, Prokuplje, Vranje, Knjaževac, etc.), tenants' activities are mostly linked with production, and mostly with wood processing industry (furniture) and light mechanical industry. Due to the nature of the activity, these incubators have a larger total surface, as well as larger incubation units (table 1). However, it is often the case that these incubators include some service industries as well. It should also be mentioned that these incubators are often placed within existing factory complexes, which puts additional difficulties on business operations of their tenants. Special type within this category includes incubators made completely as new structures, for example in Kruševac and Užice. Tenants of these incubators are mostly in manufacturing industry, but there also those in services.

Another type of incubators includes those established in dilapidated public or private spaces and business buildings adapted for the incubators' needs. Examples of these incubators are in Zrenjanin, Bački Petrovac and Belgrade. These incubators mostly include service industries, primarily IT services, broad range of business services (accounting, legal and technical services, mediation, etc.) design, education, media, etc. The exception is the incubator in Novi Sad that only accepts tenants from ICT industry. Incubator in Zrenjanin was also established as an incubator targeting IT companies and entrepreneurs, but due to a low demand they accepted tenants from other industries.

It should be mentioned that industries in incubators are often not related, in some cases even incompatible²⁰. The example is the incubator in Vranje, with prevailing companies manufacturing furniture, and until recently there was also an herbal tea packing business.

²⁰ Tenants of the incubator in Vranje are dominated by companies manufacturing furniture. However, until recently there was also an herbal tea packing business.

Regardless of the type, tenants in incubators are dominated by entrepreneurs and micro companies²¹. A number of incubators also have representatives of foreign companies (Kragujevac, Niš, Novi Sad and Zrenjanin). Incubator in Zrenjanin has been providing services to foreign investors and companies for some time, which has significantly improved the quality of investments in this town. The incubator in Novi Sad includes offices of the cluster Vojvodina ICT and the office of the European Entrepreneurship Network, whereas the incubator in Bački Petrovac hosts several NGOs.

Table 4: Comparative analysis of incubators in Serbia

Incubator	Total investment in incubator	Total incubation area (m ²)	Number of incubation units	Total number of tenants	Total number of employees
Subotica	/	2,000	20	17	/
Bački Petrovac	200,000 €	370	13	7	9
Novi Sad	200,000 €	430	12	7	11
Zrenjanin	33,000,000 din,	750	18	14	44
Beograd-Zvezdara	206,000 €	570	12	21	80
Kragujevac	1,256,500 €	1,130	18	13	48
Kruševac	66,840,251 din,	1,600	30	15	34
Užice	over 1,000,000€	1,650	26	9	27
Niš	9,000,000 din,	1,700	23	4	7
Zaječar	9,000,000 din,	1,200	10	4	35
Prokuplje	24,185,878 din,	1,300	15	13	45
Vranje	25,500,000 din,	2,700	14	8	39

Source: data from completed questionnaires received by representatives of incubators

The biggest incubator in Serbia is in Vranje, at it covers 2,700m², followed by the incubator in Subotica (2,000m²), Niš (1,700m²), Užice (1,650m²), Kruševac (1,600m²), Prokuplje (1,300m²), Zaječar (1,200m²), Kragujevac (1,130m²), Zrenjanin (750m²), Novi Sad (430m²) and Bački Petrovac (430m²). However, by the number of incubation units, most tenants can be hosted by incubators in Kruševac, Užice, Niš and Subotica, whereas the lowest capacity is held by incubators in Bački Petrovac, Novi Sad and Belgrade.

The highest financial investment was made in Kragujevac, more than 1.25 million euro²² and this incubator has offering a space with the most modern equipment in Serbia. It is followed by investments in incubators in Užice and Kruševac that were built as completely new facilities. Total investments in Zrenjanin incubator are also significant. There were three waves of investments in this incubator, and each time one floor of the incubator premises was renovated. The average value of investments in business incubators is between 200 and 250 thousand euro (Vranje, Prokuplje, Beograd, Novi Sad and Bački Petrovac) whereas the lowest investments are made in incubators in Zaječar and Niš (9 million RSD each²³). Representatives of the incubator from Subotica did not provide information about total investments in their incubator.

The analysis shows that Kragujevac also leads with almost 70 thousand euro invested per incubation unit. Investments per incubation unit in other incubators are lower and range from 40 thousand euro

21 According to the EU definition, micro companies have up to 10 employees and annual turnover up to 2 million euro. Source: http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/index_en.htm. However, in their responses, incubators' representatives often mixed micro companies with entrepreneurs, and it is not possible to determine the actual distribution between entrepreneurs and micro companies.

22 According to the completed questionnaire, the investment of founders in Kragujevac is 750,000 €. However, it was not explained in the questionnaire whether it was a financial investment of founders (information requested from the incubator's representatives) or it represents the market value of the incubator building. In any case, the analysis considers this information as a financial investment in incubator's space, as with all other incubators.

23 Investments in incubator in Niš were made at the end of 2004 and beginning of 2005, and 9 million was around 120,000 € at that time.

in Užice and 22 thousand in Kruševac to 16.6 thousand euro in Novi Sad and Prokuplje. The lowest investment per incubation unit is in Zaječar, with 9,000 euro.

Apart from incubation units, each incubator has meeting and conference rooms, as well as other joint premises, and the majority has joint computers, copiers and other necessary technical equipment. Most incubators have their own website with basic information about the incubator and lists of tenants.

Apart from high investments and subsidized price of a modern space, incubators' capacities are not filled in most cases. The occupancy rate ranges from 87% in Prokuplje and 85% in Subotica to 50% in Kruševac, 40% in Zaječar and only 35% in Užice. The exceptions include the incubator in Belgrade, with physical occupancy rate of 100% (12 tenants), and 4 tenants in the process of virtual incubation, whereas the incubator in Niš has only 17% occupancy rate. In case of Niš, the incubator is in the restructuring stage, and the new incubation cycle starts at the beginning of 2012, and it is not surprising that the occupancy rate is on the low level.

Incubation procedures exist in all incubators except the one in Zaječar. The incubation cycle is very difficult to determine because admission and exit are not conducted at the same time. Since most incubators have problems to attract tenants, calls for incubation are constantly open. In accordance with that, in most incubators tenants are not forced to leave the incubator. However, there are examples where tenants left the space on their own, because of successful completion of the incubation process, problems in operations, closure of the business or for other reasons.

Incubators have not developed monitoring procedures for their tenants. Incubators' management is often not familiar with the number of employees of tenants. Incubators also have no knowledge about financial status of their tenants. However, the problems in business operations are often discussed in informal conversations between the tenants and incubator's staff.

Apart from physical incubation, most incubators provide other business services to their tenants. Most frequent business services provided by incubators include general administrative and financial services, joint marketing and participation at fairs, organisation of trainings, conferences and seminars, study visits, etc. However, there is a general impression that the interest of tenants in these services is low.

A few incubators initiated the process of virtual incubation, the most successful being the one in Belgrade. The incubator in Novi Sad was established as a continuation of the virtual incubator that existed within the Faculty of Technical Sciences of the University of Novi Sad.

The incubator in Kragujevac received funds from the EU RSEDP 2 Programme²⁴ to start a virtual incubator.²⁵

Several incubators provide services to enterprises, entrepreneurs and potential entrepreneurs who are not their tenants, and the most active incubators in this segment are those in Belgrade, Prokuplje, Užice and Zrenjanin. Most often provided services include business planning, start-up trainings and youth entrepreneurship. These services are mostly financed by the National Employment Service, local government (in case of the Belgrade incubator) or international donor programmes.

Some incubators participate in the implementation of projects funded by the EU IPA Programme or other donors. As previously mentioned, the incubator in Kragujevac received €142,045 from EU RSEDP 2 Programme for the implementation of the virtual incubation project, and that is the highest

24 Regional Socio-Economic Development Programme (RSEDP) is an EU funded Programme with the goal to strengthen the capacities in Serbia for the design and implementation of a policy for a balanced territorial socio-economic development in the perspective of EU accession. More information about the projects is available on the website: <http://www.rsedp2serbia.eu/>

25 More information about the virtual incubator in Kragujevac is available at: <http://www.virtualbic.rs/>

individual donation for development projects received by an incubator²⁶. This incubator participated in the implementation of the project for promotion of economic cooperation between enterprises and institutions from Kragujevac and the Italian region *Friuli Venezia Giulia*. The incubator in Belgrade received funds from the Dutch organisation SPARK for capacity development, as well as for human resources and capacity development of the incubator in Vranje. The incubator in Prokuplje implemented two projects for youth and student entrepreneurship, funded by the Government of the Kingdom of Norway and the European Union. Incubators in Novi Sad and Užice participate in cross-border cooperation programmes with Hungary and Bosnia and Herzegovina. Incubators mostly participate as partners in projects, although there are examples where they are project leaders.

2.4 CONCLUSIONS AND RECOMMENDATIONS

It is obvious that the need to establish incubators was not a result of detailed analyses and assessments of cost-effectiveness in the investments, which significantly affects the sustainability of incubators. An idea to establish an incubator mostly emerged from the assumption that support in providing physical space with favourable price would be a sufficient incentive for the development of entrepreneurship and micro or small enterprises. These assumptions were often supported by donors. However, after high investments in incubators, their cost-effectiveness is questioned. This is also confirmed with a fact that there is a low demand for incubation services which results in capacities of incubators not filled completely in most cases.

Therefore, business incubators in Serbia mostly remind us of an anecdote about the owner of a luxury car who cannot afford to buy fuel. Most incubators in Serbia are placed in new or completely renovated premises, equipped with the latest technical equipment, fast internet and modern office furniture. However, even with good technical facilities, most incubators in Serbia are financially unsustainable, because funds they receive from services are not sufficient to cover even basic operational costs.

They look for solutions in donations from founders and donor funds, which is certainly not sustainable. The problem with grants is emphasized in the last few years, when, due to the economic crisis and reduced budget revenues, local governments are not able to pay the promised funds to incubators. As a result of financial instability, almost all incubators in Serbia have the problem of fiscal liquidity, which often affects regular payment of salaries to their employees.

In case of donations, it should be mentioned that almost all donor projects that initially supported the development of incubators have finished, which additionally hinders the situation of capacity development and sustainability of incubators. It should also be mentioned that the investments in physical and technical facilities of incubators have reached their maximum, and they are no more an area of interest for the few remaining donors in Serbia. However, even though registered as limited liability companies, incubators have a possibility to apply for EU IPA funds, which can be a strategic direction towards attracting external revenues for incubators in Serbia. Several incubators in Serbia have already recognised the opportunity and developed capacities to successfully apply to EU IPA calls for proposals. The incubator in Kragujevac has received significant funds from the RSEDP 2 Programme, incubator in Bački Petrovac received funds from the EU Exchange Programme, and the incubators in Užice, Zrenjanin and Novi Sad participate as partners in the implementation of cross-border cooperation programmes. The incubator in Belgrade has a good portfolio in the implementation of projects from several funds, but not including the EU.

Incubators are mostly focused on providing renting services with favourable prices. Prices of this service vary, and there is a significant difference in these prices between production and service incubators. Incubation procedures are also different, in some incubators (e.g. Novi Sad), the rent is

²⁶ This does not take into account the donation for construction of adaptation of buildings or annual subsidies for incubator's operation.

paid from the moment a business enters the incubator, and in most other cases the initial incubation period is free of charge. This initial period is one year in most production incubators. However, even with these benefits, most incubators have problems filling the capacity (the exception is the incubator in Belgrade with full capacity).

Except in the Novi Sad incubator, tenants in other incubators are not obliged to use advisory and administrative services available within the incubator. Internal capacity of incubators to provide specialized advisory services are on a quite low level, and the offer is limited to trainings, mainly covering business planning, assistance with the registration of business and basic administrative services. Other services are mostly provided by outsourced staff, whereas the role of the incubator's staff is mostly intermediary. Considering the limited financial capacity of both the incubators and their members, the interest for this type of services is not significant among the actors within the incubator. It should also be mentioned that this type of service is sometimes funded from donations, but they are not sustainable solutions.

However, even with all this, incubators can have an important role in promoting local economic development and the development of entrepreneurship in environments where they were established. In order to achieve that, it is necessary to change the focus of the incubators' services from physical incubation to the provision of a broad range of business services to entrepreneurs and enterprises. This is especially recommended to incubators in environments that do not have a developed network of institutions for the development of entrepreneurship. In accordance with this recommendation, it is necessary to train the staff to provide a broad range of services, as well as to identify and develop good relations with potential associates, organisations and institution that would be involved in future initiatives of incubators.

Due to a low demand for their services, incubators lost a sectoral approach in their operations. However, it is recommended that incubators should focus on certain sectors with comparative and competitive advantage in their environment. Stronger links should be built between incubators, clusters and local economic development offices in order to have an integrated approach to the development of identified strategic sectors. In order to strengthen cooperation among these factor, in smaller environments and where possible, it is recommended to provide the incubation space to clusters, LED offices, business service providers, consultants, etc. in order to achieve the synergy in their action on local economic development.

During the visits to incubators throughout Serbia, it was noticed that their visibility is on a very low level. In most cases it was difficult to find the incubator because there were no signs, road signs or logos showing that the incubator is near. In some cases there is not even a logo on the building itself or the entrance. Having in mind that incubators provide services, it is necessary to improve their visibility as soon as possible, both in their vicinity and among incubators' target groups.

In order to make it possible to measure the results of different incubators on the national level, it is necessary to define a unique system of criteria and measures for that purpose. Also, it is necessary to define the national standard for incubators' business operations as institutions for support to SME development. Standardisation will lead to organised business operations of incubators, and further more, it will be possible to measure effects achieved by incubators, and easier to compare the success of different incubators. Implementation of standards will use formal procedures and instructions to improve internal processes, such as selection and continuous evaluation of tenants.

According to the results of the analysis, it is recommended to work on achievement of the following goals:

- Improve the work business incubators by standardising their operations;
- Develop and improve the process of selection and continuous evaluation of tenants;
- Stronger networking of business incubators in order to exchange knowledge and experience.

According to the defined goals, there is a need to implement the following activities:

- Create the national standard for the work of business incubators;
- Define the system measuring efficiency and effectiveness of business incubators;
- Implement trainings for the management of incubators in order to build capacities of the incubators' management in the following fields:
 - Improved process of pre-incubation, incubation and post-incubation;
 - Management of the incubation process;
 - Development of services for tenants;
 - Development of the support system for tenants;
 - Strengthening business competencies in the field of: marketing, sales, product development, finances for entrepreneurs, and other fields, in accordance with specific needs of incubators' management;
- Introduce the monitoring system for the incubation process

It is also recommended to national and regional institutions and agencies to take part in the capacity building of incubators in Serbia by involving them in programmes including services for business start-ups, development of entrepreneurship and other development initiatives.

3. CLUSTERS

3.1 INTRODUCTION TO CLUSTERS

Geographic and urban agglomerations of companies have been a point of attention for economists and government representatives on different levels for more than a century. First analyses of this topic were implemented in late 19th century by the famous economist Alfred Marshall who used the term industrial district for the concentration of companies in a certain geographic area. This term is still used in Italy.

However, geographically concentrated companies became a focus of significant interest after the study on competitiveness and industrial specialisation carried out by the University of Harvard's professor Michael Porter in his book "Competitive Advantage of Nations"²⁷. For the purpose of his research, Porter introduced the term "business cluster" or "cluster", and it was soon after that broadly accepted throughout the world.

Porter defines clusters as geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (such as universities, development agencies, associations of entrepreneurs, chambers of commerce, etc.) in particular field that compete but also cooperate²⁸. Apart from this, there are also other cluster definitions covering the cluster phenomenon in a same or similar way. A group of Swedish economists within the EU Cluster Observatory defined clusters as groups of businesses and institutions in a specific geographic location and interconnected in production of similar products or services²⁹.

There are also definitions including more detailed specific characteristics of clusters. A regional cluster is, for example, a term used if the employment in a given region in a particular cluster category meets cut-off criteria in terms of share of cluster sector employment, share of regional employment, and specialisation³⁰. Based on these cut-off criteria, mapping of regional clusters for each country is defined. The first mapping of regional clusters in the Republic of Serbia was done within the EU SECEP Project³¹, and based on these data Serbia was for the first time included in comparative analysis of regional clusters on the EU Cluster Observatory's website³².

European Commission also introduced the term "innovation clusters", defined as groupings of independent undertakings – innovative start-ups, small, medium and large undertakings as well as research organizations – operating in a particular sector and region and designed to stimulate innovative activity by promoting intensive interactions, sharing of facilities and exchange of knowledge and expertise and by contributing effectively to technology transfer, networking and information dissemination among the undertakings in the cluster.³³

All these definition lead to a conclusion that clusters have three basic characteristics:

- Clusters are concentrated in a particular geographic region;
- Cluster members cooperate and
- Cluster members compete.

27 Porter (1990).

28 Porter (1998), p. 199.

29 Sölvell, Ketels and Lindquist (2008).

30 EC (2007), p. 10.

31 Mijačić (2011)

32 EU Cluster Observatory's website is <http://www.clusterobservatory.eu/>

33 EU (2006), p. 9

Due to their closeness, either geographical or in terms of business activity, business from clusters have benefits from using positive externalities, such as access to specialised workforce, dissemination of knowledge and business information, vicinity of competitive companies and strengthening of business capacities through a direct interaction with specialised customers and suppliers.

It is important to mention that clusters are different from the urban agglomeration concept, which includes businesses sharing the same geographic area, but not conducting the same or interconnected activities. Geographically concentrated businesses from similar industries also cannot be considered a cluster if they do not cooperate. Cooperatives and holding corporations also cannot be considered clusters in the light of previously mentioned definitions.

It is also important to mention a significant difference between cluster as an empirical phenomenon, and grouping of business activities in a particular location, and cluster initiatives. Cluster initiatives³⁴ are organised efforts to increase the growth and competitiveness of clusters within a region, involving cluster firms, government and/or the research community³⁵. Cluster initiatives often call themselves clusters, and it is certainly the case with all the initiatives in Serbia. In accordance with that, the “term” cluster will further on be mostly used for cluster initiatives, and not the proper cluster. However, in some parts, a clear difference between clusters as groups of companies and cluster initiatives as organizations for support to cluster development will be emphasised.

Examples of clusters can be found around the world, and one of the most famous include the IT cluster “Silicon Valley” near San Francisco, the gambling and fun industry cluster in Las Vegas, film industry clusters Hollywood in the U.S. and Bollywood in India, mobile communications cluster in northern Denmark, numerous industrial districts throughout Italy, etc.

3.2 CLUSTER DEVELOPMENT IN SERBIA

Cluster development in Serbia started in 2004, through the mobilisation of actors and capacity building on the national level, primarily within the Ministry of Economy and Privatisation, later the Ministry of Economy and Regional Development. In order to test the policies to raise competitiveness through cluster development, the Ministry came up with the pilot project for cluster development in Serbia that supported the creation of 4 cluster initiatives in car industry, wood processing industry, textile and ICT. The pilot stage was initiated in 2005, and it lasted one year, until 2006. At the same time, in 2005, two more clusters were established as results of private initiatives from PVC manufacturers (Cluster *Jato*³⁶) and manufacturers of agricultural machinery (Cluster BIPOM).

After a successful evaluation of the pilot project for clusters, Serbian Government started the programme financing projects for cluster development implemented by the Ministry of Economy and Regional Development. The programme defines clusters similarly to Porter’s definition: “clusters are geographically concentrated interconnected companies, with similar and different activities, specialised suppliers, service providers, and related support institutions, competing in a certain field of activity, and cooperating. Cluster is united through joint interests and needs in the field of supply, sale, specialised services, workforce and other resources”³⁷

Financing from the programme is allocated for one year, and each year the Government adopts the financial programme for the following year in a special document. In the period 2007-2009, the programme was known as the “Programme for Distribution and Use of Funds Intended for Cluster Development“, before it was changed in 2010 to the “Programme for Innovative Cluster Development” emphasizing promotion of innovation in cluster members.

34 Sölvell, Lindquist and Ketels (2003), p. 31

35 Connection of business, state institutions and research organisations is often called the Triple Helix)

36 In spite of initial success, cluster *Jato* ceased to work in 2010.

37 Documents from the programme’s public call

The funds allocated for cluster projects within the programme varied in different years. In the pilot stage, the Government of the Republic of Serbia allocated 115,000 euro to fund the projects of four cluster initiatives. In 2007, the amount reached 260,000 euro for the first call for financing cluster initiatives in Serbia. As an addition to the funds for 2007, the Government of the Kingdom of Norway approved 480,000 euro (of which only 185,000 euro was spent). In 2008, the Government allocated 375,000 euro, as the highest amount ever allocated within the programme. Due to the economic crisis and poorer inflow of funds into the budget of the Republic of Serbia, the Government reduced the funds for this programme in the following years. The funds amounted to 330,000 euro in 2009, 300,000 euro in 2010, and 200,000 euro in 2011³⁸. In 2011, the eligibility for funds from this programme was expanded to regional development agencies for advisory services in the preparation of clusters' project applications. Funds received from this programme have to be 50% co-financed by cluster members.

However, even with the reduced budget, a significant share of the programme funds is not spent, due to several factors, from complicated administration of the programme to inability of clusters to provide co-financing for approved programmes.

The Government's programme supports cluster initiatives including at least 9 firms and 3 related institutions, which is in total at least 12 business entities. Also, cluster initiatives have to be registered with the Register of Associations in the Business Registers Agency, and cluster members have to include at least 60% of small and medium-sized enterprises and entrepreneurs, and at least one R&D institution³⁹.

The programme grants funds for projects of newly established and already existing clusters. The funding is significantly different for these two categories. For example, in the call from 2011, newly established clusters applied for funds between 200,000 and 800,000 RSD (between 2,000 and 8,000 euro) whereas for the existing clusters the amount was between 2,000,000 and 14,000,000 RSD (between 20,000 and 140,000 euro).

Table 5 shows a number of project beneficiaries for each year. The programme is characterised by the fact that the number of initiatives supported financially through these call is smaller every year. Also, clusters are most often supported only for a year, even though some clusters received funds from several calls⁴⁰

Table 5: Number of clusters supported within the cluster development programmes

	2007	2008	2009	2010	2011
Number of clusters	16	14	13	8	9

Source: Marić (2010) and the data received from representatives of the Ministry of Economy and Regional Development

Apart from the programme for financing of clusters, in 2007, the Ministry of Economy and Regional Development started the training programme for cluster managers, associates from support institutions and development agencies. The training programme had 7 different modules that included all segments of cluster development: (1) clusters as instruments for regional development; (2) mapping of clusters and evaluation of business opportunities; (3) strategic planning for cluster development; (4) project management and fundraising; (5) risk management, (6) cluster marketing, and (7) negotiation skills and conflict management within the cluster. Training programme was implemented by the organisation InTER from Belgrade.

38 In 2011, 20 million RSD was allocated, of which 18,691,598 for clusters and the rest for regional development agencies providing technical support to clusters in the preparation of programme applications.

39 It should be underline that the condition 9+3 has not been change since the programme was initiated.

40 The following clusters received funds from the programmes for more than a year: "ICT NET" Belgrade (as a successor to "ICT Serbia" cluster), "AC Serbia", "Šumadijski cvet" (The Flower of Šumadija), "Agencija za drvo" (Wood Agency), "Dunder" and "Istar 21"

As a part of the Government's programme "Building Competitiveness in the Service Sector", the Ministry of Trade and Services (now the Ministry of Agriculture, Trade, Forestry and Water Engineering) implemented the project "Joining Entities from the Service Sector into Clusters" and initiated the establishment of the real estate cluster – "Real Estate Cluster" (*Klaster Nekretnine*) with the office in Belgrade, and supported its work with technical and financial assistance. Apart from this Ministry, there is no information about other ministries involved in cluster development in Serbia.

Executive Council of the Autonomous Province of Vojvodina (now the Government of Vojvodina) also started the cluster development programme in the territory of Vojvodina, implemented in 2007 and 2008. In the two programme cycles the Provincial Executive Council allocated 65,000 euro or 6 million RSD in total.

Within the cluster development programme in Vojvodina, in 2007, the Centre for Competitiveness and Cluster Development of Vojvodina was established within the Faculty of Technical Sciences in Novi Sad. The Centre prepared the Strategy for Cluster Development in Vojvodina, that was later adopted by the Parliament of Vojvodina⁴¹. As their regular activities, the Centre provides technical assistance to clusters in Vojvodina and organises regular meetings, conferences and professional seminars.

Due to a lack of funds, the Cluster Development Programme in Vojvodina was terminated in 2009 and 2010. However, the programme was reinstated in 2011, when the new call for cluster development projects was opened, with the total value of 6.5 million RSD or around 60,000 euro. Within the call, 9 clusters were supported, 5 from industry and manufacturing⁴² and 4 from tourism⁴³

In other parts of Serbia there are no similar cluster development programmes supported by public institutions or local governments. However, regional development agencies and SME development agencies had a significant role in providing technical assistance for the establishment and development of clusters. This is especially the case with the SME agency "SMER Subotica" from Subotica, "Alma Mons" from Novi Sad and the Regional Economic Development Agency for Šumadija and Pomoravlje from Kragujevac, that started several cluster initiatives in their regions.

Cluster development programme was also supported by some international development agencies and organisations. It has already been mentioned that the Government of the Kingdom of Norway supported development of clusters and incubators within the ENTRANS programme, implemented by the organisation SINTEF in the period 2004 - 2008.

Apart from those previously mentioned, clusters in Serbia were also supported by GTZ (now GIZ) within VBF Private Sector Development Programme. GTZ provided technical assistance to clusters established as pilot initiatives in 2005: Automotive Cluster "AC Serbia", wood industry cluster "Wood Agency", textile industry cluster and ICT cluster "ICT Serbia". In spite of many years of support to these clusters, the only active cluster today is "AC Serbia". The cluster "ICT Serbia" was transformed into a new cluster "ICT NET". The cluster "Wood Agency" was re-registered into a cluster of wood processing companies, and there is no information whether it is still active⁴⁴. The remaining textile industry cluster had problems with their operations and mobilisation of members from the very beginning, and it did not survive.

USAID also supported cluster development through several programmes. The last programme was "Competitiveness", and it supported clusters and companies from film industry, apparel and textile industry and ICT sector.

41 Provincial Secretariat for Economy (2007)

42 The following clusters from this industry received funds with the total value of 3.5 million RSD: Vojvodina Metal Cluster, Vojvodina ICT Cluster, Transport and Logistics Cluster, Cluster for Plastic Industry and Cluster for Creative Industry.

43 The following tourism clusters in Vojvodina received funds with total value of lightly over 2 million RSD: Cluster Istar 21, Cluster for Health Tourism of Vojvodina, Cluster for Micro Region Subotica - Palić and Tourism Cluster Srem.

44 The intensity of activities of the cluster "Wood Agency" has significantly decreased in 2010 and 2011.

United Nations Industrial Development Organisation, UNIDO, has been supporting the work of “AC Serbia” cluster for several years.

The biggest local initiative for cluster development in Serbia was within the LEDIB project for local economic development, implemented in Niš administrative district with financial support from the Government of the Kingdom of Denmark. This programme supports cluster development within the “House of Clusters”, an association gathering clusters and consultants with the goal to support cluster development and business association development in South-East Serbia⁴⁵. House of Clusters’ members include 11 clusters, of which 5 so called “start-up” clusters, i.e. clusters of start-up businesses from their target industries. LEDIB project is active in support to clusters through participation in fairs, organisation of conferences and seminars, advisory services, etc.

Many clusters were also supported within EU CBC programmes, and this is especially the case for clusters established in Vojvodina.

The EU RSEDP Programme supported the establishment of the Cheese Cluster “Jug” from Niš and the Vojvodina Metal Cluster (VMC) located in Temerin.

Support to Enterprise Competitiveness and Export Promotion project was started within EU IPA programmes, with the goal to support market economy and socio-economic cohesion in Serbia by improving international competitiveness and opportunities for exports to small and medium-sized enterprises⁴⁶. The SECEP project includes three components, of which the first one is focused on cluster development. SECEP conducted a detailed analysis of clusters in Serbia, and based on the result, they decided to support six clusters: (1) cluster of advanced technologies NI-CAT from Niš; (2) ICT NET cluster from Belgrade; (3) fashion and apparel cluster FACTS from Belgrade; (4) automotive industry cluster AC Serbia from Belgrade; (5) Serbian Furniture Cluster from Niš; and (6) the cluster initiative for the use advanced knowledge in agriculture from Vojvodina. Apart from providing support to these clusters, SECEP often organises conferences, seminars and workshops, inviting also managers or associates of other clusters, as well as representatives of regional development agencies, SME agencies, chambers of commerce and other development institutions.

It is difficult to determine the exact number of cluster initiatives in Serbia, because there is no unique database or a register covering clusters. Clusters are mostly registered as associations within the Register of the Business Registers Agency (BRA) of the Republic of Serbia. However, there are several cases where clusters are registered as businesses, also with BRA or as foundations with the Ministry of Culture⁴⁷. There are also clusters that are not registered, and they are active in their work.

Search of the data from the Register of Associations and Business Entities on the website of BRA⁴⁸ shows the data about 51 clusters registered as associations and 6 clusters registered as business entities⁴⁹, which is 56 registered clusters in total in the Republic of Serbia.

However, in the preparation of this study, it was determined that there were more clusters in Serbia, 85 in total. The list of all clusters with available information and contacts is given in Annex 3.

45 More information about the House of Clusters is available on the website <http://www.clusterhouse.rs/>.

46 More information about SECEP project is available on the website <http://www.secep.rs/>

47 The first clusters in Serbia were established as foundations because there was no legal framework to register a non-profit association of enterprises and entrepreneurs. The situation changed in 2009, with the Law on Associations, which is the basis for registration of clusters in Serbia. The majority of clusters that were registered as foundations have re-registered as Associations, although we presume that there are still clusters with the old legal form of registration (e.g. the cluster “Fund and Tourism Cluster of Microregion Subotica - Palić”.

48 The search on the website: <http://www.apr.gov.rs> using “cluster” as the key word was performed on December 15, 2011.

49 The cluster “Somborski Salaši” from Sombor was registered both as an association and as a limited liability company.

Figure 2: Network of clusters in Serbia



Sources: Business Registers Agency, Ministry of Economy and Regional Development, National Agency for Regional Development, and data collected in the field research.

Figure 2 shows geographical distribution of clusters in Serbia based on their main office. It clearly shows that the highest concentration of clusters in five largest cities of Serbia: Belgrade, Niš, Novi Sad, Subotica and Kragujevac, whereas the concentration is significantly lower in other places in Serbia. By regions, most clusters are registered in Belgrade, 28 in total, and in Vojvodina, 27 clusters. The number of clusters registered in Šumadija & Western Serbia and in Southern & Eastern Serbia, the number is almost twice as low, 15 clusters in each of these two regions. Of 15 clusters in Southern & Eastern Serbia, 13 are in Niš. On the other hand, in Šumadija & Western Serbia, 14 clusters were established in two administrative districts: Šumadija and Raška, whereas one cluster is in Mačva District (Loznica). Other administrative districts in this region do not have registered clusters.

It should also be mentioned that this distribution was done according to the registered location of the cluster, and their members are often outside of those locations, in some cases throughout the Republic of Serbia.

3.3 ANALYSIS OF CLUSTERS

As in case of incubators, this chapter analyses only the clusters that completed and sent the questionnaire, as well as those whose representatives were interviewed. In total, 29 clusters completed and sent the questionnaire, i.e. 67% of the total number of requests sent. Also, direct meetings were held with representatives of 13 clusters in Belgrade, Novi Sad, Subotica, Kragujevac, Niš and Vranje, as well as representatives of institutions, organisations and programmes working in cluster development, such as the Department for Competitiveness within the Ministry of Economy and Regional Development, Centre for Competitiveness and Cluster Development of the Faculty of Technical Sciences in Novi Sad, representatives of SME agencies in Novi Sad and Subotica, representatives of the Union of Start-up Clusters in Niš, and the SECEP project Team Leader.⁵⁰

As shown in Figure 2, clusters in Serbia are mostly established in larger urban centres in Serbia: Belgrade, Novi Sad, Niš, Subotica and Kragujevac. The reason for high concentration of clusters in these cities can be in the fact that most of them were established with technical assistance from national or foreign development agencies, with offices in large cities in Serbia.

The first clusters were established in 2005, with assistance and support from the Serbian Government and the line ministry, national and international development agencies, as well as chambers of commerce. After the Government's cluster development programme had been initiated, clusters were mostly established independently, mostly as a result of entrepreneurial efforts of individuals, groups of enterprises or development agencies (including regional development agencies, SME agencies, associations of entrepreneurs and non-governmental organisations).

Clusters in Belgrade were established with support from the Government of Serbia, Serbian Chamber of Commerce, SME Agency and international organisations and projects (GTZ, USAID and UNIDO, later SECEP).

Clusters in Subotica and surrounding area were established with technical support from the SME agency "SMER Subotica". Similarly, most clusters in Novi Sad and surrounding area were established with support from the SME agency "Alma Mons" and the Centre for Competitiveness and Cluster Development of the Faculty of Technical Sciences in Novi Sad. Secretariat for Economy of Vojvodina Government also significantly contributed to the establishment and development of clusters by providing financial and non-financial support to cluster initiatives established in the provincial territory.

Most clusters in Kragujevac were established with support from the Regional Economic Development Agency for Šumadija and Pomoravlje, Regional Chamber of Commerce and Association of Entrepreneurs "Sloga" from Kragujevac.

⁵⁰ Annex 5 contains the list of representatives from clusters and related institutions who participated in interviews.

The launch of LEDIB project in Niš launched the establishment of a significant number of clusters in this city. Apart from LEDIB project, cluster development in Niš is also strongly supported by the Regional Chamber of Commerce. Niš has a significantly big number of cluster initiatives, often overlapping in sectors. For example, there are three cluster initiatives in Niš in civil engineering and textile.

In other Serbian cities, clusters were established either with support from local NGOs or as private initiatives of individuals or groups of companies. Such clusters can be found in Loznica, Ruma, Kraljevo, Vrnjačka Banja, Knjaževac, Aranđelovac, Rača, and other cities and municipalities in Serbia (Figure 2).

Most clusters in Serbia are either local or regional, although some initiatives from Belgrade were established with the aim to be national clusters⁵¹.

Clusters in Serbia are still in the development stage, and their operation capacities are on a quite low level. Clusters often do not have full-time staff, and when they do, it is often not more than two persons. Cluster employees are mostly dominated by women. They often hire external consultants to perform specific or administrative activities.

Clusters usually have one or two offices⁵², rented or given for use by some of cluster members. Offices have computers, internet connection and other necessary technical equipment.

According to the data received, it is difficult to precisely determine financial capacities of clusters⁵³, but it can be presumed that they are low, because most clusters underlined financial sustainability as one of the biggest problems in their business. Apart from several exceptions, clusters usually do not have sufficient funds to cover the basic costs and salaries for their employees. As a result of financial instability, clusters usually do not have full-time employees, and cluster activities are on voluntary basis mostly done by staff of certain cluster members. This model of hiring staff is a significant impediment to cluster development, which is one of the reasons why most cluster initiatives did not manage to overcome initial problems in operations.

In most analysed cases, cluster financing does not depend on the share of membership fees paid to the cluster, but on the ability of cluster staff to attract funds from different calls for proposals. As a result of this, the number of cluster members is mostly stable, because functioning of clusters does not depend on the number of members. However, there are cases of clusters that are self-sustainable purely due to membership fees, such as: Vojvodina ICT, “South Recycling”, FACTS, and Flower Producers Cluster “Šumadijski cvet”⁵⁴. It should also be mentioned that the percentage of membership paid mostly decreases in years.

The total number of companies involved in the work of clusters is 917⁵⁵, and they employ around 36 thousand people in total (Table 6). Cluster members are dominated by micro companies, entrepreneurs and small companies, whereas the share of medium-sized and large companies is significantly lower. The highest number of large companies is a part of the automotive cluster AC Serbia, 12 in total.

51 These are the clusters established as pilot initiatives: “AC Serbia” as the national automotive cluster, “ICT Serbia” as the national ICT cluster and “Wood Agency” as the national wood processing cluster. These clusters are more similar to sectoral or chamber associations than real clusters, because they are not geographically concentrated and there is no clear diffusion of information and knowledge between the members.

52 The exception is medical cluster “Pro Vita” with five offices

53 The quality of received questionnaires is of much lower quality than of those received by business incubators. Namely, the 2010 annual budget data were submitted only by six clusters or 20% of the total number of received questionnaires. The answers to other questions related to cluster financing were also not submitted for a significant number of clusters: 30% (or 9 clusters) submitted only partly the data about cost structure, and the number of data about sources of finance is slightly higher, 47% or 14 clusters. It is important to emphasize this because of the fact that, based on these limited data, it is difficult to make a valid conclusion about financial capacity of clusters in Serbia. The accuracy of submitted data is also questionable, because the data on revenues, expenditures and annual budget do not match in most submitted questionnaires.

54 Since clusters did not submit data about revenues, in other cases it was not possible to determine their sustainability based on membership fees.

55 Some of these companies are involved in the work of more than one cluster, such as companies from automotive industry, that participate in operations of the clusters “AC Serbia” and the Regional Automotive Cluster of Central Serbia.

Number of cluster members varies between cluster initiatives. Furniture cluster “NETWOOD” from Kragujevac has the least members, 5 in total.⁵⁶ All other clusters comply with the minimum number of members defined by the Ministry of Economy and Regional development within the programme for support to cluster development.⁵⁷

Table 6: Data about the number of cluster members⁵⁸

Cluster	Total no. of members	Total no. of employees in all members	Structure of members by size				
			No. of entrepreneurs	No. of micro enterprises	No. of small enterprises	No. of medium enterprises	No. of large enterprises
AC Serbia	40	~10,000		3	12	13	12
Bioscience Cluster	13	1,014	1	1	9		
BIPOM	30	2,483	7	1	12	2	1
FACTS	17	2,500	2	1	3	8	2
ICT NET	23	1,820	20	10	7	3	
Istar 21	35	3	10	24			1
DUNĐER	89	2,497	16	66		7	
LZOTEKS	12	210	10	5	6		
NETWOOD	5	>100	2	2	1		
NI-CAT	19			8	8	3	
OPEKA-BRICK	20	263	5	8	6	1	
PRO VITA	19	151	5	8	4		
Regional Automotive Cluster of Central Serbia	28	6,620		1	6	8	4
Serbia Film Commission	71			45			
Serbian Furniture Cluster	17	613	4	7	4	2	1
“Stara Planina”	25	75	15	7			
Flower Producers Cluster “Šumadijski cvet”	170	800	125	120	5		
Tourism Cluster “Subotica-Palić”	28	620		6	21	1	
VMC	74	4,380	14	17	18	8	3
Vojvodina ICT	34	1,500		10	14	3	1
Cluster of Medical and Health Tourism	12						
Agro start up	37	239					
Medical start up	23	56	13	7			
Textile start up	30						
Start up services	46	150	34	12			
Total:	917	~36,094	283	369	136	59	25

Source: data received through questionnaires from cluster representatives who guarantee for validity of the data presented.

The Flower Producers Cluster “Šumadijski cvet” has the most members, 170 in total, followed by the construction cluster “Dunđer” from Niš with 89 members, Vojvodina Metal Cluster with 74 members and the cluster “Serbia Film Commission” with 71 members. Even though cluster members include

⁵⁶ This cluster is a special case, since it is an (unsuccessful) attempt of the Regional Economic Development Agency Šumadija and Pomoravlje to gather furniture producers in Kragujevac and the surrounding area.

⁵⁷ This criteria defines that a cluster should have at least 9 companies, of which at least 60% are SMEs, and at least 3 related institution, of which at least one an R&D organisation.

⁵⁸ Several clusters did not provide data on the number and structure of their members.

support institutions (institutes, faculties, schools, research centres, etc.), their participation in clusters' work is formal and very small. There are very few clusters with more than three support institutions, which is a minimum condition of the Serbian Government's Programme.

Financial data for 2010 show that the highest turnover is made by the members of the newly established VMC cluster (270 million euro), followed by the member of two ICT clusters (ICT NET with around 87 million euro and Vojvodina ICT with 44 million euro). Members of the textile cluster FACTS also had a significant turnover of 45 million euro. Both construction clusters from Niš (Dunder and OPEKA BRICK) had turnovers of around 15 million euro. Members of both automotive clusters (Regional Automotive Cluster of Central Serbia and AC Serbia) had total turnovers of 13 and 10 million euro respectively. Members of Agro Cluster from Niš had a total turnover of 7.5 million euro, whereas members of the cluster for agricultural machinery BIPOM had a turnover of around 4.5 million euro. Of the tourist clusters, the highest turnover was made by the members of PRO VITA cluster, more than 32 million euro, whereas other clusters ranged between 2 and 3 million euro.

Table 7: Financial data for cluster members in 2010

Cluster	Total turnover of all cluster members in 2010	Total exports of cluster members	Total number of investments of cluster members	Share of cluster members with website
AC Serbia	10 mill €	315 mill €		47.5%
Bioscience Cluster	1,677,750,650 din	512,233,215 din	97,101,344 din	46.1%
BIPOM	4,510,000,69 €	5,933,000 €	~2,000,000 €	100%
FACTS	45 mill €	11.5 mill €		100%
ICT NET	8,695,320,442 din	998,850,496 din		100%
Istar 21	1,654,830,000 din			100%
DUNĐER	15 mill €	1 mill €	7.6 mill €	73%
LZOTEKS	1,489,085,000 din		250 mill din	50%
NETWOOD	32,221,656,77 din + 380,000 €	2,384,879 din + 662,000 €	448,280 din + 1,030,000 €	79%
Regional Automotive Cluster of Central Serbia	13,092,697,000 din	31,954,412 din		93%
Serbian Furniture Cluster	870,587,138 din	541,242,181 din		94%
Flower Producers Cluster "Šumadijski cvet"	150,000,000 din	5%		25%
Tourism Cluster "Subotica-Palić"	2.8 mill €			78.6%
Vojvodina Metal Cluster (VMC)	240 mill €			
Vojvodina ICT	44 mill €	20 mill €		100%
Cluster of Medical and Health Tourism	2,040,708,000 din	20,230,000 din		
Agro start up	7.5 mill €	4,200,000 din		
Medical start up	60,000,000 din			65.2%
Start up services	50,000,000 din			87%

Source: data received through questionnaires from cluster representatives who guarantee for validity of the data presented.

The biggest exporters among clusters are the members of Vojvodina ICT Cluster (20 mill euro), FACTS cluster (11.5 million euro) and ICT NET (around 10 million euro). The biggest investments were made by members of the two construction clusters from Niš (Dunder and OPEKA BRICK), as well as member of PRO VITA cluster.

Companies with most innovations (10 in total) are members of BIPOM cluster, followed by members of "Dunder" (5) and the Bioscience Cluster from Subotica (2 innovations).

Member of most clusters have developed websites. The exceptions are clusters whose members are mostly entrepreneurs and micro companies (“Šumadijski cvet”, OPEKA BRICK, and start up clusters from Niš). Number of websites among members of AC Serbia cluster and the Bioscience cluster are also small.

Clusters provide different services to their members, with the prevailing services including organisation of seminars, trainings and conferences, joint marketing and visits to fairs, as well as public advocacy. Clusters provide significantly less services in new product development and joint procurement of raw materials (with the exception of the cluster “Šumadijski cvet” that developed an efficient mechanism for purchasing raw materials for their members, which is certainly a model that should also be used by other clusters in Serbia). Other services provided by clusters are mostly sporadic and linked to outside sources of finance. It should also be mentioned that there are examples where services are not only used by cluster members, but also by other companies from the same or similar industry.

As mentioned in the previous chapter, the EU project SECEP directly supported the work of 6 clusters in Serbia, whereas representatives of other clusters were involved in trainings and seminars organised within the project. As a support to the Serbian Furniture Cluster, SECEP hired the Italian designer Mirko Tatarini to design a furniture collection that would be jointly produced by the cluster members. The shelf from the collection designed by Tatarini was awarded in November 2011 at the Belgrade Furniture Fair.

Most clusters in Serbia have experience in project work. Only the clusters that are beneficiaries of a cycle of the programme for support to cluster development of the Government of Serbia or Autonomous Province of Vojvodina have direct experience in project implementation. Some clusters received funds by other ministries (Ministry of Trade), state agencies (mostly SIEPA) or Secretariat for Economy of the Government of Vojvodina.

Experiences in projects funded by other programmes, including the EU projects are mostly small. However, several clusters have that experience as well. For example, the EU programme RSEDP 2 supported the establishment of two new clusters, Vojvodina Metal Cluster and the Cheese Cluster “Jug”, and the cluster ICT NET participated as a partner in the project for development of infrastructure for quality control of electromagnetic compatibility. Vojvodina ICT Cluster is a partner in the CBC project between Serbia and Hungary, and the Tourism Cluster of Microregion Subotica - Palić is a partner in the project financed within the South East Europe Transnational Cooperation Programme.

3.4 CONCLUSIONS AND RECOMMENDATIONS

After more than 5 years since the first cluster initiatives were started in Serbia, we can conclude that clusters still lack the most basic joint condition, the definition of interest that gathers cluster members. By becoming cluster members, companies do not have much to lose since membership is mostly free of charge. However, as a result, companies are usually not active in cluster’s work, and rarely willing to invest their time in cluster activities. On the other hand, cluster initiatives need companies and related institutions in order to comply with criteria to apply for support programmes for clusters. This type of symbiosis was established in order to attract finance from public funds, either from local or international programmes

As a result of these relations, the majority of cluster initiatives in Serbia did not manage to build trust and close links with their members. There are very few cluster initiatives that have a regular communication with their members and that regularly review demands and needs of their members. This is also clear from the lack and (in)accuracy of data presented in Tables 6 and 7. Participation of related institutions is mostly symbolic, without significant results in building competitiveness and new product development with cluster members.

Data collection from different sources lead to the number of 85 clusters in Serbia. However, only 31 clusters applied at the last call for support to cluster development (21 applications for support to newly established clusters and only 10 applications for support to existing clusters) which accounts for 36.5% of the number of identified clusters in Serbia. This number also confirms the statement about insufficiently developed capacities and low intensity of cluster activities in Serbia.

However, it should also be mentioned that there are a few good examples of clusters in Serbia. The Flower Producers Cluster “Šumadijski cvet” used the best way to gather small flower growers and producers of planting materials from the area around Kragujevac, and significantly improved business activity in this sector. This cluster managed to establish an efficient mechanism for procurement of raw materials for their members, improve the quality of production and ensure a few significant export contracts. The success of this cluster is in the fact that from small agriculture as a social category, they managed to make an export-oriented industry that gathers a significant number of entrepreneurs and enterprises from Šumadija administrative district.

Another positive example of clusters in Serbia is Vojvodina ICT Cluster. Even though established only a year ago, in a short period of time this cluster managed to achieve positive results in many fields. The success of this cluster is in the strong motivation of the members to join around clearly defined goals and in the ability of cluster manager to put the demands of its member into practice.

There are also other positive examples of clusters in Serbia. After a few transformations, merging with the cluster EMBEDDED.RS and change of several cluster managers, ICT NET finally managed to define clear managing mechanisms and come up with a programme in line with the interest of its members. Potential success is also in clusters that are not project oriented and whose operations depend only on memberships fees (South Recycling, NI-CAT, FACTS, etc.). Key members of clusters BIPOM, Dunder, Istar 21 and the tourism cluster of micro region Subotica-Palić have strong entrepreneurial capacity and they are innovative in designing new projects and products for their members. Vojvodina Metal Cluster also has much potential to develop into a successful initiative.

It remains to be seen to what extent the programmes SECEP, LEDIB and RSEDP will improve the work of clusters in Serbia, although it should also be kept in mind that similar donor interventions in the past did not achieve desired results.

Cluster development in Serbia should be analysed through different sectors, not only through development of cluster initiatives. It is therefore necessary to stimulate creation and development of the network of institutions that can support cluster development (in terms of sectors) in a specific geographical area. In accordance with this recommendation, it is necessary to reorganise the existing cluster development programme of the Government of Serbia in such a way that it does not only focus on the development of cluster initiatives, but also on the development of clusters as geographical concentrations of companies from a particular sector. Mapping of regional clusters that was conducted within SECEP Programme gives a good starting point for cluster development through sectoral intervention⁵⁹

The role of local governments or regional agencies can be of key importance for cluster development because they have visibility and the necessary capacity to mobilise actors from public and private sector, including business support organisations, banks, professional institutions, etc. However, the private sector should also be supported in gathering around joint interests and thus improving business and competitiveness. The programme of the Serbian Government would have to find ways to support all these initiatives.

59 The study on Mapping of Regional Cluster is available on InTER's website, www.lokalnirazvoj.org, or through direct link: http://www.lokalnirazvoj.org/upload/Book/Document/2011_11/Working_Paper_Mapping_of_Regional_Clusters_in_Serbia.pdf

It is also necessary to synthesise resources for support to clusters, especially on the local level. There is no need to have three cluster initiatives in construction in Niš, it is enough to have one umbrella institution that can provide high quality services to all companies from this sector. However, in order to achieve that, it is necessary to build trust and reconcile the interests of several groups, which is certainly not an easy job.

It is necessary to work continuously on education of cluster managers and cluster members. Human resources development in management of cluster initiatives and facilitation of cooperation among cluster members, management of strategic and action planning, attracting foreign donations and investments, as well as lobbying and public advocacy skills, are some fields identified by different actors as necessary for future development of clusters⁶⁰. Capacity building in development of trust among cluster members is also of crucial importance for success of cluster initiatives.

Field research resulted in findings that clusters from different sectors usually do not cooperate, which has a negative effect on dissemination of good practice. However, SECEP, LEDIB and the Centre for Competitiveness and Cluster Development have organised several conferences where cluster representatives had an opportunity to meet and exchange their experiences. It is necessary to continue with these initiatives in the future, as a part of regular activities of NARD, regional development agencies, local economic development offices and other development organisations.

Promotion of networking and cluster ideas is also one of important segments of cluster development in Serbia. The term cluster is not sufficiently clarified to the public and it is necessary to have close cooperation with the media in order to influence the improvement of general education about possibilities of economic development through clusters.

⁶⁰ Ministry of Economy and Regional Development has conducted an analysis of needs for human resource development of clusters, and these topics were identified. SECEP got the same results from their analysis, as well as the Centre for Competitiveness and Cluster Development from Novi Sad. Finally, the research within the analysis also showed the need for capacity building of clusters in the proposed fields.

4. INDUSTRIAL ZONES AND PARKS

4.1 INTRODUCTION TO INDUSTRIAL ZONES AND PARKS

Business support infrastructure also includes industrial zones (IZ), industrial parks (IP), technology parks (TP) and free zones (FZ).

Even though terminology related to zones and parks is considerably used in relevant laws and bylaws of the Republic of Serbia, there is no official definition of most of these terms. The exception is the definition of free zones given in Article 2 Paragraph 1 of the Law on Free Zones, saying that “free zone is a part of the territory of the Republic of Serbia specifically limited and marked, where activities are carried out in accordance with conditions defined by the Law on Free Zones”, and that include duty free operations when exporting products manufactured within the free zone.

In order to determine the meaning of zones and parks, in this text we will use the definitions given in the draft Law on Industrial Parks, prepared in 2006 but never entered the procedure to be adopted by the Parliament. This document provides the following definitions:

Industrial zone is a fragmented construction land containing the necessary communal infrastructure, including internal road network, water supply, sewage system, electricity and telecommunications, intended for sale or rent in order to achieve industrial development.

Industrial park is related to enterprises established with the goal to manage construction, maintenance and other actions regarding industrial zones. Industrial parks mostly provide “one stop shop” services where potential investors can get all the necessary information and services for the purchase or rent of land plots within industrial zones. Also, industrial parks provide other types of services, such as legal assistance for registration of enterprises (especially important to foreign investors), assistance in applications for construction permits, assistance in employment of people, etc.

Technology (research or science) park is a space (land or buildings) with utilities, providing necessary infrastructure to enterprises working in advanced technologies, manufacturing of electronics, software design, etc.

This document will also mention brownfield locations, or the areas and structures that lost their original purpose or that are underused. These locations often have environmental burdens, since they include dilapidated production or other facilities. Brownfield locations have negative effects on their surroundings, not only economically, but aesthetically, psychologically and socially, and it is necessary to upgrade their value and make them useful for economic and industrial development.⁶¹

Zones and parks are accepted as successful and efficient mechanisms for support to industrial development, both in developed countries and countries in transition, such as Serbia. The advantage of zones and parks is in an easier procedure to obtain permits for business or construction of the necessary space for industrial production, as well as for scientific and research activities and services, which certainly draws attention of potential investors. Zones and parks also improve the living environment because they concentrate industrial production in locations equipped with utilities and infrastructure in such a way that they do not impede the normal functioning of urban city areas.

61 Palgo (2008)

4.2 DEVELOPMENT OF INDUSTRIAL ZONES AND PARKS

Serbian economic structure is characterised by a dominant share of traditional industrial sectors (wood, textile, leather and footwear), technical and technological lagging behind, low level of competitiveness and significant inter-regional disbalances. Since the transition process additionally exacerbated regional differences in Serbia, the process of implementation of spatial organisation of industry was started in 2007, through the construction of industrial zones and parks, free zones and technology parks. The primary goal of developing these parts of business support infrastructure is the overall economic development of the country, with the emphasis on polycentric development⁶².

Analysis of different sources resulted in data about 92 industrial zones, 2 existing and 4 planned technology parks, 4 existing and 4 planned free zones and 66 brownfield locations, which in total amounts to 172 such elements of business support infrastructure in Serbia. Regional distribution of these elements of business support infrastructure shows the highest concentration in Vojvodina⁶³, and the lowest in Belgrade. Out of 52 municipalities in Šumadija & Western Serbia, 27 have industrial zones. In this region there are no technology parks or free zones, although there are plans for three free zones to be built in Užice, Šabac and Kragujevas. Concentration of zones and parks in the region of Southern & Eastern Serbia is also low. There are only 24 industrial zones in this region (of 47 municipalities in total) and one free zone (in Pirot). There is a plan to build a technology park in Niš.

Table 8: Geographical distribution of zones and parks by region

Region	Industrial zones	Existing technology parks	Planned technology parks	Existing free zones	Planned free zones	Brownfield locations
Vojvodina	40	2	2	3	1	15
Belgrade	1	0	1	0	1	1
Šumadija & Western Serbia	27	0	0	0	3	26
Southern & Eastern Serbia	24	0	1	1	0	24
Total	92	2	4	4	4	66

Sources: Ministry of Economy and Regional Development, National Investment Plan, Strategy and Policy for Industrial Development of the Republic of Serbia 2011 – 2020 and the data collected in the field research.

Geographic distribution of identified industrial zones, technology parks, free zones and brownfield localities by regions, districts and municipalities is given in figure 3.

62 Goals from this conclusion were taken from the Strategy for Industrial Development of the Republic of Serbia 2011 - 2020, (p. 121) that refers to NIP goals.

63 Out of 45 municipalities in Vojvodina, 40 have industrial zones. Five municipalities without industrial zones are: Vršac (Vršac has a technology park), Žabalj, Srbobran, Sremski Karlovci and Žitište.

Figure 3: Network of zones and parks in Serbia



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Source: Ministry of Economy and Regional Development, National Investment Plan, Strategy and Policy for Industrial Development of the Republic of Serbia 2011 – 2020 and the data collected in the field research.

4.3 ANALYSIS OF INDUSTRIAL ZONES AND PARKS

Zones and parks are dominated by industrial zones that are not organised as legal entities, but they are fragmented pieces of land, with communal utilities, good for construction of industrial facilities. There are only two companies in Serbia working in management of zones and parks: Public Company Business and Technology Parks Subotica, managing five industrial zones in Subotica, and Technology Park Vršac, managing the technology park in this city. Free zones, as a special category, are established in accordance with a different law with the obligation to be registered as legal entities.

Zones are mostly by majority owned by local governments. Their construction and management is usually the task of officers from the Economic Department or the staff of local economic development offices (where they are in place). However, in many cases it is difficult to determine who is directly in charge of zone management since there is no unique database with such data.⁶⁴ This is also a problem for potential investors who would like to invest funds in an industrial zone in Serbia.

Apart from a large number of brownfield locations, neglected and devastated industrial complexes in Serbia, industrial zones were mostly built as Greenfield investments, on empty slots that changed the purpose to industrial land. Until recently, there was only one industrial zone for brownfield investment, made by revitalising an old industrial zone in Smederevo. However, when Fiat came to Kragujevac, significant funds were invested in revitalisation of old industrial facilities of Zastava car factory and related factories in that cities (*“Filip Kljajić”*, *“21. oktobar”*, etc). One of the goals of business infrastructure development, defined within the Spatial Plan of the Republic of Serbia, is also the creation of a strategy for revival of industrial brownfield locations based on the cadastre of brownfield location in all municipalities and cities of the Republic of Serbia, which is certainly also confirmed as necessary within this analysis.

Users of industrial zones are mostly foreign investors in processing industries. Distribution activities are present in zones on main road corridors, or near Belgrade and Novi Sad.

Land in industrial zones is sold through auctions or granted for multi-year lease that can go up to 99 years. Zones are equipped with communal infrastructure (roads, electricity, water and sewage system) and telecommunications (phone, optical or cable internet connection, etc.).

After the land is sold or leased, local governments have no jurisdiction for their management. This fact is often a problem in terms of maintenance, including waste removal, winter road maintenance, regular maintenance of communal installations, etc.

Most investment in industrial zones and parks in Serbia were made through the National Investment Plan (NIP) that supported construction of 63 industrial zones and parks in the area of 50 municipalities and towns.⁶⁵ Investments from NIP covered only 54% of local governments with this type of business support infrastructure. Total value of approved funds for construction of industrial zones and parks spent within NIP for the period 2007 – 2010 was 1,868,896,225 RSD (table 9).

⁶⁴ Out of 93 local governments that have zones and parks, contact details were available for only 12. Only three cities with industrial zones responded to the sent questionnaire on zones and parks (Zrenjanin, Niš and Jagodina) and three free zones (Pilot, Zrenjanin and Užice).

⁶⁵ In the period 2006-2010, amendments were made to the Decision on Distribution of Funds Planned within the Law on the Budget of RS for 2007 for the Implementation of NIP, which included the formation of industrial zones and parks in Serbia. Source: Strategy for Industrial Development of the Republic of Serbia 2011 - 2020, p. 121.

Table 9: Investments in industrial zones from the National Investment Plan Funds for the period 2007-2010 (RSD)

Region / District	Municipality or location	Funds invested by year				
		2007	2008	2009	2010	Total
Vojvodina Region		237,263,416	0	66,907,057	44,591,942	336,378,372
West Bačka		12,384,044	0	0	0	12,384,044
	Sombor	12,384,044				12.384.044
South Banat		25,947,132	0	0	0	25,947,132
	Bela Crkva	2,476,359				2.476.359
	Vršac	6,950,577				6.950.577
	Kovin	16,520,196				16.520.196
South Bačka		18,595,465	0	0	0	18,595,465
	Bački Petrovac	2,520,466				2.520.466
	Bečej	16,074,999				16.074.999
North Banat		90,388,222	0	0	0	90,388,222
	Ada	33,252,952				33.252.952
	Kanjiža	1,773,803				1.773.803
	Kikinda	7,019,098				7.019.098
	Novi Kneževac	36,527,265				36.527.265
	Senta i Čoka	11,815,104				11.815.104
North Bačka		7,811,883	0	0	0	7,811,883
	Bačka Topola	4,956,000				4.956.000
	Mali Idoš	2,385,960				2.385.960
	Subotica	469,923				469.923
Central Banat		52,315,942	0	0	0	52,315,942
	Žitište	1,620,125				1.620.125
	Zrenjanin	47,964,999				47.964.999
	Novi Bečej	2,730,818				2.730.818
Srem		29,820,728	0	66,907,057	44,591,942	141,319,728
	Indija			66,907,057	44,591,942	111.499.000
	Irig	8,128,430				8.128.430
	Sremska Mitrovica	21,692,298				21.692.298
Belgrade		1,794,500	0	0	0	1,794,500
	Obrenovac	1,794,500				1,794.500
Šumadija & Western Serbia		283,017,945	545,190,552	284,873,326	251,465,787	1,364,547,613
Zlatibor		1,460,500	575,250	0	0	2,035,750
	Požega	1,150,500	575,250			1.725.750
	Prijepolje	310,000				310.000
Kolubara		728,060	0	0	0	728,060
	Valjevo	728,060				728.060

Mačva		147,315,125	268,696,383	113,310,488	47,710,926	577,032,924
	Bogatić	1,140,700		446,400		1.587.100
	Koceljeva	12,749,999	6,485,521	3,122,753		22.358.273
	Loznica	26,425,864	51,881,670	33,490,105	25,210,428	137.008.068
	Ljubovija	25,892,376	3,499,963			29.392.339
	Mali Zvornik		6,877,478	8,252,824		15.130.302
	Šabac	81,106,186	199,951,751	67,998,406	22,500,498	371.556.842
Moravica		1,097,400	365,800	0	0	1,463,200
	Čačak	1,097,400	365,800			1.463.200
Pomoravlje		6,632,889	90,543,913	99,154,607	158,354,718	354,686,127
	Jagodina			55,961,527	148,318,643	204.280.170
	Paraćin	5,582,689	8,845,025	3,193,080	10,036,075	27.656.869
	Svilajnac	1,050,200	81,698,888	40,000,000		122.749.088
Rasina		19,000,314	55,224	0	0	19,055,538
	Brus	1,323,960				1.323.960
	Kruševac	17,676,354	55,224			17.731.578
Raška		9,524,428	20,161,945	10,706,517	12,677,298	53,070,189
	Kraljevo	9,524,428	20,161,945	10,706,517	12,677,298	53.070.189
Šumadija		97,259,229	164,792,037	61,701,714	32,722,845	356,475,825
	Kragujevac	95,506,929	164,792,037	24,905,012	32,722,845	317.926.823
	Lapovo	1,752,300		36,796,702		38.549.002
Southern & Eastern Serbia		62,454,862	60,185,357	13,065,934	18,085,576	153,791,730
Bor		14,495,537	5,681,111	8,729,132	2,519,954	31,425,735
	Bor	10,177,500				10.177.500
	Majdanpek	3,848,200	4,271,600			8.119.800
	Negotin	469,837	1,409,511	8,729,132	2,519,954	13.128.435
Braničevo		1,979,450	2,440,830	76,700	0	4,496,980
	Malo Crniće	1,979,450	2,440,830	76,700		4.496.980
Zaječar		5,217,960		943,088		6,161,048
	Zaječar	497,960				497.960
	Knjaževac	4,720,000		943,088		5.663.088
Jablanica		0	0	0	0	0
Nišava		23,183,320	48,949,213	0	842,581	72,975,114
	Niš	23,183,320	48,949,213		842,581	72.975.114
Pirot		2,160,549	2,909,019	3,317,014	14,723,041	23,109,623
	Pirot	2,160,549	2,909,019	3,317,014	14,723,041	23.109.623
Podunavlje		11,753,968	205,184	0		11,959,152
	Velika Plana	8,921,968	205,184			9.127.152
	Smederevo	2,832,000				2.832.000
Pčinja		3,664,078	0	0	0	3,664,078
	Vranje	3,664,078				3.664.078
Toplica		0	0	0	0	0
Total:		584,530,721	605,375,910	364,846,318	314,143,305	1,868,896,255

Source: National Investment Plan

Geographical distribution of NIP funds shows a large disbalance in investments between regions, districts or municipalities. On the level of regions, significantly small funds were invested in the Belgrade region, only 1,794,500 RSD. These funds were spent for construction of industrial zone in Obrenovac.

Even though the goal of NIP was to reduce regional differences in development in Serbia, the poorest region of Southern & Eastern Serbia received much less funds than the region of Šumadija & Western Serbia or the region of Vojvodina. Namely, the total investment in the region of Southern & Eastern Serbia was 153,791,730 RSD or 8.23% of the total NIP funds invested in industrial zones for the period 2007-2010. Out of 27 industrial zones in this region, only 11 used the funds from NIP. As many as two administrative districts⁶⁶ in this region received no funds at all.

The region of Šumadija & Western Serbia received most funds for construction of industrial zones, 1,364,547,613 RSD or 73% of the total NIP investment in industrial zones. Most funds in this region were spent in Mačvanski District, 577,032,924 RSD or 31% of the total investment, followed by Šumadija District (356,475,825 RSD or 19%) and Pomoravlje District (354,686,127 or 19%).

NIP funds supported the construction of industrial zones in the region of Vojvodina only in 2007, and the investment in the following years for industrial zones and parks in this region was made within the Fund for Development of Vojvodina⁶⁷. The exception was investment from NIP in the construction of the technology park in Indija that was defined as the project of national interest. In total, 336,378,372 RSD (or 18% of the total NIP investment) was spent for construction of zones and parks in Vojvodina from NIP funds.

Most investments were made in industrial zones in Šabac (371,556,842 RSD), Kragujevac (317,926,823 RSD), Jagodina (204,280,170 RSD), Loznica (137,008,068 RSD), Svilajnac (122,749,088 RSD) and Indija (111,499,000 RSD). In other zones and parks investments from NIP were below 100 million RSD.

Apart from NIP, many international organisations supported the construction of zones and parks, of which most significant are USAID and UNDP through their programmes MIR and PRO. However, these programmes mostly supported the development of feasibility studies and other analyses needed for construction of zones. There is a possibility that these organisations invested in the construction of communal infrastructure within zones and parks, but there is no official information about that. Investment in industrial zones and parks in Serbia was also made within the EU Municipal Infrastructure Support Programme (MISP).⁶⁸

It is important to mention that there is an ongoing construction of the first science and technology park in Serbia, in Zvezdara municipality in Belgrade. Science and Technology Park will cover the area of around 15,000 square meters, and it is funded by the European Investment Bank. Partners on the project include the Ministry of Education and Science, the City Municipality of Zvezdara and the Project Implementation Unit "Research and Development" Ltd.⁶⁹ The construction of this centre will significantly upgrade capacities in Serbia in terms of using the science for technological and economic development of the country, as well as popularisation of science in general.

66 Jablanica and Toplica administrative districts

67 This analysis does not contain the data on investments in zones and parks within the Fund for Development of Vojvodina.

68 More information about MISP Programme on the website <http://www.misp-serbia.rs/>

69 PIU "Research and Development" was established by the Serbian Government as a one-member limited liability company for a definite period of time, until the finalisation of the Project for Research and Development in the Public Sector. More information about this company is available on the website: <http://www.piu.rs/>

4.4 CONCLUSIONS AND RECOMMENDATIONS

Construction of zones and parks in Serbia started in 2007 with the goal to raise competitiveness of businesses, as well as territorial competitiveness, to reduce regional discrepancies in the overall and industrial development, prevent further migrations from rural to urban and from undeveloped to developed regions, and to initiate regional development for many business industries and sub-industries, through a rational use of specified locations, and an efficient, functional and integral space management.

Investments in zones parks were mostly made from NIP funds, Fund for Development of Vojvodina and the budget of local governments. However, the analysis of funds spent from NIP shows that investments in industrial zones were not equally geographically distributed, and the attention was not on the reduction of regional differences in the level of development, since only a symbolic part of funds was invested in the poorest municipalities in Serbia.⁷⁰

Industrial zones were mostly built on free construction and agricultural land plots outside urban agglomerations. Investments in existing brownfield locations are symbolic, which is something that should be changed in the future. In the recent years, there were revitalisations of devastated and old industrial facilities in Kragujevac for the needs of the new Fiat production programme. As a lesson from this example, investments should be made in brownfield locations in other cities in Serbia.

Construction of industrial zones is usually initiated by municipalities, or groups of municipalities with common interest. Municipalities (or groups of municipalities) are also the owners of industrial zones and parks.

After the construction of industrial zones, fragmented and communally equipped land is sold or leased to potential investors. In case of a lease, land plots are given for long periods of time, even up to 99 years.

After the land is sold or leased to potential investors, local authorities or other bodies have no responsibilities for maintenance of industrial zones. This usually creates a problem about responsibilities for maintenance of access roads, water and sewage system, etc.

Industrial zones in Serbia are usually managed by Economic Departments or local economic development offices. Their success in performing this job depends on the capacity of staff and the level of cooperation with other municipal services with a significant role in this process (Urban Planning Department in charge of issuing permits, public utility companies in charge of communal infrastructure, directorates for construction that manage construction works in municipalities, etc.).

In 2006, the Law on Industrial Parks in Serbia was drafted that was supposed to regulate the establishment and functioning of industrial parks. However, in spite of the efforts to have the Law adopted, it has not happened still. In 2009, the National Strategic Framework and the Action Plan for Industrial Parks in Serbia was developed, but it was also not adopted by relevant bodies. This framework proposes establishment of industrial parks as public institutions for management of industrial zones.

So far, only one industrial park (in Subotica) and one technology park (in Vršac) were established in Serbia. Industrial park in Subotica manages construction and maintenance of industrial zones, in five different locations in that city, and provides comprehensive and complete services to potential investors. Learning from positive experiences of this case, it is recommended to establish similar public companies in other cities and municipalities in Serbia that have industrial zones.

⁷⁰ Even though Toplica District is one of the poorest districts in Serbia, municipalities in this District have not received funds from NIP for the construction of industrial zones.

The necessity to set up a legal framework for industrial parks and “transfer” industrial zones into industrial park is recognised by the Spatial Plan of the Republic of Serbia 2010-2020 as one of the priorities until 2014⁷¹. The Spatial Plan also recommends the following priorities that are completely in accordance with the findings from this analysis:

- Defining the institutional framework for management of activities and functioning of industrial parks;
- Regulating the work of the national body that will be in charge of planning, development, strategic and operational issues in the development of industrial parks;
- Defining the principles of public and private partnerships;
- Defining the dynamics and priorities in co-financing from the state budgets in construction or equipping of industrial zones and industrial parks;
- Strategic plan for development of industrial parks and free zones, and defining locations – distribution of industrial zones, industrial parks and free zones;
- Action plan for the implementation of industrial zones and industrial parks with precisely defined action plan and dynamic plan of activities, institutions for regulation and implementation, mechanisms, partnerships, sectoral and territorial priorities, as well as the programme for implementation of this spatial plan.

There is also a visible lack of links between industrial zones and parks and other elements of business support infrastructure, such as business incubators and clusters. Business incubators often provide space to potential investors while they are waiting for the decision on sale or lease of the land within industrial zone. However, after they provide this service, business incubators have no other cooperation with companies from industrial zones. There is also an evident lack of cooperation between industrial zones and parks and local and regional development agencies, chambers of commerce, associations of entrepreneurs, National Employment Service and other important institutions.

71 Spatial Plan of the Republic of Serbia 2010 - 2020, p. 244.

5. CONCLUSION

Business support infrastructure in Serbia started with the process of economic transformation of the country to a market oriented economy. The first business support infrastructure entities were established in 2005, with the registration of the first clusters and business incubators in Serbia. The number of business support infrastructure entities has been constantly growing since then, and their capacities have become more significant.

This analysis identified 23 business incubators, 85 cluster initiatives, 92 industrial zones, 2 existing and 4 planned industrial and technology parks, 4 existing and 4 planned free zones and 66 brownfield locations in Serbia.

Analysis of business support infrastructure was performed through a detailed study of laws, bylaws, reports and publications, along with the questionnaires completed by official representatives of clusters, incubators, zones and parks, as well as direct interviews with managers of business support infrastructures, representatives of the Ministry, NARD, EU Programmes and experts in this field.

The analysis discovered that there is an unbalanced geographical distribution of business support infrastructure elements in Serbia. It is more significantly distributed in five large cities in Serbia: Belgrade, Novi Sad, Niš, Subotica and Kragujevac. Some of numerous reasons for concentration in these cities include the presence of donor programmes and regional or SME development agencies that jointly contributed to raising awareness and the idea about the need for development of business support infrastructure.

On the regional level, there is a significant difference in concentration of business infrastructure between the regions of Belgrade and Vojvodina on the one hand and the regions of Šumadija & Western Serbia and Southern & Eastern Serbia on the other hand.

The assistance from state or provincial institutions has also significantly contributed to the development of business support infrastructure. The Government's cluster development programme contributed to the establishment of numerous cluster initiatives in Serbia, as well as to the idea of networking in clusters among businesses and relevant institutions. Provincial Secretariat for Economy also made significant investments in clusters and incubators in several programme cycles. Investments from NIP supported the construction of industrial zones in 50 towns and municipalities in Serbia.

Development of business support infrastructure was also supported by several donor programmes, of which we can underline ENTRANS programme financed by the Government of the Kingdom of Norway, as well as several EU projects including SECEP, RSEDP 2 and MISP, GIZ Private Sector Development Projects WBF (later ACCESS), LEDIB project funded by the Danish Government, BBI project funded by the Austrian Government and the USAID project "Competitiveness". Other donor projects and programmes had a significantly lower attention focused on issues of business support infrastructure development in Serbia.

Clusters and business incubators do not have stable sources of finance, and that affects their liquidity, and thus the quality of human resources. Lack of finance directly affects the number of employees, which is insufficient, both in clusters and incubators. Training of existing staff is mostly conducted through donor programmes, which sometimes organise trainings that are not in line with direct needs of clusters and incubators.

Very small number of clusters manages to survive thanks to memberships fees. The same case is with incubators, because funds they get from rent are not sufficient to cover the basic operational costs. Clusters and incubators are looking for support from subsidies provided by the public sector and the donor funds, which are not sustainable solutions. Also, most of them do not have sufficiently developed capacities to successfully apply for available funds.

The analysis of business support infrastructure also found that there is a weak link between clusters, incubators, universities and development agencies. The exception is the case of business support infrastructure in Novi Sad and Subotica, who have very good cooperation.

In order to achieve positive synergy effects in terms of raising competitiveness and economic development on the local and regional level, it is necessary to establish close cooperation between the elements of business support infrastructure, public and private sector, as well as development agencies, chambers of commerce and other relevant institutions, in order to harmonise activities and exchange the necessary information. It is also necessary to harmonise the activities of business support infrastructure with strategic plans on different levels. At the same time, it is necessary to continuously work on building management capacities and human resources in general, in all business support infrastructure elements: business incubators, clusters, zones and parks. Recommendation for national and regional institutions supporting economic development is to design programmes that will have the best effect in supporting this integrated approach to local and regional development in Serbia. It is also recommended to establish cooperation with the media in order to educate the population and raise awareness about business support infrastructure development in Serbia.

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Business incubators

Business Incubator Subotica: <http://www.bis-su.rs/>

Business and Innovation Centre Ltd Bački Petrovac: <http://backipetrovac.rs/>

Business Incubator Novi Sad Ltd: www.businessincubatorNS.com

Business Incubator Zrenjanin Ltd <http://biz-zr.co.rs/>

Business Technology Incubator of Technical faculties Belgrade: <http://www.bitf.rs/>

Business Innovation Centre Ltd Kragujevac: <http://www.bickg.rs/>

Business Incubator Centre Kruševac: <http://www.bickrusevac.co.rs/>

Business Incubator Centre Užice, <http://www.bicuzice.com/>

Business Incubator Centre Niš: <http://www.bicnis.org.rs/>

Business Incubator Centre Prokuplje: <http://www.inkubator.rs/>

Business Incubator Centre Yumco Vranje: <http://www.bicvranje.org.rs/>

Clusters

Vojvodina ICT Cluster: www.vojvodinaictcluster.org

Danube Tourism Cluster Istar 21 Association for Development of Cooperation and Tourism in the Danube region: www.istar21.rs

VMC Cluster: www.vmc.rs

Cluster MEMOS, Association for the Development of Competitiveness of Metal Producers: www.klaster-memos.org

Fund Tourism Cluster Srem: www.srem-tourism.com

Cluster of Food Producers of Serbia – POLUKS: www.klasterpolux.rs

Health Tourism Cluster of Vojvodina: www.vojvodinaspa.info

Fund Tourism Cluster of Microregion Subotica – Palić: www.palicinfo.rs

Association Fruit Land Serbia: www.fruitland-serbia.com

Agroindustry, Cluster for Profitable, Competitive and Sustainable Conventional and Organic Food Production: www.agroindustrija.org.rs

Cluster Sombor Farms: www.somborskisalasi.rs

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Serbian Fashion and Apparel Cluster: www.clusterfacts.org.rs

Medical Cluster PRO VITA: www.med-klaster.org

ICT Network: www.ict-net.com

Serbia Film Commission – SFA: www.filminserbia.com

Serbian Automotive Cluster - AC Serbia: www.acserbia.org.rs

Cluster BIPOM, Balkan and Black Sea Industry of Agricultural Machinery: www.bipom.org.rs

Galenit, Cluster for Organised Collection and Recycling of Used Batteries and Car Batteries: www.galenit.org.rs

Cluster of Medical Tourism: <http://www.medicinskiturizamusbiji.com/>

Wood Agency, Cluster of Wood Processing Companies: www.agencijazadrvo.rs

Crafts – Cluster for Revitalisation of Old Crafts in Serbia: www.zanati.org

Cluster Real Estate: www.klasternekretnine.gov.rs

Association – Cluster of Textile Producers – LZOTEKS: www.lzoteks.rs

Netwood, Cluster of Furniture Producers: www.netwoodcluster.net

Flower Producers Cluster “Šumadijski cvet”: www.sumadijskicvet.com

Fund “Kraljevski odmor”, Tourism Cluster of the Municipality of Kraljevo with the Surrounding Area: www.kraljevskiodmor.com

Textile Association Asstex: www.asstex.org

Construction Cluster “Dunder”: www.dundjer.co.rs

Agro Start Up Cluster: www.agrostartup.com

Textile Start Up Cluster: www.textilestartup.com

Services Start Up Cluster: www.servicesstartup.com.rs

Association Medical Start-up: www.medicalstartup.rs

Construction Start Up Cluster: www.constructioncluster.com

“Opeka Brick”: www.sigmaing.rs

Cluster “Ni-kat”: www.ni-cat.org

Cluster Recycling South: klastr-reciklazajug.com

Cheese Cluster JUG: www.klastersireva.rs

Textile Cluster of Nišava District: www.nistextil.com

IMPULS Textile Cluster of Exporters from Southeast Serbia: <http://www.textileimpuls.co.rs/>

State institutions

Government of the Republic of Serbia: <http://www.srbija.gov.rs/>

Ministry of Economy and regional Development: <http://www.merr.gov.rs/>

Cluster Development Support Programme of the Government of the Republic of Serbia:
<http://klastreri.merr.gov.rs/>

Ministry of Agriculture, Trade, Forestry and Water Management: <http://www.mpt.gov.rs/>

National Agency for Regional Development: <http://narr.gov.rs/>

Serbian Investment and Export Promotion Agency (SIEPA): <http://www.siepa.gov.rs/>

Business Registers Agency: <http://www.apr.gov.rs/>

Statistical Office of the Republic of Serbia: www.stat.gov.rs

Government of the Autonomous Province of Vojvodina: <http://www.vojvodina.gov.rs/>

Provincial Secretariat for Economy of the Government of Vojvodina: <http://www.spriv.vojvodina.gov.rs/>

International organisations and programmes:

EU Delegation in Serbia: <http://www.europa.rs/>

EU SECEP Project: <http://www.secep.rs/>

EU RSEDP 2 Project: <http://www.rsedp2serbia.eu/>

EU CBC Projects: <http://www.evropa.gov.rs/CBC/PublicSite/Default.aspx>

EU Municipal Infrastructure Support Programme: <http://www.misp-serbia.rs/>

LEDIB: <http://www.ledib.org/>

GIZ: <http://www.giz.de/>

USAID in Serbia: <http://serbia.usaid.gov/>

UNDP: www.undp.org.rs/

Regional Development Agencies:

Regional Agency for Socio-Economic Development “Banat”: <http://www.banat.rs/>

Regional Development Agency Bačka: <http://www.rda-backa.rs/>

Regional Agency Srem: <http://www.rrasrem.rs/>

Regional Development Agency Zlatibor: <http://www.rrazlatibor.rs/>

Regional Development Agency for Sandžak: <http://www.seda.org.rs/>

Regional Agency for Territorial and Economic Development of Raška and Moravica Districts: <http://www.kv-rda.org/>

Regional Economic Development Agency Šumadija and Pomoravlje: <http://www.redasp.rs/>

Regional Development Agency Braničevo-Podunavlje: <http://www.rra-bp.rs/>

Regional Development Agency Eastern Serbia RARIS: <http://www.raris.org/>

Regional Development Association South: <http://www.ora-jug.rs/>

Centre for Development of Jablanica and Pčinja Districts: <http://www.centarzarazvoj.org/>

SME Agencies

Regional Centre for Entrepreneurship Development SMER Subotica: <http://smer.subotica.info/>

Regional Agency for Development of Small and Medium-sized Enterprises Alma Mons: <http://almamons.rs/>

Regional Centre for Development of Small and Medium-sized Enterprises Kruševac - Kraljevo - Čačak: <http://www.rc.rs/>

Regional Centre for Sustainable Development and Entrepreneurship Development “Timok” Ltd Zaječar: <http://www.msp-timok.org/>

Regional Agency for Economic Development and Entrepreneurship of Pčinja District: <http://www.veeda.rs/>

Other institutions and organisations for business support infrastructure development

Institute for Territorial Economic Development: <http://www.lokalnirazvoj.org/>

Centre for Competitiveness and Cluster Development: <http://menadzment.org/>

Timok Club: <http://www.timok.org/>

Initiatives, Prokuplje: <http://www.theinitiatives.org/>

Academy of Female Entrepreneurship: <http://www.ewa.org.rs/>

Serbian Chamber of Commerce: <http://www.pks.rs/>

Vojvodina Chamber of Commerce: <http://www.pkv.rs/>

Regional Chamber of Commerce Kragujevac: <http://www.kg-cci.co.rs/>

Regional Chamber of Commerce Niš: <http://www.rpknis.rs/>

ANNEXES

ANNEX 1: MAP OF BUSINESS SUPPORT INFRASTRUCTURE IN SERBIA

Map of business support infrastructure in Serbia

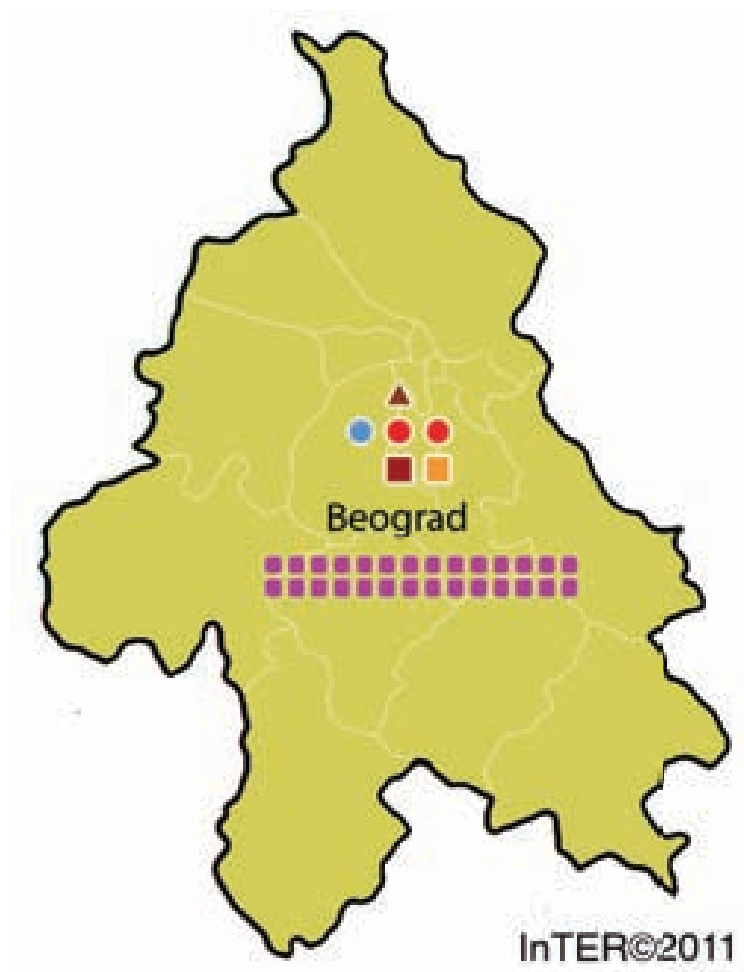


Sources: Business Registers Agency, Ministry of Economy and Regional Development, National Agency for Regional Development and the data collected in the field research.

Map of business support infrastructure in Vojvodina

- Regional development agencies
- SME agencies
- Clusters
- Existing business incubators
- Planned business incubators
- Industrial zones
- Existing technology parks
- Planned technology parks
- Existing free zones
- Planned free zones
- ▲ Brownfield locations

Sources: Business Registers Agency, Ministry of Economy and Regional Development, National Agency for Regional Development and the data collected in the field research.

Map of business support infrastructure in Belgrade

- Regional development agencies
- SME agencies
- Clusters
- Existing business incubators
- Planned business incubators
- Industrial zones
- Existing technology parks
- Planned technology parks
- Existing free zones
- Planned free zones
- ▲ Brownfield locations

Sources: Business Registers Agency, Ministry of Economy and Regional Development, National Agency for Regional Development and the data collected in the field research.

Map of business support infrastructure in Šumadija & Western Serbia

Sources: Business Registers Agency, Ministry of Economy and Regional Development, National Agency for Regional Development and the data collected in the field research.

Map of business support infrastructure in Southern & Eastern Serbia



Sources: Business Registers Agency, Ministry of Economy and Regional Development, National Agency for Regional Development and the data collected in the field research.

8 ANNEX 2: LIST OF BUSINESS INCUBATORS IN SERBIA

Contact details of business incubators in Serbia

Incubator	Location	Address	Phone	E-mail	Contact person
Business incubators in Vojvodina					
Business Incubator Novi Sad	Novi Sad	Vojvodanskih brigada 28	021 2100 303	businessincubatorNS@gmail.com	Đorđe Celić, Director
Business Incubator Subotica	Subotica	Magnetna Polja 6	024 544 044	office@bis-su.rs	Ildiko Zedi, Director
Business Incubator „BIZ” d.o.o.	Zrenjanin	Kralja A. I Karadorđevića 2	023 512 260	inkubator@biz-zr.co.rs	Bojan Ljutić, Director
Business Incubator Senta	Senta	Petefi Šandora 54	024 817 789, 063 556 776	vlada.senta@gmail.com	Vladimir Nikolić, Director
Information Centre for Development of Potisje Region - Kanjiža	Kanjiža	Doža Đerđa 4	024 873 151		Robert Fejstamer, Director
Business Incubator Beočin	Beočin				
Business Incubator Pančevo	Pančevo				
Business Incubator	Bački Petrovac	M. Tita 22	021 2155 145	pic.backipetrovac@gmail.com	Branislav Kevenski, Director
Business incubators in Belgrade					
Business Technology Incubator of Technical faculties Belgrade (Patilula)	Belgrade	Ruzveltova 1a	011 3370950	office@bitf.rs	Nataša Babačev, IT
Non-profit Development Centre Incubator Korrak Ltd Rakovica, Beograd	Belgrade - Rakovica	REG, Miška Kranjca 12	011 3246 841	azoran@eucons.rs	Zoran Andelković, President of the Managing Board

Incubator	Location	Address	Phone	E-mail	Contact person
Business incubators in Šumadija & Western Serbia					
Business Innovation Centre Kragujevac	Kragujevac	Trg Topolivaca 4	034 502 500	v.veljkovic@bickg.rs	Vojislav Veljković, Assistant Director
Incubator Centre for Development of Entrepreneurship Rača	Rača	Karađorđeva 48	034 752 696, 064 272 8826		Davor Timotijević, Director
Business Incubator Centre Kruševac	Kruševac	Jasički put bb	037 453 700, 453 701, 453 702	uprava@bickrusevac.co.rs	Sanja Stojanović, Director
Business Incubator Centre Užice	Sevojno	Dragačevska bb	031 534 101	bicuzice@open.telekom.rs	Milan Čolić, Director
Business incubators in Southern & Eastern Serbia					
Business Incubator Centre Prokuplje	Prokuplje	Vasilija Đurovića Žarkog 13	027 339 001	bic@prokuplje.org.rs	Aleksandar Milanović, Manager
Incubator Centre Niš	Niš	Šumadijska 1	018 4291 340	info@bicnis.org.rs	Milan Randelović, Director
Business Incubator Centre Knjaževac	Knjaževac	Timočki klub	019 730 002		
Business Incubator Centre Bor	Bor	Nade Dimić bb	030 457 750, 030 457 751, 063 1113273	doobicbor@nadlanu.com	Anabela Stojanović, Director
Boljevac	Boljevac	Dragiše Petrovića 65	063/7000 541	privreda@opstinaboljevac.rs	
Business Incubator Centre Yumco Vranje	Vranje	Radnička 5	064 812 9002	ivanastosic2002@yahoo.com	Ivana Stošić, Director
Business Incubator Centre Medveđa	Medveđa				
Business Innovation Centre – Zaječar	Zaječar	Negotinski put bb	019 443 956, 064 8474 260	dragitotic.1955@gmail.com	Dragan Tošić, Director

ANNEX 3: LIST OF CLUSTERS IN SERBIA

Contact details of clusters in Serbia

Name	Location	Address	Phone	E-mail	Contact person
Clusters in Vojvodina					
Vojvodina ICT Cluster	Novi Sad	Trg Dositėja Obradovića 6	021 2100 306	milan.solaja@vojvodinaictcluster.org	Milan Šolaja, Director
Danube Tourism Cluster Istar 21 Association for Development of Cooperation and Tourism in the Danube region	Novi Sad	Pašičeva 7	021 4724 088	office@istar21.rs	Dragan Marčeta, Director
Cluster Green Table	Novi Sad	Zlatiborska 27	064 641 1194	todi77@gmail.com	Gordana Gajić, Manager
Cluster Natus	Novi Sad				
Cluster of Creative Industry of Vojvodina	Novi Sad				
VMC Cluster	Temerin	Novosadska 322	021 851518	mirjanarr@vmc.rs	Mirjana Radenović Ratković, Assistant
Cluster MEMOS, Association for the Development of Competitiveness of Metal Producers	Indija	Branka Radičevića 44	022 557 552	office@klaster-memos.org	Mirjana Radenović, Cluster Director
Fund Tourism Cluster Srem	Ruma	Naselje Tivoli L2/1/8	060 475 9999 / 022 475 999	sremtours@nadlanu.com	Duška Davidović
Cluster of Food Producers of Serbia – POLUKS	Kikinda	Trg srpskih dobrovoljaca 17	0230 400 950	klasterpolux@gmail.com	Donka Radović, Vice President
Health Tourism Cluster of Vojvodina	Kanjiža	Aleja Kestenova 32	024 876 716, 063 541 034	spaklaster1@gmail.com	
Fund Tourism Cluster of Microregion Subotica – Palić	Palić	Kanjiški put 17a	024 602 780	izabellanjji@gmail.com	Izabel Lanji Hnis, Director
Association Fruit Land Serbia	Subotica	Petefi Šandora 26	063 62 83 62	fruitland@eunet.rs	
Agroindustry, Cluster for Profitable, Competitive and Sustainable Conventional and Organic Food Production	Subotica	Trg cara Jovana Nenada 15/I	024 554 107, 062 661 049	jadrankamp@yahoo.com	Jadranka Stantić, Director
Bioscience Cluster	Subotica	Matije Gupca 14	024 554 498	office@biocluster.rs	Goran Pjevac, Manager
Cluster “Čari prirode”	Subotica				
Cluster “Vojplast”	Subotica	Hajdukovo			

Name	Location	Address	Phone	E-mail	Contact person
Cluster of Transport and Logistics of Vojvodina	Apatin	Trg srpskih vladara 29	025 773 131	kabinet@soapatin.org	Milan Vučinić, Manager
Cluster Sombor Farms	Sombor	Branislava Nušića 13	025 443 088	klaster.rt@gmail.com	Branko Milešević, Cluster Development Coordinator
“Riđički” Cluster	Sombor	Svetog Save 52			Boško Milić
Vegetable Cluster	Sombor	Staparski put bb			Sabina Ognjanović
Cluster E.S.E (Eco-energy in Serbia and Eco Cluster)	Bačka Topola	Maršala Tita 70			Tibor Leštar
Fruška Gora Cluster of Wine Growers and Vine Producers “Alma Mons” Sremski Karlovci	Sremski Karlovci	Karlovačkih đaka 35			Zoran Keserović
Tourism Cluster of Microregion Apatin	Apatin	Dimitrija Tucovića 33			Sveto Bajić
Cluster of Agriculture Prigrevica	Apatin	Vuka Karadžića 2			Vojislav Vejin
Cluster for Eco Energy and Eco Culture “Ecopanonia”, Novi Sad	Novi Sad	Ise Bajića 6/1			Mihalj Čaki
Cluster Green Vision – ecology, energy, economy	Novi Sad	Omladinskog Pokreta 9			Zoran Stevanović
Cluster of Agricultural Machinery Producers Vojvodina, Ada	Ada	Lenjinova 19			Jožef Kaleman
Clusters in Belgrade					
ICT NET	Beograd	Kralja Milana 4/4	011 2688 641	marina.blagojevic@ict-net.com	Marina Blagojević, Director
Serbian Fashion and Apparel Cluster - FACTS	Beograd	Antifašističke borbe 21z	011 301 8723	fashioncluster@gmail.com	Sladana Milojević, Director
Serbia Film Commission - SFA	Beograd	Svetogorska 18	011 7151 859	info@filminsrbia.com	Milica Božanić, Operations Manager
Serbian Automotive Cluster - AC Serbia	Beograd	Dečanska 8	062 400086	office@acserbia.org.rs	Igor Vijatov, Director
Cluster BIPOM, Balkan and Black Sea Industry of Agricultural Machinery	Beograd	Kneza Višeslava 70a	011 254 2158, 064 285 1347	klaster@bipom.org.rs	Milivoj Stojanović, Director
Galenit, Cluster for Organised Collection and Recycling of Used Batteries and Car Batteries	Belgrade	Nemanjina 4/IV	064 353 5000	info@galenit.org.rs	Nebojša Đorđević, President of MB

Name	Location	Address	Phone	E-mail	Contact person
Cluster of Medical Tourism	Belgrade	Marsala Birjuzova 47a		amtsrbija@gmail.com	Slavica Gavrić, Cluster Manager
Wood Agency, Cluster of Wood Processing Companies	Belgrade	Viline vode 6	011 339 2473, 2928600	office@agencijazdrvo.rs	Zdravko Popović, Cluster Director
Crafts – Cluster for Revitalisation of Old Crafts in Serbia	Belgrade	Sarajevska 85	011 3619 620	vesna.rusic@gmail.com	Vesna Rusić
Medical cluster PRO VITA	Belgrade		064 6688450	suzana.jonev@med-klaster.org	Suzana Jonev, President
Tourism “Tronožac” Initiative	Belgrade	Knez Mihajlova 9	063 410663		Marija Džunić
Association for Innovation Development in Tourism	Belgrade	Bulevar kralja Aleksandra 130	011 344 0957	biljana@toptoursad.com	Biljana Radulović, Director
Rab Serbia – Bureau for Radio Advertising	Belgrade	Kralja Petra 54	063 240 517	maja@rabsrbija.com	Maja Raković, Director
Cluster WOOD Ltd	Voždovac, Belgrade	Garibaldijeva 29, Voždovac			Radomir Živanović, Director
Development Centre Eco Cluster Ltd Lazarevac	Lazarevac	KOLUBARSKI TRG 148			Milovan Čančarević
Agrocluster Lazarevac	Lazarevac	Šušnjarska 68			Dragan Aćimović
Agro Cluster Obrenovac	Obrenovac	KRALJA ALEKSANDRA I 10C	011 8728-246	office@agroklaster.rs	Maja Cicović
FENIKS – Cluster of Serbian Aviation Industry Ltd Belgrade	Belgrade	Kraljice Marije 16			Velibor Vukasimović
Rakovica Agro Cluster	Rakovica, Belgrade	MIŠKA KRANJICA 12			Milija Terzić
Cluster Real Estate	Belgrade	Mite Rakića 16a	063/366-878	klaster.nek@gmail.com	Saša Stefanović I Nenad Dorđević
Cluster Baby Beef	Belgrade	Resavska 15			Milomir Tošović
National Cluster of Forestry and Related Sectors	Belgrade	Kneza Višeslava 3			Sima Marković I Siniša Jovanović
Flower Cluster Obrenovac	Obrenovac	KRALJA ALEKSANDRA I 10C	011 8728-246	office@agroklaster.rs	Siniša Lekić i Aleksandar Vraneš
Cluster Beo Food 5	Belgrade	Ruzveltova 20			Marina Čučuković i Gordana Lazić-Rašović

Name	Location	Address	Phone	E-mail	Contact person
Cluster for Management of Waste Vehicles "AUTO REC SERBIA"	Čukarica, Belgrade	Tome Buše 14			Branislav Pejović
Cluster Green Chamber of Serbia	Belgrade	Maršala Tolbuhina 13-15			Jordan Aleksić
Cluster / Serbian Waste Association	Belgrade	Banjčki Venac 22			Dragan Stanković
Cluster of Small Hydro Power Plants of Serbia, Belgrade	Belgrade	Sarajevska 11			Saša Milovanović
Clusters in Šumadija & Western Serbia					
Association – Cluster of Textile Producers - LZOTEKS	Loznica	Filipa Kljajčića bb	015 891 120	lzoteks.srb@gmail.com	Radovan Ivanović
Construction Cluster of Šumadija and Pomoravlje	Kragujevac	Gružanska 17	034 300 411	agem.klaster@yahoo.com	Jelena Bojović, President
Regional Automotive Cluster of Central Serbia	Kragujevac	Dr. Zorana đinđića 10/IV	034 334432	autoclusteres@rpk.kg.co.rs	Saša Ćurčić, Project Manager
Šumadija Textile	Kragujevac	Kralja Petra I 22	034 302 701, 302 715, 063 602 269	slogakg@open.elekom.rs, office@sumadijatekstil.rs	Miodrag Ilić, Representative
Netwood, Cluster of Furniture Producers	Kragujevac	Kralja Petra I 22	034 370 320	office@netwoodcluster.net	Blagoje Vasiļjević, Director
Flower Producers Cluster "Šumadijski cvet"	Kragujevac	Mihaila Pupina 2	063 776 0480	sumadijskicvet@gmail.com	Simon Zečević, Director
Fond Kraljevski odmor, Turistički klaster opštine Kraljevo sa okolinom	Kraljevo	Cara Lazara 49	036 320 600	tvnavigator@gmail.com	Aleksandar Pantelić, Director
Fund "Kraljevski odmor", Tourism Cluster of the Municipality of Kraljevo with the Surrounding Area	Vrnjačka Banja	Bulevar srpskih ratnika 11	036 611 151	klaster.mzt@vrnjajcisp.rs	Božidar Vučković
Textile Association Asstex	Novi Pazar	Veljka Vlahovića bb	020 391 420	info@asstex.org	Eldin Međedović, President of the Association
NIT Cluster	Novi Pazar	Osmana Dervišnurović 33	020 385 822	s.plojovic@unump.edu.rs	Šemsudin Plojović, Coordinator
Grains Producers Cluster of the Municipality of Rača	Rača	Vidovdanska 2			Dobrica Đorđević
Fruit Producers Cluster of the Municipality of Rača	Rača	Vidovdanska 2			Velibor Petronijević
Fungi Cluster Šumadija, Jelovik	Arandelovac	Bosuta bb. Jelovik			Dejan Komnenović

Name	Location	Address	Phone	E-mail	Contact person
Cluster GREEN NAVIGATOR Kraljevo	Kraljevo	Cara Lazara 61 A			Dragan Kolović
Klaster Bio Food Organic	Kraljevo	Olge Milutinović 6			Dalbor Bilibajkić
Clusters in Southern & Eastern Serbia					
Construction Cluster "Dunder	Niš	Rajičeva 30a	018 522 812	klasterdudjer@yahoo.com	Biljana Avramović, Director
Agro Start Up Cluster	Niš	Dobrička 2	018 522 120		Jelena Vučković, Cluster Facilitator
Tekstilni Start Up Cluster	Niš	Dobrička 2	018 522 120	info@clusterhouse.rs	Jelena Vučković, Cluster Facilitator
Services Start Up	Niš	Dobrička 2	018 522 120	info@clusterhouse.rs	Slavenka Dinić, Coordinator
Construction Start Up Cluster	Niš	Dobrička 2	018 522 120	info@startuclusters.co.rs	Jasna Stevović, President of Start Up Union
Cluster Protection Association "OPEKA BRICK"	Niš	Mokranjčeva 79/2	063 402221	sigmaing@sbb.rs	Zoran Zlatković, Manager
Medical Start-up Cluster	Niš	Dobrička 2	018 522 120	info@clusterhouse.rs	Slavenka Dinić, Coordinator
Cluster "Ni-kal"	Niš	Bulevar Cara Konstantina 80-86	063 670437	goran.mladenovic@ni-cat.org	Goran Mladenović, Manager
Cluster Recycling South	Niš	Dobrička 2, 1. sprat, kanc 29	063 668 639	office@klaster-reciklazajug.com	Boban Janković, Director
Cheese Cluster JUG	Niš	Leskovačka 4	064 83 30 260	ivan.pavlovic@gu.ni.rs	Ivan Pavlović
Tourism Cluster of Southeast Serbia "Stara planina"	Knjaževac	Knjaza Miloša 56	063 478 579	klasterstaraplanina@gmail.com	Slaviša Randelović, President
Serbian Furniture Cluster	Niš	Aleksandra Medvedeva 14	063 402 442	sfc.cluster@gmail.com	Milica Dimitrijević Manager
Textile Cluster of Nišava District	Niš	LEDIB Kuća klastera, Dobrička 2/1	018 522 120		
IMPULS Textile Cluster of Exporters from Southeast Serbia	Niš	Dobrička 2	018 510 999, lok. 117	info@textileimpuls.co.rs	Arsenije Mitrović - Director
Cluster "Eastern Serbia Treasure", Zaječar	Zaječar	Nikole Pašića 37			Dragan Stanković

ANNEX 4: LIST OF INDUSTRIAL ZONES AND PARKS IN SERBIA

Cities and municipalities	Industrial zones	Existing technology parks	Planned technology parks	Existing free zones	Planned free zones	Brownfield locations
Zones and parks in Vojvodina						
Apatin	X				X	X
Kula	X					
Odžaci	X					
Sombor	X					X
Alibunar	X					
Bela Crkva	X					
Vršac		X				X
Kovačica	X					
Kovin	X					
Opovo	X					
Pančevo	X					X
Plandište	X					
Bač	X					
Bačka Palanka	X					
Bački Petrovac	X					
Beočin	X					
Bečej	X					
Vrbas	X					X
Žabalj						
Novi Sad	X		X	X		X
Srbobran						
Sremski Karlovci						
Temerin	X					
Titel	X					
Ada	X					X
Kanjiža	X					X
Kikinda	X					
Novi Kneževac	X					
Senta	X					X
Čoka	X					
Bačka Topola	X					X
Mali Idoš	X					
Subotica	X	X		X		X
Žitište						
Zrenjanin	X			X		X

Cities and municipalities	Industrial zones	Existing technology parks	Planned technology parks	Existing free zones	Planned free zones	Brownfield locations
Nova Crnja	X					
Novi Bečej	X					X
Sečanj	X					
Indija	X		X			
Irig	X					
Pećinci	X					
Ruma	X					X
Sremska Mitrovica	X					
Stara Pazova	X					
Šid	X					X
Zones and parks in Belgrade						
Belgrade	X		X			X
Zones and parks in Šumadija & Western Serbia						
Arilje						X
Bajina Bašta						
Kosjerić						
Nova Varoš						
Požega	X					
Priboj	X					X
Prijepolje	X					X
Sjenica						
Užice	X				X	X
Čajetina						
Valjevo	X					X
Lajkovac	X					
Ljig						
Mionica						
Osečina						
Ub						
Bogatić	X					X
Vladimirci	X					X
Koceljeva	X					
Krupanj						X
Loznica	X					X
Ljubovija	X					
Mali Zvornik	X					
Šabac	X				X	X
Gornji Milanovac						X

Cities and municipalities	Industrial zones	Existing technology parks	Planned technology parks	Existing free zones	Planned free zones	Brownfield locations
Ivanjica						
Lučani						
Čačak	X					X
Despotovac						
Paraćin	X					X
Rekovac						
Jagodina	X					X
Svilajnac	X					
Ćuprija	X					X
Aleksandrovac						
Brus						X
Varvarin	X					X
Kruševac	X					X
Trstenik	X					X
Ćičevac	X					X
Vrnjačka Banja						
Kraljevo	X					X
Novi Pazar	X					X
Raška						X
Tutin	X					
Arandelovac						
Batočina						X
Knić						
Kragujevac	X				X	X
Lapovo	X					
Rača						X
Topola						
Zones and parks in Southern & Eastern Serbia						
Bor	X					X
Kladovo	X					
Majdanpek	X					
Negotin	X					
Veliko Gradište						
Golubac						
Žabari						
Žagubica	X					
Kučevo	X					
Malo Crniće	X					

Cities and municipalities	Industrial zones	Existing technology parks	Planned technology parks	Existing free zones	Planned free zones	Brownfield locations
Petrovac na Mlavi						
Požarevac	X					X
Boljevac						
Zaječar	X					X
Kljaževac	X					X
Sokobanja						X
Bojnik						
Vlasotince	X					
Lebane						
Leskovac	X			X		X
Medveđa						X
Crna Trava						
Aleksinac						X
Gadžin Han						
Doljevac						
Merošina						X
Ražanj						X
Svrljig						
Niš	X		X			X
Babušnica						X
Bela Palanka						
Dimitrovgrad						
Pirot	X			X		X
Velika Plana	X					X
Smederevo	X					X
Smederevska Palanka	X					X
Bosilegrad						
Bujanovac	X					X
Vladičin Han	X					X
Vranje	X					X
Preševo	X					X
Surdulica	X					
Trgovište						
Blace						X
Žitorađa						X
Kuršumlija	X					X
Prokuplje	X					X

ANNEX 5: LIST OF INTERVIEWED PERSONS⁷²

Name	Title	Institution
Ana Žegarac	Assistant Director	National Agency for Regional Development
Milan Šolaja	Cluster manager	Vojvodina ICT klaster, Novi Sad
Đorđe Đelić	Director	Business Incubator Novi Sad
Biljana Marčeta	Cluster secretary	Cluster Istar 21, Novi Sad
Jana Radaković	Secretary	Business and Innovation Centre Bački Petrovac
Milica Vračarić	Director	Alma-mons, Novi Sad
Branislav Malugarski	Director	SME Agency “SMER” Subotica
Goran Pijevac	Manager	Bioscience Cluster Subotica
Izabel Lanji Hnis	Manager	Tourism Cluster of Microregion Subotica-Palić, Subotica
Igor Perčić	President of Cluster Assembly	Agroindustry Cluster, Subotica
Slobodan Morača	Director	Centre for Competitiveness and Cluster Development, Novi Sad
Olja Petrov	Secretary	Free Zone Zrenjanin
Bojan Ljutić	Director	Business Incubator Zrenjanin
Zorica Marić	Advisor	Ministry of Economy and Regional Development
Andrej Schafernaker	Team Leader	EU SECEP Project
Dragan Ranković	Director	Business Innovation Centre, Kragujevac
Vojislav Veljković	Advisor	
Blagoje Vasiljević	Cluster manager	Netwood Cluster, Kragujevac
Simon Zečević	Cluster manager	Cluster “Šumadijski Cvet”, Kragujevac
Dragan Begović	Cluster manager	Regional Automotive Cluster of central Serbia, Kragujevac
Saša Ćurčić	Project manager	
Miodrag Ilić	Cluster manager	Cluster “Šumadija Tekstil”, Kragujevac
Jasna Stevović	Manager	Union of Start-up Clusters, Niš
Milan Randelović	Director	LED Office, Niš
Branislav Golubović	Executive Director	Business Incubator Centre Niš
Zoran Popović	Manager	
Dragana Vukadinović	Operations Manager	
Biljana Avramović	Cluster manager	Construction Cluster “Dunder”
Aleksandar Milanović	Director	Business Incubator Centre, Prokuplje
Ivan Stamenković	President of the Managing Board of the cluster	Serbian Furniture Cluster, Vranje
Ivana Stošić	Director	Business Incubator Centre “Yumco”, Vranje
Boban Janković	Cluster manager	Cluster “Recycling South”, Niš
Marina Blagojević	Cluster manager	Cluster ICT NET, Belgrade

72 Listed in chronological order of meetings

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