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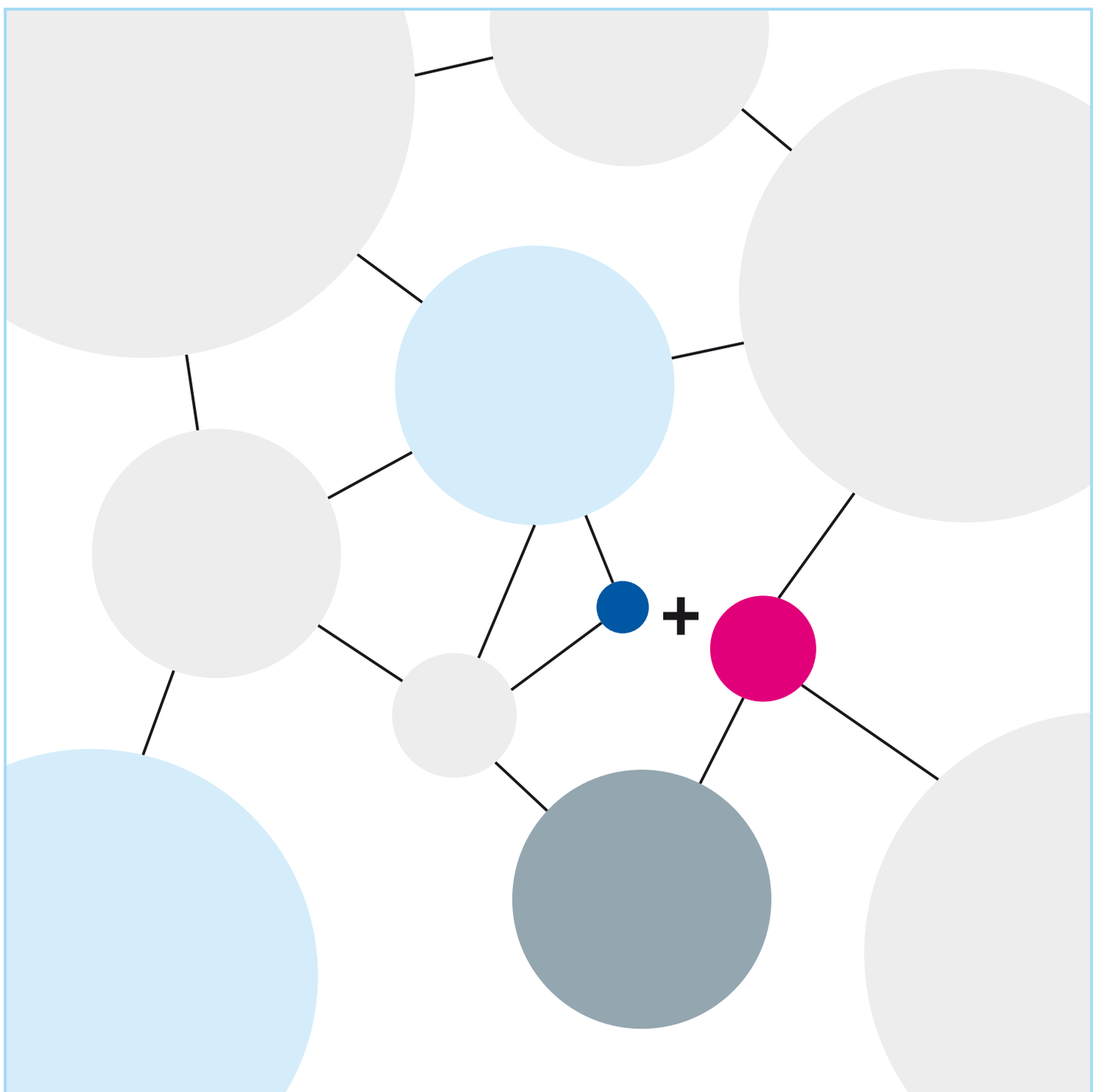

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Časopis Instituta za građevinarstvo i arhitekturu
Građevinsko-arhitektonskog fakulteta Univerziteta u Nišu

Broj 15, 2012., ISSN 1451-8341

IZDAVAČ

GRAĐEVINSKO-ARHITEKTONSKI FAKULTET
UNIVERZITET U NIŠU

Štampa M KOPS CENTAR

Tiraž: 300 primeraka

Poštovani Prijatelji razvoja klastera,

Ovo je prvo specijalno izdanje naučnog časopisa NAUKA + PRAKSA Građevinsko arhitektonskog fakulteta Univerziteta u Nišu posvećeno razvoju klastera u Srbiji i balkanskim zemljama. Ovaj broj je rezultat višegodišnje partnerske saradnje Građevinsko arhitektonskog fakulteta, danskog programa za lokalni ekonomski razvoj na Balkanu LEDIB i Kuće klastera iz Niša.

Stručnjaci Građevinsko arhitektonskog fakulteta u Nišu, vodeće institucije za podršku građevinskim klasterima Niškog regiona, svojim angažovanjem podstiču inženjera da projektuju i grade objekte naklonjene potrebama ljudi i očuvanju prirode. Spoj nauke i prakse je jedna od najvažnijih karika u lancu koncepta klastera. Naučno istraživački rad bez primene u praksi je poput pisma bez adrese. Konceptom razvoja klasterskih organizacija ostvaruje se sinergija naučnog i praktičnog kroz efikasniju komercijalizaciju pronalazaka, transfer znanja i tehnologija, nove tržišne mogućnosti.

Znanjem se stvara profit i zdrava privreda.

Da je znanje nosilac promena govori osamnaest radova koje možete pročitati i upoznati se sa saznanjima u razvoju klastera u Sloveniji, Vojvodini, centralnoj i južnoj Srbiji.

U 2012.godini Kuća klastera u Nišu je osnovan prvi Trening centar za razvoj klastera u Srbiji sa ciljem edukacije klaster-fasilitatora, klaster menadžmenta, institucija podrške i partnera iz javnog sektora.

Za podršku razvoju klastera u Niškom regionu i promociju koncepta klastera u Srbiji i okruženju želim da se zahvalim LEDIB programu.

Ujedno pozivam stručnjake za razvoj klastera balkanskih zemalja da još snažnije podrže našu inicijativu da časopis NAUKA + PRAKSA sadrži više dobrih primera prakse razvoja klasterskih organizacija.

S poštovanjem

Gost urednik

Mr Danka Milojković, direktor Kuće klastera

Dear friends of cluster development,

This is the first special issue of the scentific magazine SCENCE + PRACTICE of the Faculty of Civil Engineering and Architecture of the University of Niš featuring the cluster development in Serbia and the Balkan countries. This magazine issue is the result of a long term cooperation of the Faculty of Civil Engineering and Architecture, Danish Program for Local Economic Development in the Balkans and the Cluster House from Niš.

The experts from the Faculty of Civil Engineering and Architecture in Niš which represents a leading institution for the support of the construction cluster in Niš region, through their own initiative encourage engineers to design and construct buildings in accordance with the needs of people and environment protection standards. The connection between science and practice is one of the most significant link in the chain of the cluster concept. Scientific and research work without a practice is like a letter with no address on it. The concept of the development of cluster organizations represents the synergy of science and practice through more efficient commercialization of inventions, knowledge and technology transfer and new market opportunities.

Knowledge creates profit and healthy economy.

The fact that knowledge is the main agent of changes is illustrated by eighteen works presented here for you to read and get introduced to the cluster development in Slovenia, Vojvodina and central and south Serbia.

The Cluster House from Niš established the first Training Centre for Cluster Development in Serbia in 2012 with the aim to educate cluster-facilitators, cluster managers, supporting institutions and partners from the public sector.

I would like to use the opportunity to express gratitude to LEDIB Program for the support of cluster development in Niš District and for the promotion of the cluster concept in Serbia and the region.

Also, I would like to invite experts in cluster development from the Balkan countries to support our initiative even stronger and contribute to the magazine so that the SCENCE + PRACTICE can offer more examples of good practice of the development of cluster organizations.

Respectfully,

Guest Editor

M.Sc. Danka Milojković, Cluster House Director

SADRŽAJ

OCENJIVANJE EKONOMSKOG KVALITETA ZGRADA NOVOM TRANSPARENTNOM METODOM - „OPEN HOUSE“ [1]

Đorđe Đorđević[2], Marko Milošević[3],

Rezime: Gradjevinski klaster „DUNDJER“, zajedno sa većim brojem evropskih organizacija, učestvuje na evropskom projektu FP7 pod nazivom „OPEN HOUSE“ (7th FP ENV - 2009.3.1.5.2). Nova evropska metodologija u razvojnoj fazi, ima za cilj da razvije i primeni zajedničku transparentnu metodologiju, koja će dopuniti postojeće metodologije za ocenu projektovanja i izgradnje održivih gradjevina koristeći otvoreni pristup i zajedničku tehničku platformu. Metodologija se zasniva na postojećim metodama za ocenu održive gradnje (BREEAM, DGNB, LEED,...), na postojećim Evropskim standardima (ISO TC 59/SC 17, CEN/TC 350), EPBD Ditektivi i njihovim nacionalnim transpozicijama i metodologijama za ocenu održivosti gradnje na medjunarodnom, evropskom i nacionalnom nivou. U ovom radu dat je pregled kriterijuma za ocenu ekonomskog kvaliteta poslovnih zgrada.

Ključne reči: Ocena gradjevina, održiva gradnja, evropske norme, ekološka gradnja, energetska efikasnost, lokacija

EVALUATION OF THE ECONOMIC QUALITY OF BUILDING BY A NEW TRANSPARENT METHOD - “OPEN HOUSE“ [4]

Abstract: The Construction Cluster „DUNDJER“ participates in the 7th FP European project entitled OPEN HOUSE (7th FP ENV - 2009.3.1.5.2). The overall objective of OPEN HOUSE is to develop and to implement a common European transparent building assessment methodology, complementing the existing ones, for planning and constructing sustainable buildings by means of an open approach and technical platform. OPEN HOUSE will develop a transparent approach able to emerge collectively in an open way across the EU. This approach will be communicated to all stakeholders and their interaction and influence on the methodology will be assured in a democratic way. The baseline will be existing standards (both CEN/TC 350 and ISO TC59/SC17), the EPBD Directive and its national transpositions and methodologies for assessing building sustainability at international, European and national level. This paper deals with criteria for assessment of economic quality of office buildings.

Key words: building assessment, sustainable building, European norms, ecologic building, energy efficiency, building location.

[1] This work is in part supported by the EC funded Project, 7th FP ENV - 2009.3.1.5.2, and Serbian Ministry of Education and Science (research projects TR37003 and III44006)

[2] Građevinsko-arhitektonski fakultet u Nišu, ul. A. Medvedeva 14, Niš, Srbija; Construction Cluster “Dundjer”, Niš, ul. Rajićeva 30ª, lok. 8

[3] Građevinsko-arhitektonski fakultet u Nišu, ul. A. Medvedeva 14, Niš, Srbija

[4]Ovaj rad je podržan od strane EU , 7 FP ENV-2009.3.1.5.2 i od strane Ministarstva za obrazovanje i nauku RS (istraživački projekti TR37003 i III44006)

1 UVOD

Na OPEN HOUSE projektu učestvuje 11 zemalja EU i zemlje zapadnog Balkana. Aktivan saradnik na projektu (FP7-ENV 2009) je Gradjevinski klaster „Dundjer“ iz Niša.

Naučni i tehnički ciljevi projekta OPEN HOUSE su:

- Definisati OPEN HOUSE pristup: otvorena i transparentna Evropska platforma za održivu gradnju,
- Promovisati OPEN HOUSE pristup i definisati mehanizme interakcije izmedju projekta i faktora odlučivanja,
- Izgraditi OPEN HOUSE platformu: podržati pan-Evropske napore za zajednički pogled na održivu gradnju,
- Učvrstiti način primene i ocene metodologije: izbor test-primera i mehanizama za donošenje odluka,
- Oceniti i poboljšati metodologiju koristeći rezultate test-primera i drugih sličnih slučajeva, kao i druge primedbe faktora odlučivanja,
- Dalje širenje i korišćenje OPEN HOUSE metodologije.

Osnove metodologije čine sledeće ocene (*Slika 1*):

- Ekološki kvalitet,
- Socijalno-funkcionalni kvalitet,
- Ekonomski kvalitet,
- Tehničke karakteristike,
- Kvalitet procesa (projektovanja i gradnje),
- Položaj zgrade (lokacija).

Slika 1- Osnove metodologije

Građenje sa osvrtom na troškove tokom eksploatacionog veka objekta je ekonomska metoda koja ima za cilj da pruži informacije pri donošenju odluka i da ukaže na uštede pri odabiru adekvatnog projektnog rešenja uključujući cenu proizvoda, servisiranje, energetsku efikasnost.

Analizom troškova eksploatacionog veka objekta treba uzeti u obzir troškove koji treba da budu u skladu sa opisom i veličinom objekta poznatim prilikom procene. Za potrebe ove analize proračunski period je ograničen na 50 godina. Početna investicija se razmatra kada se zgrada preda investitoru, spremna za korišćenje. Ova cena uključuje projekat objekta, sisteme, instalacije, komponente, priključke sa dostavljačima energenata i puštanje u rad. To su troškovi koji se prezentuju investitoru.

Pri ocenjivanju se posebna pažnja posvećuje životnom ciklusu zgrade (Life Cycle Assessment): LCA rezultati zgrade koja se ocenjuje biće računati na standardizovan način i vrednovani ocenom pomoću benchmarkinga. Cilj svih LCA proučavanja je da se analiziraju i docnije vrednuju performanse odgovarajućeg “životnog ciklusa” zgrade.

2 OCENJIVANJE EKONOMSKOG KVALITETA

2.1 PRORAČUNI TROŠKOVA ZA RAZLIČITE FAZE ŽIVOTNOG CIKLUSA

Obavljanje proračuna za različite faze životnog ciklusa [1], [2] i [3] podrazumeva bodovanje po sledećem principu (*Tabela 1*):

- Faza 1 Konstrukcija i materijali 30 poena
- Faza 2a Operativni troškovi 5 poena
- Faza 2b Troškovi energenata 20 poena
- Faza 2c Potrošnje vode 10 poena
- Faza 3 Demontaža ili rušenje 5 poena

Tabela 1- Način bodovanja

Proračuni troškova za različite faze životnog ciklusa	**Poeni**
Rezultat u zavisnosti od broja faza obrađenih proračunom (prethodni spisak faza)	0-70

2.2 IZBOR OPREME

Procena je bazirana na ispunjenje sledećih pet zahteva (*Tabela 2*):

- Izbor opreme,
- Način održavanja,
- Kvalitet gradjenja,
- Adaptiranja na unutrašnje/spoljašnje uticaje,
- Korišćenje (obuka, edukacija…).

Tabela 2 – Zahtevi kod procene

Izbor opreme	Poeni
Svih pet uslova je zadovoljeno	15
Četiri od pet uslova je zadovoljeno	12
Tri od pet uslova je zadovoljeno	9
Dva od pet uslova je zadovoljeno	6
Jedna od pet uslova je zadovoljen	3

2.3 TIP PODATAKA KORIŠĆEN ZA PROCENU (tabeli 3)

Tabela 3-Podaci koji se koriste pri proceni

Tip podataka korišćen za procenu	Poeni
Specifični podaci	15
Opšti podaci	10

2.4 ANALIZA OSETLJIVOSTI

Analiza osetljivosti energije pokazuje uticaj prilikom povećanja troškova energije od 10% do 20% zbog dodatnih uslova (ili fleksibilnosti). Obično se za proračunsku temperaturu prostorije usvaja 19°C. U realnim uslovima, potrošači mogu povećavati temperaturu u prostorijama do 23°C, što za posledicu ima povećanje troškova od 10% do 30%. Takođe, treba uzeti u obzir promenu životnih troškova i cene opreme [4].

Procena pokazatelja je bazirana na proveri sledećih uslova (*Tabela 4*):

- Stabilnost troškova energije povezanih sa temperaturnim uslovima i varijacijama u potrošnji energije
- Stabilnost životnih troškova
- Stabilnost valute

Tabela 4 – Analiza osetljivosti

Analiza osetljivosti	Poeni
Sve tri analize osetljivosti su izvršene	100
Dve od tri analize osetljivosti su izvršene	75
Jedna od tri analiza osetljivosti je izvršena	50
Nijedna analiza osetljivosti nije izvršena	0

2.5 FLEKSIBILNOST I MOGUĆNOSTI ADAPTACIJA ZGRADA

Ovaj pokazatelj sadrži informacije o [5]:

- Modularnosti i fleksibilnosti objekata: proširivanju objekta, oslonaca, nosećoj strukturi, instalacijama, snabdevanju energentima, zagrevanju, ventilaciji, hlađenju, vodovodnoj i kanalizacionoj mreži
- Fleksibilnosti korišćenja,
- Prilagodljivosti korisnicima,
- Efikasnosti površina.

Procena je bazirana na ispunjenosti sledećih uslova (*Tabela 5*):

- Prohodnost za osobe sa invaliditetom,
- Efikasnost površina,
- Mogućnost rekonstrukcije.

Tabela 5 – Fleksibilnost i mogućnost adaptacije zgrada

Fleksibilnost i mogućnost adaptacije zgrada	Poeni
Ako je rezultat tri indikatora veći od 50 poena, merodavni rezultat je srednja vrednost tri indikatora	50-100
Ako je rezultat jednog indikatora manji od 50 poena, merodavni rezultat je srednja vrednost tri indikatora, ali ne veći od 50 poena	10-50
Ako je rezultat jednog indikatora manji od 10 poena, merodavni rezultat je srednja vrednost tri indikatora, ali ne veći od 10 poena	0-10

2.6 ENERGETSKA ZAVISNOST I ZAVISNOST OD VODE

Ovaj pokazatelj obuhvata informacije o (*Tabela 6*):

- Potrebama za neobnovljivom primarnom energijom,
- Ukupnoj potrošnji primarne energije i procenat obnovljive primarne energije,
- Potrošnji vode i otpadnim vodama.

Tabela 6 – Energetska zavisnost i zavisnost od vode

Energetska zavisnost i zavisnost od vode	Poeni
Ako je rezultat tri indikatora veći od 50 poena, merodavni rezultat je srednja vrednost tri indikatora	50-100
Ako je rezultat jednog indikatora manji od 50 poena, merodavni rezultat je srednja vrednost tri indikatora, ali ne veći od 50 poena	10-50
Ako je rezultat jednog indikatora manji od 10 poena, merodavni rezultat je srednja vrednost tri indikatora, ali ne veći od 10 poena	0-10

3 ZAKLJUČAK

Iako prezentovanom ocenom ekonomske održivosti (ekonomskog kvaliteta) zgrade nije obuhvaćena ocena ukupnog životnog ciklusa zgrade, uključujući eksterne troškove, za približnu ocenu prilično su tačne ocene troškova životnog ciklusa, kao i analiza osetljivosti [6] i [7].

Finansijski podaci, koji su interesantni za ovu ocenu su:

- Procenat inflacije,
- Tržišna interesna stopa,
- Koeficijent valorizacije radi uporedjenja novčanih vrednosti u različitim periodima,
- Trenutni neto koeficijent vrednosti koji je usvojen od vlasnika zgrade i reprezentuje njegovu sopsvenu odluku da investira u zgradu koja se ocenjuje umesto u neku alternativnu investiciju na finansijskom tržištu. Data vrednost je uvek veća od kamate na tržištu.

Na kraju, vredno je napomenuti da, pored partnera sa Balkana, na projektu učestvuju sledeće organizacije:

- Acciona Infraestructuras, ES,
- Cae Services Geie, BE,
- APINTECH, Applied Industrial Technologies Ltd, GR,
- ARUP, Ove Arup & Partners Intnl. Limited, GB,
- Eusko Jaurlaritza-Gobierno Vasco, ES,
- BOUygues Construction, FR,
- Miasto Stoleczne Warshawa, PL,
- Slovenski gradbeni grozd – GIZ, SI,
- D'appolonia Spa, IT,
- DGNB, Deutsche Geselschaft für Nachhaltiges bauen, DE,
- Electricite de France S.A., FR,
- Eidgenössische Technische Hochschule Zürich, CH,
- Fraunhofer ß Geselschaft zur Förderung der Angewandten Forschung E.V., DE,
- Instytut Techniki Budowlanei, PL,
- Mostostal Warshawa S.A., PL,
- SP Sveriges Tekniska Forskningsinstitut AB, SE,
- Vivienda Y Suelo de Euskadi, S.A., ES,
- Gradbeni Inštitut ZRMK d.o.o., SI
- Fundacion Agustin de Betancourt, ES.

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[1] *EN 15459: Energy performance of buildings – Economic evaluation procedure for energy systems in buildings.*

[2] *EN ISO 15686-5: Buildings and constructed assets — Service life planning - Part 5: Life cycle costing.*

[3] *EN ISO 15686-9 – Buildings and constructed assets – Part 8 Reference service life and service life information.*

[4] *Sustainability and property valuation: a risk-based approach*. Meins, Wallbaum et al., Building Research & Information 2010, 38(3), 2010, 281-301.

[5] *Upgrading the flexibility of buildings*, Rob P. Geraedts, CIB World Congress, April 2001.

[6] *Recommendation SIA 112/1, 2004: Sustainable Building –Building Construction*; Swiss Society of Engineers and Architects.

[7] *Six steps resulting in a flexibility index of the building*. Source: LEnSE: Methodology Development towards a Label for Environmental, Social and Economic Buildings, Indicator: Increase Ease of Building Adaptability.

INDUSTRIJSKI KLASTERI: VAŽNA POLUGA MEHANIZMA ZA UNAPREĐENJE KONKURENTNOSTI INDUSTRIJE

Živorad Gligorijević[1], Ivana Kostadinović[2]

Rezime:Industrijski klasteri kao izražajni oblik samoorganizovanja industrije u savremenim uslovima, prema našem konceptu mehanizma za unapređenje konkurentnosti industrije, predstavljaju (pored strategije razvoja, industrijske politike i strategije kvaliteta) jednu od osnovnih poluga tog mehanizma. Polazeći od toga, u ovom prilogu,se razmatrajupitanja vezana za definisanje, formiranje, lokaciju, razvoj i ulogu klastera u procesu unapređenja konkurentnosti industrije**.**

Ključne reči:konkurentnost industrije, mehanizam unapređenja konkurentnosti industrije, industrijski klasteri, formiranjeindustrijskih klastera, lokacija industrijskih klastera, strategije razvoja industrijskih klastera, uloga industrijskih klastera.

INDUSTRIAL CLUSTERS: MAIN CRANK MECHANISM IN IMPROVEMENT OF COMPETITIVENSS IN INDUSTRY

Abstract: Industrial clusters as an exceptional form of self organizing of industry in contemporary conditions, according to our concept of mechanism for improvement of competitiveness in industry represents one of the cranks of such a mechanism (besides the development strategy, industrial policy and quality strategy. This work paper has as a starting point considerations of the issues related to definition, establishment, location, development and role of a cluster in the process of improvement of competitiveness in industry.

Key words: competitiveness in industry, mechanism of improvement in competitiveness in industry, industrial clusters, establishment of industrial clusters, location of industrial clusters, development strategy of industrial clusters, role of industrial clusters**.**

[1]Prof,dr Ekonomski fakultet Niš
[2]Mr Ekonomski fakultet Niš

1 UVOD

Razvoj savremene industrije odvija se u uslovima koje karakteriše stalno prisutna i sve oštrija konkurencija na međunarodnom tržištu, intenzivan tehnološki razvoj, sve veći zahtevi kupaca u pogledu asortimana i kvaliteta proizvoda, kao i sve snažniji zahtevi i pritisci za zaštitom i očuvanjem čovekove okoline itd. Uspešno poslovanje, rast i razvoj i opstanak na tržištu, u takvim uslovima, zahtevaju od industrijskih preduzeća da posebnu pažnju poklone fenomenu konkurentnostikoji je, danas, postao "...predmet izuzetnog interesovanja…Koliko je značajna konkurentnost za rast i razvoj pojedinih preduzeća, ali i za privredni razvoj, pokazuje sve izraženije interesovanje različitih subjekata da se ona unapredi."[3]

S obzirom na njeno mesto u strukturi privrede, nizak nivo njene konkurentnosti, unutrašnje uslove i problemerazvoja i, posebno, način funkcionisanja međunarodnog tržišta u savremenim uslovima,[4]pitanje unapređenja konkurentnosti industrijeSrbije predstavlja jedno od najznačajnijih pitanja. U skladu sa tim, potrebno je da Srbija izgradi sopstveni *mehanizam unapređenja konkurentnosti industrije,* čije su četiri osnovne poluge i to:[5](1) izvozno-orijentisana strategija razvoja industrije,[6](2) adekvatno formulisana i precizno sprovođena industrijska politika,[7] (3) odgovarajuća strategija kvaliteta, pre svega, kvaliteta proizvodai (4)industrijski klasteri-efikasan instrument i faktor jačanja konkurentnosti.[8]

Predmet naših razmatranja, u ovom prilogu, su *industrijski klasteri* -jedna od ključnih kategorija u razvojnim inicijativama, strategiji i politici razvoja mnogih zemalja savremenog svetaodnosnojedna od, prema našem konceptu mehanizma za unapređenje konkurentnosti industrije, osnovnih poluga tog mehanizma.

2 KLASTERI - IZRAŽAJNI OBLIK SAMOORGANIZOVANJA INDUSTRIJE

Tokom poslednjih decenija (posebno tokom poslednje decenije 20. veka, kao i tokom prve decenije 21. veka), industrijski klasteri su se nalazili u centru pažnje brojnih naučnih i stručnih krugova, alii kreatora i nosilaca razvojne politike mnogih država. Naime, u navedenom periodu, zabeležene su brojne, pre svega, teorijske analize koncepta industrijskih klastera.[9]U tim analizima (posebno, u analizama izvozne konkurentske prednosti), a ucilju kreiranja i implementacije odgovarajućih programa potrebnihza unapređenje konkurentnosti nacionalnih ekonomija,industrijski klasteri su postali nezaobilazna tema.[10]Pri tome, u najvećem brojupomenutih

[3]Lj. Stanković, D. Radenković – Jocić, S. Đukić, *Unapređenje poslovne konkurentnosti,* Niš, 2007, predgovor.

[4] Savremeno međunarodno tržište funkcioniše u uslovima koje karakterišu sledeći procesi: regionalno ekonomsko grupisanje, proizvodnja i razmena specijalnih proizvoda, pomeranje unutrašnje na spoljnu tražnju, izražena liberalizacija ekonomskih tokova, promenjena uloga države i preduzeća u procesu razvoja itd.

[5]Vidi: Ž. Gligorijević, G. Bošković, *Mehanizam unapređenja konkurentnosti industrije*, Niš, 2007.

[6] Vidi: Ž. Gligorijević, G. Bošković, *Strategija razvoja i unapređenje konkurentosti industrije Srbije,* Teme br. 2, Niš, 2007.

[7]Vidi: Lj. Savić, *Ekonomika industrije,* Beograd, 2002.

[8]„Naziv klaster potiče od engleske reči „clusters" koja, u slobodnom prevodu, ima više značenja: skup, grupa, mnoštvo, buket, grozd ili rasti grozdasto, rasti u grozdovima, načičkati se." (M. Ilić, *Poslovni inkubatori i klasteri u industriji*, Industrija br. 4, 2006, str. 75.).

[9] Koncept klastera u ekonomsku literaturu uveo je M. Porter, mada se o povezivanju preduzeća jedne nacionalne privrede govorilo mnogo ranije. Iz Porterove uporedne analize međunarodne konkurentnosti proizilazi da vodeće izvozne kompanije ne funkcionišu izolovano, već kao deo šire grupe komplementarnih kompanija, čiji su oni uspešni međunarodni predstavnici. Te grupe povezanih kompanija su nazvane klasteri, a M. Porter je u njima video izvore konkurentske prednosti velikih izvoznika – rast produktivnosti baziran na razmeni informacija i korišćenju zajedničkih resursa, kao i rast inovativnosti baziran na brzoj razmeni ideja i tehnoloških znanja. (Vidi: M. Porter, *The Competitive Advantage of Nations,* New York, 1990.).

[10]Koncept industrijskih klastera je, u stvari, postao centralna ideja konkurentnosti i ekonomskog razvoja mnogih zema

analizaindustrijski klasteri se, pre svega,definišu, to jest te analize su, prevashodno,fokusirane na njihovo definisanje.

Na osnovu navedenog sledi, jednostavan i sasvim logičan, zaključak da postoje brojnedefinicije industrijskih klastera.Međutim, treba istaći da se te definicije mnogo ne razlikuju, da nijedna od tih definicija ne dominira i danema jedne jedinstvene, opšteprihvaćene definicije industrijskih klastera.Ovo, zbog toga, što je, u skladu sa aktuelnom politikom razvoja pojedinih zemalja, prisutan različit pristup klasterima.

Na osnovu svih definicija, koje se susreću u literaturi, može se reći da se industrijski klasteri, najčešće,posmatraju "…kao grupe srodnih i prostorno bliskih firmi, organizacija i institucija, koje prepoznaju zajednički interes i koje se međusobno podržavaju,podstičući kreativnu energiju za sistematsko unapređivanje procesa u lancu proizvodnje, plasmana i inoviranja proizvoda, u cilju sticanja i održavanja konkurentske prednosti."[11]Industrijski klaster, u stvari, kako navode *R. Stimson, R. Stough, R. Brian*"...predstavlja skup industrija u regionu koje međusobno sarađuju i koje su horizontalno i vertikalno povezane a, takođe, industrijski klaster čine i čvrste veze između kupaca i prodavaca, kao i ekonomske institucije koje podržavaju njihov razvoj. S obzirom da industrijski klaster čine, uglavnom, izvozno orijentisane firme, on regionu donosi novo bogatstvo i doprinosi njegovom ekonomskom razvoju."[12]

Industrijski klasteri su oduvek postojali. Međutim,tokom vremena,njihove forme su se menjale. U savremenim uslovima, sudeći prema dostupnoj literaturi, dosta pažnje se posvećuje takozvanim geografski koncentrisanim klasterima, koje najveći broj istraživača posmatra kao geografski ograničenu koncentraciju sličnih, povezanih ili komplementarnih procesa poslovanja, sa aktivnim kanalima za poslovnetransakcije, komunikaciju i saradnju, koji dele specijalizovanu infrastrukturu, tržišta radai usluge, tržišta proizvoda i koji su suočeni sa zajedničkim šansama i pretnjama. Prema mnogim mišljenjima, najprihvatljiviji je*Porterov* koncept koji klastere definiše kao „…geografske koncentracije međusobno povezanih kompanija, specijalizovanih dobavljača, davalaca usluga, firmi iz srodnih delatnosti i sa njima povezanih relevantnih institucija (univerziteti, agencije za standardizaciju i strukovna udruženja) koje u određenim oblastimamedusobno konkurišu, ali i sarađuju".[13]

Industrijski klasteri su, dakle, svojevrsna forma(izražajni oblik) samoorganizovanja industrijskih preduzeća i drugih institucija koja, pre svega, pomaže povećanju konkurentnosti svojih članica. Industrijski klasteri su, u stvari, jedan su od presudnih činilaca unapređenja konkurentnosti područja na kome su formirani, podstičući i konkurenciju i saradnju.[14]

3 FORMIRANJE I IZGRADNJA INDUSTRIJSKIH KLASTERA

Industrijski klasteri u praksi nastaju kao novi model razvoja malih i srednjih preduzeća u savremenimuslovima njihovog funkcionisanja i razvoja.Izgradnjom mrežnih struktura u lance saradnje (po osnovu proizvodne kooperacije, prometa roba, prometa i transfera tehnologije i opreme, pružanja poslovnih usluga, saradnje sa univerzitetima, institutima, inovativnim i transfer centrima) mala i srednja preduzeća nastoje da svoje nedostatke relativiziraju, a da svoje prednosti u, što većoj meri,potenciraju.Na taj način, ta preduzeća postaju konkurentnija na tržištu.

Formiranje, to jest izgradnja industrijskih klastera predstavlja dugotrajan i veoma složen društveno-ekonomski proces. Industrijski klasteri nisu nešto što može biti brzo kreirano ili proizvedeno. Za izgradnju uspešnog industrijskog klastera potrebno je vreme, često mnogo godina. Potrebno je da se napravi strategija njihovog razvoja i da se, povremeno, sprovode određene promene. Inače, sam proces

[11]Ž. Gligorijević, G. Bošković,*Mehanizam unapređenja konkurentnosti industrije*, Niš, str. 109.

[12]R. Stimson, R. Stough, R. Brian, *Regional Economic Development-Analysis and Planning Strategy,* New York, 2006, str. 242.

[13]M. E. Porter, *Clusters and the New Economics of Competition*, *Harvard Business Review*, 1998, New York, str. 77-78.

[14]To znači da u okviru klastera, u istovreme, postoji i saradnja i konkurentski odnos.Ideja da industrije mogu konkurentno sarađivati je za mnoge nerazumljiva, osim kada se shvati da se, na taj način, može poboljšati transfer tehnologije i efikasnost poslovanja. To je model tehnološke i industrijske organizacije, u prvom redu malih i srednjih preduzeća, kojima ona ostvaruju viši nivo produktivnosti i inovativnosti i doprinose podizanju nivoa konkurentnosti regiona u kome se nalaze.

formiranja industrijskih klasteraobuhvata različite faze, od kojih su najznačajnije sledeće četiri i to: (1) identifikovanje potencijala za nastajanje industrijskih klastera,(2) istraživanje tržišnih promena,(3) procena adekvatnosti dobavljača i (4) identifikovanje ekonomske osnove industrije.

U *prvoj fazi*vrši seidentifikovanje potencijala zaformiranje iizgradnju industrijskih klastera unutar nekog područja i za to su potrebni odgovarajući statistički podaci. Ukoliko, pri tome, ti podaci nisu dostupni, mogu se koristiti različiti metodi kvalitativne analize.[15]Međutim, tamo gde su pouzdani podaci o regionalnoj ekonomskoj strukturi dostupni, za identifikovanje klasteramogu se koristiti određene kvantitativne metode.

Analiza tržišnih potencijala,kao *druga faza*,predstavlja veoma važnu osnovu za samu strategiju izgradnje industrijskih klastera. Pri tome, da bi bila konkurentna, industrijska preduzeća moraju da identifikujutržišne potencijalei da utvrde konkurentske prednosti koje klaster može da ima, kao i da saznaju kako se te prednosti mogu, tokom vremena, povećavati ili proširivati.[16]

Treća faza u procesu izgradnje industrijskih klastera uključuje detaljno istraživanje veza dobavljača i distributera koji doprinose postojanju klastera. Ti dobavljači često uslužuju više od jednog klastera. Značajnu pažnju, pri tome, treba posvetiti sezonskim i tržišnim faktorima vezanim za dobavljače i distributere, kao i kvalitetu njihovih usluga.

Poslednja *(četvrta)faza*u izgradnji industrijskih klastera jeste identifikovanje ekonomske osnove, neophodne za podršku njihovom razvoju. Bitna komponenta u ovoj fazi razvoja industrijskih klastera, svakako, je strategijsko planiranje. Ono će pomoći da se identifikuje strategijska infrastruktura,[17]neophodna za podršku razvoju identifikovanih industrijskih klastera.

Formiranje i razvoj industrijskihklastera je organizovani napor da se kroz saradnju i konkurentski odnos članova ostvari veća konkurentnost preduzeća u jednom području, čime se ostvaruje jačanje regionalnog identiteta i građenje nacionalnog i internacionalnog ugleda.Pri tome, posebno u cilju stvaranja uslova za ravnomerniji regionalni razvoj u jednoj državi, razvoj klastera mora imati vrlo visok rang na skali prioriteta ekonomske politike te države.[18]Zbog toga, u procesu formiranja klastera veoma važnu ulogu treba da ima država, jer bez podrške države(na primer, u vidu zakona koji stimulišu razvoj klastera, zatim u vidu poreskih olakšica i podsticajnih sredstava itd.) budućnost klastera bi bila neizvesna.

4 LOKACIJA INDUSTRIJSKIH KLASTERA

Lokacija industrijskih klastera, ima veoma veliki uticaj na njihov razvoj. Oni se ubrzano razvijaju, pre svega, u blizini najvažnijih resursa potrebnih za uspešno poslovanje, u blizini nosilaca industrijske proizvodnje i razvoja (velikih industrijskih sistema) i tržišta robe finalne potrošnje, u blizini univerzitetskih centara.

Lokacija predstavlja bitnu konkurentsku prednost iako, prema *P. Drakeru*,[19]svako preduzeće mora postati svetski konkurentno, čak i ako proizvodi ili prodaje samo na lokalnom ili regionalnom tržištu, jer konkurencijaviše nije lokalna. Ona, u stvari, više ne poznaje granice. Zbog toga, svakopreduzeće, po načinu na koji se vodi, mora da postane multinacionalno, a veze između industrijskih preduzeća, dobavljača, kupaca i drugih privrednih aktera treba da prožimaju ceo region i da se pružaju preko državnih granica.

Koncept poptuno integrisanih proizvodnih centara nije više realan, niti efikasan u savremenoj ekonomiji. Paradoksalno, kako globalna ekonomija raste, sastavni delovi te ekonomije se smanjuju. U tom smislu, *Naisbitt*navodi kako "...stvaramo sve manje i manje poslovne jedinice, da bi mogli efikasnije da izvršimo globalizaciju naših privreda."[20]Međutim,

[15] Reč je, pre svega, o metodama intuitivnog predviđanja (na primer „Delfi" metod, „Brainstorming" metod itd).

[16]Analiza tržišnih potencijala zahteva, pre svega, pažljivu procenu konkurentskih proizvoda i tržišta, posebno njihovog potencijala rasta i tržišne snage, jer neuspeh u analizi može da ima za posledicu gubitak konkurentske pozicije, što vodi poslovanju ispod mogućnosti industrijskog klastera, koji želi da učestvuje na globalnom tržištu.

[17]Strategijska infrastruktura uključuje napredne istraživačke centre, sisteme za istraživanje tržišta, itd.

[18]Detaljnije o regionalnom razvoju, na primer u: I. Rosić, Ž. Gligorijević, *Regionalni razvoj Jugoslavije,* Niš, 2001.; Z. Aranđelović, Ž. Gligorijević, *Regionalna ekonomija,* Niš, 2010.

[19]P. Draker, *Upravljanje u novom društvu,* Novi Sad, 2005, str. 17.

[20]Vidi: R. Stimson, R. Stough, R. Brian, Isto, str. 238.

globalizacija, još uvek, nije uspela da stvori perfektno tržište.

Savremeno poslovanje, u najvećoj meri, karakteriše postojanje trijade ekonomskih blokova i to: SAD-a, Evropske unije i Japana. U skladu sa tim, i multinacionalne kompanije koje posluju u ovim regionima, moraju da se prilagođavajunjihovim zahtevima. U tom smislu, vladama industrijski razvijenih zemalja,sepreporučuje da stimulišu povezivanje preduzeća u regionima, nasuprot ulaganjima u nesigurne delove sveta. Na drugoj, pak, strani, države sa nedovoljno razvijenom ekonomijom, kao uslov za uspešno tržišno poslovanje, morajuda naprave ambijent pogodan za ulaganje kapitala iz industrijski razvijenih zemalja. Iz tih razloga,veoma je važno da se napravi strategija u kojim regionima treba formirati i razvijati klastere, kao i koje grane industrije ti klasteri treba da obuhvate.

Pored lokacije, funkcionisanje i tempo razvoja klastera zavisi i od vrste preduzeća, grane u kojoj posluje, veličine i strukture tržišta i njihovog položaja na tržištu (tržišno učešće i odnos prema konkurentima), pravnog okruženja i mera direktnog i indirektnog državnog podsticaja, povezanosti i integrisanosti u lokalni ekonomski, pravni i politički ambijent.

5 STRATEGIJE RAZVOJA INDUSTRIJSKIH KLASTERA

Pristupi razvoju industrijskih klastera mogu biti i, najčešće, su različiti što znači da oni, u skladu sa tim, mogu biti manje ili više uspešni. Zbog toga se, uprocesu formiranja odnosno izgradnje i razvojaindustrijskih klastera,od strane mnogih preporučuje poštovanje određenih procedura i strategija, kao osnovnih pretpostavki za efikasno ostvarivanje ciljeva zbog kojih se, inače, i vrši formiranje klastera. Klasteri se, naime,formiraju u cilju realizacije određenih koristi do kojih se dolazi, kroz saradnju preduzeća na nivou klastera i njihovih sinergijskih efekata na granskom i regionalnom nivou.

U inicijativuza osnivanje i razvoj industrijskih klastera, pored velikih preduzeća, uključuju sei određene asocijacije malih i srednjih preduzeća, privredne komore, finansijske i pravne institucije, državne i nevladine organizacije, aprogrami razvoja klastera, uglavnom, se zasnivaju na već poznatim strategijama. Međutim, u tim strategijama prisutne su i određene, alineznatne razlike,koje nastaju kaoposledica raznih vidova podrške koja dolazi iz okruženja (poreska politika, pravna regulativa, informaciona podrška, edukativna aktivnost), kao i raznih vidova podsticanja saradnje između preduzeća i njihovih asocijacija u okviru same mreže klastera. Pored toga, na razlike u formulisanju i implementaciji strategije razvoja industrijskih klastera utiču, isto tako, i razlike koje postoje u stepenu razvijenosti regiona, nivo uključenosti vlade u proces razvoja malih i srednjih preduzeća, kao i razni podsticaji koji se javljaju unutar mreže.

U novijoj literaturi posebna pažnja posvećuje se klasterima kaostrategijama rasta regionalnih ekonomija. Obično se, pri tome, preporučuju sledeće strategije ili njihove kombinacije i to:originalne klaster strategije, presađene(transplantirane) strategije stranih preduzeća i hibridne strategije.[21]Svaka od navedenih strategija imasvoje prednosti, ali i nedostatake.

Originalne strategije zahtevaju ekonomsku bazu, sposobnu da, po dubini i širini,promoviše razvoj identifikovanog klastera i to informacionom podrškom, porastom interakcije među lokalnim firmama, prilagođavanjem infrastrukture i razvojem neophodnog radnog i kadrovskog potencijala.

Presađene (transplantirane) klaster strategije zasnivaju se na korišćenju iskustava i podrške stranih kompanija ili važnijih dobavljača i drugih firmi iz poslovnog okruženja. Ove strategije često koriste udružene efekte stranih investitora i domaćih lokalnih firmi.

Hibridne strategijezasnivaju se na kombinaciji prethodne dve strategije, na uspešnom korišćenju iskustava i finansijske podrške stranih investitora i prednosti domaćih lokalnih snaga i firmi. Uspešno okupljanje stranih i domaćih partnera često čini osnovu razvoja klastera.

6 ULOGA KLASTERA U PROCESU RAZVOJA SAVREMENE INDUSTRIJE

Industrijski klasteri nastaju zbog neophodnosti opstanka malih i srednjih preduzeća. Naime, kroz svoje udruživanje u klastere, ova preduzeća imitiraju

[21] A. Lagendijak, D. Charles, *Clustering as a New Growth Strategy forRegional Economics*, *Lokal Partnership, Clusters, and SME Globalisation*,1999, OECD. (Vidi: Ž. Gligorijević, M. Ilić, G. Bošković, *Industrijski menadžment,* Niš, 2008, str. 182.).

rad velikih preduzeća, s tim što zadržavaju pravnu i poslovnu samostalnost. Na taj način, klasteri postaju konkurenti ili saradnici velikih poslovnih sistema, a mala i srednja preduzeća uspevaju da zadrže svoju tržišnu poziciju i ostvaruju poslovanje, održivi rast i razvoj. To znači da su razlozi za formiranje klastera brojni, dok je njihov značaj za razvoj preduzeća opštepoznat.

Povezivanje u klastere prihvata se kao veoma efikasan instrument za jačanje, pre svega, konkurentnosti preduzeća i njihovo osposobljavanje da proizvode robe i usluge, kojima će ostvarivati prihode na domaćem i međunarodnom tržištu.Mala i srednja preduzeća mogu postići daleko više ukoliko rade zajedno, kao grupa medjusobno povezanih preduzeća, dobavljača, davalaca usluga i organizacija bitnih za njihov posao, unutar klastera. Udružujući se u klastere, industrijska preduzeća (mala i srednja) pokušavaju da nadoknade ono što svakom od njih nedostaje a to su, najčešće: kadrovi, finansijska sredstva, sirovine, nova znanja, tehnologija i slično.

Za industrijske klastere jeznačajno da preduzeća, u okviru njih, koriste iste ili slične resurse, da međusobno dele tržište, da postoje jake veze na relaciji kupac – dobavljač, kao i da dele tehnologiju, informacije i znanje u svom radu. Zbog svega toga klaster se, najbolje, može razumeti ako se pođe od opšte teorije sistema i klaster se shvati kao "sistem" u komesvako preduzeće zavisi od drugih preduzeća, koja se bave sličnim poslovnim aktivnostima i koja formiraju regionalnu ekonomiju odnosno klaster.

Povezivanjeindustrijskih preduzeća u klastere pokazalo se, u praksi, kao veoma efikasan instrument za jačanje konkurentnosti preduzeća i njihovo osposobljavanje da proizvode robe i usluge višeg stepena prerade i višeg kvaliteta, koje će uspešnije prodavati na domaćem i međunarodnom tržištu.

Industrtijski klasteri igraju važnu ulogu u postizanju nacionalne konkurentnosti. Uspešan klaster može da stvori potrebnu osnovu za saradnju između preduzeća, njihovu specijalizaciju, zatim da unapredi javno-privatno partnerstvo, da podstakne kupce i dobavljače i da ubrza inovacije.Uotvorenim privredama(zahvaljujući savremenim tehnologijama, stranim direktnim investicijama, komunikacijama, itd.), klasteri svojim razvojem doprinose povezivanju ekonomije dva ili više regiona u okviru zemlje ili više regiona iz više zemalja.

7 UMESTO ZAKLJUČKA

Konkurentnost industrije odnosno pitanje njenog unapređenja, u savremenim uslovima koji su prisutni u medjunarodnoj trgovini, dobija sve veći značaj u svim zemljama, bez obzira na stepen njihove razvijenosti. U tom smislu, sva industrijska preduzeća kao nosioci industrijske aktivnosti moraju se angažovati na unapređenju svoje konkurentske prednosti.Pri tome, svoju konkurentnost,industrijska preduzeća mogu povećavati putem preduzimanja brojnih aktivnosti.Međutim,u tim aktivnostima, koje preduzeća mogu sama, to jest pojedinačno da izvedu, postoje i određene granice. Zbog toga je potrebno da se industrijska preduzeća (pre svega, mala i srednja) samoorganizuju. Jedan od izražajnih oblika tog samoorganizovanja, svakako, su industrijski klasteri.

Industrijska preduzećagrupisana u klastere imaju komparativnu prednost, kojase zasniva na njihovoj specijalizaciji, kooperaciji, većoj fleksibilnosti i diverzifikaciji.

Specijalizacija preduzeća je najbitnija za uspeh klastera, tamo gde je malo preduzeće usmerilo svoje resurse. Međusobna kooperacija omogućuje da preduzeća nadomeste svoje slabosti, ali i pomaže preduzećima da ona budu fleksibilna u cilju povećanja efikasnosti i brzog reagovanja na signale sa tržišta. Različite grupe proizvođača i dobavljača unutar regiona dopunjuju jedni druge, radeći specijalizovane poslove unutar industrijskog klastera, što doprinosi njihovoj diverzifikaciji.

Izgradnja industrijskih klastera je progresivan proces koji zahteva kontinuirano usavršavanje znanja. Pri tome, u prevazilaženju poteškoća do kojih dolazi u tom procesu, važnu ulogu treba da odigra država, kao i vodeći privredni akteri koji učestvuju u nastajanju i poslovanju klastera.

Industrijski klasteri, kao globalni model razvoja malih i srednjih preduzeća, najintenzivnije se formiraju, upravo, u zemljama u kojima je mali biznis dostigao relativno visok nivo razvijenosti, dok Srbiji tek predstoji intenzivnije formiranje klastera u različitim sektorima industrije i korišćenje njihovih efekata u politici razvoja.

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ENVIRONMENTAL NETWORKING OF SMEs INTO ECO-INDUSTRIAL CLUSTERS

***Srdjan Glišović*[1]**

Abstract: Clusters are considered particularly promising approach to increase business activities and success of small and medium enterprises in transitional countries. However, environmental and sustainability issues should not be neglected while composing networks of entrepreneurial units. Eco-industrial networking is a concept that fits well with clustering local businesses and thus deserves further attention and popularization among entrepreneurs. Environmentally friendly symbiosis between diverse local or regional businesses should become valuable component of modern cluster development. This paper strives to raise environmental awareness and performance of SMEs by promoting the "cluster approach" for confronting contemporary environmental challenges.

Key words: Eco-Industrial Networks, Sustainable Production, Business Clusters**.**

POVEZIVANJE MSP U EKO-INDUSTRIJSKE KLASTERE

Rezime: Klasteri se smatraju za izuzetno prosperitetan način povećanja poslovnih aktivnosti i uspeha malih i srednjih preduzeća u zemljama u tranziciji. Međutim, pitanja životne sredine i održivosti ne smeju biti zanemarena prilikom stvaranja mreže preduzetničkih jedinica. Eko-industrijsko umrežavanje je koncept koji se dobro uklapa u globalno poslovanje klastera i zato zaslužuje dalju pažnju i popularizaciju među preduzetnicima.
Simbioza između različitih lokalnih ili regionalnih poslovanja koja su u skladu sa principima očuvanja životne sredine treba da postanu dragocena komponenta modernog razvoja klastera. Ovaj rad nastoji da podigne svest o očuvanju životne sredine i delovanja MSP kroz promociju sa "stanovišta klastera " u suočavanju sa savremenim izazovima očuvanja životne sredine.

Ključne reči: Eko-industrijska mreža, održiva proizvodnja, poslovni klasteri

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1 INTRODUCTION

Mankind depends on resources like minerals, fuels, water, fertile soil and clean air. These resources represent inputs of crucial importance for keeping economy running, but they are limited and natural resource base is decreasing. Growing population and global demand put pressure on the environment, and competition for many resources is increasing. Long term well-being and quality of life is closely dependant on our ability to recognize and respect the natural limits of the planet's ecosystems.

Resource efficiency, in essence, means consuming limited resources in a sustainable manner. It has been proven that it is possible to produce more value with less input, to decrease impact on the environment, and to consume in a more sustainable manner. However, there are many growth and employment opportunities in the provision of green technologies and services. Resource efficiency would contribute other policies as well: wiser use of resources reduces emissions and many other environmental and health problems. There are several master platforms worldwide that support resource efficiency, such as EU's growth strategy for the coming decade titled “Europe 2020”. It aims to transform the EU into a smart, sustainable and socially responsible economy. Under the “Europe 2020” strategy the initiative for a resource-efficient Europe emphasizes sustainable growth and a shift towards a resource-efficient economy. If modern societies are to become more resource efficient, vast majority of companies and consumers will need to get involved.

Small and medium-sized enterprises (SMEs) represent a significant portion of Europe’s economy – according to some researches, SMEs make up almost 99% of all active enterprises and contribute 57% of economic value added [1]. Altogether, SMEs significantly impact the environment and should be taken into account in attempt to shift the economy to more sustainable production and consumption patterns.

An eco-industrial network (EIN) is a cluster of companies operating as a community to deal with environmental, economic, and social issues. Such network may include stand-alone companies, companies that belong to various clusters, and relevant entrepreneurial organizations. Members of eco-industrial network collaborate to benefit from shared supply chain, by-product exchange and services, while trying to enhance their business and environmental performance.

Eco-industrial networks are based on numerous interrelated concepts, such as: cleaner production, industrial ecology, environmentally friendly urban planning and green architecture, sustainable production and consumption [2]. It is all about novel relationships between companies and industries, based on innovative organizational structures that reflect environmental consciousness. Principles for organizing clustered and other motivated companies to form an eco-industrial network are quite complementary to traditional development practices.

2 BY-PRODUCT EXCHANGE NETWORKS

Last couple of decades, Industrial ecology has gained significance, being a comprehensive concept that strives to recognize industrial systems as organisms that should be improved in resource efficiency, in a manner that natural systems perform. Several researchers have so far recognized principles of industrial ecology to be basis for appropriate eco-industrial solutions, and noticed the need to transform open-loop manufacturing processes into fully integrated industrial ecosystems [3].

The most recognizable industrial ecology concept is that of industrial by-product exchange - sometimes called by-product synergy, industrial symbiosis [4], recycling network or zero emissions network. Cluster members form a system for trading material, energy, and fluid by-products with other clusters or individual companies. Participating companies get together to hand over to each other previously discarded resources. Hence, they cut disposal costs, reduce pollution, or even gain new revenues. Exchange of by-product materials, energy, or fluids among participating companies is only one, although fundamental, form of collaboration.

In the essence of every eco-industrial initiative is attempt to form a structure with intention to improve the economic performance of the participating businesses, while minimizing their overall environmental impacts. This approach includes:

- environmentally conscious supply chain,
- energy efficiency,
- cleaner production,
- pollution prevention, and
- business coupling.

As it is expected that forming clusters would enhance business opportunities, designing an EIN around or among SMEs should also provide further benefits for local communities in terms of

environmental quality and energy efficiency. The crucial element is character of the interactions among the member companies and relationship with local community and natural environment.

There is no standard algorithm for creation of an eco-industrial network, since each one of them is quite distinctive. It should fit into economic, environmental, and social circumstances of the community where it operates. Some forms of eco-industrial networks could be found across different industrial sectors worldwide.

3 THE EIN - ADVANTAGES FOR INDUSTRY AND THE ENVIRONMENT

Eco-industrial networking brings about numerous advantages and benefits to businesses, environment and local development. Financial potential of transitional economies usually doesn't allow for large scale undertakings. Thus, integration of many existing businesses into one eco-industrial network often remains only possibility to cope with sustainability issues. Local businesses and relevant stakeholders as well, should be informed trough chambers of commerce and cluster developers on advantages and motives to join one such initiative.

Eco-industrial networks, within clusters and among them, are mostly designed to decrease consumption of primary materials, improve resource efficiency, as well as to decrease amounts of emissions, pollution and waste. The companies that a cluster consists of should adopt all feasible components of cleaner production concept to reduce their environmental impacts.

An innovative approach in designing an eco-industrial cluster should bring existing ideas together and transform them in a comprehensive, fully functional unit. By integration of numerous confirmed individual strategies into EIC, it is possible to achieve results beyond expectations (the system is more than a mere sum of its components). An integrative approach guaranties each addition to the system to add value to other system components. There should be some recognizable environmental or social values of the undertaking, beyond expected environmental and economic advantages that are crucial driving force for changes.

Another important issue is level of integration of EIC into the local community, since it could provide a portion of utility services or support educational system by providing professional training and courses. That way the companies would influence formation of quality workforce beyond their instant needs. A successfully developed EIC could also provide expertise as a business incubator and support new business initiatives or expansion of existing ones.

While some of the local enterprises might opt to join EIC, others could provide services to existing members, as catering services, suppliers, or maintenance contractors. Making the supply chain environmentally friendly (trough special requirements toward suppliers and contractors) might be solution for such a situation. EIC members might require greening entire supply chain and on other hand offer training or investments in greener technologies.

Environmental strategies to be considered while organizing cluster of local companies should include: waste and water management, resource recovery, energy efficiency, pollution prevention, and by-product exchange [5]. The main goal is to contribute in decoupling economic growth and/or human wellbeing from increase in resource consumption (Figure 1).

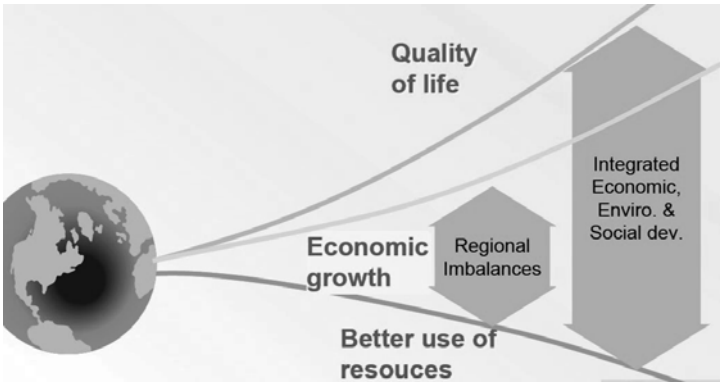

Figure 1: The Role of Industrial Clusters in Eco-Restructuring [6]

One successful eco-industrial network among various clusters might bring about significant development of community where it operates, due to improved economic and environmental performance of participating companies. Environmentally friendly manufacturing results in cleaner water and air, more responsible land use, reduction of waste, and environmental awareness of employees and general population.

4 SYNERGETIC ADVANTAGES OF AN ECO-INDUSTRIAL CLUSTER

An Eco-Industrial Cluster (EIC) represents an environmentally conscious business community of geographically concentrated and interconnected companies in a common or complementary field that cooperate mutually and with local community in order to efficiently share available resources (i.e. energy, water, materials, by-products, logistics, infrastructure and information), and thus improve environmental quality, economic gains, and contribute to overall quality of life (Figure 2).

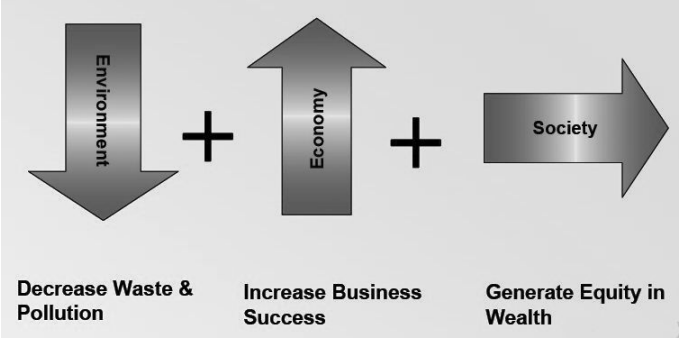

Figure 2: Operating principles of an EIC [6]

A well organized Eco-Industrial Cluster recycles not only materials and energy carriers, but information and expertise as well. Synergistic advantages of EIC are as follows:

- the by-product or waste from one manufacturing process is used as raw material for another product line
- the amounts of recycled materials and energy carriers are maximized trough so called closed loop systems
- acquired or locally produced energy can be utilized within the park
- expertise increase as a result of collaboration within the sector
- businesses and public organizations collaborate with one another to improve environmental quality and overall quality of life

Eco-Industrial Clusters are being recognized as one of the vehicles to achieve Sustainable Development through conservation of resources, cooperation between enterprises in designing supply chains and waste treatment, competition in energy efficiency and acquiring corporate social responsibility principles. Environment, economy, and local community well being are all in focus of cluster members on sustainable track. Advantages and Gains from Eco-Industrial Clusters comprise:

- Effective use of raw and waste materials
- Increased utilization of energy carriers
- Decreased water consumption
- Access to knowledge and state-of-the-art eco friendly technology
- Advantages for the introduction of cleaner production practices
- Increased incentive for innovation and new eco-product development
- Enhanced employment opportunities and social responsibility

SMEs face diverse and sometimes greater challenges than larger companies when dealing with environmental impacts and complying with stringent environmental legislation. Clusters provide a potential means of improving the environmental performance of a group of SMEs in a feasible manner. This approach brings various types of enterprises together, and enables better coordination towards shared values. Tackling sustainable production issues would probably render the cluster approach a widely popular method for improving the environmental performance

of SMEs. There are several gains to be achieved in parallel: sustainable growth could bring about new business opportunities - renewable energy production, resource management, eco-industries and recycling, all have a high potential for employment growth. Resource efficiency is also a proper way to deal with stability of supply issues. Adaptation to global changes related to pressures on resources will also improve long-term economic competitiveness. This can be done through the further development of existing technologies, such as renewable energy sources, and supporting emerging ones.

5 ENVIRONMENTAL NETWORKING OF SMES

Several areas of concern should be taken into account while developing an eco-industrial network of small and medium enterprises: by-product quantities and qualities, possibilities to increase energy efficiency per unit or among them, industrial metabolism of key players (i.e. flow of material, energy and fluids among cluster members and matching companies), protection of local natural systems, proximity of large industries and processors, etc. Although environmental impacts of different clusters might differ in quantities and scope, there are always certain regular components of every industrial metabolism that should be closely followed when designing an EIC (Figure 3).

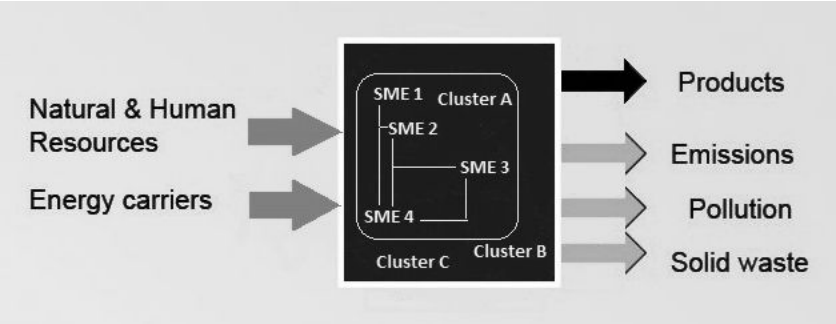

Figure 3: Environmental Impact of Industrial Clustering

Efficient use of energy is usually perceived as basic prerequisite to curb costs and reduce overall environmental burden. Companies that clusters consist of, should constantly seek greater efficiency of their premises (heating, lighting) and equipment utilization. Energy cascading - providing neighboring businesses or households with steam or warm water, could be a solution to achieve higher level of energy efficiency in the network. Water cascading (i.e. directing used water flow from one plant to the next, with or without pre-treatment) is another useful feature of eco-industrial networking with significant benefit for the environment. As well, utilization of renewable energy sources (e.g. solar, eolic, or biomass) should be promoted and explained among cluster members.

Companies taking part in an eco-industrial network commence to consider residuals and wastes as products that might be used by some compatible business. As a business community, clusters couple their manufacturing and creative powers to optimize use of materials thus minimizing the wastes. The by-products that can not be treated on the spot could be warehoused and when collected in tradable quantities shipped to some external customers. In order to achieve savings by sharing costs, the cluster members may include shared support services such as common supplies delivery or transportation logistics – both bringing about environmental benefits in terms of decreasing air pollution, CO_2 emissions reduction and decrease in fossil fuel consumption.

Eco-industrial networks might provide great opportunities for development of public–private partnerships (PPP) between cluster members and external companies, and PPP is considered very promising business organization model for transition countries.

6 THE CHALLENGES IN TRANSFORMING INDUSTRIAL CLUSTERS INTO ECO FRIENDLY ECONOMIC ZONES

Environmental costs of increasing manufacturing activities and doing business are being steadily recognizable, due to ever stringent environmental legislation. EU directives, such as WEEE and RoHS, already influence change in manufacturing practices of SMEs and large industries as well. On other hand, modest attention has been paid to the environmental impact of local industrial clusters in the Balkans or elsewhere. Among other reasons (the very concept of clustering SMEs is quite novel in many economies, particularly in transition ones), revealing cumulative environmental impact of cluster members is rather challenging task because of the complexity of the issue. Environmental impacts cannot be considered in isolation, as local clusters have a large impact on the socio-economic structure of the local communities. Increased business performance and/or increased volume of goods and services, that are desirable consequences of clustering initiative, should be followed by increased environmental awareness and devotion to sustainable production concept.

Main characteristics of Eco Industrial Clusters should be:

- Reasonable spatial proximity of premises (enables energy or water cascading).
- Relative concentration of similar or interrelated enterprises.
- Complementary economic activities
- Possibility to benefit from common supply chain for majority of members
- Complementary waste streams or common waste deposits
- Involvement in the same or similar subsidiary activities
- Existing linkages between enterprises as a result of specific forms of cooperation.
- A common business culture
- Both infrastructural and subjective sense of belonging to a local business community.

Cluster members are often located in urban fringe areas, but they might operate in wider city centers, on brownfield locations of former industrial premises. Improvement of environmental performances might be partly dependent on proximity of manufactures and workshops that are supposed to share capacities and resources.

The cluster approach requires identifying:

- the most challenging environmental issues,
- the regulatory requirements relevant to a cluster;
- opportunities for inclusion of particular SME in cluster or eco-industrial network and
- environmental technologies available to cluster members.

There are two particularly important components to take into account while designing one functional unit as an industrial ecosystem:

1. Industrial metabolism
   - energy and material flow
   - product and system structure
   - information flow
2. Inter-relationship among the elements that one industrial system consists of:
   - Shared infrastructure, facilities, logistics and services
   - Stakeholder participation and communication (corporate, citizen, academia, etc.)

On the other hand, numerous beneficial side-effects are expected to appear as a consequence of the synergism, cooperation development, resource efficiency, and socially responsible business practices.

A sort of guideline on how to use the cluster approach effectively and how to fully integrate it in future environmental policies is needed and expected to support decision makers on national and local levels. The involvement of regional authorities is always supportive for a clustering initiative, since it guarantee the continuity of once started processes..

7 OBSTACLES WITH DEVELOPMENT OF ECO-INDUSTRIAL NETWORKS

Novel undertakings in transition societies are always confronted with numerous challenges [7], and promoting environmentally friendly cluster networks would not be without obstacles since it requires an integrative approach. Stakeholders involved are companies themselves, development agencies, and members of local communities. Industrial clusters often include several small and medium enterprises. In most of the cases they get together to benefit from shared resources, services and infrastructure, but they are usually unable to invest in environmentally friendly technologies, so providing adequate financial

support is of crucial importance for a successful kick-of.

In transition countries a lot of small local enterprises produce a great deal of pollution. The reason is often obsolete technology, law resource efficiency and lack of trained staff capable to deal with environmental issues. Common training programs or joint investments in greener technologies might be beneficial for all companies involved. However, traditional manufacturers in many transitional economies are usually not used to work in clusters and therefore may be reluctant toward any form of interdependence.

Focus on narrow interests within clusters and between them is a major challenge, especially in transitional economies. Some of benefits that come out of an EIP may only become perceptible when savings are calculated in a longer time frame. Projects with a longer payback period are usually less likely to appear attractive and thus require extra effort when explaining the overall benefits.

8 CONCLUSION

Eco-industrial networks, within and among various clusters, are being designed to decrease consumption of primary materials, improve resource efficiency, as well as to decrease amounts of emissions, pollution and waste. Development of eco-industrial networks might be a promising approach to deal with environmental issues in transition societies. Organizing SMEs into Eco-Industrial Clusters would certainly help to fight the unsustainable patterns of industrial production and consumption. However, there are also other, more traditional driving forces, such as: economy of scale, technology transfer, technical knowledge, logistics and financial backing.

Doing business and creating new jobs in an environmentally friendly environment would represent great benefit for entire community. However, composing environmentally friendly cluster networks require an integrative approach, and might be confronted by various obstacles since manufacturers in transitional economies are usually not used to work in clusters and therefore may be reluctant toward some form of interdependence. Common training programs or joint investments in greener technologies would be beneficial for all companies involved in an eco industrial network. Being promising business organization model for societies in transition, public–private partnership between cluster members and external companies might provide great opportunities for further development of small scale eco-industrial networks.

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COST AKCIJA KAO VID POVEZIVANJA NAUČNIH ORGANIZACIJA U KLASTER

Milan Lj. Gocić[1], Slaviša Trajković[2]

Rezime: Udruživanje naučno-istraživačkih institucija u doba globalizacije i svetske ekonomske krize, sve više dobija na značaju početkom XXI veka. Time bi se pojednostavila razmena informacija, novih tehnologija i usavršavanje istraživačkog kadra. Radom je obuhvaćen pristup zasnovan na klasterskom povezivanju naučnih organizacija u COST.

Ključne reči: COST, klaster, naučne organizacije

Abstract: Linking of scientific research institutions in the age of globalization and the global economic crisis is the more important at the beginning of the XXI century. This would simplify the exchange of information, new technologies and training of research personnel. The paper includes a cluster-based approach to linking research organizations in COST.

Keywords: COST, cluster, research organizations

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1. UVOD

Vid poslovanja preduzeća zasnovan na kvalitetu, inovacijama, brzini, povezanosti, izgradnji proizvodnog i uslužnog potencijala zahteva uvođenje klaster pristupa. Ovo je posebno značajno za zemlje u tranziciji, čija preduzeća mogu da postanu konkurentna u međunarodnim okvirima jedino po osnovu udruživanja [2].

Međutim, u radu biće prezentovan vid klasterskog povezivanja na međunarodnom nivou naučno-istraživačkih institucija objedinjeni oko zajedničke ideje na realizaciji evropskih projekata udruženi u COST.

Pored uvoda, rad je koncipiran tako da sadrži objašnjenje pojma klastera (drugi odeljak). U trećem odeljku dat je opis COSTa kao vida klasterskog povezivanja naučno-istraživačkih institucija. U četvrtom odeljku izložen je zaključak.

2. KLASTER

Klasteri (engl. *clusters*) predstavljaju geografsku koncentraciju međusobno povezanih mikro i malih preduzeća, preduzetničkih radnji i poljoprivrednih gazdinstava, srodnih i različitih delatnosti, specijalizovanih dobavljača, pružaoca usluga i sa njima povezanih organizacija podrške (npr. obrazovne i naučno-istraživačke institucije, agencije, turistička i trgovinska udruženja) koje se na odgovarajućem području delatnosti nadmeću, ali i sarađuju [4]. Svoj značaj klasteri su pokazali delotvornost tek osamdesetih godina prošlog veka u Italiji, kao i tokom devetesetih u SAD u domenu razvoja visokih tehnologija.

Koncept klastera može se generalno sagledati kao pokretač inovacija i privrednog razvoja, a u doba globalizacije prihvaćen je kao jedno od mogućih rešenja za opstanak malih i srednjih preduzeća [5].

Klaster se razlikuje od drugih vidova povezivanja u okviru svojih geografskih granica i to po osnovu [1]:

1. uključivanja i korišćenja sredstava,
2. upravljanja informacijama,
3. načina razmene proizvoda i poluproizvoda i
4. po osnovu važnosti načina povezivanja.

Klasteri se mogu klasifikovati kao:

- horizontalni klasteri - partneri na istom rastojanju u lancu stvaranja dodatne vrednosti,
- vertikalni klasteri - partneri u piramidi dobavljača,
- regionalni klasteri - partneri u privrednom sektoru,
- klasteri u branši - partneri u specifičnom polju delovanja,
- preduzetnički klasteri - partneri u/sa preduzećima,
- međunarodni klasteri - partneri u preklapajućim mrežama klastera,
- na znanju zasnovani klasteri - prostorno su ograničeni sa većim akcentom na inovacije i tehnički progres,
- inovativni klasteri - konstantno se razvijaju i prilagođavaju promenama u okruženju, istražujući mogućnosti izvan svojih trenutnih granica, kombinujući unutrašnju snagu, fleksibilnost, stabilnost i smisao za upravljanje.

Razvoj poslovnih udruženja po sistemu klastera obezbeđuje se kroz prijem novih članova, formiranje novih preduzeća u okviru klastera, kreiranje regionalnog identiteta, povezivanje sa srodnim klasterima u regionu i internacionalizacijom. Poslovni subjekti uključeni u klaster koriste istu infrastrukturu: izvore kapitala, kanale informacija, direktne ili indirektne pomoći države i usluge obrazovnih i naučno-istraživačkih institucija [3].

Osnovni ciljevi rada klastera su sledeći [2]:

- permanentno profesionalno usavršavanje zaposlenih u članicama klastera,
- inoviranja znanja i primena savremenih tehnika upravljanja,
- standardizacija poslovanja,
- formiranje uspešne robne marke,
- pružanje savetodavnih usluga preduzetnicima i potencijalnim preduzetnicima,
- pružanje savetodavnih usluga poslodavcima,
- pristup opremi i poslovnom prostoru,
- organizovanje različitih događaja/skupova tipa seminara u oblasti sticanja preduzetničkih veština,
- organizovanje mentorskog rada za sticanje znanja i radnih iskustava, posebno za mlade,
- povezivanje sa organima državne uprave na lokalnom, regionalnom i centralnom nivou, u funkciji razvoja privatnog preduzetništva i konkurentnosti,
- povezivanje preduzetnika sa inostranim partnerima, velikim preduzećima, nadnacionalnim organizacijama, međunarodnim donatorima,
- fondacijama koje finansiraju razvoj civilnog društva.

Članice u okviru klastera povezuju:

- zajednički interesi i potrebe na području nabavke i prodaje specijalizovanih usluga, radne snage i drugih resursa,
- bolji lični kontakti,
- jačanje odnosa kupci/dobavljači,
- razmena iskustava i primeri dobre prakse putem podizanja nivoa znanja,
- primena novih materijala i tehnologija,
- mogućnosti lakšeg pristupa fondovima i povoljnijim kreditima.

Na slici 1. prikazane su prednosti koje se odnose na prisustvo članica klastera u neki klaster. Najbitniji razlog se odnosi na povećanje proizvodnje i broja zaposlenih.

Slika 1 - Prednosti prisustva članica u klaster

U cilju kreiranja efikasnog ambijenta za podršku razvoja klastera u Evropi su razvijena dva instrumenta podrške:

1. instrumenti podrške kreiranju klasterskih politika na nacionalnom i regionalnom nivou,
2. instrumenti podrške za umrežavanje klastera i relevantnih klasterskih organizacija u Evropi.

Međutim, usled nedostatka finansijskih sredstava, adekvatnih stručnih kadrova koji raspolažu potrebim iskustvom i poslovnom kulturom, nepoverenja i nespremnosti za saradnju među preduzećima i sa naučno-istraživačkim institucijama, usporen je razvoj klastera u Srbiji (Bošković and Kostadinović, 2011).

3. ŠTA JE COST?

COST je skraćenica za evropsku saradnju u nauci i tehnologiji (*European Cooperation in Science and Technology*) i predstavlja jedan od najduže aktivnih evropskih okvira koji podržavaju saradnju (koordinaciju) između naučnika i istraživača širom Evrope (http://www.cost.eu).

COST je fleksibilan, brz i efikasan način za umrežavanje i koordinaciju istraživačkih aktivnosti finansiranih na nivou zemalja članica. Time se ostvaruje povezivanje dobrih naučnika sa jednim zajedničkim strateškim ciljem. COST ne finansira istraživanje, već pruža platformu za povezivanje naučnika Evrope na određenom projektu i razmeni iskustava.

Kao preteča naprednih multidisciplinarnih istraživanja, COST igra veoma važnu ulogu u izgradnji evropskog istraživačkog prostora (*European Research Area - ERA*). Dopunjujući aktivnosti okvirnih programa Evropske unije, COST čini tako "most" prema naučnim zajednicama zemalja u razvoju.

Ključne karakteristike COSTa su:

- izgradnja kapaciteta kroz povezivanje kvalitetnih naučnih zajednica širom Evrope i sveta;
- pružanje mogućnosti umrežavanja istraživača;
- povećanje uticaja istraživanja na kreatore politike, regulatorna tela i nacionalne donosioce odluka, kao i privatni sektor.

COST odlikuju i četiri strateška cilja:

1. najbolje performanse pri implementaciji;
2. orijentisanje COST akcija na izlazne rezultate;
3. poboljšanje saradnje između COST članica i
4. utvrđivanje dobrog upravljanja.

3.1. COST AKCIJA

COST se zasniva na mrežama pod nazivom COST akcije (*COST Actions*), koje su fokusirane na istraživačke projekte u oblastima koje su od interesa za najmanje pet COST zemalja. Trenutno je u okviru COSTa aktivno 36 zemalja među kojima se nalazi i Srbija.

Što se tiče realizacije COST akcija, one se mogu podeliti na one koje su u toku, započete i završene akcije. Shodno pravilima svaka zemlja se može uključiti u akcije koje su u toku, pod uslovom da nisu u završnoj fazi realizacije, na kraju treće ili četvrte godine. Ukoliko je akcija još uvek u prvoj godini svoje realizacije, pristupanje je najjednostavnije, a ukoliko je već ušla u svoju drugu godinu realizacije, neophodna je saglasnost komiteta domena (*Domain Committee – DC*) u kome se realizuje odgovarajuće

akcije. Akcije se ne finansiraju iz budžeta COST već iz nacionalnih izvora. To podrazumava da se već radi na projektima u zemlji koji su po svom sadržaju slični COST akciji.

Svaka COST akcija ima precizno definisane ciljeve i jasne rezultate opisane u Memorandumu o sporazumevanju koga su potpisale zemlje članice COSTa. Trenutno postoji više od 200 akcija koje su u toku u 9 naučnih domena:

Biomedicina i molekularne bionauke (BMBS): Domen BMBSa pokriva sve oblasti medicine kako praktičnih tako i osnovnih. Istraživanja u biomedicini ističe sticanje znanja o normalnim funkcijama ljudskog tela i njihovim promenama u slučaju bolesti. Ove funkcije se mogu sprovoditi na molekularnom i nivou celog tela, ne isključujući njegove integracije u životnoj sredini (hrana, voda, zagađivači, šume, urbana sredina, itd.).

Hemija i molekularne nauke i tehnologije (CMST): Domen CMSTa ima za cilj podsticanje evropske ekspertize u otkrivanju, razumevanju, proizvodnji i manipulisanju molekularnih vrsta. Ove istraživačke aktivnosti imaju za cilj da razviju eksperimentalne, teorijske i analitičke alate za unapređenje razvoja hemijskih transformacija, reaktivnosti i funkcija. CMST ima za cilj da primeni to znanje i inovacije u industrijskim procesima i proizvodnji.

Nauka o zemlji i upravljanju zaštitom životne sredine (ESSEM): Domen ESSEMa bavi se interakcijama unutar i između glavnih delova Zemlje (litosfere, hidrosferu, biosfere, atmosfera).

Hrana i poljoprivreda (FA): Domen FA obuhvata sve aspekte istraživanja u oblasti poljoprivrednih i prehrambenih nauka u najširem smislu. To se odnosi na veliki broj oblasti ljudskog delovanja. Primarni cilj FA je da se podstakne umrežavanje i koordinacija istraživanja u bilo kojoj oblasti povezanoj sa ovim aktivnostima, kao i srodnim zahtevima i potrebama.

Šume, njihovi proizvodi i usluge (FPN): Domen FPN bavi se složenim procesima koji čine osnovu za sadašnje i potencijalne sposobnosti da obezbedi obnovljive resurse za ljudske potrebe. FPN ima cilj da promoviše istraživanja u oblasti proizvoda šume obezbeđivanjem platforme za efikasnu koordinaciju istraživačkih aktivnosti uključujući sve šumarske sektore i drvne tehnologije.

Pojedinci, društva, kulture i zdravstvo (ISCH): Domen ISCHa promoviše stvaranje znanja i stručnosti građana, demokratske debate i donošenja odluka u javnim, privatnim i dobrovoljnim sferama.

Informacione i komunikacione tehnologije (ICT): Domen ICTa obuhvata naučna istraživanja i tehnološke inovacije u svim oblastima informacionih i komunikacionih nauka i tehnologije.

Materijali, fizika i nanonauke (MPNS): Domen MPNSa obuhvata nauke o materijalima, od koncepata do proizvodnje, obuhvatajući karakterizaciju, ispitivanje, ocenjivanje, izradu i razvoj, stvarnu primenu i uslugu, kao i srodne bazama podataka, kodekse i standardne provere. Takođe, podržava istraživačanja kako osnovna tako i primenjena u fizici i teorijska i eksperimentalna istraživanja kao ključ za razumevanje zakona koji regulišu ponašanje materije i energije.

Transport i urbani razvoj (TUD): Domen TUDa podstiče istraživanje u oblasti transporta i izgrađenom okruženju, koji imaju stratešku ulogu u savremenom društvu i ekonomiji.

3.2. COST STRUKTURA

COSTom rukovode države članice COSTa (*COST Member States*). Organizacija COSTa odražava međudržavni karakter.

Ključne odluke se donose na COST ministarskim konferencijama (*COST Ministerial Conferences*), koje se održavaju u proseku svakih pet godina.

Komitet visokih predstavnika (*Committee of Senior Officials - CSO*) je glavno telo za donošenje odlukai odgovorno za strateški razvoj COSTa. On odlučuje, između ostalog, o predloženim novim akcijama nakon konkursa.

Svaka država članica imenuje dva CSO predstavnika, od kojih je obično jedan COST nacionalni koordinator (*COST National Coordinator - CNC*). Uloga CNCa je da:

1. imenuje delegate za komitete domena (*Domain Committees - DC*) i upravnih odbora (*Management Committees - MC*);

2. savetuje o svim pitanjima vezanim za COST (npr., akcije, učešće, otvoreni pozivi);

3. obezbeđuje vezu između naučnika i institucija u njegovoj/njenoj zemlji.

CSO izvršna grupa (JAF - Executive Group of the CSO), priprema CSO sastanke i svakodnevne odluke delegirane od strane CSOa. Grupa se sastoji od predsednika i potpredsednika CSOa, kao i pet delegata iz CSOa izabranih da predstavljaju različite COST zemlje u trajanju od maksimalno tri godine.

Odbori domena (DC - Domain Comittees) se sastoje od stručnjaka iz odgovarajuće oblasti i imenuje ih CNC. DC izveštava CSO i odgovoran je za

kontrolu kvaliteta dodeljenih akcija (ocenjivanje, praćenje, evaluacija). DC takođe nadgleda strateški razvoj domena.

Upravni odbor (MC - Management Committee) po jedan za svaku akciju čine nacionalni eksperti imenovani od strane zemalja učesnica u akciji. On koordinira aktivnosti akcije i izveštava nadležni odbor domena.

COST kancelarija u Briselu zadužena je za implementaciju COSTa, podržava naučne aktivnosti i sprovodi odluke CSOa.

4. ZAKLJUČAK

U ovom radu prikazana je mogućnost povezivanja naučno-istraživačkih organizacija u COST radi ostvarivanja razmene informacija, novih tehnologija i usavršavanje istraživačkog kadra. Takođe, prikazan je pojam klastera sa aspekta udruživanja.

Međutim, usled brojnih prepreka u Srbiji je process osnivanja klastera dosta usporen, a svetska ekonomska kriza je još više dovela u pitanje finansijsku samoodrživost klastera.

ZAHVALNOST

Rad je podržan od strane COST akcije ES1004 (EuMetChem) - European framework for online integrated air quality and meteorology modelling.

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AMBASSADORS OF THE ENVIRONMENT BIO MECHANICAL TREATMENT OF SOLID COMMUNAL WASTE – "THE GIFT THAT LASTS FOREVER" (ECONOMY-ECOLOGY-ENERGY)

Hadzi Zoran Jovanovic[1], Herman Wolfrum, Radisa Vicevic[2], Jugoslav Jovanovic[3], Ivana Cucic[4]

Abstract: Instead of our conclusion on bio-mechanical treatment (BMT) we will cite the opinion from 30. October 2009. of the National Ministry for Environment and Spacial Planning : " We consider this treatment, according to the current regulations and current global experiences, a good way to treat current and future solid communal waste".
Explanation: " From the received documentation, attest and references it was concluded:

Biological remedy of polluted environment is the most effective and successful procedures, that is largely implemented all over the World, and that uses microorganisms as agents in the chemical processing. The main advantage compared to other remediation processes is that through the waste is decomposed through the metabolism of the microorganisms and this procedure or its products are not hazards to the environment or to humans.
After the Bio-remedy process the contaminated material (communal waste, land, water), does not represent waste any longer and has its environmental and economic value. The material can be used as an remedy for devastated land, it can be returned from where it originated before it was treated and it decontaminates the space (these are mostly waste lands, landfills, anti-erosive work spaces, etc.)
One of the oldest, most effective, and useful ways of recycling is precisely Bio-mechanical treatment of organic waste, which is the number one components of solid communal waste in Serbia. It is based on a natural process, which is important, because it is good to give back to nature at least a part of what was taken.
Key words: bio mechanical treatmant, communal waste

Rezime: Umesto naseg zakljucka u vezi mehanickog bioloskog tretmana (MBT) citiracemo misljenje od 30 oktobra 2009 godine koje je tu metodu dostavilo Ministarstvo zivotnesredine i prostornog planiranja Republike Srbije :
Misljenje : " Smatra se da ovaj postupak , prema postojecim iskustvima u svetu i posrojecom zakonskom regulativom , moze primeniti pri preradi postojeceg i buduceg cvrstog komunalnog otpada ".
Obrazlozenja : " Na osnovu dostacljene dokumentacije , atesta ,i referenci konsrtatovano je:
Bioremedijacija je jedan naj perspektivniji postupak u zastiti i revitalizaciji zagadjene zivotne sredine , koji se u svetu masovno primenjuje u kojem se u uzem smislu kao ' agensi " procesori primenjuju mikroorganizmi . Osnovna vrednost sa ostalim postupcima remedijacije je u tome sto se , zahvaljujuci metabolickim sposobnostima mikroorganizama , kontaminat na komponente koje nisu stetne po coveka i zivotnu sredinu.
- Nakon bioremediocionog postupka kontaminirani materijal (komunalni otpad , zemljiste ili voda) ne predstavljaopasan otpad vec materijal koji imasvoju upotrebu pa i ekonomsku vrednost i moze se ponovo upotrebiti npr. vracanjem na mesto odakle je uzet (iskopan) pre primene remedicajnog postupka ili kao biooaktivan materijal u postupku rekultivacije degradiranog zemljista (komunalne deponije , povrsinski kopovi , antierozioni radovi i sl.) "
Jedan od naj starijih , naj efikasnijih i naj korisnijih vidova i nacina reciklaze je bio - mehanicki tretman organskog , otpada , pretezne komponente u komunalnom otpadu u Srbiji , jer se zasniva na prirodnom procesu - vratiti bar deo prirodi ono sto je od nje uzeto.
Ključne reči: bio mehanički tretman, komunalni otpad

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1 TECHNICAL DETAILS OF THE HELSASORB-Eco System

Helsasorb – eco system is a bio-mechanical treatment of solid communal waste. It was developed by "Helsa", a German company, and it has been successfully implemented in many EU countries. Bio-mechanical processing of solid communal waste, where active coal is the main component and its use and extraction is patented, represents from a technical, economical and environmental standpoint one of the newest and most innovative ways of processing waste. At the same time this is one of the simplest and safest ways to treat waste. Through this process the following affects are made[1]:

- Decomposition and stabilization of the organic parte of the waste
- Hygiene regulation of the waste
- Reduction of unsanitary smells to a zero.
- Reduction of the waste mass on dump sites (up to 40%)
- Little investment
- Excellent aspect between the money put in and the results gained
- Short period of waste treatment
- Creating the conditions of waste selection after treatment

In this presentation the entire process of solid public waste treatment with the 'Helsasorb-Eco' system is described.

In the preparation period for the treatment it is vital to involve the client (public communal company) with the existing mechanisms and workers who are being trained to work on the treatment as well.

If the selection of the waste is not done before the treatment, which is very common on Serbian dump sites, the selection must be done after, and there is significant quantity of secondary raw materials (plastic, metal, glass etc.) being put a side. For this procedure there is special mechanization and equipment. With further treatment of biodegradable waste quality compost can be produced and then placed on the market[8].

We would particularly emphasize the following [3]:

1. The preparation for the treatment is three to five days (3-5)
2. The treatment is four to six (4-6) days long depending on the conditions (temperature, humidity etc.)
3. All invested materials (except foil and bio substrates) are a one time investment,
4. The foil(unless it is physically damaged) can be used up to five or six times (5-6)
5. The shredder for the preparation (grinding) of waste for the treatment and the drum for separation (after the treatment) can be used on more then one dump site, since they are mobile machinery.

Here it should be specified that in the lack of funding for the mechanical treatment of solid public waste, the use of the shredder and drum is not necessary. In that case it is curtail to select the waste before the treatment and separate the secondary material (plastic, metal, glass, larger waste like accumulators, tires, animal waste etc.). For this from seven to ten (7-10) workers are needed. I n Serbia the unemployment rates are big so this is no problem, on the contrary it is an opportunity for workers. The method of public groups working for the goal of solving dump site problems is a chance for Serbia to make an important step in preserving the environment.

2 DESCRIPTION OF THE SYSTEM AND SPECIFICATION OF THE NECESSARY EQUIPMENT AND MATERIALS

The system has the following components[2]:

- Grinding machine (Shredder) for the preparation of the waste for treatment.

- not necessary, but preferable, it can be shared between more then one user.

- The Drum machine for separation(after the treatment) of biodegradable waste from other waste- namely secondary raw materials (without this machine, the selection of waste prior to the treatment is necessary)

- not necessary but preferable and can also be used for more then one user.

- Ventilator for compressed air, which can work on five (5) piles at once, the dimensions of the piles up to 12m x 30 m x 3.5 m.

- Main pipe Ø 200mm- about 35m long.
- Vent for the regulation of air flow- 8 pieces
- Thermometer- one for the whole system - Ø 200mm
- Anemometer- one for the whole system - Ø 200mm
- couplings and branches- 8 pieces DN 200/ DN 100
- Draining pipes Ø 100- 118m per pile
- Reservoir (tank) and sprinklers for the bio substrate solution- for this pilot project 30-50 thousand liters of water will be needed.
- Special foil
- Bio substrate (0,1 l/ton of garbage)
- The expense of beginners training depends on the time neede (560 € per day) [7]

The standard dimension for helasorb foil is 18m x 6m.

For one pile dimensions 12m x 30m x 3,5m it is required six (6) foils of standard dimensions, which in total is 648 m^2 per pile.

The overlap on standard dimension foils is 0,50m.

The foil can be used for 5-6 treatments.

3 THE WASTE TREATMENT PHASE

The complete treatment of public waste takes place in three phases:

1. **PHASE: Preparation of the waste and the space of the treatment**
2. **PHASE: Treatment of the waste**
3. **PHASE: Selection- the separation of waste**

The whole procedure takes place in continuity and the above listed phases overlap form the beginning. The preparation of the second pile takes place during the treatment of the first; the third phase commences after the treatment of the firtst pile, while the first and second treatment phases are already under way for the remaining piles.

Having in mind that public waste on our dump sites, for a long time, was deposited a while ago and that there was no selection process it is necessary to prepare it for treatment. The preparation's success is witnessed through the grinding of the waste, the better it grinds the more affective the treatment with the bio substrates will be. In this pilot project the plan is to do the selection prior to the treatment by hiring more workers, who will start by separating larger pieces non- organic trash.

The mass and volume relation is empirically determined, and the volume of one pile of circa 828 m^3 translates to circa 331 t.

During the setting of "piles" at the end of every work day it is necessary to liquor and cover the "pile".

The time to realize one treatment of one pile the size of circa 828m3 is six (6) weeks.

After the treatment of the first "pile" is done the preparation and placement of the second "pile" is done on the same place.

For one "pile" dimensions 12m x 30m x 3.5 m, the work space needed for the activities to be carried out appropriately, is approximately 646m^2.

For one "pile" there should be 648m2 of foil standard dimensions 18m x 6m, that is six (6) pieces.

If there is work being done on two "piles" there needs to be at least 1 300 m^2 of work space.

The Regulation of air flow depends directly on the temperature measurements inside the "pile". The air is regulated by vents. Specific instructions and manuals will be given on the spot and the workers that are continuing the process will be trained for the entire process. The regulation of the air flow on one "pile" is done according to the following recommended parameters[6]:

- Maximum air flow : 1.200m^3/h
- Optimal air flow: 0.5 m^3/h/t
- Optimal quantity of air on one "pile" 210m^3/h
- Optimal speed of air flow through the pipes: 2, 48 m/s

4 INVESTMENT PLAN

The price of expenses is conditioned directly by the quantity of available waste. The whole price can be divided into two items:

1. One time investment
2. Startup investment

One time investment means that the equipment is bought once and stays at the disposable in the County- the communal company for further treatments. One time investments are:

- Grinding machine (Shredder) for preparation (grinding) of the waste.
- The drum machine- for the separation (after the treatment) of biodegradable waste from other waste, secondary raw material.
- Compressed air Ventilator which can work on five (5) "piles" dimensions 12m x 30m x 3.5m at once.
- Main pipe Ø 200mm
- couplings and branches
- vent for regulation of air flow
- draining pipes Ø 100
- Thermometer
- Anemometer

Startup investment means the procurement of material for the complete treatment of waste in the first year of work, and after that the material needs to be renewed. Startup investments are[2]:

- Foil – for one year
- Bio substrate

5 SPECIFICATION OF EQUIPMENT, MAN POWER AND CONDITIONS THAT NEED TO BE PROVIDED BY THE MUNICIPALITY (PUBLIC UTILITY COMPANY) OR OTHER USER

Enough open space for the installations of the system.

Loader (or the equivalent, for the construction and maintenance of the piles).

Electricity for the ventilator, 240 V / 400 V, 50 Hz, CEE- plug in, 16 A.

Tank or supply of water with the right kind of pump, to supply 15l – 30l of water per 1 m3 of waste.

Man power:

- Leader of the project (if needed, because of the training, provide at least two people.)- They control and measure the temperature and follow all of the parameters in the process.
- Working power, seven to ten (7-10) workers to be engaged in the first 5-7 days of preparation of the piles and at the end of the cycle ofsieving and separation of the compost from non/organic material (only in case there is no grinder or drum). If there is a grinder and drum there should be only three to four (3-4) people working.
- There are three (3) more workers needed (in each shift one 3x8h) that take care of the ventilation system and that oversee the process, the supervisor of the shift (figure 1).

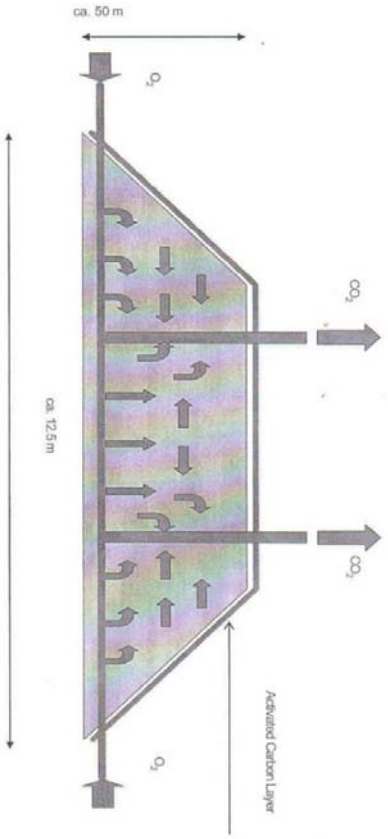

Figure 1 – Ventilation system

6 CONCLUSION

According to estimations and measurements that were conducted by the Faculty of Technical Sciences in Novi Sad, on the dump sites of solid public waste where non-selected waste is being deposited, the quantity of organic waste is more then 60%, and on the dump sites where there is partial selection (PET, tires, accumulators, metals) the percentage of organic waste is almost 80% of the entire waste. With bio mechanical treatment of this waste we would be gaining an extremely useful organic mater that has its economical affect as well. Beside it use for sanitizing devastated land (factories that manufacture dirt, bricks, cement etc.) is useful as a base for roads, fertilization of parks, forests, overlaying over

dangerous waste and so on. In this process we also gain organic waste that is suitable for the production of the so called "green energy" (electricity and heat energy).

It is evident that lately some Countries recognized the importance of bio mechanical waste treatment of solid public waste. Unfortunately Mayors and County officials use this "Europeanization" of their Counties and the resolution of waste issues (that are overflowing the population) only to market themselves and do not take real steps toward dealing with this issue.

The realization of this project, with the use of bio mechanical treatment of solid public waste and with giving a purpose to organic waste, in our humble opinion is only a matter of days before there is no dilemma if these projects will be realized, but weather how will their serious strategic implementation begin in the whole Republic of Serbia.

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SOFTWARE APPLICATIONMS PROJECTAND ITSUSE INTHE PROJECTMANAGEMENT PROCESS

Miloš Jovanović[1], M.Sc. Danka Milojković[2], Ph.D. Nebojša Stojković[3]

Abstract: The goal of each project is to be completed in the shortest possible time with minimal costs. Many studies have found that on average only 40% of started projects finished on time and budgets usually exceed an average of two times the predicted values. Such phenomena have led to greater use of Microsoft Project, who represents one of the most popular software packages used to support project management. This software package is used for planning, monitoring and control of realization of different types of projects, and is one of the easiest and most used software packages for project management. This paper describes the practical use of this software package in the process of dynamic plans, planning different kinds of resources, planning and cost analysis, monitoring and control of the project and, creating different types of reports.

Key words*:* Project Management, MS Project, control, planning, reporting

SOFTVERSKA APLIKACIJA MS PROJECT I NJENA PRIMENA U PROCESU UPRAVLJANJA PROJEKTOM

Rezime: Cilj svakog projekta je da se završi za najkraće moguće vreme sa što manjim troškovima. Međutim, mnoga istraživanja pokazuju da se u proseku svega 40% započetih projekata završi u roku i da se budžeti premaše u proseku i do dva puta od predviđenih vrednosti. Ovakve pojave su dovele do sve veće upotrebe Microsoft Project-a koji predstavlja jedan od najpoznatijih softverskih paketa koji se koriste kao podrška upravljanju projektima. Ovaj programski paket je namenjen za planiranje, praćenje i kontrolu realizacije različitih vrsta projekata, i predstavlja jedan od najlakših i najviše korišćenih programskih paketa za upravljanje projektima. U ovom radu prikazana je i praktična primena ovog softverskog paketa u procesu izrade dinamičkih planova, planiranja različitih vrsta resursa, planiranja i analize troškova, praćenja i kontrole izvršenja projekta i kreiranja različitih vrsta izveštaja.

Klučne reči : Upravljanje projektom, MS Project, kontrola, planiranje, izveštavanje

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1 INTRODUCTION

A project is a task with a specific goal to be accomplished by means of using particular resources in a defined period of time. Project implementation must be carefully planned to minimize uncertainities and expenses.

Nowadays, every modern manager is expected to apply contemporary management methods that include organisation, planning, follow up and monitoring af all project activities, from the very concept design to its final implementation.

Concerning the fact that project planning and managment were often conceived and implemented by few project teams, a need to develop a a particular optimization methodology for the project management emerged at an early stage.Visual planning introduced by Henry Gantt, contributed greatly to the development of project management skills. In its methodology, Gantt has emphasized the need that the project should be divided into basic activities which will be presented in a shape of a graphics/diagram to be better visualised and coordinated (today these diagrams are called gantograms or Gantt Chart).One of the curiosities is that the gantograms were used for the construction of the famous Empire State Building in America, and by application of this methodology the construction deadline was two times shorter than originally foreseen.

In the late fifties of the last century for the purpose of a submarine nuclear missile design, Willard Frazer developed PERT method to manage the project expenses, also based on the graphic presentation of the resources and processes used. All abovementioned led to a bigger computer tehnology application in the field of project management and most certainly to the development of the most widely used project managment softwares so far MS PROJECT (Microsoft Office Project).

2 PROJECT BACKGROUND AND HISTORY

Microsoft Project was initially proposed by Microsoft's Manager of Product Development, Alan M. Boyd as an internal tool to help manage the huge number of software projects that were in development any time inside the company. Boyd wrote the specification and engaged a local Seattle company to develop the prototype. The first commercial version of Project was released in 1984 and Microsoft Company bought all the rights to this software in 1985 and continued its upgrading.

Today, it is sure that Microsoft Project (MS Project) represents one of the most popular project management software application. The application was designed to support managers develop their plans,to assign necessary resources to achieve specific goals, to monitor project by stages, to budget monitoring and management, to run workload analysis, organisation of tasks and human resources to implement the project in a planned period.

This software package helps the user in his planning process but like in other software packages it is necessary to ensure the adequate input of data into the database to make the program function successfully.

Besides its support to achieve the tasks within the foreseen timeframe and allocated budget, the MS Project also ensures:

- development of a better planning process
- control of the so called " what if?" scenarios resulting in an optimal project plan
- reveals problems in the plan itself, i.e. overload of the resources in respect of their availability
- automatic and reliable calculations from the first till the last day of the project assignment, project budget, available resources
- shows interdependence among various tasks
- develops Gantt Diagram, calender, WBS project structuring
- provides various reports in different formats to provide information to the clients, management and employees, thus ensuring the easily understandable plan presentation
- gives support in the project follow up and foresees new project end dates and new expenses (increased or decreased due to intoduction of new changes) under new circumstances
- adaptation of the original plan to the newly designed one and to face the possible consequences of such changes
- gives opportunity for a multi project management

Dramatic data on the great significance oth the software tools inthe planning process were reported by the company The Standard Gropu. Namely, surveys were conducted in the USA in 1998 showing thet only 44% of the projects started were ended within the

foreseen deadline, whereas one third of all projects have never been finished. The project deadlines and budget limits were exceeded by 189%. The final result reported in this survey is that 70% of all projects do not meet the initial expectations (Grbić, 2004).

3 MS PROJECT APPLICATION CASE STUDY

Management process includes considerable number of activities starting from the concept development till its implementation. To implement the project in the best possible way means frequent changes of the plan and adjustment of specific necessary resources (staff, material and equipment).

Project Managment is a two phases process

- planning phase and
- monitoring phase, i.e. follow up

During planning phase, a detailed project design is developed, the tasks are scheduled, resources assigned to project tasks, costs calculated and the report is prepared.

In a monitoring phase, the project progress is monitored, reports on remaining tasks are provided, various adjustments in the changes due to the unexpected circumstances are made and final reports done.

It is necessary to make certain preparations and activities prior to the MS Project plan development to enable easier plan elaboration:

a) project description and defining the project objectives;
b) WBS project development, i.e. defining the structure of the project;
c) defining the list of activities within specific timeframe, the list of necessary resources and resources budget allocation;
d) defining interdependence among the activities.

a) Project Description and Defining of the Project Objectives

Concerning the fact that the company bought the plant for hard biscuit production at the end of 2010, it was necessary to invest in additional facilities and reconstruction of the existing plant to turn it into a factory (final product warehouse, package warehouse and the management office).

Presently, there is one production line in the production plant of the factory with a limited range of assortment production. Bearing this in mind, there is an imperative to invest in the purchase of a new production line with bigger and more complex capacities to meet the production program requirements.

The specification and value of the planned investments in the confectionary production are given in the tables below.

Table 1: Value of the planned reconstruction and biscuit factory construction RSD

Description	**total**
Reconstruction of the exisitng biscuit production plant	15.400.700
Construction of the new warehouse for final products and package warehouse	60.450.900
Construction of the management office	39.564.160
Internal pump	6.924.000
Exterior design:	
Electricity installation	3.231.200
Water and sewage hydrant distribution	3.100.800
New transformer, dismantling of the exisitng one and diesel generator dislocation	1.379.650
Pressure plant, manhole and a water tank V=2x50m3	1.846.400
Test run	
Salaries, material and machine costs	1.501.654
Other costs	464.984
TOTAL	**133.864.448**

Source:Business Plan Taške LTD company, April 2011

Table 2:Value and dynamics of investments in new assets

Type of investment	***Investment value in EUR***	**Investments 20011/2012 EUR**
Facilities	1.212.900	1.212.900
Technology Equipment	2.610.601	2.610.601
IT	53.761	53.761
Transporting vehicles	412.750	412.750
TOTAL	**4.290.012**	**4.290.012**

Source:Business Plan Taške LTD company, April 2011

Since all of the own funds were exhausted for the purchase of a new production plant at the end of 2010, the additional funds for the plant reconstruction, construction of necessary facilities, purchase of a new production line and transportation vehicles will be ensured by the Development Fund and Foreign Ivestment Agency SIEPA which represent the most favourable source of funding at the moment.Therefore, it is necessary to draft an adequate business plan along with other project documentations to raise funds from the abovementioned sources.Basic project objectives are:

- development of the necessary documentation to raise funds from the favorable funding sources;
- reconstruction of the biscuit production plant in the shortest period possible;
- construction of additional facilitiesto meet the required standard;
- mastering new technologies: new equipment and technology will be introduced in the biscuit production during the reconstruction process and the staff will be trained simultaneously.

- new product market promotion;
- new staff employment.

b) WBS Project Structure Defining

The project should be divided into specific phases and activities.

The project team members together with the project manager have defined the phases and activities during the development of detailed project plana listed below:

1. Fund Raising

1.1 Business plan development

1.2 Application for fund raising

1.3 Land ownership Licence

1.4 Construction Permit

1.5 Use Permit

1.6 Fund raising

2. Civil Works

2.1 Reconstruction of the existing plant

2.1.1 Preparation and demolition works

2.1.2 Concreting and bricklaying

2.1.3 Plumbing and electrical works

2.1.4 Tiling works

2.1.5 Facade and tinsmith works

2.1.6 Other finishing works

2.2. Construction of the new premises

2.2.1 Preparation works

2.2.2 Concreting and bricklaying

2.2.3 Other finishing works

3. Electrical Works

3.1 Transformer

3.1.1 Equipment dismantling

3.1.2 New equipment installment

3.1.3 Final testing

3.2 Internal petrol pump

3.2.1 Equipment dismantling

3.2.2 New equipment installment

3.2.3 Equipment installment and final testing

4. Purchase of new equipment

4.1 Offers collection

4.2 Best offer award

4.3 Import and customs clearance

4.4 Payment for the equipment

5. Machine works

5.1 Dismantling of the old production line

5.2 Installment of new and old production lines

5.3 Pipeline installment

5.4 Final testing

6. Test run

Table 3. Defining milestones in the project

Reg.Num.	Milestones	Date
1.	Initial point in the fund raising phase	29.04.2011.
2.	Fund raising	06.07.2011.
3.	Beginning of the construction works phase	19.07.2011.
4.	Final works of the construction works phase	16.02.2012.
5.	Beginning of the electrical works phase	29.12.2011.
6.	Final works of the electrical works phase	06.02.2012.
7.	Beginning in the purchase of new production line phase	21.12.2011.
8.	End of the purchase of new production line phase	06.02.2012.
9.	Beginning of the machine works phase	01.02.2012.
10.	End of the machine works phase	21.03.2012.
11.	Beginning of the test run phase	29.02.2012.
12.	End of the test run phase	15.03.2012.

Source:Business Plan Taške LTD company, April 2011

c) Defining the list of activities within specific timeframe, the list of necessary resources and resources budget allocation

On the basis of the defined necessary activities to accomplish the project, their duration and relations, as well as on the basis of the resources assigned to each activity, specific data were filled in the Table 3. as the baseline for the application of MS Project.

Table 4. Activity title, duration and resources needed

Reg. Num.	Activity title	Next activity	Duration	Resources	Quantity
1.	Business plan development	2	15	Planning manager,marketing manager	1,2
2.	Application for funds raisin	3	1	Legal expert, assistant	1,2
3.	Land ownership Licence	4	5	Legal expert	1,2
4.	Construction Permit	5	5	Legal expert	1,2
5.	Use Permit	6	5	Legal expert	1,2
6.	Fund raising	7	15	Finance director, assistant	1,1
7.	Preparation and demolition works	8	2	Subcontractor 1	-
8.	Concreting and bricklaying	9	60	Subcontractor 1	-
9.	Plumbing and electrical works	10	30	Subcontractor 2	-
10.	Tiling works	11	15	Subcontractor 3	-
11.	Facade and tinsmith works	12	30	Subcontractor 4	-
12.	Other finishing works	13,16	20	Subcontractor 1	-
13.	Electrical equipment dismantling	14	4	Subcontractor 2	-
14.	New equipment installment	15	10	Subcontractor 2	-

15.	Electrical works final testing	20	3	Subcontractor 2	-
16.	Offer collection for the new production line	17	10	Technical director, assistant	1,2
17.	Best offer award	18	1	Technical director	1
18.	Import and custom clearance for the new production line	19	10	Legal expert, export-import expert	1,2
19.	Payment for the new production line	22	2	Finance director, assistant	1,1
20.	Dismantling of the old production line	21	5	Electric engineer, machine engineer	3,7
21.	Overhaul and installment of the old production line	22	18	Electric engineer, machine engineer	3,7
22.	New production line installment	23	7	Electric engineer, machine engineer	3,7
23.	Pipeline installment	24	5	Plumber, electric engineer, machine engineer	3,1,2
24.	Final testing	25	3	Plumber,Electric engineer, machine engineer	2,2
25.	Test run	-	15	Workers	50

Source:MS Project-project of biscuit factory construction, Company Taške LTD, Braničevo,2011

COSTS

In order to implement this project, material and human resources are necessary.

Material resources–necessary material and equipment for civil and electrical works will be purchased by the subcontractor and they will be considered as subcontractor's expenses.

Table 5. Necessary costs for the project implementation

Registration number	Resource title	Resource availability	Resource price unit
1	Marketing manager	1	781 RSD/h
2	Supervisor	1	340.000 RSD
3	Planning manager	2	605 RSD /h
4	Legal expert	1	781 RSD /h
5	Legal expert assistant	2	350 RSD /h
6	FinancE manager	1	805 RSD /h
7	Finance assistant	1	350 RSD /h
8	Subcontractor 1	1	99.900 RSD /h
9	Subcontractor 2	1	57.700 RSD /h
10	Subcontractor 3	1	44.670 RSD /h
11	Subcontractor 4	1	55.900 RSD /h
12	Technical manager	1	781 RSD /h
13	Technical manager assistant	2	450 RSD /h
14	Export-import associate	2	450 RSD /h
15	Electrical engineer	3	350 RSD /h
16	Machine engineer	7	350 RSD /h

17	Plumber	3	350 RSD /h
18	Workers	50	250 RSD /h
19	Electrical material	403	950 RSD
20	Water pipes	200 m3	15.000 RSD /m3
21	Flour	100 kg	50 RSD /kg
22	Sugar	950 kg	30 RSD /kg
23	Vegetable fat	150 kg	60 RSD /kg
24	Milk powder	136 kg	89 RSD /kg
25	Chocolate powder	123 kg	550 RSD /kg
26	Tunnel furnace	1	200 RSD /h
27	Line 1	1	150 RSD /h
28	Line 2	1	250 RSD /h
29	Packing line	1	100 RSD /h

Source: Company Taške LTD Business plan, April 2011.

d) Project Interdependence Definition

MS Project ensures defining four types of activities interdependence: finish-to-start (FS), start-to-start (SS), finish-to-finish (FF) i strat-to-finish. The sequence and link it has towards specific activity must be defined so as it can function properly and calculate automatically.

Table 6. Project activities interdependence

Reg Num	Acitivity title	Next activity
1	Business Plan Development	2
2	Fund raising application development	3
3	Provision of Ownership Statement	4
4	Provision of Construction permit	5
5	Provision of Permit license	6
6	Fund raising	7
7	Preparation and dismanling works	8
8	Concreting and masonery works	9
9	Plumbing and electrical works	10
10	Tiling works	11
11	Facade and tinsmith works	12
12	Other finishing works	13,16
13	Electrical equiment dismantling	14
14	Electrical equipment installing	15
15	Final testing of electrical works	20
16	Offer collection for new production line	17
17	Best offer award	18
18	Import and customs clearance	19
19	Payment for the new production line	22

20	Dismantling of the old production line	21
21	Repairs and assembly of the old production line	22
22	Assembly of a new production line	23
23	Pipeline installment	24
24	Final testing	25
25	Test run	-

Source: MS Project for Taške LTD Braničevo,Biscuit factory construction,2011.

1.1. Basic Plan Development Steps in MS Project Development

After completing necessary preparations, activities and links, it is time to develop the project plan for MS Project development.

First Step: Basic parameters of the project must be entered in the Tools Options of the menu. Basic data of the project are defined (project title, project manager, start date of the project implementation), calender timeline is set (work hours, nonworking days, number of working hours per week, winter and summer working hours), a record of the project must be placed on the disk, as well as units rates and decimals parameters used.

Second Step: Activities titles and activities duration are entered thorugh the menu option View Gantt Chart when the screen is split into tabelar and gantogramic display.The table has over 250 fields, and when selecting a certain field, another window is opened Task Information where all data for a particular activity are entered (title, duration, activity resources, links among activities..).

The Programme differs two basic types of activities: standard and macro activities on many levels. Activities can be grouped by levels so that the whole project can be presented in a single macro activity or group of activities in phases.

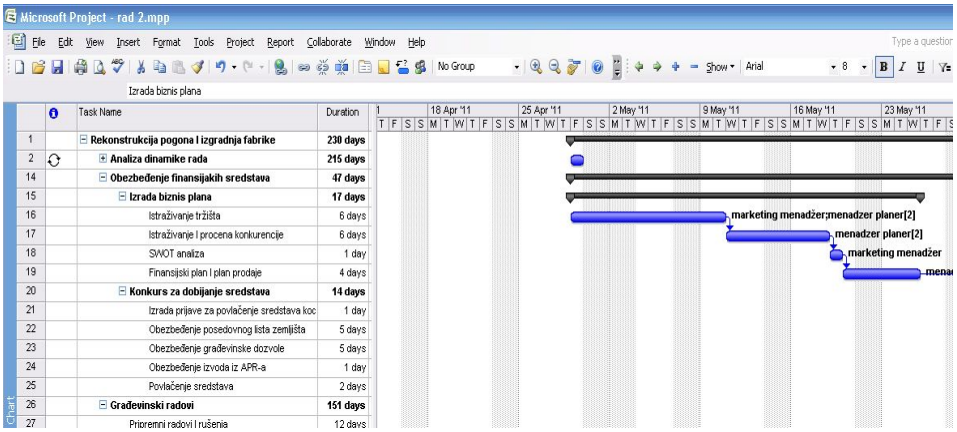

Figure 1. Software application of the MS Project – Tabelar and gantogram visual reports

Source: Software application of the MS Project

The Programme gives option to enter the recurrent activity recurring at a specific point of time (such as supervison activity which in our case recurs every month). The recurrent activity can be entered thorugh the menu option *Insert/Recuring Task Information* .

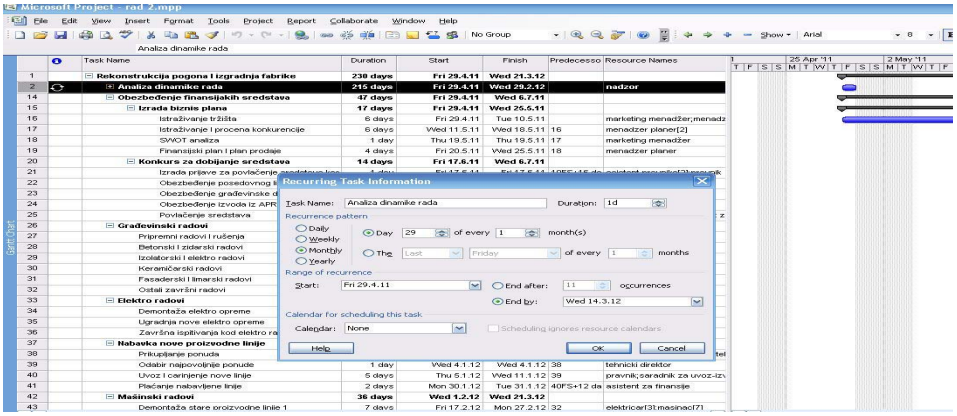

Figure 2. The procedure of entering the recurrent activity in the MS Project.

/Source: Software application of the MS Project

Third Step: Entering milestones in the project. The milestones represent start and finish points of specific phases defined bz WBS structure. It is important to stress that 0 duration point is entered for each milestone and they have different visual report in the Gantt Chart.

Fourth Step: Project structure design. Structuring is done by entering data on a multiple activity (e.g. in our case, business plan design) and by defining each particular activity (market research, competitiveness assessment, SWOT analysis..), using the function *Indent.*

Fifth Step: Activities linking. Previously designed table of interdependant activities is used for entering data into MS Project.

Sixth Step: Resources allocation. There are three types of resources in MS Project: material, work resources (machines and human resources) and subcontractors (subcontractor services costs). Resources data are entered in the menu option View/Resource Sheet and the table contains great number of fields to be filled in (available resource quantitz, costs, price units for overtime work...).

1.2. Project Implementation Follow up

Once the plan is defined, the baseline plan for the project implementation is saved in the menu option *Tools/Tracking/Save Baseline.*Data on of each activity is entered.On the bases of the present status of specific phases and activities, the programme forecasts the end of the remaining activities, present budget expenses, remaining budget resources and possible changes in the costs per each particular activity.Such forecasts ensure that the project managers respond in a timely manner in making certain corrections so as to preserve the planned project dynamics.

1.3. MS Project Reports

The Ms Project Menu Option Raportoffers a great number of various graphic and tabelar report format on the project progress:

- comprehensive project data
- money flow in the project
- level of the accomplished activity...

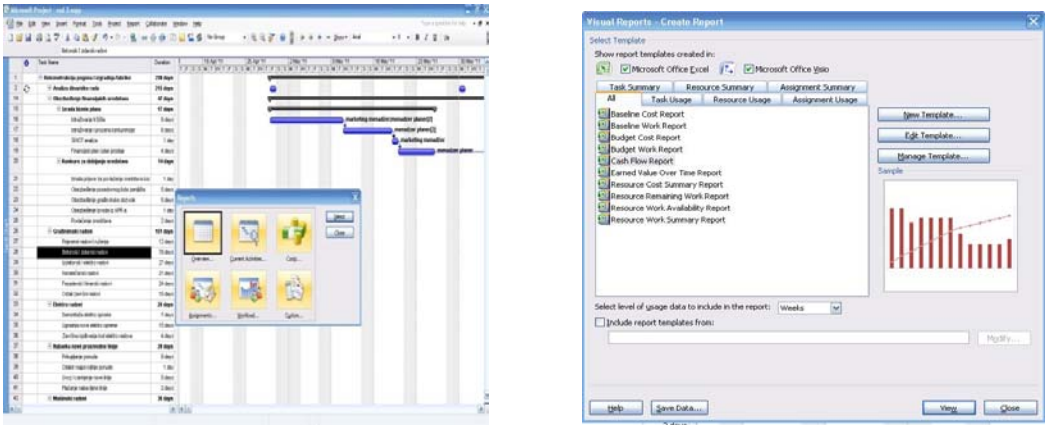

Figure 3. MS Project reports

Source: Software application of the MS Project

4 CONCLUSION

Generally, the project managment process consists of five basic phases: initiation phase, planning and designing phase, project implementation, monitoring and final phase. The major objective of this process is a faster, improved, successfull and project implementation within the original budget frame. According to this principle, one of the most used sowtware application today has been structured, MS Project. This programme significantly ensures the procedures of planning and monitoring various projects implementation, time management process, technical and human project resources use, costs, risks and at the same time enables us to get a set of different reports. An adequate management is of an utmost importance when starting the project implementation, mostly because the original parameters change throughout the process.

MS Project gives the complete picture of a project implementaion process, necessary resources needed in which quantities and estimated period of time, as well as the foreseen end of the project timeframe. Once the implementation of the project has been initiated, it is necessary to update the programme date frequently so as to monitor the project progress and possible unforeseen changes. Thus, we would be timely prepared to respond fast and in an adequate manner, in order to cut down on the project implementaion costs.

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EKONOMSKA ODRŽIVOST KREATIVNOG GRADA

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Rezime: Danas više od polovine stanovnika sveta živi u urbanim oblastima. Gradovi su mesta gde se mogu naći i problemi, ali i rešenja za njih. U vremenu ekonomske krize dobra povezanost u klastere kroz ekonomskih aktivnosti, lokalno takmičenje poput kvaliteta rada i kreativnosti i potreba da za promenom u industriji usluga su snage koje čine ekonomsku održivost urbanih oblast. Ovo bi trebali biti glavni temelji budućeg rasta. Ovaj rad se bazira na analizu sadržaja literature o klasterima u funkciji ekonomske održivost gradova danas.

Ključne reči: ekonomska održivost, kreativni grad, klasteri, strategija, kreativnost, inovativnost

ECONOMIC SUSTAINABILITY OF A CREATIVE CITY

Abstract: More than a half of the total population in the world live in urban areas today. Cities are places with various problems but with solutions for these problems too. During the economic crises a well established network of clusters through a series of economic activities, local competition in work quality and creativity, as well as the necessity to introduce changes in industry of services represent forces that make up economic sustainability of urban areas. The afore mentioned should be the foundations for the future growth.This work paper is based on the analysis of literature on clusters which are ensuring economic sustainability of cities today.

Key words: economic sustainability, creative city, clusters, strategy, creativity, innovativeness

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1 UVOD

Grad u 21. veku uzima primat u smislu broja stanovnika koji žive u njemu. Neki sociolozi koji se bave fenomenom grada idu tako daleko da tvrde da globalnog društvo u 21. veku prolazi kroz veliku promenu paradigme, jer iz društva nacionalne države prelazi u društvo grada. Gradovi su oduvek bili, a i danas su fokus modernog društva i oni su socijalno, kulturno i ekonomski dinamični entiteti kojima treba upravljati, ali novo vreme nosi nove izazove.

Koncept kreativnog grada naglašava prelazak sa geografskih i prirodnih resursa ka ekonomskoj vitalnosti koja zavisi od ideja i akcija ljudi koji žive u gradovima. Gradovi na ovaj način postaju i proizvođači i potrošači kreativnosti - bilo da se radi o kreativnosti u umetnosti, kulturi, tehnologiji ili drugim kreativnim aktivnostima.

Ekonomsko planiranje i napredak gradova se sve više baziraju na proizvođačima i potrošačima kreativne ekonomije. Pokret kreativnosti traži interdisciplinarni pristup u kome prekršiti neka ili ponekad sva pravila koja vladaju u praksi 'normalnog' planiranja doprinosi okruženju koje odiše kreativnošću, inovativnošću i na kraju, ekonomskim napretkom. Traženje novih rešenja za postojeće probleme i donošenje neobičnih rešenja za nove izazove je odlika kreativnosti, a kreativnost je postala baza za rast i razvoj uspešnih gradova. Danas se u svetu govori već o pokretu kreativnog grada. I dok je još suviše rano izmeriti ekonomski napredak ovog pokreta, mnogi gradovi uključuju koncept kreativnog grada u svoje planiranje i u revitalizaciju urbanog prostora kroz strategije razvoja, jer u vremenu koje je hiper turbulentno, potrebno je promisliti o tome koliko zapravo tradicionalni alati i mehanizmi za planiranje i upravljanje gradom i oni koji se bave planiranjem i upravljanjem u turizmu odgovaraju zahtevima savremenih okolnosti. Nove okolnosti traže nove alate i načine rada da bi se efikasno delovao.

Predmet ovog rada je ekonomska održivost kreativnog grada i važnost delovanja kroz klastere na lokalnom nivou da bi se postigla konkurentska prednost na globalnom tržištu.

2 GRAD I EKONOMSKA ODRŽIVOST

Gradski prostor predstavlja važan deo nacionalne ekonomije i njegova glavna karakteristika je da ima viši bruto domaći proizvod po glavi stanovnika i nivo produktivnosti od proseka zemlje. Ovaj prostor je takođe središte velike nezaposlenosti, siromaštva, problema, mnoštva ljudi na jednom mestu, zagađenosti i kriminala.

Ukoliko grad želi da raste i napreduje, on mora biti ekonomski održiv tj. mora imati ekonomski održivu bazu. Na kratke staze, ekonomski kapaciteti grada zavise od velikih ili malih kompanija u njemu i od njihove fleksibilnosti u datim uslovima na tržištu, od radne snage i tržišta nekretnina. Efikasan i efektivna menadžment grada i reakcije na uticaje sa tržišta omogućuju da ekonomska baza grada bude održiva (Krugman, 1996)

Ipak, vizija održivost jednog grada, naročito danas, ukoliko on želi da bude uspešan treba da bude mnogo šira. Ekonomska održivost grada je ona u kojoj lokalna ekonomija treba, svakako da nastavi da poboljšava svoje performanse, koje vode ka ostvarivanju ciljeva i profita. Ipak, iskustva iz sveta pokazuju da uspešni gradovi pored svojih ekonomskih ciljeva, ostvaruju ciljeve svojih građana i postižu pozitivne socijalne efekte, kao i efekte u kulturi i zaštiti životne sredini grada (Lupton, 2003).

Ekonomija jednog grada ne zavisi samo od usko definisanih ciljeva izvođenja poslova lokalne ekonomije. Gradovi sa svojim zajednicama takođe treba da se suočavaju sa efektima lokalne ekonomije koji se odražavaju na društvu. Neki gradovi su uspeli da razviju sposobnost transformacije društvenih problema u značajne ekonomske mogućnosti, dok drugi gradovi dopuštaju nagomilavanje siromaštva koje razjeda društveni i ljudski kapital grada (www.worldbank.org).

Ovo pokazuje da je kompetencija i širina onih koji upravljaju gradom isto toliko značajni faktori ekonomije grada, kao i sama ekonomija grada. Ovo znači da su i firme i ljudi u gradu, takođe odgovorni za upravljanje gradom i postizanje njegovih ekonomskih ciljeva, a ne samo i jednostavno ekonomska produktivnost (www.oecd.org).

U Velikoj Britaniji se gradovi sa prigradskim naseljima posmatraju u strategijama ekonomskog razvoja kao nosioci značajnog udela u regionalnoj produktivnosti. Još 90tih godina prošlog veka Organizacija za ekonomsku saradnju i razvoj (OECD), u fokus je stavila ekonomsku konkurentnost gradove i njihove okoline. Na nekoliko OECD konferencija održanih u Španiji, Japanu i Kanadi, fokus je bio na važnosti održavanja i unapređivanja konkurentnosti gradova. Nekoliko nacionalnih vlada, pored vlade Velike Britanije su usvojile ovaj prostorni okvir u svojim ekonomskim strategijama. Velika Britanija

zastupa stav da gradovi i gradske regije imaju rast i veliki efekat na ekonomiju čitave države (www.oecd.org)

Koncept kreativnog grada je nova paradigma viđenja i razumevanja grada danas za razliku od grada pre četrdeset godina. Jednom kada se zagrebe ispod površine skoro svako mesto ima kreativne potencijale, ali koji su u većini gradova blokirani. Koncept kreativnog grada se bavi proučavanjem izvora i dinamike kreativnosti grada i tendencijom da se učini praktičan korak i ode dalje od ideje. Takođe on ukazuje da kreativnost nije isključivo vezana za umetnike i umetnost i da inovacije ne moraju biti samo tehnološke. Postoje ekonomska, socijalna, kulturna i ekološka inovativnost (Landry, 2006). I upravo poreklo koncepta kreativnog grada leži u razmišljanju o tome zašto se čini da se neki gradovi teško prilagođavaju promenama i čak pate i muče se zbog toga i opet im teško ide. Sa druge strane izgleda da socijalne i ekonomske promene u nekim gradovima dolaze maltene spontano i lako. Gradovi poput Barselone, Roterdam, Glazgov, Cirih, Dablin, Kuritiba, Vankuver, Karlsrue, Strasburg čine da ekonomske, socijalne, kulturne i ekološke promene rade za njih.

Brojni su pozitivni primeri iz sveta o primeni kreativnosti na ekonomsku održivost grada i oni nisu uvek usko vezani za veliki budžet i filozofiju 'koliko se uloži, toliko se može očekivati'. Upravo kreativnost stavra dodatnu vrednost onome što se kreira i efekti mogu daleko prevazilaziti ekonomsku produktivnost i ralnu materijlanu verdnost proizvoda ili relanu vrednost usluge, bez obzira da li je reč o turizmu, zgradi, javnom prostoru i sl. O tome najbolje svedoče reči i savet Žaima Lernera (2007) bivšeg i u više navrata, gradonačlenika brazilskog grada Kuritibe, kolegama koji se bave upravljanjem gradom: "Kreativnost počinje kada se iseče nula iz vašeg budžeta. A ako odstranite dve nule, još bolje" (www.ted.com). Sa takvim načinom razmišljanja grad Kuritiba je danas, jedan od najkreativnijih i ekonomski najnaprednijih i održivih gradova u svetu. On je 2010. godine dobio Globalnu nagradu za održivost, iako njegova populaciija nazustavljivo raste dolaskom novih stanovnika. Danas Kuritiba ima 1,8 milioona stanovnika u gradu i gradskoj regiji 3,2 miliona ljudi kji gravitiraju ka gradu id ok je prosečna godišnja stopa ekonomskog rasta Brazila 4,2%, Kuritiba beleži 7,1% godišnju ekonomsku stopu rasta (www.newint.org).

3 KLASTERI U EKONOMSKOJ ODRŽIVOSTI GRADA

Gradovi se danas suočavaju sa globalnim izazovima koji su ponekad neuhvatljivi, jer se odvijaju velikom brzinom, zato je potrebno ponovno premišljanje i postavljanje strategije gradova i njihovih regija. Ipak u ovakvoj situaciji neminovne promene, grad može da se suoči sa ekonomijom na lokalnom nivou koja je do sada funkcionisala na jedan način.

Ekonomija i konkurentnost jedne države zavise, između ostalog, od međusobne saradnje gradova. Kada je reč o kompanijama, one, bar u razvijenom svetu, često nastupaju udružene, a to može biti zasnovano na regionalnom ili čak gradskom nivou. Globalna utakmice može se posmatrati kao ekonomija umreženosti na nivou mesta koje se takmiči sa drugim mestom. Samim tim, klasteri i kompanije u jednom gradu i regiji imaju veliki značaj na regionalnu i nacionalnu produktivnost. Danas se, međutim i gradovi umrežavaju u klastere prema kreativnom opredeljenju ili turističkom ili privrednom i na taj način doprinose nacionalnom i regionalnom prosperitetu. (Boix,2003) .

Klasteri mogu biti naročito dobri za inovacije. Najvažniji klasteri su klasteri kompanija. To su kompanije koje koriste inovacije da bi na tržištu bile konkurentne. Drugi tip klastera su institucije koje proizvode znanje. Treći su obrazovne organizacije poput škola. Univerziteti su specijalan slučaj, jer često igraju dvojnu ulogu i istraživačkih institucija i obrazovanja. Četvrti tip su organizacije koje su nosioci kapitala, poput banaka i osiguravajućih društava. Peta moguća grupa klastera su vladine organizacije od lokalnog do nacionalnog nivoa i to su ustanove koje donose strategije i odluke o javnoj infrastrukturi, regulativama i sl. (Lindqvist i Orjan, 2008)

Većina uspešnih velikih i srednjih gradova podstiče živost post-industrijske ekonomije i često je izvozi. Takvi gradovi sve više postaju centri za razonodu i potrošnju slobodnog vremena, turizam i druge konzumerske aktivnosti. Samo deset godina ranije smatralo se da će informacione tehnologije potisnuti ekonomsku bazu gradova, ali izgleda da se upravo suprotno desilo. Nove tehnologije su dozvolile povezivanje u okviru regija gradova i doprinele su da se domaćinstva bolje organizuju u kompleksnom dnevnom životu. Umesto da se kreira 'ravan' globalni svet u kome nije važno gde se nalazite, jer je sve dostupno u Internet ravni, upravo su ova elektronska

povezanost i tehnološki napredak izazvali novo grupisanje inovacija i kreativnosti u stvarnom geografskom prostoru poput np. Silikonske dolinu u San Francisku, aeronautičke industrije u Montrealu i kreativnih industrija u Londonu. (Friedman, 2005).

U nekim zemljama gradovi su shvatili da će u narednih trideset godina prirodni sektor gradova i igrati veoma važnu ulogu u ekonomsku rastu i razvoju čitavih zemalja (21 Issues for 21st Century, 2012). Po nekim analizama, grupisanje leži u srcu konkurentske prednosti gradova regija. Iako su konkurenti među sobom, firme imaju beneficiju od ujedinjavanja u klastere, jer na taj način privlače na svoju teritoriju kompetentnu radnu snage i investicije, kreiraju lokani zajednički poduhvat, fondove za talente i investitore. Firme koje su ujedinjenje uživaju beneficije kao što su unapređenje kroz nove tehnologije i procese. Imaju i beneficije kroz ekonomiju na širem lokalnom tržištu, pojednostavljen promet roba, usluga i ideja koje idu od dole od do vrha (Porter, 2011).

Majkl Porter (2011) kaže da se ekonomsko ujedinjavanje kompanija dešava onda kada postoji kritična masa firmi plus snažna naučna i tehnološka baza i kultura koja je okrenuta inovacijama i preduzetništvu. Iako, klasteri sami po sebi ne znače obavezno dovoljnost i osiguran uspeh na duge staze, veruje se da su veliki gradovi privilegovani, jer imaju koncentraciju klastera na jednom mestu, ovo ne znači da manji gradovi i manje zajednice ne mogu imati koristi od klaster modela.

U gradu Otavi, Kanada, klaster visoke tehnologije može postati moćan motor ka rastu grada na svim nivoima. Jaka povezanost među firmama, dobavljačima, negde i istraživačkim institutima, univerzitetima i korisnicima usluga i proizvoda je moguća i efekat koncentracije na jednom mestu, može proizvesti fantastičan rast produktivnosti i inovativnosti (Torjman, Leviten-Reid, 2003).

Da bi maksimalno iskoristili svoj potencijal klasteri se moraju fokusirati na svoje postojeće prednosti i resurse. Tradicionalno su klasteri sektora znanja ti koji su najuspešniji, ali isto toliko vredni mogu biti i klasteri drugih industrija np. klaster mašinske industrije u Detroitu. Za uspeh mesta potrebna je ozbiljna procena potencijala klastera (Klepper, 2010).

Ovo je izazov koji je široko povezan sa ljudima i strategijama na lokanom nivou. Baš kao što je atmosfera mesta stvar kreativnosti, isto tako društveno i ekonomsko umrežavanje u mestu utiče na formiranje saradnje i stvaranje inovativnih mreža. Nedavno je jedna Evropska studija pokazala da regionalni i međunarodni inovativni centri podstiči ovakvo povezivanje, a samim tim i rad klastera (Regional Clusters in Europe, 2002).

Jaki istraživački kapaciteti na Univerzitetima omogućavaju načine povezivanja nauke i inovacija, privlačenje kreativnih i visoko kvalifikovanoj radnika. Pristup dobro povezanom unutar urbanog i internacionalnog transportu tako da se inovativnost može prodati. Ričard Florida (2002) naglašava važnost tolerancije , raznolikosti i visokog kvalitet života da bi se privikla kreativna kasa. On takođe tvrdi da je živost metropoliten regija ta koja daje raznolikost, povezivanje i klastere novih ideja. Ipak, iako je Florida, koji živi i radi u Kanadi, visoko rangirao neke kanadske gradove kao najkreativnije u Severnoj Americi, ostaje pitanje zašto na ekonomskoj skali ovi gradovi nisu tako uspešni. Ovo zavisi od stalnog promišljanja strategija i stalnom prilagođavanju gradova turbulentim promenama u savremenom svetu.

Kada je reč o kreativnom gradu, uglavnom se misli na kreativne klastere kao nosioce kreativnosti. 'Kreativni klasteri su geografsko, gransko ili funkcionalno povezivanje subjekata kreativnog sektora radi kreiranja nove celine na osnovu unutrašnje komplementarnosti i spoljašnje svrhovitosti, uz glavni kriterijum ekonomske logike zajedničkog nastupa ili prodora na tržištu i dodavanje kapitalne vrednosti i nematerijalnog kreativnog svojstva svakom pojedinačnom povezanom autputu i klasterskoj celini ukupno'(Đeric, 2009). Iako kreativni klasteri mogu biti moćni katalizatori ekonomske održivosti grada, prema Landriju (Landry, 2000), ekonomska održivost kreativnog grada ne zavisi samo od kreativnih klastera, koji se odnose na kreativne industrije i kreativni sektor, već od ukupne kreativnosti u radu i povezivanju ostalih klastera bez obzira da li su oni industrijski ili tehnološki ili klasteri usluga koje ne moraju biti vezane za kreativni sektor. Upravo u tom međugranskom povezivanju i kreativnom načinu razmišljanja ljudi koji su nosioci klastera se ogleda prava kreativnost kreativnog grada koja je široka i obuhvata sve segmente funkcionisanja grada i na taj način doprinosi ekonomskoj održivosti.

4 STRATEGIJE EKONOMSKI ODRŽIVOG GRADA

Da bi neki grad bio ekonomski uspešan, strategije grada moraju biti analitički razmatrane i što bolje ugrađene u sve zakone i odluke vlade. Sve strategije

na svim nivoima i nacionalnom i lokanom i gradskom veoma utiču na konkurentsku prednost grada na duge staza, a naročito one koje se tiču obrazovanja, produktivnosti i rasta, urbanog planiranja i prepreka na lokanom nivou. Čest je slučaj da čak i najefikasnije strategije nisu dobro koordinirane sa vladama na regionalnom i nacionalnom nivou i ne izlaze u susret potrebama mesta. Čak je slučaj da unutrašnje barijere zadržavaju konkurentnost i kreativnost grada, ipak konkurentnost grada je uvek zasnovana na kreativnosti (http://cprn.org).

Da bi se obezbedila buduća uloga i suverenost gradova i njihovih regija potrebno je da se uspostavi realna efikasna budžetska saradnja između gradova i vlade. Gradovi srednjih veličina će imati koristi od rasta autonomije i resursa, naročito u razvoju regionalnih ekonomskih strategija koje obuhvataju srednje i manje gradove, a vlada treba da obezbedi prilaz gradovima, transport, povezanost, i jačanje informacione i tehničke povezanosti, i obezbeđivanje minimalnog efektnog obrazovanja za radnike, njihovu medicinsku zaštitu i zdravlje životne sredine (http://cprn.org).

Ljudski kapital postaje sve važniji u lokalnoj ekonomiji isto kao i njihov gubitak. Uspešan grad pre svih ostalih sektora treba da ima razvijen obrazovni sistem u kome se veštine i znanje prilagođavaju stalno promenama na globalnom nivou. Strategije uspešnih gradova treba da pomognu svojim ljudima da ne budu izolovani i da razviju unaprede svoje veštine i nađu poslove. Gradovi moraju postati takmičarski nastrojeni u globalnom takmičenju za talente (Schutt, 2006).

Najbolji svetski Univerziteti privlače najtalentovanije i postaju magnet za investitore, jer Univerziteti kreiraju idealne uslove za inovativnost i kreativnost. Za Univerzitet je neophodno da pospešuju povezanost sa drugim sektorima naročito malim i srednjim biznisom i povezanost sa zajednicama. Oni takođe igraju značajnu ulogu u društvenom povezivanju i pojačavaju zahteve za tolerancijom i raznolikošću. Oni revitalizuju gradske centre, zajednice i prostore kroz svoj doprinos muzejima, galerijama, pozorištima i jednostavno životu u gradu. U skorašnje vreme potražnja za Univerzitetskim obrazovanjem i Visokim školama je porasla mnogo više od resursa koji postoje, dok je trening veština ostao ispod nivoa potreba. Od suštinske važnosti je da se ovaj trend promeni i da ponuda kvalifikovanih radnika u gradovima i manjim zajednicama poraste. Uspešni gradovi se nalaze u konstantnom treningu da bi bili konkurentni (Hilton, 2004).

Vlada ima tendenciju da razvija strategije koje se odnose na velika pitanja, fokusiraju se na efikasne investicije i na ljudski kapital. Ali trebalo bi da se u ove strategije uvrste kreativnost, inovativnost, preduzetništvo i brzina, hitrost prilagođavanja promenama (Landry, 2000).

Važnost ljudskog kapitala i dobrobit tj. kvalitet života pojedinaca ušla je nacionale ekonomije kroz koncept doživotnog učenja i aktivnog tržišta rada koje promoviše produktivniji ljudski kapital (www.globalpolicy.org).

Ekonomski rast takođe zahteva promišljanje upotrebne zemljišta u ekonomske svrhe. Zemljište treba da se posmatra ne kao deo infrastrukture, nego kao infrasturktura. U ovakvom kontekstu upotreba zemljišta uzima u obzir ulogu mesta u oblikovanju socijalnih i ekonomskih promena. Ekonomska budućnost grada se suočava sa globalnim izazovima, ali reakcija na te izazove je bar delimično uvek lokalna (Zhang, 2001).

Nacionalne i regionalne ekonomske strategije imaju malo razumevanja za funkcionisanje zemljišta i tržište gradova. Ove strategije su često u potpunosti odvoje od upotrebe zemljišta i strategija urbanog planiranja. Potrebno je da strategije na svim nivoima budu artikulisane preciznije i dublje da razmišljaju o upotrebi zemljišta kao mogućnosti ekonomskog rasta na duge staze (www.oecd.org).

Naravno grad nailazi na barijere koje dolaze od nacionalnih i regionalnih strategija. Potrebno je lobirati kod vlade da razume lokalne probleme i da se složi sa interesima provincije. Gradovi sa svojim regijama često prevazilaze granice provincije sa svojim povezivanjima sa ostalim gradovima i regijama (Landry, 2006).

Obe perspektive i tradicionalna i perspektiva nove ekonomije i na ekonomskom, razvojnom i inovativnom planu daju važnost kvalitetu mesta u privlačenja visoko kvalifikovanih radnika. Tradicionalna ekonomska perspektiva se fokusira na dobre škole, malo kriminala, dok se savremena perspektiva fokusira na kreativnost (Florida, 2002).

Gradski sistem koji ignoriše tržište propada, a gradovi koji ne planiraju postaju manje efikasni od onih koji planiraju. Veliki broj zemalja iz OECDa su ispravili prioritete u svom planiranju i uključile se u kreiranje politike za stvaranje dobrih mesta za život gradova, koji uključuju ekonomsku, društvenu, kulturnu dimenziju i dimenziju životne sredine. Na nivou grada planiranje stvara okvir strategije i reguliše ponudu (www.oecd.org).

Funkcionalno i fleksibilno tržište rada će biti od centralne važnosti za budući ekonomski uspeh grada.

U Evropi i SAD aktivne strategije rada uzimaju u obzir grad. Tamo gde gradsko tržište ima grešku kao np. smanjeni prihod po domaćinstvu, grad to ne treba da ignoriše već da se suočio sa tim (www.worldbank.org).

Nju Jork, London, Paris i Tokio su najmoćniji gradovi sveta. Nova istraživanja su procenjivala 35 gradova iz celog sveta, prema šest kriterijuma: ekonomiji, istraživanjima i razvoju, kvalitetu života, pristupačnosti, kulturne interakcije, ekologije i prirodnog okruženja. Nju Jork je najbolji u ekonomiji kao i prema istraživanjima i razvoju. London prema kulturnom kapitalu, a Paris prema uslovima za život i pristupačnosti. Ženeva, Cirih i Beč imaju najbolju ekologiju i prirodno okruženje (www.citymayors.com).

5 ZAKLJUČAK

Savremeno doba je doba gradova, jer najveći deo populacije čovečanstva prvi put u istoriji civilizacije, živi u gradovima nego u ruralnim oblastima. U doba globalizacije geografske granice ne predstavljaju više prepreku, ali ipak, rešenja za izazove koje donosi globlaizacija i ekonomsku održivost leže na lokalnom nivou.

Da bi grad opstao, ali i rastao i napredovao mora biti ekonomski održiv. To mu kratkoročno omogućavaju njegovi ekonomski kapaciteti koji zavise od ekonomske snage i produktivnosti kompanija u samom gradu, kao i od lokalnih gradskih vlasti.

U doba ekonomske krize i velikih promena koje doživljavaju gradovi i njihove zajednice, potreban je nov način razmišljanja koji će omogućiti gradovima da budu što fleksibilniji i funkcionalniji u okolnostima novog doba. Upravo, koncept kreativnog grada naglašava prelazak sa geografskih i prirodnih resursa ka ekonomskoj vitalnosti koja zavisi od ideja i akcija ljudi koji žive u gradovima. Gradovi na ovaj način postaju i proizvođači i potrošači kreativnosti - bilo da se radi o kreativnosti u umetnosti, kulturi, tehnologiji ili drugim privrednim aktivnostima.

Na lokalnom nivou klaster predstavljaju motor ekonomske održivosti i opstanka grada. Povezanost u klastere je od vitalnog značaja. Više se ne radi samo o klasterima unutra jedne delatnosti, već međusektorska povezanost u klastere, koji donose rešenja. Kada je reč po kreativnom gradu, on se ne posmatra samo kroz prizmu klastera kreativnog sektora, već je to kreativnost u povezivanju, produktivnosti i kokuretnosti na globalnom tržištu svih privrednih klastera.

Zapravo može se reći da je i sam kreativni grad jedan veliki klaster, sastavljen od manjih klaster i u zavisnosti od njihove kreativnosti, inovativnosti i fleksibilnosti zavisiće ekonomska održivost jednog grada. A da bi se ovo postiglo strategije koje se postavljaju za grad, moraju se redovno korigovati i premišljati u skladu sa brzim promenama savremenog globalnog sveta. Ekonomska održivost grada zavisi od holističkog pristupa gradu i od njegove ekološke, društvene i kulturne održivost. Ukoliko se ne radi sve obuhvatnom pristupu paralelno, grad neće biti održiv. Da bi bili ekonomski održivi savremenim gradovima je potrebno da budu kreativni u svim aspektima gradskog života, ne samo u kulturi.

I upravo poreklo koncepta kreativnog grada leži u razmišljanju o tome zašto se čini da se neki gradovi teško prilagođavaju promenama i čak pate i muče se zbog toga i opet im teško ide. Sa druge strane izgleda da socijalne i ekonomske promene u nekim gradovima dolaze maltene spontano i lako.

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CLUSTERING AND KNOWLEDGE BASED ECONOMY

Metka Kogovšek, Mojca Kogovšek[1]

Abstract:The main aim of the paper is to identify education quality focused on the need to make profound connection with the business environment with the goal of employability of graduates. The findings suggest that flow of ideas and information with focus on knowledge within the cluster serves as a powerful force for potential change in educational systems where links between practice and theory are firmly grounded and applied as the means to develop appropriate teaching and pedagogical strategies to meet the student's needs.

Key words: clustering, education, research, economic development, employment.

POVEZIVANJE U KLASTERE I EKONOMIJA ZASNOVANA NA ZNANJU

Rezime:Glavna svrha ovog rada je da se identifikuje kvalitetno obrazovanje koje je usredsređeno na duboku povezanost između poslovne sredine i postavljenog cilja da se zaposle diplomirani studenti. Istraživanja pokazuju da protok ideja i informacija sa fokusom na znanju u okviru klastera služi kao snažni pokretač mogućih promena u obrazovnom sistemu gde su veze između prakse i teorije čvrsto utemeljene i primenjene kao sredstvo za razvoj adekvatnog podučavanja i pedagoških strategija da bi se zadovoljile potrebe studenata.

Ključne reči: povezivanje u klastere, obrazovanje, istraživanje, ekonomski razvoj, zapošljavanje.

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1 INTRODUCTION

Clustering of education institutions with business sector has its impact on economic development and contribution to enhanced employment. We have reached a "new" period of development, namely knowledge society which demands better understanding of anticipated needs of changing environment. Knowledge based economy focuses on human capital as the key source of organizations' competitive advantage (Diez, 2001). Education institutions have to radically change their curricula due to changing work situations and requirements of business environment. The development of any education institution has to be in line with the needs of companies that employ its graduates and individuals that enter lifelong learning courses. Education institutions have to master and transfer adequate knowledge that ensures employability of the graduates.

The research design of the study is based on qualitative literature review and description of the model of clustering of education, research and business sector. The paper has three parts. Firstly, it outlines theoretical part of the study, summarizing the importance of quality assurance that pursues students' growth and employability through the transfer of appropriate knowledge and skills offered within the curricula that is up-to date as a consequence of expert and scientific collaboration within clusters. Secondly, it covers qualitative analysis, based on imperative review on contemporary clustering as the answer to more and more demanding business environment. Finally, it discusses the importance of the clustering for achieving pedagogical excellence in terms of conveying adequate knowledge and skills that promotes employability of the graduates.

2 CLUSTER POLICY IMPLEMENTATION AND ENSURING STUDENTS' EMPLOYABILITY

Clusters as the tools for promoting growth, competitiveness, innovation and organizational survival strategy are becoming the prime principle of economic development. They serve as a valuable opportunity for sectorial collaboration, mutual learning and improving any kind of practices. Cooke (2001) emphasized the significance of public innovation support system along with institutional and organizational support from private sector when pursuing economic development. As such the clusters present guidelines for economic promotion policies, supporting innovativeness, and fostering competitiveness based on collaboration (Fromhold-Eisebith & Eisebith, 2005). Many believe (Sölvell, Lindquist & Kelers, 2003, Kitson, Martin & Tyler, 2004) that the new industrialization is based on small and medium firms and in particular on the clusters structuring through cooperation with education institutions, companies and institutes. Radman-Funarić (2011) defines clusters as formal or informal interrelated economic entities that seek to achieve common goals.

The global knowledge-intensive capitalism demands the creation of knowledge resources that lead to a learning economy where knowledge is the most important resource. The focus is shifted from short-run economic performance to re-creating, maintaining, and sustaining the required conditions to pursue continuous improvement (Florida, 1995). Globalization has affected almost all aspects of human life, not only the productive sectors but also the environment, health, education and society as a whole. It is a complex process that causes the creation of networks of capital and technology through enhanced competition, stronger interconnection and greater interdependence. Education sector being a part of service sector, cannot escape the challenges of globalization.

Globalization poses pressure on education system. Higher education institutions are facing institutional change triggered by globalization (Vaira, 2004) linked to the frame of knowledge-based competition. The government funding is reduced and higher education institutions are becoming increasingly market oriented and financially independent (Kwiek, 2001). The impact of globalization and the development of knowledge based economy have caused changes in higher education (McBrunie, 2001; Vaira, 2004). Survival of higher education institutions solely depends on the quality level of their services (Aviram, 2001) therefore there is no option but to adapt to the era in which they function. Higher education institutions, driven by competition, examine the quality of their services, redefine their products and measure the results while pursuing their own pedagogical objectives and their mission of dissemination of knowledge (Wood, Tapsall, & Soutar 2005). Kember and Leung (2009) emphasise the

importance of the corresponding teaching environment that has to be dependent on learning outcomes. Effectiveness (Samy & Cook, 2009) is a multidimensional concept exploring the dynamics of education institution as an organization that serves the needs of its community. Pedagogic excellence correlates with the concern for student's growth (Gibbs & Iacovidou, 2004; Tsinidou, Gerogiannis & Fitsilis, 2010) and achievements (Gibbs & Iacovidou, 2004, p. 115) because student's achievements are the core concept paradigm of quality (Samy & Cook, 2009; Brauckmann & Pashiardis, 2010).It is important to understand the parameters that not only influence the teaching process, but also ensure development of transferable skills and enhancement of creativity. It is asserted that among different stakeholders, students are the most important and when examining service quality, their perception of quality performance is most relevant (McCuddy, Pirnar & Gingerich, 2008; Yeo, 2008; Gallifa & Batallé, 2010; Reid, 2010; Tsinidou, Gerogiannis & Fitsilis, 2010). Moreover, it is important to measure influence of education on students' academic and personal growth and achievements (Tam, 2002; Voss, Gurber & Szmigin, 2007; Wongsurawat, 2011). Education should not only promote knowledge, but also students values, skills for personal and social transformation helping them to cope with changes preparing them for job in the 21st century (Kaplan & Flum, 2012, p. 171). The goal is to enhance employability of graduates (Penger, Tekavčič & Dimovski, 2008). Quality imperative has to be rooted within the strategic plan and education institutions should not lose sight of the long-term commitment toward research and the nature of academic pursuit (Bosetti & Walker, 2010, p.17-18).

There is a need for teaching and learning processes to be based on the common purpose and designed to assure continuous quality improvement (Henderson-Smart, Winning, Gerzina, King and Hyde, 2006, p. 144). Evaluation within quality assessment provides evidence of good practice and gives directions for improvement. Quality cannot be guaranteed unless the quality process and culture is firmly established within the education institutions (Reed & Thompson, 2011). The most prominent researcher regarding learning methods is Kolb. He based his theory of experiential learning on persons' different approaches to perceiving, processing and information integration and formulated the model of learning styles based on Jungian concept. He indicates that various disciplines are localized in different learning style requiring specific learning strategies to be successful in that field (Jones, Reichard and Mokhtari, 2003, p. 365-366). Demirbas and Demirkan (2007) stressed that Kolb build Experiential Learning Theory on a set of theories namely Dewey's pragmatism, Maslow's humanism, Piaget's cognitive development, Ruger's client centred therapy, Lewin's social psychology and Perls' Gestalt therapy being widely accepted and his Learning Styles Inventory is presenting framework for learning in many disciplines. Kolb and Kolb (2005) define experiential learning theory as a holistic theory that identifies learning style differences and experiential learning as process of constructing knowledge and creative tension among experiencing, reflecting, thinking and acting. Kolb's model classifies learners into four learning styles as accommodating, diverging, converging and assimilating. Kolb and Kolb (2005) explain that experiential learning refers also to the experiential life space of the learner including physical, social environment and quality of relationships. Learning techniques should be designed in a way to meet students' needs (Rovai & Barnum, 2003; Liao & Wang, 2008). Student centred model of teaching focuses on what students do and need to deepen understanding (Buttler & Reddy, 2010, p. 785).

According to the need of interfacing of theoretical with experiential learning Sheehan, McDonald and Spence (2009) conclude thatit is important to provide training facilities where experiential learning activities through which deeper understanding of what is like to work in an organization is gained. Students prefer interactive and experiential learning methods which enhance understanding and produce transferable knowledge (Abrantes, Seabra and Lages, 2007, p. 962). Critical reflective learning helps students to comprehend theoretical knowledge much deeper (Hedberg, 2009, p.28). Buttler and Reddy (2010) demonstrated practically-based learning as an approach to study as a key to later function successfully in competitive environment. Academics are attempting to provide the knowledge that meets students' needs. Assessing service quality means to fulfil students' expectations (Angel, Heffernan and Megicks, 2008). The ultimate goal of education is to enhance students' growth and prepare them for future career development (Liao & Wang, 2008, Kaplan & Flum, 2012). One of the most sound and reliable measurement of quality is employability of graduates (Domadenik, Drame & Farčnik, 2009, p. 302).

The mission of education institutions has to be the creation and dissemination of knowledge that enables students' successful entry into the business world and at the same time to offer a rewarding investment opportunity to the business community (Penger,

Tekavčič & Dimovski, 2008). The development of these new skills and knowledge requires education institutions and business sector cooperation to form a curriculum that continuously fills the gaps of anticipated needs of changing environment.

3 SLOVENE MODEL OF CLUSTERING OF EDUCATION AND BUSINESS SECTOR

According to Entwistle and Peterson (2004, p. 409), William Perry was in the seventies the first who suggested that students' knowledge development has to be progressive through education intervened with experience based training. Similarly, later Garrison and Kanuka (2004) emphasised that higher education institutions have to provide relevant experiences to students who need to develop high level of knowledge and upgrade current skills in accordance with rapid technological development. The employability agenda affects a discerning student population who require key skills in order to live and work in an increasingly technologically focussed, complex work environment (Weaver, 2006). Higher vocational education is therefore tightly linked to the development of technological capability and the aim is to prepare students for the workplace, to enable them to successfully enter into the business world and add value to the business community (Lee, Kozar & Larsen, 2003). Understanding of the parameters that not only enhance the quality of teaching process but also those which ensure development of transferable skills are of key importance (Ojiako, Ashleigh, Chipulu and Maguire, 2010).

The education institutions from the fields of agriculture, horticulture, forestry and food processing have built a regional cluster with the aim to exchange information, knowledge for the mutual benefits when forming new curriculum that matches the needs of the labour market. To gain the additional insights about the needs of potential employers of the graduates, education institutions have established Inter-entrepreneurial education centres that seek cooperation with business sector which gives insights about knowledge and skill shortages as well as provide training infrastructure where theoretical knowledge is practically applied (Consortium of biotechnical education institutions, 2011). Basically Inter-entrepreneurial education centres are the centres of excellence that encourage students to accept new knowledge and apply scientific achievements. Inter-entrepreneurial education centres offer their students experienced based training as means to practically upgrade theoretical knowledge gained in classrooms. The education polygons of those Slovene higher vocational institutions enable student knowledge and skills development in line with the labour market demands. Adequate training programs are being shaped through inter-entrepreneurial - business sector flow of insights of the labour demands and required knowledge that is being updated constantly as Pawlovski (2007) Brown (2011) emphasised that quality development should be part of everyday operations and commitment and a continuous process of improvement and further development. Only by the transfer of adequate knowledge and skills employability of graduates is assured.

The regional cluster was founded primarily to establish linkages to professional labour market, namely, local firms and other organizations with the desire to exchange knowledge and conduct research activities. Further the endeavours in mastering adequate knowledge and skills contributes to economic development of the region and causes employability of their graduates. The synergy of the regional cluster continues through the development of constantly updated programs. Tangible benefits of clustering are the results of following clear research and development policies (Consortium of biotechnical education institutions, 2011).

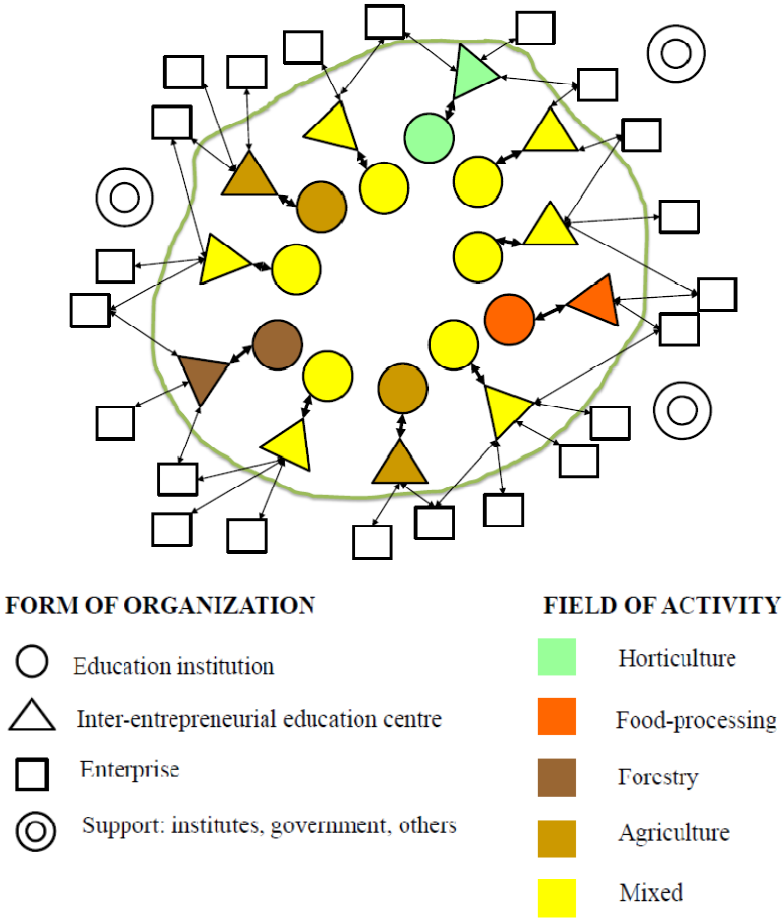

Figure 1: Slovene model of clustering of education and business sector

4 CONCLUSION

The impact of globalization and the development of knowledge based economy have altered demands of education. Nowadays human capital is the source of the strongest competitive advantage therefore organisations that succeeded in the future will have to focus on acquiring knowledge as the key business process and its priority and accordingly recruit individuals that possess knowledge and skills demanded by the nature of rapidly changing environment. Knowledge, learning, and innovation are keys to competitiveness and economic development. By knowledge creation organizations will be able to adapt to changing work situations and requirements of business environment.

Many European higher education institutions perceived globalisation as pressures toward standardizing the study programmes whereby reduce the direct governments' control with increasingly performance-based funding. Globalization forced education institutions to use their resources to deliver a high level of quality. In the process of developing the competencies of students, they shifted toward students needs moving beyond providing just knowledge and skills but helping them to develop critical thinking and deepen their theoretical understanding. Programs that provide training support and meet the needs of society have to be developed.

Clustering presented in the paper is a challenge for the education institutions in giving priority to the development of applicable knowledge that enables employability of graduates. Therefore the key approach is the integration and cooperation between public and private sector from education, research to business. Clusters connect subjects while encourage innovation process, flow of ideas and information with focus on knowledge to enhance competitiveness.

Through the qualitative analysis we can conclude that clustering where links between practice and theory are firmly grounded serve as a powerful tool of mastering over knowledge and skills that are anticipated in rapidly changing environment in pursuing economic development and employability enhancement.

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HERITAGE TRAILS THROUGH DOLENJSKA AND BELA KRAJINA IN SLOVENIA
TOURISM ENTREPRENEURSHIP IN ACTION AND STAKEHOLDERS' RELATIONSHIP A MULTI-STAKEHOLDER APPROACH TO TOURISM DEVELOPMENT

Marko Koščak[1]

Apstract: One of the beneficial methodologies for growing and developing a level of tourism which is sustainable and enhances the totality of local and regional environments is a multi-stakeholder approach to tourism development. In this paper, we present the case of the "Heritage trails through Dolenjska and Bela krajina in SE Slovenia" by which sustainable rural development[2] takes an integrated approach in terms of start-up, implementation and development and is supported by and benefits from the notion of a core of multiple stakeholders.

It is clear that:

- Entrepreneurship and entrepreneurial skills, harnessed in a bottom-up model of development, will have a huge impact on rural and agri-tourist micro-economies at a local community level. The effect in driving wealth creation and expanding employment is measurable in a very tangible and transparent way
- Furthermore, multi-stakeholder tourism projects benefit the ownership transformation process by forcing public[3], private[4] and social[5] ownership agents and enterprises to work together for common benefit. Because of the bottom up approach the measurable value at an enterprise or agency level is also more tangible and obvious
- We can also see that by engaging local public agencies, the dimension of environmental planning and protection can be assured. In this way the sustainable nature of tourism and its impact on the local environment can be assessed and given due priority
- At the same time, in such integrated projects, individual entrepreneurs begin to comprehend and understand the value of co-operation as well as of competition. A key feature is often the need for small-scale tourism entrepreneurs to develop a promotional mechanism to market their product or service at a wider national and international level. Individually the costs of such an activity are too great for micro-enterprises, but they are possible for groups of enterprises. This evidences how an integrated model enables participants to benefit from the totality and complexity of resources and skills held by all stakeholders

Clearly the model we are referring to, as demonstrated in the Case Study utilised in this paper, has a very precise local/regional orientation. The Heritage Trail of Dolenjska & Bela krajina Case Study has a rural base and is profoundly affected by the necessity to attract tourism inputs without damaging the sensitivities of the rural environment. It also has a strong multi-stakeholder approach which in many ways illustrates the impact in EU-funded programmes of the concept of subsidiarity[6] - aiming at seamless connectivity between EU supranational policy and funding, member state objectives in macro-economic harmonisation and stabilities and local micro-economic needs.

Key words: heritage trails, tourism, entrepreneurship

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[1] dr. Marko Koščak[1], STUDIO MKA d.o.o.

[2] We take this to include cultural & heritage, vinicultural & gastronomic as well as ecological tourism

[3] By **public** we mean municipal/local government, state agencies and international organisations operating in a local or regional framework

[4] By **private** we mean privately owned companies, including quoted or unquoted companies, as well as partnerships or self-employed individuals

[5] By **social** we mean entities established for mutual benefit, including co-operatives, societies and not-for-profit agencies

[6] The principle of subsidiarity is defined in Article 5 of the Treaty establishing the European Union and was intended to ensure that decisions are taken as closely as possible to the citizen and that constant checks are made as to whether action at supranational level is justified in the light of the possibilities available at national, regional or local level. The Edinburgh European Council of December 1992 issued a declaration on the principle of subsidiarity, which lays down the rules for its application. (source: European Commission, 2007)

PUTEVIMA NASLEĐA U DOLENJSKOJ I BELOJ KRAJINI U SLOVENIJI PREDUZETNIŠTVO U TURIZMU U AKCIJI I ODNOSI MEĐU AKCIONARIMA VIŠESTRUKI PRISTUP ZAINTERESOVANIH STRANA U RAZVOJU TURIZMA

Rezime: Jedna od korisnih metodologija za rast i razvoj nivoa turizma koji je održiv i doprinosi celovitosti lokalne i regionalne sredine je višestruki pristup razvoju turizma. U ovom radu predstavljamo studiju slučaja "Putevima nasleđa u Dolenjskoj i Beloj krajini u Sloveniji" gde održivi seoski razvoj[7] podrazumeva integrisani pristup u smislu koncepta početničkog poslovanja, implementacije i razvoja, a koji podržava i od koga ima koristi nekoliko zainteresovanih strana.

Jasno je sledeće:

- Preduzetništvo i preduzetničke veštine, povezane kroz model razvoja "odozdo na gore"će imati ogroman uticaj na seoske i agro-turističke mikro-ekonomije na nivou lokalne zajednice. Efekat podsticanja razvoja bogaćenja i povećanja zaposlenosti se može izmeriti na opipljiv i transparentan način
- Štaviše, projekti u oblasti turizma koje sprovode zainteresovane strane imaju koristi od procesa transformacije vlasništva, jer primoravaju vlasnike javnih[8], privatnih[9] i društvenih[10] agencija i preduzeća da zajednički sarađuju za opšte dobro. Izmerena vrednost kod pristupa "odozdo na gore" na nivou preduzeća ili agencije je takođe opipljivija i očiglednija
- Možemo takođe da vidimo da je zahvaljujući angažmanu lokalnih javnih agencija moguće obezbediti i dimenziju planiranja i zaštite prostora životne sredine. Na taj način je moguće proceniti održivu prirodu turizma i njegov uticaj na lokalnu sredinu i dati joj zasluženi prioritet.
- U isto vreme u takvim integrisanim projektima, samostalni preduzetnici počinju da uviđaju vrednost saradnje kao i vrednost konkurencije. Ključna karakteristika je često potreba da mali turistički preduzetnici razviju propagadni mehanizam da plasiraju svoje proizvode ili usluge širom zemlje i u inostranstvu. Pojedinačno su troškovi takve aktivnosti isuviše veliki za mikro-preduzeća dok ih veće grupe preduzetnika mogu priuštiti. Ovaj primer pokazuje integrisani model koji omogućuje učesnicima da steknu korist od celovitosti i složenosti svih raspoloživih resursa i veština koje poseduju sve uključene zainteresovane strane.

Jasno je da model koji opisujemo, kao što pokazuje ova studija slučaja koju smo koristili u radu, ima veoma preciznu lokalnu, odnosno regionalnu orijentaciju. Studija slučaja "Putevima nasleđa u Dolenjskoj i Beloj krajini u Sloveniji" se zasniva na ruralnom turizmu gde postoji potreba da se razviju turističke atrakcije, ali bez ugrožavanja osetljive ruralne sredine. Takođe poseduje i snažni višestruki pristup svih zainteresovanih strana koji na mnogo načina pokazuju uticaj koncepta decentralizacije/autonomnosti u odlučivanju finansiranog od strane evropske unije [11] - imaju za cilj stvaranje neraskidive veze između evropske nadnacionalne politike i finansiranja, ciljeva država članica i makro-ekonomske harmonizacije i stabilizacije i lokalnih mikro-ekonomskih potreba.

Ključne reči: putevi nasleđa, turizam, preduzetništvo

[7] Pod ovim se podrazumeva kulturno i nasleđe u oblasti vinarstva i gastronomije, kao i ekološki turizam

[8] Pod **javnim** se podrazumeva opštinska ili lokalna vlast, državne agencije i međunarodne organizacije koje deluju u lokalnom ili regionalnom okviru

[9] Pod **privatnim** se podrazumevaju preduzeća u privatnom vlasništvu, registrovana ili neregistrovana preduzeća, kao i partnerstva i samozaposleni pojedinci

[10] Pod **društvenim** se podrazumevaju oblici udruživanja koji su osnovani radi ostvarivanja zajedničke koristi kao što su zadruge, društva i neprofitne agencije

[11] Princip autonomnosti u odlučivanju je definisan u Članu 5. Sporazuma o osnivanju Evropske unije kojim se obezbeđuje decentralizaciju u odlučivanju i što je moguće više od strane građana kao i redovnu proveru opravdanosti aktivnosti na nadnacionalnom nivou u svetlu raspoloživih mogućnosti na nacionalnom, regionalnom ili lokalnom nivou. Evropski Savet je u Edinburgu decembra meseca 1992. godine objavio Deklaraciju o principu decentralizacije u odlučivanju u kome se definišu pravila njene primene (izvor: Evropska komisija, 2007.)

Case Study

THE DOLENJSKA-BELA KRAJINA HERITAGE TRAIL

INTRODUCTION

It is a paradox that the decade of the 1960's - which saw the emergence of modern sustainable tourism, through the global movement for resource conservation and the limiting of development, also gave rise to a destructive counter-phenomenon! That counter-problem was the explosive rise in air-based international tourism, given added impetus as the result of the deregulation of airline routes in the European economic space. This revolution in low cost and accessible air transport which grew exponentially in the 1990's with the emergence of low-cost budget carriers has become damaging to the environment and culture of many tourist destination-regions. It has taken 40 years to respond effectively to this demanding global process, and to start to achieve sustainable rural regional tourism products and realities [15].

The rural case-study presented is one of a region in Slovenia along the border with Croatia, where we track a ten year process, from preliminary idea - to the operational reality of sustainable international tourism in a strategically-located destination-region [1].

1 ORIGINS AND CATALYSTS:

The thirty year period from 1960-1990, saw distinct phases of evolution in tourism, planning, conservation- focused thinking and actions in the Western World. This led to the concepts and processes of sustainable tourism planning. For example, in the UK, by the end of the 1980's a National Task Force on 'Tourism &the Environment' had been established in order to provide sustainable tourism guidelines for three problem categories [5] and [6]:

- the Countryside
- Heritage Sites
- Historic Cities and Towns

In the case of the Slovenia example explained in the case study, an additional factor is the multiple dynamic of international, national, regional and local agencies involved in the project. These were drawn from public, private and social sources, but the key actors and catalysts who can be identified in this story were the Slovenian Ministry of Agriculture, the Bavarian State Ministry for Agriculture, the Faculty of Architecture in Ljubljana, the European Commission's Tourism Directorate, a Regional Chamber of Commerce, a commercial tourism operator, and at later date, an international market research consultant [3].

2 INTEGRATED RURAL COMMUNITY DEVELOPMENT PROJECT

The CRPOV Programme (Integrated Rural Development and Village Renovation), which commenced in 1990, was associated both with the UN Food & Agriculture Organisation (FAO) and with the Bavarian Ministry for Agriculture. Bavaria helped in the initial phase transferring experience and know-how. CRPOV was based on a bottom-up approach, involving an initial 14 local project-areas, starting in 1991. Two of the project villages were located in the Slovene municipality of Trebnje with around 500 local residents involved in the project. During this period some 250 local projects were developed in Slovenia, primarily aimed at development possibilities for rural economic diversification [10].

The community development role of CRPOV involved many local village meetings, linked to the economic need for diversification of the rural economy. CRPOV worked together with an expert team on strategy and action. Critically, this case-study relates to a rural region which sits strategically between Ljubljana and Zagreb, on the international motorway from Belgrade to Ljubljana. This has a high location potential for selling locally-sourced food and wine products, as well as craft and tourism products. Tourism is based on the appeal of a gentle landscape of hills and river-valleys - for walking, horse-back riding, cycling, angling, rafting, or the simple enjoyment of its unspoilt character [4] and [12]!

The CRPOV, as an Integrated Rural Community Development programme, led the way towards rural product development, and as a by-product, community-based sustainable tourism. Such tourism requires partnership and co-operation between the public, private and the NGO voluntary sectors. Co-operation of this sort was not common in the period 1992 -1995 in Slovene tourism. It was clear, however, that sustainability -in Slovenia or anywhere else - requires community involvement together with the firm the commitment of local actors and producers of

products and services. The appeal of such action is to add tourism products to the other rural products, which they complement[12].

CRPOV resulted in the creation of a tourism product, by offering a themed 'commercial package', by linking with Slovene Railways, in developing a one-day tour. This theme was the main idea of a development strategy, one outcome of which was the 18km long Baraga Walking-Trail. Initially, this product was offered to school pupils. The response was limited, as there was no commercial partner to market and sell the product on the domestic market. However, there were improvements in infrastructure, and in housing, plus local training-schemes to create business opportunities. In 1996, the project was given an Award in Munich, as part of the ARGE-'Landentwicklung und Dorfeneurung' development competition. This was also a confidence-building phase for rural people locally, later enabling them to become part of a broader, regional project, with its tourism elements. The Wine Trail was a parallel project to CRPOV, at the national level. The idea behind it was to promote wine products as well as the culture, customs, and traditions of wine-making areas of Slovenia. The effort resulted in 25 Wine Trails, created all round the country [13] and [16].

3 INTERNATIONAL TEAM HERITAGE TRAIL CONSULTANCY

This background of the CRPOV programme as well as the parallel development in terms of Wine Trails, prompted the Regional Chamber of Commerce of Dolenjska & Bela krajina to accept an invitation by a consortium (which had in 1996 secured European Union funding to launch two pilot projects in Slovenia and Bulgaria) to create Heritage Trails. The consortium included Ecotourism Ltd. (a British consultancy firm), PRISMA (a Greek consultancy firm) and ECOVAST (The European Council for the Village and Small Town). All of these were supported by regional and national institutions in the field of natural and cultural heritage [16].

12 NB. Community-based rural development is thus an ideal starting point for sustainability, whether in agriculture, and /or in tourism. This creates an 'environment' in which new opportunities for economic diversification, new job-creation, added value to agricultural products, local guiding, and new farm-services can occur. In this process, institutions like an Agricultural Extension Service and others play a very important role, in terms of capacity-building, and of human resource development.

The UK/Slovene Heritage Trail team conducted a 'Tourist Resource Inventorisation & selection', based upon natural, built and living cultural heritage resources in the selected region. Some 150 sites were identified and proposed by the different partners involved in the participation process for the Heritage Trail. From this large number, 28 sites were selected, to be networked in a trail system for the area. The idea was to develop a tourist product which was capable of offering opportunities for stays of up to seven days in the region. Two key access-forms were used for the clustering of attractions, one a "flower structure", and the other a "garland structure" (see Figures 1 and 2). Existing tourist assets and potentials were the basis of these groupings [11].

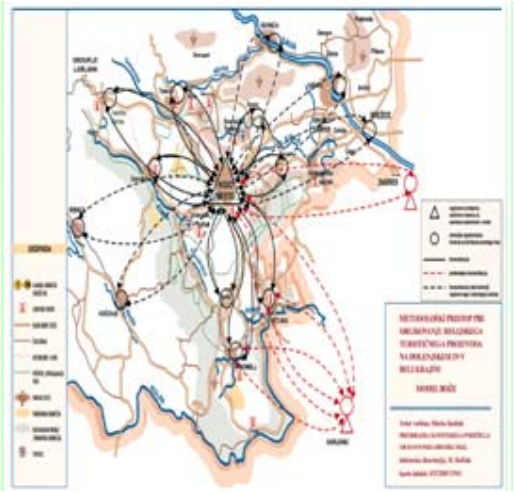

Figure 1 - garland structure

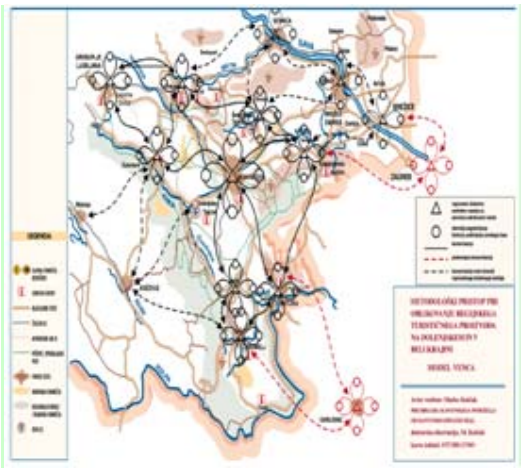

Figure 2 - garland structure

A major result of this work was the creation of a Regional Partnership of 32 organisations, from the public, private and NGO sectors, which signed an agreement to co-operate in the Heritage Trail's implementation phases of marketing and product development. This partnership - working under the umbrella of the Regional Chamber of Commerce – was in operation for 12 years until December 2008, then "transferred" into LAG LEADER partnership which remains a vibrant and robust operating entity. The partnership supports, co-ordinates and brings together the provider-partners. Work in general consists of marketing activities, product development, and training activities, where different combinations of partners, institutions, and individuals are involved.

For marketing purposes, a local commercial partner - Kompas Novo mesto - was invited into the partnership in 2002, in order to articulate a stronger and more effective assault on foreign markets. Kompas was engaged to act as the marketing agency, on behalf of the Heritage Trail partnership [17]. Although the official launch of the product was in 1997, at the World Travel Market in London , followed in 1998 by a presentation at ITB/Tourist Fair in Berlin, there was no significant response. Foreign markets at that time had limited awareness about any Slovene tourist products, other than what can be described as the constantly featured traditional Slovene Tourist icons such as Lake Bled, Kranjska Gora ski resort, Postojna Cave, and Portoroz seaside resort [19].

The effective commercial launch of the Heritage Trail at an international level, with a foreign tourist industry adviser and a much greater professionally co-ordinated national approach, was delayed until 2002, in London. There, at the World Travel Market, the launch had the active support of the Slovenian Tourism Board, together with other relevant institutions.

4 STAGES OF COMMERCIAL PRODUCT ADAPTATION, AND IMPLEMENTATION:

Despite the launch of the Heritage Trail in the domestic market, followed by the international launch at the World Travel Market in 2002, the level of response by foreign tour-operators and travel agents was weak. It became clear that external help was required to target appropriate foreign tourism-trade partners as well as to identify and select niche markets. An External Consultant, Professor A.S. Travis of East-West Tourism Consultancy Ltd became employed in this role.

From the market research conducted by Professor Travis on Slovenia's key foreign markets, the special interest markets, with a focus on either cultural tourism or nature-tourism (eco-tourism) were selected. Independent and some major commercial operators were to be approached by phone, fax, or on-line. 200 firms were identified in 7 European countries; of these 60 firms were contacted by at least two contact modes, but only 6 showed some degree of interest.

The problem revealed was that though there is much interest in Slovenia as a high-growth destination country, it was seen by the international industry as one with 3 major attractions – the 'tourism icons' already mentioned – lakes and mountains, caves and sea. For a significant period of time Slovene overseas marketing has tended to focus only on these well-known destinations [7]!

By 2003, low-cost airlines made Slovenia easily accessible to high-spend markets. Air travel cannot be a basis for sustainability, but may have to be used as the initial opening up phase for a new destination or product in the first place. Ultimately connected rail travel access must be the longer term primary aim. However, as this initial stage of opening the Heritage Trail market, the transport access methodology was via the low-cost airline destination airports of Ljubljana (Easyjet), Klagenfurt (Ryanair) and Graz (Ryanair), with access ground transport routing via Ljubljana. In-depth contact with key operators by phone showed that there were two viable special-interest packages, which could appeal commercially:

a) A Heritage Trail Add-On Package to offers at Bled (Lakes & Mountains) or Ljubljana (City & Culture)
b) An Integrated new 'Highlights of Slovenia' holidays, which started with 25% of their time at two existing icons (Bled & Ljubljana), then the remaining 75% of the time allocation spent on the Heritage Trail

Testing of this product with a group of six UK travel professionals was extremely successful. A second tour with tour-operators from Germany and the UK in 2004, was less successful. In 2005 a specialist walking-tour firm assembled its bespoke and individualised Heritage Trail offer, and at the time of writing, Independent Tour Operator firms were preparing for launching on-line, two individualised alternative packages.

5 THEMATIC ROUTES – NEXT STAGE DEVELOPMENT…

From these well accepted initials we seek for further development of the product. Our thinking was led by the facts that:

- More than 75 % of tourist from foreign markets are seeking the active holidays,
- More than 50 % of the reservations are made by internet,
- More tourists want to change the destinations every couple of days, etc.
- So, we find out that we have to create the product which:
- Can be used by individual traveller in the same manner than by tour operator
- Will connect actual tourist offer in the region
- Will be supported by all new common and used technologies
- Will support active holidays
- Should be different than other products in the field of active holidays.

In 2009 and with financial support of the European Regional fund we successfully finished the project, which fulfil all that conditions.

With the project we built "back-bone" for four main activities hiking, biking, horse riding and rowing in the whole region. The routes are connecting natural and cultural heritage of the region with other tourist offer, such as accommodation, activities, information, services etc.

Figure 3 – map of GPS

Wholly digitalised and located by GPS, routes are now presented in the renewed portal http://www.slovenia-heritage.net/ l and the new built mobile portal http://activeslovenia.mobi. The product also is presented in the facebook and YouTube. Biking and horse riding routs are also visualised (figure3).

Main tourist offer of the region is showed on these attractive visualised routes and in the portal.

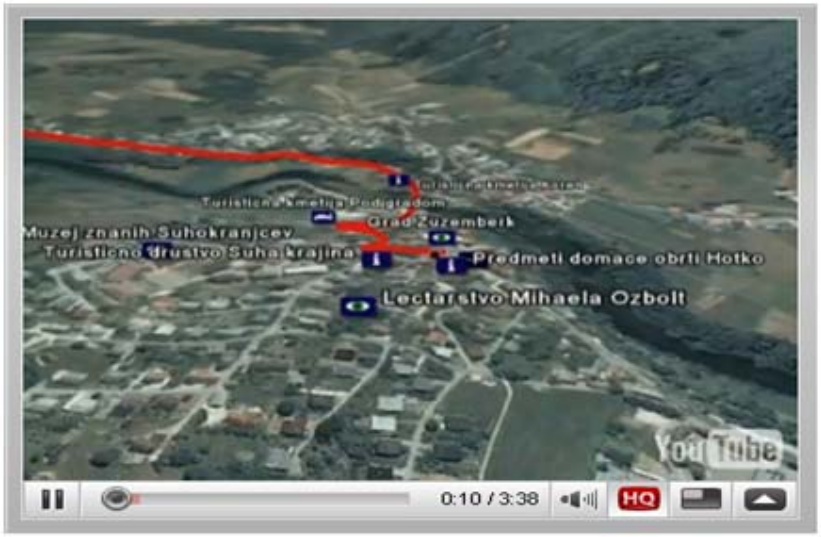

Figure 4 - GPS

The potential tourist can detail look and plan its holidays from home (internet). Once on the terrain, they can use Mobile, PDA, GPS devices (and print outs) to navigate himself on the region. For those who don't have enough time to create the holidays by themselves, the active tourist packages are (pre)-prepared and shown on the web as well (figure 4).

6 LEARNING POINTS

1. It is evident from the Case Study that the Heritage Recycling for Tourism phase was preceded by the work on Integrated Rural Community Development. This stimulated a community-based approach to development, in which context tourism was a part of the economic mix. This created a real hope of sustainability via the local communities support for a new mixed economy, thus indicating that sustainable development can underpin successful tourism, if the correct strategy is chosen
2. The evidence from the project has also made clear that heritage-resource based tourism development, if it is to be sustainable, must a) show respect for the carrying capacity of resource-zones - be they robust or fragile and b)have rural community involvement and commitment to tourism, because they have a stake in it, and have net gains from it
3. Much tourism development arises because the destination creates potential tourism products, due to the fact that they wish economic gain from them. Rural tourism products have to be adjusted to fit niche market demands that are highly competitive sectors internationally. Thus market awareness and understanding must be built-in early in the development process, or it becomes much longer and harder
4. New tourist destinations are very difficult to launch internationally, even if they have high accessibility, unless they can be linked and tied in to existing tourism icons or magnets. This new Slovene offer had to be adjusted to do just that.
5. The "gateway" identification is critical in new product formulation. Whether this be a selected airport, seaport, railway station or whatever. If the gateway is the airport of an attractive heritage city (such as Ljubljana), then both add-on package possibilities, as well as links to a popular 'short-city break' destination, add great value
6. Continuity of personnel in a development process is of real importance. The role of the Project Manager in initiation and continuity is critical, and the continuing interactions with external partners - who are supportive and share a belief in the integrity of the development, over the long term – is also valuable
7. This model ultimately is one of community-based multiple-stakeholders, having the equal support of small rural operatives and major agencies. The support from several levels: local, regional, national, and international, have

enabled the thirteen year development-cycle of the Dolenjska-Bela Krajina HT project to be achieved

7 THE ENTREPRENEURIAL COMMUNITY

Community involvement for ecotourism projects, within which concept sustainable rural tourism is included, is seen as a critically important area. Studies and programmes conducted by the World Wildlife Fund[13] and associated international agencies[14] which have sought to manage the preservation of endangered species of animals and their environments together with economic development for sensitive rural communities, have found that eco-tourism provides a valuable balance between what are often competing demands.

Community involvement in the planning and implementation process has often boosted community economic development and therefore precluded the need to adopt more exploitative types of development – e.g. quarrying, mineral extraction or mass-scale tourism. The WWF PAN Parks initiative was established for the purpose of protecting wild life in vulnerable European environments through the tourism limited by sustainable carrying capacity. This has ensured that the quality of the natural and cultural heritage of an area should not be damaged whilst also creating opportunities for entrepreneurship through community-driven tourism actions. This may involve micro and small businesses which are creating products and services derived from local or regional traditions or ethnography, and which create a unique selling point without creating cultural devaluation.

At the same time, there is evidence, as Denman and other commented that some ecotourism and rural development products fail because of the failure of the entrepreneurial vision. Projects fail to dynamise enough interest and generate visits, poor marketing decisions are made or inadequate marketing channel utilised. In some cases whilst the actual project location may be attractive, the surrounding region is sufficiently unattractive or poorly structured and thus blocks access in marketing and logistical terms.

The role of specialist or niche market tour operators can often be critical, as seen from the Heritage Trail case study in this chapter, can be an important component of the multi-stakeholder mix. This also applies to the quality of the accommodation and catering product; whilst eco-tourists and heritage-cultural tourists may not seek five star hotel products or standards, they will normally demand clean, comfortable and appropriate facilities. The level of those facilities and the pricing may depend on whether, for example, the overall visitor profile is directed towards backpackers rather than the "grey tourism" market (i.e. the over 55's). But quality is an important consideration and one which has been seen as essential to community-entrepreneurship balance.

8 CONCLUSION: CRITICAL SUCCESS FACTORS

There are good reasons why the Slovene Heritage Trail model is being successfully adopted in several neighbouring countries as an initiative for rural regeneration through sustainable tourism, namely:

Factor 1 - Economic regeneration

A heritage trail is created as a tool for rural economic regeneration. The heritage trail extends tourism from existing centres into new and undervisited areas, by increasing the number of visitors, extending their stay, and diversifying the attractions and services offered to them: expansion, extension and diversification.

Factor 2 - Contributing to regional tourism development

The heritage trail is a tourism product which makes the natural and cultural heritage of a region the focal point of the offering. The development of such a product is, therefore, an integral component of the development of the whole region as a tourism destination. However, a heritage trail is only one product, and many regions have other tourism products on offer which may not be included in the trail. In creating heritage trails in Slovenia, there was frequently a temptation to include all tourism attractions and services in the region. But to give into such a temptation would have been to lose the focus of a well defined tourism product.

Factor 3 - Complementing other tourism products

[13] Denman, R., Report for WWF: *Guidelines for community-based ecotourism development*, July 2004, The Tourism Company

[14] GTZ. *Sustainable Tourism as a Development Option: Practical Guide for Local Planners, Developers and Decision Makers.* GTZ/Deutsche Gesellschaft für Technische Zusammenarbeit GmbH, Eschborn/Germany, 1999

Although a heritage trail focuses on only some of the attractions of a region, it can be complementary to other tourism products on offer. For example, it can contribute to economies of scale in regional promotion - in Slovenia, the heritage trail and spa tourism were promoted jointly, and costs of this shared. A heritage trail can also contribute to a wider choice of products for target markets. Taking the example of Slovenia again, spa tourists may be interested in the heritage trail product, and heritage trail tourists may enjoy the spa facilities.

Factor 4 - Transferability

The heritage trails concept is transferable to other regions and countries where there is sufficient natural and cultural heritage to attract tourists and where there is a local desire both to benefit from tourism and to safeguard that heritage. This is particularly the case in parts of central and eastern Europe where established settlement patterns and rural economies have developed similarly to those in Slovenia.

Factor 5 - Sustainable tourism

A heritage trail focuses on the natural and cultural assets of a rural region. This runs the risk of exposing some of the most vulnerable sites in a region to excessive numbers of tourists. The preparation of a heritage trail, therefore, must include a tourism »carrying capacity study« at each proposed tourism site. If a sudden increase in tourists risked damaging the physical or natural attributes of a site, or if it were to exceed the tolerance of the local people, it should not be included in the heritage trail until preventive measures can be implemented.

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OCENJIVANJE KVALITETA LOKACIJE ZGRADA NA PRIMERU STUDENTSKOG DOMA KOD TEHNIČKIH FAKULTETA U NIŠU NOVOM TRANSPARENTNOM METODOM - „OPEN HOUSE“ [1]

Predrag Lukić [2], Đorđe Đorđević [3],

Rezime: Gradjevinski klaster „DUNDJER“, zajedno sa većim brojem evropskih organizacija, učestvuje na evropskom projektu FP7 pod nazivom „OPEN HOUSE“ (7th FP ENV - 2009.3.1.5.2). Nova evropska metodologija u razvojnoj fazi, ima za cilj da razvije i primeni zajedničku transparentnu metodologiju, koja će dopuniti postojeće metodologije za ocenu projektovanja i izgradnje održivih gradjevina koristeći otvoreni pristup i zajedničku tehničku platformu. Metodologija se zasniva na postojećim metodama za ocenu održive gradnje (BREEAM, DGNB, LEED,...), na postojećim Evropskim standardima (ISO TC 59/SC 17, CEN/TC 350), EPBD Ditektivi i njihovim nacionalnim transpozicijama i metodologijama za ocenu održivosti gradnje na medjunarodnom, evropskom i nacionalnom nivou. U ovom radu dat je pregled kriterijuma za ocenu kvaliteta lokacije poslovnih zgrada.

Ključne reči: Ocena gradjevina, održiva gradnja, evropske norme, ekološka gradnja, energetska efikasnost, lokacija

Abstract: The Construction Cluster „DUNDJER“ participates in the 7th FP European project entitled OPEN HOUSE (7th FP ENV - 2009.3.1.5.2). The overall objective of OPEN HOUSE is to develop and to implement a common European transparent building assessment methodology, complementing the existing ones, for planning and constructing sustainable buildings by means of an open approach and technical platform. OPEN HOUSE will develop a transparent approach able to emerge collectively in an open way across the EU. This approach will be communicated to all stakeholders and their interaction and influence on the methodology will be assured in a democratic way. The baseline will be existing standards (both CEN/TC 350 and ISO TC59/SC17), the EPBD Directive and its national transpositions and methodologies for assessing building sustainability at international, European and national level. This paper deals with criteria for assessment the quality of the loacation of office buildings.

Key words: building assessment, sustainable building, European norms, ecologic building, energy efficiency, building location.

[1] This work is in part supported by the EC funded Project, 7th FP ENV - 2009.3.1.5.2, and Serbian Ministry of Education and Science (research projects TR37003 and III44006)

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1 UVOD

Na OPEN HOUSE projektu učestvuje 11 zemalja EU i zemlje zapadnog Balkana. Aktivan saradnik na projektu (FP7-ENV 2009) je Gradjevinski klaster „Dundjer“ iz Niša.

Naučni i tehnički ciljevi projekta OPEN HOUSE su[4]:

- Definisati OPEN HOUSE pristup: otvorena i transparentna Evropska platforma za održivu gradnju,
- Promovisati OPEN HOUSE pristup i definisati mehanizme interakcije izmedju projekta i faktora odlučivanja,
- Izgraditi OPEN HOUSE platformu: podržati pan-Evropske napore za zajednički pogled na održivu gradnju,
- Učvrstiti način primene i ocene metodologije: izbor test-primera i mehanizama za donošenje odluka,
- Oceniti i poboljšati metodologiju koristeći rezultate test-primera i drugih sličnih slučajeva, kao i druge primedbe faktora odlučivanja,
- Dalje širenje i korišćenje OPEN HOUSE metodologije.

Osnove metodologije čine sledeće ocene[7]:

- Ekološki kvalitet,
- Socijalno-funkcionalni kvalitet,
- Ekonomski kvalitet,
- Tehničke karakteristike,
- Kvalitet procesa (projektovanja i gradnje),
- Položaj zgrade (lokacija) (tabela 1).

Tabela 1- OPEN HOUSE kategorije

“OPEN HOUSE” metodologija obuhvata pun sistem od 56 indikatora koji predstavlja rezultate predhodnih istraživanja. Kvalitet životne sredine se sastoji od 14 indikatora, Društveno funkcionalni kvalitet se sastoji od 18 indikatora, Ekonomski kvalitet se sastoji od 2 indikatora, Tehničke karakteristike se sastoje od 7 indikatora, Kvalitet procesa se sastoji od 9 indikatora, a Lokacija se sastoji od 6 indikatora. Kraći sistem se sastoji od 30 najbitnijih indikatora koji su izabrani na osnovu istraživanja. Svaki od indikatora može dobiti najviše 100 bodova[3] i [1].

Pri ocenjivanju se posebna pažnja posvećuje životnom ciklusu zgrade (Life Cycle Assessment): LCA rezultati zgrade koja se ocenjuje biće računati na standardizovan način i vrednovani ocenom pomoću benchmarkinga. Cilj svih LCA proučavanja je da se analiziraju i docnije vrednuju performanse odgovarajućeg “životnog ciklusa” zgrade[2].

2 OPIS LOKACIJE

U ovom radu data je analiza lokacije zgrada na primeru studentskog doma paviljon IV u Nišu koji je u sklopu kompleksa tehničkih fakulteta, 700m severno od Niške Tvrđave. U širem okruženju se od važnijih repera nalaze Duvanska i Mašinska industrija, autobuska stanica , kompleksi srednjih i visokih škola kao i aerodrom “Car Konstantin”. Analiziran objekat je od centra grada izolovan Niškom Tvrđavom i Gradskim poljem.

Sama lokacije se nalazi neposredno uz “Bulevar Nikole Tesle ”, a ujedno ima pristup iz ulice ” Aleksandra Medvedeva ”. Severno od studentskog doma se nalazi naselje Stevan Sinđelić, južno se nalazi studentska menza i auto saloni, istočno je kasarna “Knjaz Mihajlo”, dok se jugozapadno nalaze tehnički fakulteti (Elektronski fakultet, Mašinski fakultet i Građevinsko-arhitektonski fakultet). Zapadno od predmetne lokacije u toku je izgradnja novog studentskog doma (slika 1).

Slika 1- Izgled studentskog doma

3 KVALITET LOKACIJE

Kao jedna od ocena OPEN HOUSE metodologije, lokacija se sastoji od 6 indikatora i to[6]:

- Rizici lokacije,
- Uslovi lokacije,
- Opcije za prevoz,
- Stanje lokacije i susedstva,
- Blizina pogodnosti,
- Susedni mediji, infrastruktura, razvoj.

3.1 RIZICI LOKACIJE

Možemo razlikovati nekoliko vrste rizika:

- One koje se odnose na zemlju, geologiju, seizmologiju, vulkane,
- One koje se odnose na vremenske prilike, klimu,
- One koje se odnose na ljudsko delovanje (man-made hazards).

Ovi rizici lokacije se procenjuju korišćenjem rezultata Evropskog prostornog planiranja posmatračke mreže (EPSON 2006), projekat 1.3.1." Prostorni efekti i upravljanje prirodnim i tehnološkim opasnostima u odnosu na klimatske promene ".

3.2 USLOVI LOKACIJE

Ovde treba oceniti sledeće pod-indikatore koji imaju odlučujući uticaj na zdravlje ljudi:

- Kvalitet vazduha,
- Nivo ambijentalne buke,
- Zemljište i građevinsko zemljište,
- Kontamiranost lokacije,
- Eksploziv-municija,
- Pojava Radona,
- Elekromagnetna polja,
- Toplotni efekti,
- Vizuelne veze sa pejzažom.

3.3 OPCIJE ZA PREVOZ

Ovde se ocenjuju sledeći pod-indikatori:

- Pristupačnost od najbliže železničke stanice do glavnog ulaza zgrade,
- Pristupačnost najbližeg javnog lokalnog prevoza (autobus, tramvaj, voz, metro),
- Pristupačnost savremenih opcija prevoza (hibridna vozila, električne autobuske linije…),
- Efikasnost biciklističkih staza.

3.4 STANJE LOKACIJE I SUSEDSTVA

Sledeći pod-indikatori se ocenjuju:

- Usluge i interesi širom lokacije,
- Vizuelni aspekt okolnog pejzaža,
- Stopa kriminala.

3.5 BLIZINA POGODNOSTI

Cilj ovog indikatora je da se utvrdi broj i blizina glavnih pogodnosti objekta. Sledeći pod-indikatori se ocenjuju:

- Restorani, barovi, kafići, pekare, itd.,
- Nabavka: Supermarketi, prodavnice, itd.,
- Parkovi, rekreacija, zelene površine, itd.,
- Obrazovanje: Škole, univerziteti, obdaništa, itd.,
- Javna uprava: Opština, mesna zajednica, centri usluga građana, itd.,
- Medicinska nega: Ambulante, apoteke, bolnice, itd.,
- Sportski objekti: Fiskulturne sale, sportski tereni, banje, sportski klubovi, itd.

3.6 SUSEDNI MEDIJI, INFRASTRUKTURA, RAZVOJ

Ocenjujemo sledeće pod-indikatore:

- Pristupačnost energetskim mrežama,
- Pogodnost za solarnu energiju,
- Telekomunikacija,
- Kišnica, odvodnjavanje.

4 KVALITET LOKACIJE NA PRIMERU STUDENTSKOG DOMA

Nakon sprovedene OPEN HOUSE metodologije, kvaliteta lokacije na primeru studentskog doma paviljon IV u Nišu, kao i ocenjivanje 6 indikatora koji čine ovu kategoriju, rezultati su prikazani u Tabeli 2.

Tabela 2- Rezultati istraživanja kvaliteta lokacije po OPEN HOUSE na primeru studentskog doma

Kvalitet	OPEN HOUSE pokazatelj	Bodovi indikatora	Max bodovi	Stepen performanse	Indikator težine	Kategorija težine
LOKACIJA	Rizici lokacije	0	100	0	1	80%
	Okolnosti lokacije	75	100	75	1	
	Opcije za prevoz	100	100	100	1	
	Stanje lokacije i susedstva	100	100	100	1	
	Blizina pogodnosti	100	100	100	1	
	Susedni mediji, infrastruktura, razvoj	50	100	50	1	

5 PROJEKTNI TIM

Na kraju, vredno je napomenuti da, pored partnera sa Balkana, na projektu učestvuju sledeće organizacije:

- Acciona Infraestructuras, ES,
- Cae Services Geie, BE,
- APINTECH, Applied Industrial Technologies Ltd, GR,
- ARUP, Ove Arup & Partners Intnl. Limited, GB,
- Eusko Jaurlaritza-Gobierno Vasco, ES,
- BOUygues Construction, FR,
- Miasto Stoleczne Warshawa, PL,
- Slovenski gradbeni grozd – GIZ, SI,
- D'appolonia Spa, IT,
- DGNB, Deutsche Geselschaft für Nachhaltiges bauen, DE,
- Electricite de France S.A., FR,
- Eidgenössische Technische Hochschule Zürich, CH,
- Fraunhofer ß Geselschaft zur Förderung der Angewandten Forschung E.V., DE,
- Instytut Techniki Budowlanei, PL,
- Mostostal Warshawa S.A., PL,
- SP Sveriges Tekniska Forskningsinstitut AB, SE,
- Vivienda Y Suelo de Euskadi, S.A., ES,
- Gradbeni Inštitut ZRMK d.o.o., SI
- Fundacion Agustin de Betancourt, ES.

6 ZAKLJUČAK

OPEN HOUSE metodologija, čiji jedan segment – lokacija poslovne zgrade – je predstavljen u ovom radu, predstavlja nastavak već postojećih metoda za opštu ocenu kvaliteta zgrada (BREEAM, DGNB, LEED,...). Pojedinim elementima kvaliteta se već posvećuje pažnja i u našoj zemlji, no većem broju kriterijuma tek treba posvetiti pažnju i zakonski ih podržati. Generalni cilj navedene metodologije je značajno poboljšanje kvaliteta gradnje, uzimajući u obzir čitav životni ciklus gradjevine (sada 50 godina), kako u Evropi, tako u našoj zemlji.

LITERATURA

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KLASTERSKO POVEZIVANJE INSTITUCIJA U CILJU UBLAŽAVANJA EFEKTA SUŠE

Mladen Milanović[1], Slaviša Trajković[2], Milan Gocić[3]

Rezime: Učestala pojava suše poslednjih decenija, sa sve izraženijim negativnim posledicama, nameće potrebu za usko povezivanje i sadejstvo institucija koje u svom programu imaju borbu protiv suše, kako bi se smanjio rizik a time i nepovoljni uticaj u narednom periodu. Kako je suša regionalna pojava, efikasna borba zahteva uniformnost koja se može najlakše postići udruživanjem značajnijih činilaca u upravljanju sušom.
Jedno od mogućih rešenja je i klastersko povezivanje institucija vezanih za sušu. U radu je predstavljeno klastersko povezivanje institucija u cilju ublažavanja efekata suše.

Ključne reči: suša, udruživanje, klasteri, institucije

CLUSTER NETWORK OF INSTITUTIONS FOR DROUGHT EFFECTS REDUCTION

Abstract: Frequent incidence of drought in the last decades with progressive negative consequences imposes the need for close networking and cooperation of institutions supporting the program on drought reduction to decrease the risk of adversary effects in the forthcoming period. Since the drought represents a regional phenomenon, an efficient fight demands for a uniform approach that can be achieved through joining together all relevant factors in drought management.
One of possible solutions is the establishment of cluster network of institutions dealing in drought issues. This work paper elaborates establishment of cluster network of institutions in order to reduce the effects of drought.

Key words: drought, networking, clusters, institutions

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1 UVOD

Suša, za razliku od drugih prirodnih nepogoda koje nastaju naglo i imaju relativno kratko trajanje, javlja se lagano, može da traje dugo, zahvata veća prostranstva a njenu prostornu raspodelu nije lako unapred definisati. Suša nanosi velike štete raznim sektorima privrede i predstavlja ograničavajući element visokih prinosa.

Jedna od bitnih karakteristika suše, vezano za predikciju i borbu protiv nje je nepostojanje opšte prihvaćene definicije suše. Razlog je razumljiv jer probleme vezane za sušu rešavaju stručnjaci različitih naučnih disciplina koji imaju bitno različite kriterijume za definiciju i identifikaciju suše, a prisutan je i problem postajanja definicija suše u skladu sa njenim posledicama. Teškoće u borbi protiv posledica suše predstavlja i neusaglašeno delovanje raznih institucija koje se bave problemom suše, a dodatni problemi se javljaju i usled nedostatka istorijskih podataka o razvoju suša, kao i primena raznih indikatora suše.

Cilj ovog rada je da ukaže na složenost pojave suše, kako rane najave tako i borbe protiv njenog delovanja, a s druge strane na mogućnost udruženog delovanja i povezivanja institucija i firmi koje se bave ovom problematikom.

2 SUŠA

Suša je normalno svojstvo klime koje se karakteriše akumuliranim nedostatkom vode bez uočljive pravilnosti. Glavni uzrok suše predstavlja nedostatak padavina na nekom području u odnosu na uobičajene srednje padavine. Naravno sušu ne treba posmatrati samo kao fizički fenomen i prirodnu pojavu jer ona ima značajan uticaj na privredu celokupnog društva. Najvažniji klimatski element posle temperature su padavine, štaviše prognoza vremena se svodi na njihovo predviđanje jer su čovekove aktivnosti u velikoj meri zavisne od njih [4].

Suše su po prirodi regionalne, obično pokrivaju šira područja, traju duže nego drugi hidrološki ekstremi, npr. poplave. Zbog toga je posebno potrebno proučavati suše kroz regionalni kontekst, što opravdava ideju klasterskog povezivanja faktora vezanih za sušu.

Suša predstavlja uslove pri kojima je prisutan značajan deficit vlage koji nepovoljno utiče na vegetaciju, životinje i ljude u nekom regionu. Stoga se suša može razmatrati sa četiri aspekta, u zavisnosti od uticaja koji uzrokuje: meteorološki, hidrološki, poljoprivredni i socio-ekonomski.

Meteorološka suša se javlja kao posledica nedostatka padavina u toku dužeg vremenskog perioda na određenom prostoru. Ovaj nedostatak se definiše kao odstupanje količine padavina od normale, tj. od proseka koji je ustanovljen za određenu oblast i period.

Hidrološka suša je povezana sa pojavom i efektima manjka padavina koja u kombinaciji sa visokim gubicima isparavanja može dovesti do presušivanja plovnih reka i podzemnih voda. Sa hidrološkog aspekta interesantno je pratiti kako se manjak padavina odražava na celokupni hidrološki sistem.

Kod poljoprivredne suše, deficit padavina se uzima kao nedovoljno snabdevanje biljaka vodom, kada je potencijalna evapotranspiracija veća od stvarne, bez obzira na uzroke.

Socio-ekonomska suša bi mogla da se definiše kao događaj kada su potrebe za vodom veće od mogućnosti da se ona obezbedi tehničkim merama.

Postojeći tipovi suše su međusobno povezani, iako svaki od njih ima specifične faktore formiranja i uticaje.

Velike štete koje je suša nanosila u različitim sektorima privrede (poljoprivreda, vodoprivreda, energetika itd.) naročito tokom poslednje dve decenije XX veka, nameću potrebu preduzimanja odgovarajućih mera u cilju smanjenja rizika od suše, a time i nepovoljnih uticaja povezanih sa njenom pojavom u narednom periodu.

Borba protiv suše je kompleksan problem koji zahteva uključivanje brojnih faktora i sastoji se iz više faza: predviđanje suše, rana najava suše, identifikacija, analiza i monitoring suše, procena osetljivosti i na kraju stvaranje kontinuirane strategije i politike borbe protiv suše [3].

Pod predviđanjem podrazumevaju se analize i prognoze prosečnih uslova vlažnosti u budućnosti. Za ova predviđanja koriste se brojni hidrometeorološki parametri uz pomoć kojih se na osnovu statističkih analiza dolazi do verovatnoće prognoze suša [1], [2].

Procena osetljivosti na sušu se vrši na osnovu: padavina, trajanja osunčanosti, nagiba terena, zemljišnog pokrivača i načina korišćenja zemljišta i pedološkog tipa zemljišta [6].

U definisanju svih faza u borbi protiv suše moraju biti angažovani timovi stručnjaka raznih profila kako bi se došlo do kompleksnog i svrsihodnog rešenja.

Navodnavanje je najefikasniji ali i najskuplji način borbe protiv suše. Takođe, time se rešava samo problem agronomima, a ostaju brojni socioekonomski

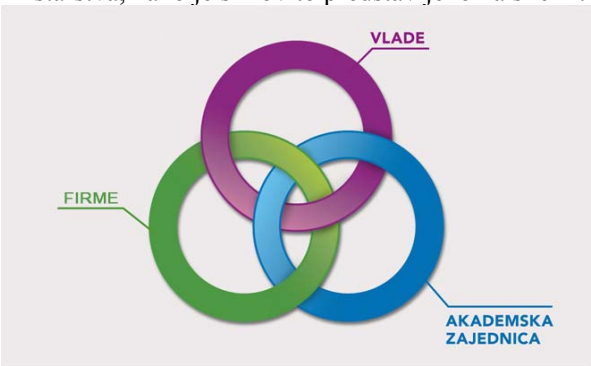
problemi usled suše na primer promena kvaliteta voda uzrokovanih sušom.

Mora se uspostaviti multidisciplinarni, uniformni i sistematičan pristup u cilju rešavanja kriza u slučaju suša.

3 KLASTERI

Klasteri su geografska koncentracija preduzeća i institucija, međusobno povezanih, na specifičnim ekonomskim aktivnostima [5].

U savremenom svetu, u razvijenim zemljama, klasteri se javljaju kao vrsta udruživanja koja povezuju i objedinjuju naučno–obrazovne institucije sa sektorom proizvodnje. Povezivanje ova dva sektora privrede dovodi do potrebe za uspostavljenjem širih zajedničkih interesa u delu nabavke, prodaje, usluga, radne snage i drugih resursa. Klaster kao organizacija treba da pomogne članicama da razviju svoju aktivnost, konkurentnost, inovativnost i povećaju profit [8]. Klasteri predstavljaju intersno povezivanje firmi iz određene grane uz uključivanje naučno-istraživačkih institucija i podrške nadležnog ministarstva, kako je slikovito predstavljeno na slici 1.



Slika 1 – Povezanost i sadejstvo tri faktora u klasterima

Klasteri se zasnivaju na dobrovoljnoj saradnji gde svi učesnici zadržavaju svoju samostalnost pri čemu je kooperacija ključna karika u postojanju i daljem razvoju.

Samim tim su jasno definisani i ciljevi postojanja klastera [7]:

- uspostavljanje, razvoj i korišćenje zajedničke mreže članica radi lakše komunikacije, razmene informacija kao i dostupnosti baze podataka,
- formiranje zajedničke strategije pri uticaju na obuku kadrova i sistem obrazovanja kao i uticaja na političke odluke bitne za rad klastera,
- olakšavanje procesa uvođenja i razvoja inovacija i novih tehnologija i
- širenje klastera odnosno uvođenje novih firmi kao i povezivanje sa srodnim klasterima.

Komunikacija među članicama je olakšana zajedničkim jezikom, problematikom, kao i obrazovanjem. Naravno, mora se pomenuti kritična masa učesnika. Samo sa dovoljno velikim brojem učesnika može se dobiti kritična masa, veština, znanja, tehnologija i sredstava, koja će se odraziti na učinak preduzeća.

Klasteri ne nastaju putem direktiva, već treba da budu formirani kao inicijativa njihovih budućih članica sa svojim potrebama i interesima. Nužno je da između članica postoji jasan cilj, odnosno da se zna šta se želi postići udruživanjem, jer spremnost i odgovornost za uspeh je u domenu preduzeća, menadžera, zaposlenih i vlasnika [9].

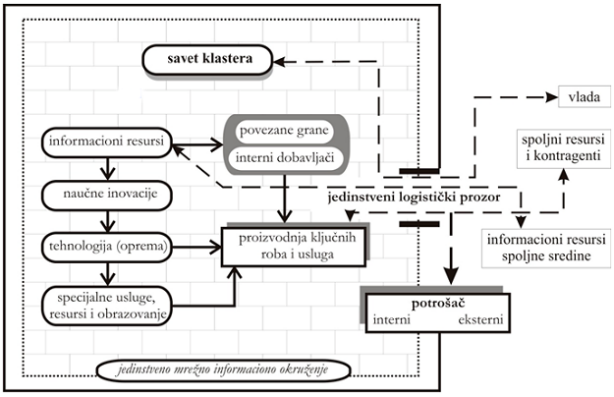
Država preko Ministarstva ekonomije i regionalnog razvoja može svojim podsticajnim programima da bude katalizator razvojnih procesa, ali ona ne propisuje strategiju razvoja klastera i oblike organizovanja. Jedna od opštih shema udruživanja prikazana je na slici 2. Selekcijom projekata, ministarstvo obezbeđuje ispunjenje ciljeva programa za razvoj klastera. U programu ministarstva predviđena je pomoć u tri faze [7]:

I faza – pomoć početnim inicijativama za povezivanje po konceptu klastera,

II faza – pomoć radu postojećih klastera u početnom periodu organizovanog rada,

III faza – pomoć rastu i komercijalizaciji klastera.

Nakon usaglašavanja potreba, definisanja vizije i cilja sledi i utvrđivanje aktivnosti u skladu sa ciljevima. Pravni okvir udruživanja u klaster može biti različit, a jedan od načina je putem ugovora. Ugovorom se moraju jasno definisati ciljevi, a isti mora da sadrži i određene elemente kako bi jasno izrazio volju ugovornih strana, kao i obim prava, obaveza i odgovornosti koje su one spremne da prihvate. Takođe, moraju se definisati povezane aktivnosti, značajna pitanja saradnje i njihov prioritet.



Slika 2 – Jedna od mogućih struktura udruživanja

4 POTENCIJALNI ČLANOVI KLASTERA

Grupu potencijalnih članova klastera mogu činiti: Centar za upravljanje sušom za Jugoistočnu Evropu DMCSEE, Republički hidrometeorološki zavod Srbije, Poljoprivredni fakultet u Novom Sadu, Građevinsko-arhtektonski fakultet u Nišu, Građevinski fakltet u Beogradu, Poljoprivredni fakultet u Beogradu, Fakultet tehničkih nauka u Novom Sadu, JVP „Srbijavode“, JVP „Vode Vojvodine“ i Ministarstvo poljoprivrede, trgovine, šumarstva i vodoprivrede.

Centar za upravljanje sušom za Jugoistočnu Evropu DMCSEE (Drought Management Centre for South East Europe) je regionalni projekat koji je okupio nacionalne hidrometeorološke službe i institucije sa ciljem da doprinesu poboljšanju spremnosti zemalja učesnica na sušu i smanjenju njenih štetnih uticaja.

Kako je suša više problem regionalnog a ne samo lokalnog karaktera, kao i nemogućnost zemalja da se pojedinačno bore sa ovim problemom, uočena je potreba za regionalnim udruživanjem radi zajedničke borbe i saradnje na praćenju, analizi, ranoj najavi i upravljanju sušama. Ideju o osnivanju ovog centra je dalje razradila međunarodna komisija za irigaciju i drenažu – ICID, koja je usvojila deklaraciju o potrebi uspostavljanja Centra za praćenje suša za jugoistočnu Evropu.

Projekat je prihvaćen i finansiran od strane Evropske Unije kroz program međudržavne saradnje u jugoistočnoj Evropi (South East Europe Transnational Cooperation Programme).

Predviđeno je da projekat bude završen 2012. godine do kada bi trebalo da se uspostavi regionalno praćenje suše, analize suše i činioci rane najave, zatim uraditi procenu regionalne osetljivosti na sušu i vršiti promocije u cilju poboljšanja pripravnosti na sušu u državama partnerima putem organizovanja treninga i nacionalnih seminara.

U realizaciji projekta iz Srbije učestvuju Republički hidrometeorološki zavod, kao vodeći partner i Poljoprivredni fakultet Univerziteta u Novom Sadu, departman za uređenje voda.

Republički hidrometeorološki zavod Srbije (RHMZS) je referentna ustanova u čijoj delatnosti su stručni poslovi iz oblasti meteorologije, hidrologije i klimatskih promena.

Kao godina osnivanja meteorološke službe u Srbiji smatra se donošenje uredbe vlade Kraljevine Srbije iz 1888. godine kada je ustanovljena jedinstvena mreža meteoroloških stanica. Aktivnosti službe su se stalno uvećavale i 1902. godine počela je i izrada prve prognoze vremena. Izveštaji o vremenu i vremenske prognoze su se već od 1912. godine objavljivale u listu Politika.

Savezni hidrometeorološki zavod (SHMZ) osnovan je 1947. godine čime je objedinjena hidrometeorološka služba na teritoriji čitave zemlje. Naša meteorološka služba bila je jedna od 45 svetskih službi koje su osnivači WMO (svetska meteorološka organizacija). Nakon prestanka sa radom SHMZ, RHMZS je, kao pravni naslednik, preuzeo sve obaveze, naročito u pogledu međunarodne saradnje.

Odeljenje za agrometeorologiju RHMZS-a vrši praćenje, analizu i ocenu vremenskih i klimatskih uslova na osnovu vrednosti indeksa suše, primeni agrometeoroloških modela i rezultatima klimatskih modela. Uslovima vlažnosti – praćenju suše i toplotnim uslovima poklonjena je posebna pažnja.

Poljoprivredni fakultet u Novom Sadu je osnovan 1954. godine, sa ciljem obrazovanja specijalista u oblasti poljoprivrede, razvoja istraživanja i doprinosa u povećanju poljoprivredne prozvodnje.

Osnovne funkcije fakulteta su: obrazovanje, naučno-istraživačka delatost i saradnja sa privredom.

Jedan od departmana fakulteta je i uređenje voda. Ovaj departman je osnovan 1976. godine, prvo kao Institut za uređenje voda.

Naučno-istraživačka delatnost se ostvaruje preko objavljivanja naučnih i stručnih radova, organizovanja naučnih i stručnih skupova, seminara i konferencija i razvoja naučnih i istraživačkih projekata. Departman je usko povezan sa privredom preko konsaltinga,

tehničke kontrole i revizije projekata, pružanja stručnih usluga za vodoprivredne i poljoprivredne organizacije.

Građevinsko-arhtektonski fakultet u Nišu je visokoškolska i naučno-istraživačka ustanova čiji su ciljevi, između ostalih i razvoj naučnih disciplina kao i transfer stečenih znanja u privredi. Svojim opredeljenjem da dostigne standarde evropskih fakulteta i postane partner u jedinstvenom prostoru visokog obrazovanja, katedre za hidrotehniku i vodoprivredu predstavljaju značajane partnere u udruženju institucija koje se bave problematikom vezanom za sušu.

Građevinski fakultet u Beogradu kao najstarija naučno obrazovna institucija kod nas preko svoje katedre za hidrotehniku i vodno-ekološko inženjerstvo na kojoj se neguju hidrotrehničke discipline u domenu zaštite voda, predstavljala bi nezaobilaznu kariku u klasterski povezanim institucijama u upravljanju sušom. Iskustvo, kadrovska opremljenost, laboratorije, brojni naučno-istraživački projekti u okviru saradnje sa privredom ili finansirani od strane vlade ili iz inostranstva, svrstavaju ovu instituciju među vodećim članicama klastera.

Poljoprivredni fakultet u Beogradu je visokoobrazovna naučna ustanova koja pored obrazovne obavlja i naučno-istraživačke poslove u oblasti: ratarstva, voćarstva i vinogradarstva, hortikulture, zemljišta i melioracija, poljoprivredne tehnike i agroekonomije. Takođe, fakultet obavlja razvojna istraživanja, studije i projekte u svim oblastima poljoprivredne proizvodnje.

Fakultet tehničkih nauka u Novom Sadu sa Departmanom za inženjerstvo zaštite životne sredine i zaštite na radu kao i Centrom za smanjenje rizika od katastrofalnih događaja, svojim obrazovnim i naučno-istraživačkim delatnostima bi dao pun doprinos radu klastera.

JVP „Srbijavode“ je osnovano za obavljanje vodoprivredne delatnosti na teritoriji Republike Srbije i na osnovu Zakona o vodama upravlja vodoprivrednim objektima u državnoj svojini kao dobrima u opštoj upotrebi. Osnovne delatnosti, kao delatnosti od opšteg interesa su: gazdovanje vodnim resursima, korišćenje voda, zaštita od štetnog dejstva voda i zaštita voda od zagađivanja.

JVP „Vode Vojvodine“ je već svojim osnivačkim aktom predodređeno da, poreda ostalog, uzme aktivno učešće u akciji upravljanja sušom. „Vode Vojvodine” je bila domaćin šestog radnog sastanka u okviru projekta za osnivanje Centra za kontrolu suše za Jugoistočnu Evropu, koji je usredsređen na praćenje i procenu suše.

Ministarstvo poljoprivrede, trgovine, šumarstva i vodoprivrede sa Upravom za poljoprivredno zemljište i Republičkom direkcijom za vode je ono telo koje će podržati sve korisne incijative članica i pomoći u stvaranju uslova za rad klastera.

Ovom spisku potencijalnih članica klastera suša moguće je pridodati i brojne firme koje se bave projektovanjem i uslugama u oblasti navodnjavanja, kao na primer: Agrosavet d.o.o. Vrbas, Aquaduct d.o.o. Beograd, Greeny d.o.o. Aranđelovac, Hidrokontrol d.o.o. Niš, i druge, a svakako bi bilo prostora i za saradnju sa MUP–om Srbije, odnosno Sektor za vanredne situacije.

5 ZAKLJUČAK

Politika klastera predstavlja danas vodeći koncept podsticanja privrede. Uzevši u obzir pobrojane probleme koji prate sušu, nameće se potreba za inovacijama, novim procedurama, standadima a isto i za novim upravljačkim strukturama institucija. Klastersko udruživanje bi bilo usredsređeno na praćenje i procenu suše, procenu rizika od suše i podložnosti ovoj klimatskoj pojavi na području Srbije.

Klasteri upravo manjim i srednjim preduzećima pružaju priliku da se kroz izgradnju mreža i kooperacijom afirmišu.

ZAHVALNOST

Rezultati istraživanja prikazani u radu su finansirani u okviru projekta Ministarstva za nauku i tehnološki razvoj Republike Srbije br. 37003 “Razvoj hidroinformacionog sistema za praćenje i ranu najavu suša”.

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LEDIB CLUSTER HOUSE ESTABLISHING PROJECT MANAGEMENT THROUGH MS PROJECT SOFTWARE APPLICATION

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Abstract: Establishing of LEDIB Cluster House Project is a business development project consisting of the small-scale construction works, interior design and staff recruitment. The project management was enabled through application of the basic concept implemented in 6 stages: Project Objective and Description; Identification of the Project Manager and Team; Project Implementation Timeline Planning; Identification of the Required Resources and Finances; Implementation Monitoring and Necessary Interventions and Project Closeout. The basic objective of the Project is the closeout (completion) in the shortest period of time and with the lowest expenses. Planning, monitoring and control of the project implementation rely on the software support of the Microsoft Project – the standard program for project management.

Key words: cluster, project management, MS Project, planning, monitoring and control.

UPRAVLJANJE PROJEKTOM USPOSTAVLJANJA LEDIB KUĆE KLASTERA PRIMENOM SOFTVERA MS PROJECT

Rezime: Projekat „Uspostavljanje LEDIB Kuće klastera“ je poslovno razvojni projekat koji obuhvata građevinske radove manjeg obima, uređenje enterijera i kadrovanje.Upravljanje projektom ostvareno je primenom osnovnog koncepta projektnog menadžmenta realizovanog u 6 faza: cilj i opis projekta; određivanje projektnog menadžera i tima; planiranje vremena realizacije projekta; utvrđivanje potrebnih resursa i finansijskih sredstava; praćenje realizacije i potrebne intervencije i zatvaranje projekta. Osnovni cilj projekta je završetak projekta u najkraćem vremenu i sa najnižim troškovima. Planiranje, praćenje i kontrola realizacije projekta oslanja se na računarsku podršku standardnog programa za upravljanje projektima Microsoft Project-a.

Klučne reči : klaster, upravljanje projektom, MS Project, planiranje, praćenje i kontrola.

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1 INTRODUCTION

LEDIB Cluster House is an innovative business organization established upon the initiative of the seven clusters from South-East Serbia, with professional and financial support of LEDIB[5], the Danish Programme for Local Economic Development in the Balkans. Formally and legally, it represents a union of clusters of construction, textile, agro, service and medical sectors, supported by the Serbian Chamber of Commerce and University of Nis. LEDIB Cluster House Mission is to provide technical support to Serbian clusters with the Vision to develop into the National Centre for Cluster Development.

Prerequisites for fulfilling the Mission and Vision of LEDIB Cluster House are provision of *logistic and staff capacities*.

Agreement on cooperation on the LEDIB Cluster House Project between LEDIB Programme and Regional Chamber of Commerce Nis created the opportunity for implementation of logistic support. Office space of 100 m^2 was provided along with access to electric, telecommunication and internet networks. Apart from offices, LEDIB Cluster House can use RCC Nis Meeting Rooms. The office space is at the LEDIB Cluster House's disposal for the period of 5 years, till the end of 2015, so that an innovative and unique business organization for cluster development in Serbia can be established and developed.

The results of the office space assessment revealed a need for *small-scale construction works*. The proposed *interior design* was made according to the needs of the organization, through LEDIB Cluster House concept analysis. The *staff recruitment* was performed according to the defined organizational structure.

Deadline for the completion of the abovementioned activities was *28 days*.

MS Project software application was used in order to manage the Project more efficiently and effectively. Application was designed to assist project managers in *development of plans, allocation of resources required for the implementation of the activity, monitoring of the project implementation by stages, budget monitoring and management, load analysis, organization of activities and work force,* all in order to complete the project within the planned deadline.

[5] www.ledib.org

2 MICROSOFT PROJECT ROLE

The Project Manager needs to work within *time, cost, scope and quality limits*.

Microsoft Project assists with the accomplishment of objectives on time and within budget. Computer software can significantly contribute to project management as a tool for recording, calculation, analysis and preparation of presentation in order to assemble all the project details. However, the Microsoft Project cannot produce or guarantee the successful Project Plan. Still, in many ways, the Microsoft Project can be valuable in planning and managing of a project:

2.1 MICROSOFT PROJECT ASSISTS IN DEVELOPMENT OF A BETTER PLAN.

Since the software requires precise identification of tasks necessary for completion of the project objective, the project details need to be carefully considered. Discipline, as a result of understanding these details, helps with organizing a good plan. Screen presentations offer organized presentations of plan details, facilitating visualization, organization and development of the Plan.

2.2 MICROSOFT PROJECT MAKES THE CALCULATED PROJECTIONS EASIER AND MORE RELIABLE.

Based on the input data, the Project calculates the schedule, presenting the beginning and ending of each task as well as when the certain resources (meaning personnel, equipment, plants, etc.) are supposed to perform certain tasks. If all the required data are provided, this schedule also presents the probable expenses of the Project.

2.3 MICROSOFT PROJECT ENABLES EASY TESTING OF "WHAT-IF" SCENARIO.

In order to find the optimal project plan, the Project enables experimenting with various elements of the plan until the best plan for organization is reached. This is an especially powerful feature of the Microsoft Project Professional.

2.4 MICROSOFT PROJECT ASSISTS WITH DETECTION OF INCONSISTENCIES AND PROBLEMS IN THE PLAN.

The Project detects whenever resources are used for a longer period than they are actually available, or when the final deadlines cannot be achieved with input limitations. It also aids with identifying and resolving of resources overload as well as problems with time deadlines.

2.5 MICROSOFT PROJECT ASSISTS WITH EXPLAINING THE PLAN TO OTHERS.

The Project provides printed Reports and Internet html reviews that facilitate approval of the Plan by the clients or top management. In a similar way, the Project makes explaining the Plan to supervisors and workers easier, simplifying the process of their approvals and cooperation. It is very easy to create useful Reports, which has been one of the top selling advantages of the Microsoft Project over the years

2.6 MICROSOFT PROJECT ASSISTS WITH MONITORING THE PROGRESS AND DETECTION OF POTENTIAL DIFFICULTIES.

After the start of the Project, and as the activities begin and end, anticipated dates for tasks from the schedule are replaced by the real dates. The software revises the schedule, so that actual dates are imported and new dates of the Project's completion and its expenses are projected. Those new projections provide valuable warnings on potential delays or cost overruns in order to undertake corrective measures, if necessary.

2.7 IF THE EXTERNAL CIRCUMSTANCES CHANGE AFTER THE START OF A PROJECT, THE MS PROJECT ASSISTS WITH ADJUSTMENTS OF THE PLAN AND OVERVIEW OF CONSEQUENCES

The following situations can be used as examples: when new amounts of salaries take effect or an organization is exposed to new regulations, etc.

However, the Project Management Software, as any other software, is useful only if inputs are reliable and complete.

3 MICROSOFT PROJECT APPLICATION IN A PARTICULAR PROJECT MANAGEMENT

Management of the business development projects consists of implementing the basic stages of a project life cycle, which are:

- Preparation and approval of a project proposal
- Project implementation planning
- Project implementation monitoring
- Project completion

In the first stage of a project life cycle, a project should be described from the qualitative and quantitative points of view by using appropriate forms or making a specific form for project proposal preparation. The project proposal form should include the following data: project name, information about an author of project proposal, short description of project proposal's compliance with investor's mission and vision; project description regarding general and specific objectives, areas of project activity, requested results and methodology; description of service providers; location and lasting of project in the sense of setting the time of project initiation, time planning of key activities, location at which the project will be implemented and locations included in the project if requested by the project implementation; budget for implementation of planned activities. A project proposal made in this way and supported by MS Project Reports for explaining the plan to the investor simplifies the process of obtaining the approval.

In the project implementation planning stage, based on the approved project proposal, and supported by WBS technique, detailed activities for the project implementation are identified, along with timeline for their implementation. Then there is the precise identification of the resources – equipment, material and staff required for implementation of the defined project activities. Required finances, i.e. the budget for the project implementation, should also be specified. This stage includes preparations for the start of the project implementation, like collecting bids from service providers in compliance with the detailed needs of the project and selection according to criteria

set by investor (price, quality, deadline, reliability, references.)

After preparation of the detailed Activity Plan, engaging the resources and expected expenses, implementation and monitoring of a project begin. The unplanned activities, and therefore expenses, might occur during this phase. Project Manager and Project Team then consider the newly occurred circumstances and make decisions to ensure the project implementation according to the plan.

After completion of all the planned activities, the final report is prepared, including the corresponding documentation confirming the implementation and effects of the planned activities.

During the business development Project, Establishing of the LEDIB Cluster House, the preparation and approval of project proposal were initiated according to the project life cycle stages. Preparation was done by the LEDIB Programme Component Coordinator, who filled in a corresponding form. It was based on the previously performed assessment of needs of the Project's beneficiaries, support of partners and market survey. Project proposal was presented to LEDIB Programme management, and after completion of the official Program procedure for the project approval, it was decided that the implementation could start.

Program Component Coordinator, as a Project Manager, forms the Project Team, initiating detailed planning of activities and resources. As this is a small-scale project, the Project Team consists of three persons: Project Manager, Project Assistant and Financial Associate.

The objective of the Project is reconstruction and equipping of the LEDIB Cluster House premises and selection and preparation of staff for its operations.

Three key activities are defined by the Project:

- *Small-scale construction works*,
- *Interior design according to the LEDIB Cluster House needs,*
- *Recruitment of staff*.

The Project is located at the premises of the Regional Chamber of Commerce Nis, first floor. Access, corridor and office space were supposed to be rearranged and adjusted to the demands of a modern business.

A shorter list of service providers was made according to key activities, and requests for bids and interior design proposals were sent to them.

The following tables contain specification and value of the planned investments regarding the LEDIB Cluster House Establishing Project implementation.

Table 1: Planned value of key activities[6]

nn[7]

DESCRIPTION	**Total**
Small-scale construction works	
Painting, locksmith works, electric installation works (entrance, staircase, corridor, 4 offices)	150
Interior design	
Equipping with furniture, carpets, curtains, floral decorations, chandeliers, paintings (entrance, staircase, corridor, 4 offices)	1.400
Telecommunication and IT equipment (switchboard, video surveillance system, IT equipment, networking)	830
Small inventory items and office supplies	60
Staff recruitment	
Selection and training of staff for day-to-day operations. Hiring an architect.	358
TOTAL	**2.798**

[6] Amounts in tables do not match the real project values.
[7] 'no name'

Table 2: Value of planned investments

Type of investment	Investments in 2011 in rsd
Small-scale construction works	150
Interior design	2.290
Staff recruitment	358
TOTAL	**2.798**

a) Defining the project structure (project WBS)

The Project needs to be broken down into certain activity stages and tasks.

Project Manager and Team defined the following stages and activities in the detailed project plan:

1. Small-scale construction works

1.1 Painting works
1.1.1 Selection of the service provider
1.1.2 Painting works at the entrance
1.1.3 Painting works at the staircase
1.1.4 Painting works at the corridor
1.1.5 Painting works at the offices
1.1.6 Monitoring of works
1.1.7 Activity implementation report

1.2 Locksmithing works
1.2.1 Selection of the service provider
1.2.2 Locksmithing works at the offices
1.2.3 Monitoring of works
1.2.4 Activity implementation report

1.3 Electric installation works
1.3.1 Selection of the service provider
1.3.2 Electric works at the entrance
1.3.3 Electric works at the corridor
1.3.4 Electric works at the offices
1.3.5 Monitoring of works
1.3.6 Activity implementation report

2. Interior design
2.1 Equipping with furniture

2.1.1 Shorter list of service providers
2.1.2 Submission of bids
2.1.3 Selection of the best bid
2.1.4 Payment
2.1.5 Preparation and assembling
2.1.6 Monitoring
2.1.7 Activity implementation report

2.2 Setting up of chandeliers, curtains, paintings, floral decorations, carpets
2.2.1 Shorter list of service providers
2.2.2 Submission of bids
2.2.3 Selection of the best bid
2.2.4 Payment
2.2.5 Preparation and assembling
2.2.6 Monitoring
2.2.7 Activity implementation report

2.3 Telecommunication and IT equipment
2.3.1 Shorter list of service providers
2.3.2 Submission of bids
2.3.3 Selection of the best bid
2.3.4 Payment
2.3.5 Preparation and installation
2.3.6 Networking
2.3.7 Monitoring
2.3.8 Activity implementation report

2.4 Small inventory items and office supplies
2.4.1 Shorter list of service providers
2.4.2 Submission of bids
2.4.3 Selection of the best bid
2.4.4 Payment
2.4.5 Receipt of goods
2.4.6 Monitoring
2.4.7 Activity implementation report

3. Recruitment of staff

3.1 Short list of candidates
3.2 Selection of candidates
3.3 Training
3.4 Monitoring
3.5 Activity implementation report

4. Probationary period (trial work)

Table 3 Defining the key events (milestones) of the project

Nr	Milestones	Target date
1.	Project approval and project team forming	01.02.2011.
2.	Defining the detailed activity plan	02.02.2011.
3.	Beginning of an architect's services	02.02.2011.
4.	Ending of an architect's services	22.02.2011.
5.	Beginning of activity plan implementation monitoring	03.02.2011.
6.	Ending of activity plan implementation monitoring	28.02.2011.
7.	Beginning of the stage of selection of service provider for small-scale construction works and interior design	03.02.2011
8.	Ending of the stage of selection of service provider for small-scale construction works and interior design	07.02.2011
9.	Beginning of stage – electric works	08.02.2011.
10.	Ending of stage - electric works	10.02.2011.
11.	Beginning of stage – painting works	10.02.2011.
12.	Ending of stage - painting works	17.02.2011.
13.	Beginning of stage – locksmithing works	21.02.2011
14.	Ending of stage - locksmithing works	22.02.2011.
15.	Beginning of stage – equipping with furniture	08.02.2011.
16.	Ending of stage - equipping with furniture	20.02.2011.
17.	Beginning of stage – chandeliers setting up	18.02.2011
18.	Ending of stage – chandeliers setting up	19.02.2011.
19.	Beginning of stage – curtains setting up	20.02.2011.
20.	Ending of stage – curtains setting up	21.02.2011.
21.	Beginning of stage – paintings setting up	22.02.2011.
22.	Ending of stage – paintings setting up	22.02.2011.
23.	Beginning of stage – floral arrangements setting up	22.02.2011.
24.	Ending of stage – floral arrangements setting up	22.02.2011.
25.	Beginning of stage – carpets setting up	22.02.2011.
26.	Ending of stage – carpets setting up	22.02.2011.
27.	Beginning of stage – staff recruitment	01.02.2011.
28.	Ending of stage - staff recruitment	22.02.2011.
29.	Beginning of telecom. and IT equipment installing	22.02.2011.
30.	Ending of telecom. and IT equipment installing	22.02.2011.
31.	Beginning of probationary work	23.02.2011.
32.	Ending of probationary work	28.02.2011.

Table 3 contains data that are the base for MS Project operations.

b) Forming the activity list with required time, resources and price of resources

Table 4 Activities, duration of activities and resources required for their implementation

Nr.	Activity	Next	Duration of activity	Resources	Quantity of resources
1	Project Team forming	2	1	LT[8]	1
2	Recruitment of staff	3	23	LT	3
3	Detailed activity plan defining	4	1	LT, architect	4
4	Hiring an architect	5	21	Architect	1
5	Selection of service provider	6	5	LT, architect	4
6	Activity plan implementation monitoring	7	26	LT	2
7	Electric works	8	3	Subcontractor1	1
8	Furniture	9	13	Subcontractor2	1
9	Painting works	10	8	Subcontractor3	1
10	Chandeliers setting up	11	2	Subcontractor4	1
11	Curtains setting up	12	2	Subcontractor5	1
12	Locksmithing	13	2	Subcontractor6	1
13	Paintings setting up	14	1	Subcontractor7	1
14	Floral decorations setting up	15	1	Subcontractor8	1
15	Carpets setting up	16	1	Subcontractor9	1
16	Telecomm.and IT equipment installing	17	1	Subcontractor10	1
17	Probationary period	18	6	LCH[9] staff	8

LEDIB Cluster House staff was recruited in compliance with the organizational structure in the stage of initiation of innovative business development organization LEDIB Cluster House concept:

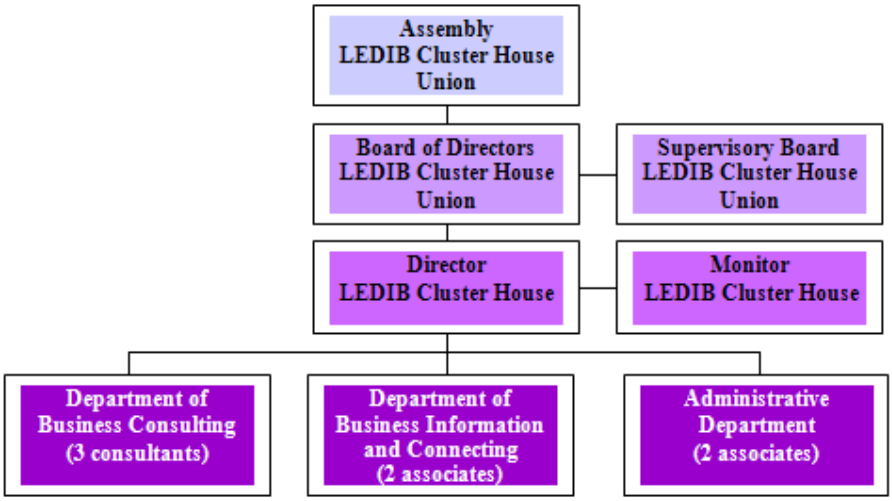

Figure 1 Organizational scheme of the LEDIB Cluster House in initial stage

[8] Short for LEDIB Team
[9] Short for LEDIB Cluster House

c) Project activities implementation expenditures

Human and material resources are needed for the implementation of this project.

Material resources - materials and equipment needed for small-scale construction works and interior design are provided by the subcontractors, so these expenditures will be treated as expenditures of subcontractors.

Table 5 Expenditures necessary for the project implementation

Nr.	Resource	Availability	Price
1.	Staff	9	358 nn/month
2.	Subcontractor 1	1	25 nn/work
3.	Subcontractor 2	1	935 nn/work
4.	Subcontractor 3	1	120 nn/work
5.	Subcontractor 4	1	95 nn/work
6.	Subcontractor 5	1	65 nn/work
7.	Subcontractor 6	1	5 nn/work
8.	Subcontractor 7	1	70 nn/work
9.	Subcontractor 8	1	55 nn/work
10.	Subcontractor 9	1	180 nn/work
11.	Subcontractor 10	1	830 nn/work
12.	Small invent. items & office supplies	1	60 nn/order

d) Defining the interdependence of projects

MS Project enables defining four types of relations between activities:

- finish-to-start (FS),
- start-to-start (SS),
- finish-to-finish (FF) and
- start-to-finish.

The order of activities and their mutual relations need to be defined so that the program could function well and perform certain calculations automatically (see Table 4, Columns 1-3)

e) Directions for MS Project plan making

The basic project parameters are set through *Tools Options*. Within this option, the basic data on the project are defined: project name, project manager, beginning date; calendar settings: working hours, days off, number of working hours within one week, winter and summer working hours; defining location on the disc for project recording; which monetary units to use, number of decimals, etc.

Entry of activities and their duration is done through *View Gantt Chart* menu option. The screen is divided into two parts – tables and Gantt charts. The part with tables has more than 250 fields. When a certain field is selected, a detailed window *Task Information* is opened, and then all the data for an actual activity are entered: name, duration, resources used, types of connections between activities, etc.

MS Project differentiates two basic types of activities: standard and macro activities on several levels. Activities can be grouped by levels, so that the whole Project can be presented by a macro activity or a group of activities through stages.

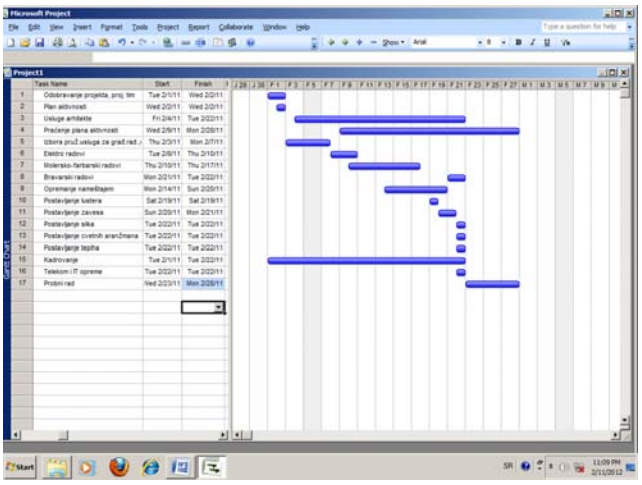

Figure 2 MS Project Tables and Gantt charts of activities

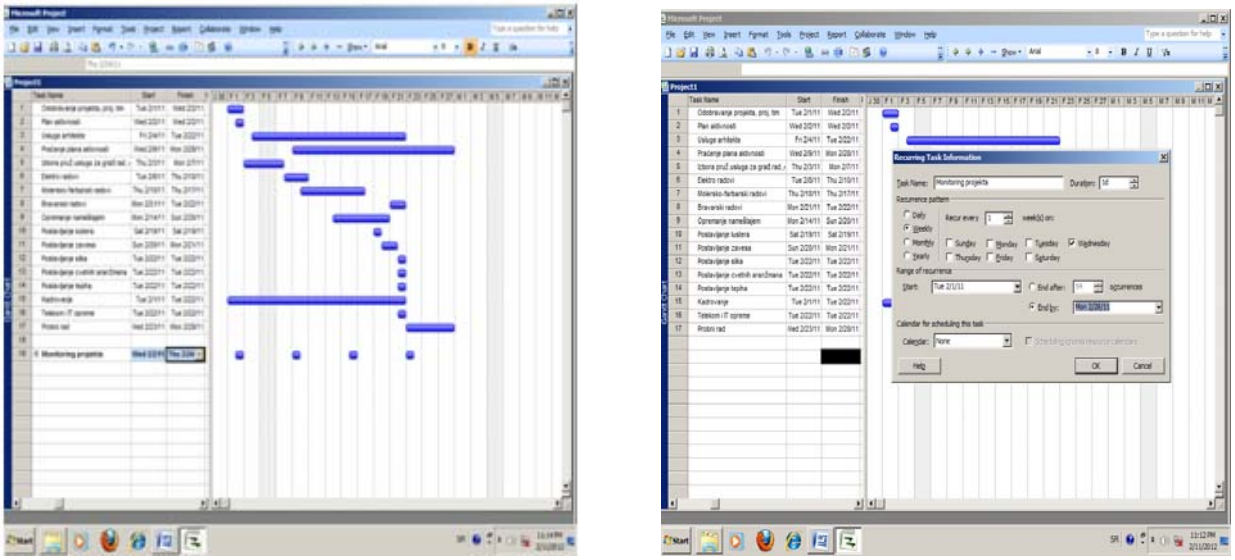

Figure 3 MS Project entry procedure and cyclic activity

MS Project enables entry of cyclic activities repeated in a certain time interval. Cyclic activity entry is done through *Insert/Recuring Task Information* Menu option.

The milestones are beginnings and endings of stages defined by the WBS structure. It is important to mention that the milestones are entered with time duration 0 and they have special appearance at the Gantt chart.

The project structuring is carried out through entry of a cumulative activity, for example detailed activity plan preparation and defining of all activities, like assessment of the needs of all the users of the project, partners support, market survey, evaluation of competitors, SWOT analysis. The project structure in the Project is made through *Indent* function.

Table of interdependence of activities (connecting of activities) is used for the input of data into the Project.

There are three types of resources in the MS Project: material, working resource (workers and machines) and subcontractors (costs of their services).

Resources entry is done through *View/Resource Sheet* Menu option, and the resource table consists of numerous fields for entry of: available quantity of resources, price, price in case of overtime, etc.

f) Project implementation monitoring

Once the project plan is defined, the baseline plan is recoded and the stage of project implementation is entered by using *Tools / Tracking / Save Baseline* options. The level of completion is inputted for each activity. Based on the completion of certain stages and activities, MS Project offers projection for the completion of the remaining activities, present expenditures, outstanding budget resources and possible differences with the planned expenses by every separate activity. These projections assist to project managers in making corrections on time, in order for the project implementation dynamics to remain within the planned framework.

g) Available MS Project Reports

MS Project offers a large number of different reports on the project's progress presented by graphs and tables. Menu option *Report* is used for reporting. Reports consists of complete project data, project cash flow and the level of completion of activities.

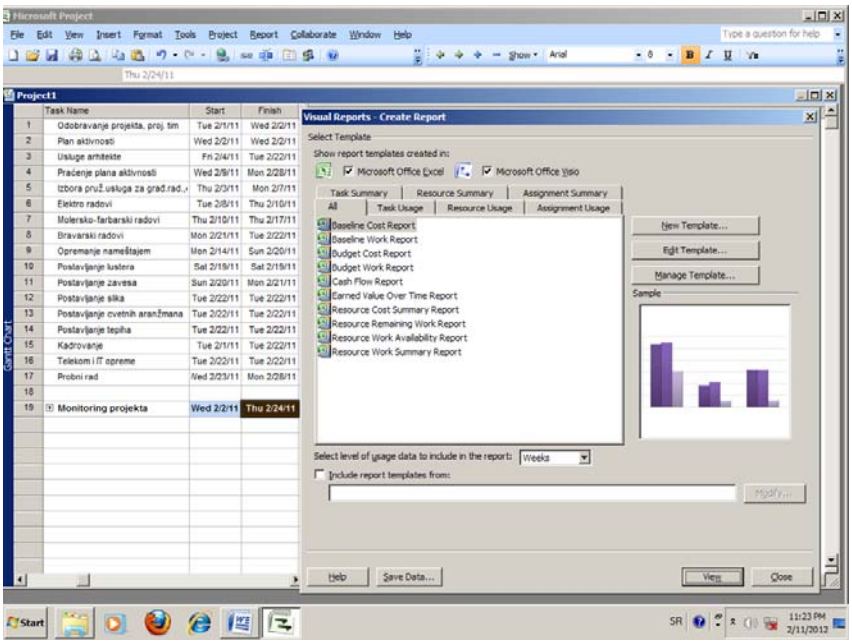

Figure 4 MS Project Report

4 CONCLUSION

The standard program for project management, Microsoft Project, is offering important assistance with the procedure of planning, monitoring and control of the project implementation. The reporting system that is a part of MS Project contributes to promotion of time management process, as well as the management of technical and human resources, expenditures and risks during the project. Due to trend of frequent changes of business parameters during the implementation of business development projects, management is of the utmost importance.

MS Project provides a complete and updated overview of the project concept, comprehending all the resources used and indicating optimal time of the project completion. Efficiency of MS Project use is

directly related to frequency of updating of data in the program. Continuous entry of actual and valid data on the implementation of the project activities contributes to accurate information on the quality and time of the project implementation.

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CLUSTERS – TOOL FOR ACHIEVING SUSTAINABLE ECONOMIC DEVELOPMENT

Danka Milojkovic[1], Goran Zlatković[2], Nebojsa Stojkovic[3]

Abstract: In order to adjust procedures in Serbia to the ones of other European countries, a strategic planning of cluster development in Serbia needs to be performed. There are more than 55 clusters in Serbia. Clusters represent significant tool of sustainable economic development. LEDIB Cluster House, an innovative organization, was formed in Nis in purpose of developing clusters all over South-East Serbia, with the mission to establish cooperation of business community organized into clusters and public and scientific-research sectors. Increase in the number of clusters in Serbia indicates that there is a need to create specific training for associates in the area of cluster development in Serbia. By applying the multidisciplinary approach in training of cluster facilitators, based on cooperation of Universities, business organizations and clusters, and with strong support of public sector, LEDIB Cluster House is contributing to creation of expert assistants – cluster facilitators, who will enable professional development of clusters in Serbia, strengthening thus the SME sector competitiveness through support to innovations.

Key words: cluster development, cluster facilitator, training

KLASTERI – ALAT ZA POSTIZANJE ODRŽIVOG EKONOMSKOG RAZVOJA

Apstrakt: U cilju usklađivanja Srbije sa drugim evropskim zemljama, javlja se potreba za strateškim planiranjem razvoja klastera u Srbiji. U Srbiji postoji više od 55 klastera. Klasteri predstavljaju važan alat u održivom ekonomskom razvoju. Inovativna organizacija LEDIB Kuća klastera je osnovana u Nišu radi razvoja klastera na području jugoistočne Srbije, sa misijom uspostavljanja saradnje između poslovne zajednice organizovane u klastere, javnog i obrazovno istraživačko razvojnog sektora. Porast broja klastera u Srbiji ukazuje na potrebu za kreiranjem posebne obuke za saradnike u oblasti razvoja klastera u Srbiji. Primenom multidisciplinarnog pristupa u obrazovanju klaster fasilitatora, zasnovanog na saradnji univerzitetskih institucija, poslovnih organizacija i klastera, a uz snažnu podršku javnog sektora, LEDIB Kuća klastera doprinosi stvaranju stručnih saradnika – klaster fasilitatora koji će omogućiti profesionalni razvoj klastera u Srbiji, a time ojačati konkurentnost MSP sektora kroz podršku inovacijama.

***Ključne reči*:** razvoj klastera, klaster fasilitator, obuka

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1 INTRODUCTION

LEDIB Cluster House, Union of Clusters from South-East Serbia, is an innovative business organization established upon the initiative of seven clusters from the fields of construction, textile, agriculture, medicine and business services. The Organization is supported by major national and international business organizations and University institutions.

Partnership of LEDIB Cluster House with organizations and institutions of national and regional importance such as Serbian Chamber of Commerce and University of Nis is contributing to fulfilment of LEDIB Cluster House vision and mission – to evolve into the national platform for cluster development and become one of key drivers of sustainable economic development in Serbia [1].

The most important aspects of partnership with Serbian Chamber of Commerce, the leading national business organization, are advocating for making and application of national cluster development strategy and lobbying for the interests of Serbian clusters with the representatives of Government and public institutions.

Cooperation with Universities is based on networking of the three pillars of competitiveness development [3]:

- Application of modern scientific and professional knowledge
- Implementation of innovations through R&D
- Inclusion of innovations into businesses (economy) and distribution of information related to good practices

Perquisites for establishing the abovementioned partnership are existence of logistic and human (personnel) resources.

During the stage of establishment, Cluster House created *logistic resources* with technical assistance of LEDIB Programme, whereas in the implementation stage it is working on *strategic development of personnel capacity*.

The need to initiate and develop clusters as one of the most important tools in sustainable economic development in Serbia created the need for establishing a new profession – the one of a *cluster facilitator* [6].

To manage cluster means to manage changes, and that further means having a clear objective, knowledge, experience, leadership skills, good information and networking.

Knowledge, skills and emotional intelligence of a cluster facilitator will influence the level of support to the cluster, and in that way the progress of its development. That is why training for cluster facilitators represents an important segment of achieving success in strategic development of clusters.

2 CLUSTER AS AN INTERNATIONAL TERM

Word "cluster" comes from the English language, and it stands for a group, flock, pile. "Cluster" is accepted as an international term and is used worldwide. Cluster is "a group of companies closely cooperating in order to achieve strategic collaboration with other companies, public sector and educational R&D institutions, since that kind of cooperation enables achieving of some competitive advantages that cannot be achieved independently by individual companies". [4]

Clusters are said to represent an important tool in achieving sustainable economic development in developing countries, as well as tool for achieving economic growth in developed countries. That is why cluster as a term has the same meaning all over the world, whereas cluster development concepts in developing countries are different from the ones in the developed countries.

Basically, cluster development is based on systematic and professional approach to identifying potentials and needs of cluster members, and organized activities in order to achieve synergetic effects of collaboration with business environment (other companies, public sector and educational R&D institutions) and satisfy the needs majority of members express.

Importance of cluster development concept application in a country's economy is demonstrated through creation of values such as achieving of [5]:

- Increased innovation,
- Increased employment,
- Increased economic development,
- More entrepreneurial initiatives.

[4] Source - "Cluster Learning Trip to Denmark" Presentation, September 20-22, 2011, REG X – The Danish Cluster Academy, Kolding, www.regx.dk

Researches have shown that **"**71% of companies that joined clusters have improved their competitiveness; increased specialization of clusters increases employment rate at the regional level; companies in clusters are four times more ready to be innovative; companies in clusters are four times more ready to join new R&D projects"[5][1].

3 CLUSTERS IN SERBIA

There is no reliable way to establish the exact number of clusters because of the way they are formed or the way they stop operating [4].

Clusters keep on developing all the time, starting from activities such as general gathering of companies of certain sector in order to achieve a mutual benefit, through networking and education, knowledge sharing, study tours, trainings, workshops, visits to companies, cluster strategies, branding, cooperation on projects, to analysis of market and trends, industrial analysis, strategic segmentation and strategy (value chain and sub-clusters), innovative cooperation, R&D projects, new business development, project and portfolio management, entrepreneurship, documentation and evaluation, strategic feedback.

By using various data sources like web-pages of Serbian Ministry of Economy and Regional Development, LEDIB Programme, SECEP Programme, Serbian Chamber of Commerce, internet searches etc., LEDIB Cluster House performed mapping of clusters in Serbia, identifying 55 clusters.

Considering industrial presence of clusters in geographic areas of Serbia, in South East Serbia clusters are located in Nis, and they operate in fields such as agriculture, construction, textile, recycling, IT, furniture production, business services and medicine. South-West Serbia is characterized by textile cluster located in Novi Pazar. Central Serbia is characterized by clusters located in Kragujevac – car industry, agriculture – horticulture, construction and furniture production, whereas Kraljevo is famous for tourism cluster. In Loznica, West Serbia, there is a cluster of textile industry. Belgrade is the home of clusters of old crafts, textile, car industry, IT, mechanical engineering industry, medical tourism, wood industry, recycling, cinematography, real-estate and agriculture – horticulture. In Vojvodina there are clusters operating in fields of agriculture, metal industry, IT, tourism and medicine (figure 1).

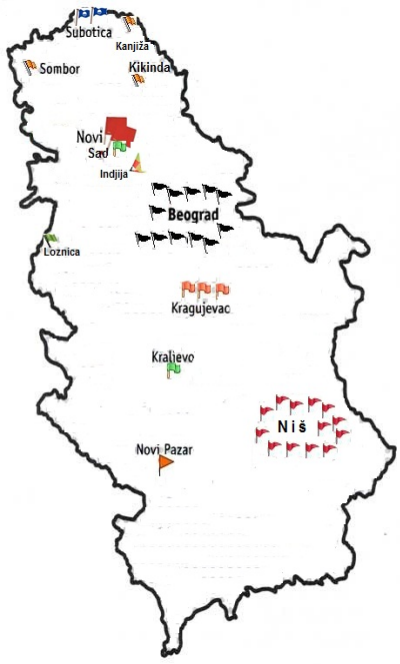

Figure 1. Map of Clusters in Serbia

Examples of successful cluster initiatives in Serbia are Construction Clusters Opeka-Brick, Dundjer and Construction Start up Cluster from Nis, Medical Cluster from Nis, Vojvodina Metal Cluster from Indjija, ISTAR 21 Danube Touristic Cluster from Novi Sad, AS Serbian Car Cluster from Belgrade, Sumadijski cvet (Flower of Sumadija) – cluster of flowers producers from Kragujevac, POLUKS of Kikinda – Cluster of Food Products of Serbia, IKT Vojvodina Cluster from Novi Sad, ReCraft from Belgrade, FACTS Cluster of Fashion Industry from Belgrade, Wood Agency – Cluster of Serbian wood processing companies from Belgrade.

Since 2007, cluster development in Serbia has been supported by Serbian Ministry of Economy and Regional Development, Office for European Integrations, SCC Cluster Council and international organizations through implementation of programs of support to sustainable economic development in Serbia such as Danish LEDIB Programme, Norwegian ENTRANSE Programme, EU SECEP and Progress Programmes, IPA Fund. Cluster development in Serbia is still performed according to programs of

[5] Source -"Cluster Learning Trip to Denmark" Presentation, September 20-22, 2011, REG X – The Danish Cluster Academy, Kolding, www.regx.dk

international organizations and invitations for project proposals in order to apply for available EU funds.

Considering a large number of cluster initiatives in Serbia, approach to cluster development should be a systematic one. After establishing of the National Cluster Council within Serbian Chamber of Commerce and information- service centre for cluster development in Serbia – LEDIB Cluster House in Nis, it is necessary to implement an organized approach to advocating for cluster interests in Serbia. Organized approach means that National Cluster Development Strategy needs to be framed and implemented as a part of Strategy of Serbia for joining EU.

4 CLUSTER ECOSYSTEM

Three actors play the most important role in the ecosystem of clusters [2]:

1. Companies,
2. Public sector, and
3. Educational R&D sector.

A successful cluster is created by companies ready to embrace the change, strong public sector that understands the importance of cluster, close cooperation among companies, educational R&D institutions and public management, devoted and motivated people who are ready to work together and a professional cluster facilitator.

5 ROLE AND RESPONSIBILITIES OF CLUSTER FACILITATOR

Cluster facilitators and cluster organizations play vital roles in transformation and revitalization of clusters in the country and as such they should:

- Act as agents of changes,
- Point out the need for change and promote innovative cooperation among partners in cluster
- Accumulate knowledge on cluster and global changes clusters come across
- Use and apply data and facts collected from cluster members as inputs for their strategic operations,
- Build bridges to other clusters – at regional, national or international levels – through continuous promotion of new cooperation and innovative partnerships among cluster members.

Cluster facilitator is an associate in development of a cluster operating in a certain industrial sector.

Main responsibility of a cluster facilitator is to comprehend the possibilities and needs of industrial sector through analysis of capacities and demands of members and establishing internal and external networking. Internal networking consists of horizontal and vertical networking of cluster members and supporting institutions within sectors, and external consists of opportunities for cross-border cooperation and networking with similar organizations, initiatives and partners that are important for operations of clusters and their members.

6 TRAINING AND DEVELOPMENT OF CLUSTER FACILITATORS

Strategic development of clusters is based on applying strategic management of personnel contributing to cluster development in the country.

Expertise and knowledge of cluster facilitators are basic resources of each cluster, as they represent basic factor for achieving objectives and additional values to cluster members. Decision making capacity, innovation, creativity, sense of community and team work, awareness on personal responsibility, as well as caring for personal development are important issues in human resources. Assets (property) are also important resources, as they require certain knowledge related to usage, such as identification of needs, project making, assumptions, safe use, maintenance, etc. Important resources are also intellectual property (patents, licences and other), internal norms, quality system as well as information systems. Market globalization and the fast rate of technological development are influencing expanding of the span of various skills required for successful use of cluster resources.

One of the cluster successfulness factors is a selection of a cluster facilitator. That is why the selection of a cluster facilitator should be done in a professional manner, taking all the aspects into consideration – knowledge and skills, motivation, dedication, emotional intelligence, readiness to work on development of his/her own capacities in order to provide the best technical support to cluster development.

Intelligence, character and emotional intelligence are prominent qualities all the people possess. Together they determine how a person thinks and acts. It is impossible to make predictions about one of them

based on the other. People can be intelligent without being emotionally intelligent, and also people with different types of personalities can be very intelligent. Out of the three, emotional intelligence is the only quality that is flexible and subject to change.

Emotional intelligence is a product of the two main skills: social and personal competences. Personal competence is focused more on a person as an individual, and is divided into self-consciousness and behaviour. Social competence is focused on how the person acts (behaves) with other people and is divided into social awareness and behaviour in internal relations with other people.

A comprehensive systemic approach to the selection of a cluster facilitator will contribute to achieving the highest level of improvement in cluster performances.

Permanent training of cluster facilitators and leading cluster members is of the greatest importance for the progress of clusters (figure 2).

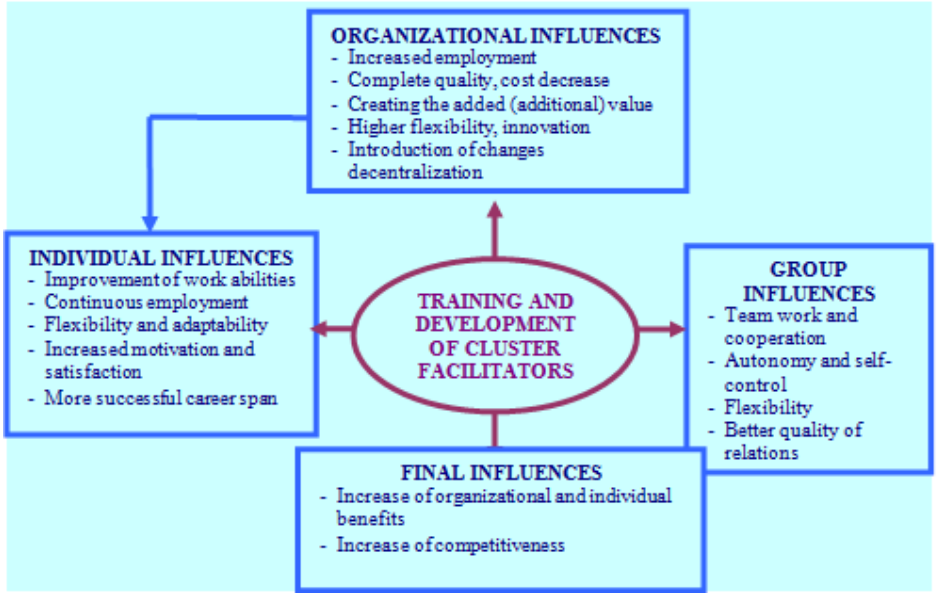

Figure 2. Influence of Education and Development of Cluster Facilitator

Through personal efforts, a cluster facilitator contributes to development of internal and external communication of cluster and benefits for companies – cluster members.

REG X, the Danish Cluster Academy, was formed at University of South Denmark in Kolding due to the need for cluster development in Denmark, and it is a national platform for competitiveness, knowledge sharing and networking of Danish cluster facilitators. The objective of Reg X is to make sure that Danish cluster facilitators are among the best in the world, to promote activities of Danish companies with open innovations in clusters, as well as to develop a world innovative training curriculum (program) in the regional business development.

Since there is a need for organized development of clusters in Nis District, Serbia, LEDIB Cluster House, the Union of South-Serbia Clusters, was formed with support of Danish LEDIB Programme, with a vision to evolve into Centre for cluster development in Serbia. The need to establish a formal curriculum for cluster facilitators in accordance with economic conditions in Serbia – a developing country, emerged from the need of clusters supported by LEDIB Programme that was accepted by Serbian clusters, members of SCC Cluster Council.

Trainings for cluster facilitators were formalized in a form of special curriculum implemented within four modules during eight months. Upon completion of specialization, participants get Certificates from LEDIB Cluster House and partnering organizations and institutions. Methodology of the specialized curriculum consists of both theory and practice implemented in cooperation with international and local experts. Modules of specialized curriculum for cluster facilitators in Serbia and developing countries consist of the following key areas:

- Cluster Ecosystem. Visibility
- Know thyself[6]
- Communication, motivation and the need to achieve
- Think globally, act locally

Training of cluster facilitators can be continued through appropriate courses like Project Cycle Management and Use of MS Project Application Software, to be applied during career of a cluster facilitator. As Hauron Hug suggests, the best definition of training of a manager is "Change in behaviour through gaining of experience", meaning that a cluster facilitator will be trained in the best way if trained during "real" situations, for example during the regular activities through tutoring by mentor, through projects and self-analyses.

7 CONCLUSION

Successful development of clusters is influenced by numerous factors: readiness of companies to change themselves, support of public sector to clusters, networking and cooperation of companies, education R&D institutions and public sector, dedication and motivation of people in cluster ecosystems and professional cluster facilitators.

Human factor is the most important in the overall organization and this should be on our mind constantly.

That is why special attention needs to be paid to development of cluster facilitator capacity through specially designed training curriculum, made according to cluster development needs in developing countries. A well-trained cluster facilitator with leadership characteristics, communication skills, good motivation and committed advocating for interests of cluster members can contribute to progressive and sustainable cluster development.

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[6] "GNÓTHI SEAUTHÓN" – according to the Legend, the inscription on Apollo's Temple in Delphi

THE CLUSTERS FUNCTION IN ACHIEVEMENT OF COMPETITIVENESS

Miladin Milošević[1]

Abstract: Contemporary competitiveness depends on productivity but not on its approach to production factors or company size. Productivity lies on a competition of companies, that is, organizations can improve productivity in any branch if use sophisticated methods, advanced technologies and offer unique products and services. Sophistication by which the company competes in certain area is greatly affected by quality of local business environment. Clusters operate on competitiveness of organizations in three ways: first, by increase of productivity of the companies in environment, second, supporting and managing the innovations contributing the productivity increase, and third, enhancing the initiation of the new business enlarging and strengthening the cluster**.**

Key words: clusters, competitiveness, productivity, complementary, innovations, motivation, new business forms

KLASTERI U FUNKCIJI POSTIZANJA KONKURENTNOSTI

Rezime: Moderna konkurentnost zavisi od produktivnosti, a ne od pristupa proizvodnim faktorima ili od veličine preduzeća. Produktivnost počiva na tome kako se kompanije nadmeću, odnosno, organizacije mogu da povećaju produktivnost u bilo kojoj grani ukoliko koriste sofisticirane metode, napredne tehnologije i nude jedinstvene proizvode i usluge. Sofisticiranost kojom se kompanije nadmeću u određenoj oblasti je pod velikim uticajem kvaliteta lokalnog poslovnog okruženja. Klasteri utiču na konkurentnost organizacija na tri načina: prvi, podizanjem produktivnosti kompanija u okruženju, drugi, podržavanjem i upravljanem inovacijama koje podupiru rast produktivnosti, i treće, podsticanjem pokretanja novih poslova koji proširuju i ojačavaju klaster.

Ključne riječi: Klasteri, konkurentnost, produktivnost, komplementarnost, inovacije, motivacija, nove forme biznisa

[1] Ekonomski fakultet u Beogradu

1 CLUSTERS AND PRODUCTIVITY

Membership in clusters enables companies to be more productive in acquisition of inputs, approach to information, technology, important institutions, and coordination with related companies, progress measuring and motivation [1].

Organizations within the cluster have better access to specialized and experience work forces and in this way they shorten the time of search for work force and the selection and recruitment costs. Reason for this is that clusters offer better opportunities form improvement and decrease fluctuation of employees. Besides this clusters attract easily talented people from other locations. In addition, well developed clusters have better possibilities for obtaining other important inputs. Clusters have broad and specialized basis of suppliers enabling them to obtain inputs from local instead global level which results in decrease of transaction costs, stocks, import costs, interruptions, etc. Vicinity improves communication and facilitates suppliers in timely fulfillment of obligations as well as to provide post-sales services such as installation and removal of deficiencies [6].

Information on competition, market and technological changes are faster accumulated within the cluster so that cluster's members have an advantage in approach to information. In addition, personal relationships and communication connections establish a trust and make easier the information flow. These conditions enable easier transfer of information through cluster [9].

Connections between the cluster members ensure that result is more favorable than sum of results of individual members. Synergic effect is revealed. For example, in typical tourism cluster the quality of client's experience does not depend on primary event but on quality and efficiency of corresponding contents such as hotels, restaurant, shops, quality of public transport, etc.. The reason is that members of the cluster are mutually dependent so the success of one of them directly operates on success of other. Complementary appears in many forms. The most obvious example is when organizations are complementary in meeting of clients' needs (tourism example). Special complementarities emerge from marketing. Clusters very often improve/increase reputation of certain location in certain area which as a consequence has that buyers will address to seller coming from that area firstly [8].

Government investments, such as investment into infrastructure and education programs, in great extent operate on productivity of organizations. Possibility to recruit a work force adequately skilled will decrease costs of training in the organization. Besides the state, there are other organizations that create the public interest increasing productivity in public sector. Investments of organizations into training programs, infrastructure, laboratories, etc, contribute to productivity. Such private investments very often are made by jointly because clusters can recognize the opportunity for common progress [9] and [1].

Local rivalry operates on organization with motivation. Pressure of other organizations increases competition within the cluster even in organizations which are not the competition but indirect competition. Whish to look „good"in local community will encourage organizations to try to outgo others. Clusters enable easier way of measuring and comparison of performance as all those organizations run a business under influence of the same circumstances, e.g. operation costs and market approach, and besides that perform similar activities. Managers are able to compare costs and performance of employees with other organizations [16].

2 CLUSTERS AND INNOVATIONS

In addition that clusters significantly operate on productivity, it is important to highlight that clusters play important role in improvement of organizational capability for innovations. Specified factors which increase current productivity have a great influence on organizational innovation as well. Reason for this is that buyers are often participants in clusters and hence the organizations members of clusters have better view on market than organizations acting independently. Moreover, connections with other organizations within the cluster helps companies to be first to learn on technologies in development, availability of machines and various components, service and marketing concepts, etc. Such learning is facilitated by undisturbed and often visits and permanent direct contact. Clusters not enable observation of innovation only but provide the possibility and flexibility to act quickly. Organizations within clusters have an opportunity to obtain elements before others needed for implementation of innovation and to experiment with less cost [10].

Innovations and new perceptions within cluster are being built on interaction of several technologically connected participants such as relation buyer-supplier or industry-university. There are four characteristic to

be identified as important for understanding the innovative processes in clusters [17]:

1. Innovation is based on process of incremental reduction of technological and economical weaknesses where new technologies, subjected to numerous modifications and business models, are adjusted to such process.
2. Innovations are based on continuous interactions through entire cluster, establishing the connections and specific communication model. This process of exchange and creation of new knowledge is enhanced by personal (face to face) contact.
3. Certain innovations are partially a result of technology transfer process, transfer of knowledge through academic education, action of regional private-public organizations focused on networking and commercialization of new discoveries.
4. Innovations find incentive in environment where various resources may be constantly rearranged under lower costs, through mobility of qualified work force, public stock exchange offer (IPO) and through other financial restructuring models. [2]

Innovation incitement is under pressure of competition, pressure of other participants in cluster, permanent comparisons appearing in the cluster, etc. Many empirical studies have confirmed that there is a strong connection between clusters and innovations. Using the data from European Cluster Observatory it can be concluded that there is a ling between the power and number of clusters in the region and innovative performances (number of patents). Those regions without clusters show weak performances from the point of innovation. From other side, European regions with clusters have much better performances. However, the power of cluster is not being determined by the level of regional innovation but the economic environment is of significance such as work force quality, research and education, access to business capital, good infrastructure, etc [11] and [6].

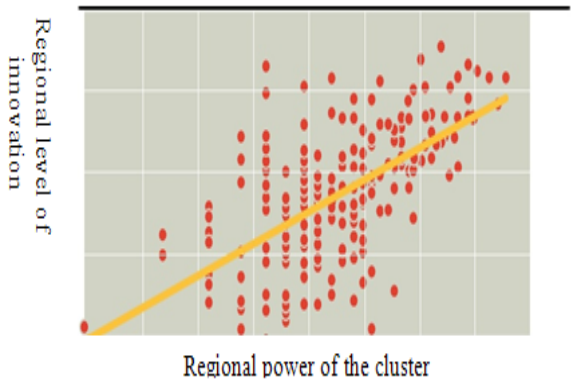

Figure 1 : Influence of cluster on innovation level

Source: Data from European Cluster Observatory. ISC/CSC cluster codes 1.0, dataset 2007analysis.

3 CLUSTERS AND NEW BUSINESS FORMS

It is not strange that the most of new organizations within the cluster growth faster than those operating independently. New suppliers, for example, have a good starting position within the cluster since they meet with broad basis of buyers and this reduce their risk and enable them better review of market opportunities. Moreover, developed clusters include related industries using similar or the same inputs presenting to suppliers additional possibility for success. Clusters are suitable for new business forms for many reasons. Individuals who work in clusters can observe product deficiencies much easier and that basis could develop own business. Besides this, barriers for access are less than anywhere else. Required assets, skills, inputs and personnel are usually available immediately and wait to be built in into new entrepreneurial business. Local financial institutions and investors cooperating with existing cluster may require less interest rate due to lower risk. In addition, clusters present important local market so that entrepreneurs can have the benefit from existing connections within the cluster as well. New business forms within the cluster are the part of positive feedback action. Increasing cluster strengthens these activities, improve the scope of competition resources which benefit to all cluster members. The final result is that organizations within cluster have relative advantage in relation to those acting isolated [10].

[2] Sölvell, Ö., Clusters: Balancing Evolutionary and Constructive Forces, Ivory Tower, Stockholm, 2008, p.37

4 BENEFITS FROM CLUSTERS

Networking of organizations into clusters brings certain advantages. In this way organizations have an access to large number of suppliers, experience work force as well as a possibility for transfer of knowledge between various participants. Organizations have a benefit from synergic effect since by mutual action use their resources in a better way than if do a business independently. Synergic effect can be presented as follows [9]:

$$f(a,b,c) > f(a) + f(b) + f(c)$$

Among all advantages offered by the cluster none is so important as access to innovation, knowledge and know-how. In contemporary economy based on knowledge, organizations seek their advantage through access to new, innovative ideas requiring geographical concentration of suppliers, buyers, highly qualified work force, development and research centers and industrial leaders. Empiric researches have shown that knowledge and know-how within certain industry are easily and faster accumulated and dispersed within innovative organization if participate in the cluster. Networking of organizations in clusters enables them to learn quickly on development in technology and change in consumers' behavior.

Benefits offered by the cluster can be divided into two groups: „hard"and „soft"benefits. „Hard"benefits are coming from more efficient business transactions, „wise"investment and reduced expenditures. „Soft"benefits are derived from permanent possibility for organizations to learn, benchmarking and from exchange of experience improving the knowledge leading to innovation and business development. Advantage observed and measured firstly is the one arising from concentration of required resources for certain business activity. Those resources, besides necessary inputs for production process, include some accompanying, specialized services. Such services include banks and accounting agencies with good knowledge of the market, consultants who are capable to solve specific problems, marketing agencies with good knowledge of consumers, etc [15].

Among the most important „hard"benefits is the access to educated and experienced work force in the cluster environment. Especially important is the work force with knowledge of specific profession because such work force can't be found so quickly. Presence of local suppliers is advantage, but in those industries where specific inputs are built in the product. In present business conditions the information and telecommunication technologies reduce the importance of distance of suppliers who provide companies with standardized inputs. Vicinity is important from the point of possibility to acquire specific inputs intensive with knowledge and depend on interactive research or necessary support in utilization. The chain of supply provides certain advantages but less than it was a case in 20th century.

Table 1: „Hard"benefits from clusters

Factor	Benefits
Speicalized work force	Better productivity
Specialized services	Fast and easy access
Input selection	Less costs, better quality
Spectrum of companies	Joint ventures, opportunity

Table 2: „Soft"benefits from clusters

Factor	Benefits
Consolidation	Common vision, planning, influence
Trust	Cooperation and trust beteen companies
Learning (1)	Transfer of technology and innovations
Learning (2)	Know- how

„Soft“ advantages present invisible factors which appear at networking of organizations and which can't be directly connected with profit or express quantitatively, but in many cases have a larger influence on business than „hard“ benefits. Benefits from these factors come from mobility of work force, flow of information and knowledge between organizations through formal and informal talks and discussions with other organizations, suppliers and consumers. Innovations present common and repeating processes and environment that encourages people to share their ideas promotes innovations in technology, products and processes. Advantage is in easy acquisition of knowledge, i.e. know-how owned by certain individuals and which is not formally published. Transfer of such form of knowledge requires personal contact and organization of business cooperation, organization of professional, social and other meetings [13].

5 DYNAMISM OF CLUSTERS AND COMPETITIVENESS

Dynamism presents a special dimension in clusters research and is expressed through the number and quality of connections within the cluster and number of external connection with international market. Variables such as mobility of production factors, networking level and dynamism in general are different between certain clusters. Dynamic clusters present basis for sophisticated strategies and have a role of driving force from the aspect of improvement of operations and innovations among existing organizations. Dynamism of clusters is important because [3]:

1. Organizations within clusters developing strategies and programs based on value chain create new organizational capacities through the process of internal competition.
2. Organizations in dynamic cluster share many activities through cooperation, such as exchange of technology, components or products.
3. Organizations within dynamic clusters function much more efficiently, using specialized instruments, relationships with suppliers and buyers in short periods. Resources and possibilities in the organizations, important for operation, may be acquired easily through developed network within the cluster.
4. Organizations within dynamic clusters may achieve top level of innovation and knowledge. Transfer of knowledge and daily interactions with buyers, suppliers and organizations, contributes to permanent improvements which present the basis for both technical (improvement of products and process) and other innovation (business model improvement).
5. Dynamic clusters create the environment where various resources (capital, work force, technology, etc.) may be „restructured“ quickly and mixed to create new and better combination of skills, capital and technology.
6. A number of new organizations within dynamic clusters have a growth tendency. Organizations which commence operation within the cluster are relayed on close cooperation with suppliers and buyers. The price of failure is usually minor within the cluster where many other opportunities are available.
7. Dynamic clusters in most cases present leading markets where buyers encourage development of technologies and innovations through tight interaction with suppliers.[3]

In addition, there are certain internal limitations that could influence to dynamism of the cluster (adapted according to Hannan and Freeman, 1984):

1. Investments into plants, equipment and specialized work force and infrastructure decreasing flexibility.
2. Increased ethnocentrism and NIH (not invented here) syndrome which denies all coming from environment.
3. Political limitation.
4. Rigid institution restraining changes in strategies and technologies.

External limitations mostly arose from technological changes out of clusters or due to war activities or some other exogenous factors.

6 CLUSTERS IN GLOBAL ECONOMY

Location of organizations has become important for economic success in global economy. General impression was that economical and technological

[3] Sölvell, Ö., Clusters: Balancing Evolutionary and Constructive Forces, Ivory Tower, Stockholm, 2008, p.19

changes occurred due to globalization, will diminish the role of location and therefore the cluster's role. However, economic reality rejected such position and shown that location from the economic point of view remained as important factor in understanding of differences in economic growth and prosperity between states and regions [12] and [5].

Lower trading cots, changes in technology, economic policy in many states as well as changes within the global trade have made competition much more international and intensive. Increased competition forces organization to be more focused on productivity and especially to innovations and knowledge. Organization has to use chances offered by global economy in order to become more efficient and innovative so that hold its market position.

Globalization has increased the role of cluster in two ways. First, competitive advantage placed in intensive local interaction within clusters got larger importance, as well as other sources of competitive advantage in regard with unequal approach to technology and inputs. Although competitors may cooperate with the same suppliers regardless to its location they, still can't utilize all connections and privilege provided by membership in the cluster. Second, knowledge has become important factor in value creation that increased the role of clusters because they present a key innovation factor relaying on ideas which continuously flow among organizations and research institutes, very often on non-structured and unplanned way. While technology became broadly available, unstructured knowledge creating the top value, remains bound to certain people and places.[4]

Globalization has not just increased the role of clusters and location but improved conditions of demand to be met by successful clusters, such as:

- Competition between clusters has increased. More and more locations fight to perform certain business activities which results in pressure to become aware of strong sides of competition..
- Increased competition forces clusters to be more specialized and to develop clear strategic positions. In the past, strong clusters had similar profile, but today there is a differentiation regarding activities (research and development, production, services, etc.) and market segmentation.
- Increased specialization level operates on number and intensity of connections between clusters and made that presence of such connections presents a key factor of the strong cluster. While in the past clusters presented isolated isles competing mutually, today they are the part of the global value where, very often, simultaneously compete and cooperate with each other.

Many industries have developed a global chain of value, as the answer to such changes in global economy, where the group of specialized clusters had developed complementary activities to serve markets of the large number of states.

7 CLUSTER INITIATIVES

Cluster initiatives are defined as organized efforts of organization and public sector in order to increase the growth and competitiveness of clusters. Cluster initiatives mostly include six key goals, specifically:

- *Improvement of the human resource sector* through professional training and education of employees. Such efforts could be focused to various target groups of people. Good examples are efforts to attract and keep students in certain region.
- *Clusters expansion* through fostering of investment in the region in order to increase the number of organizations participating in the cluster. One of ways to achieve this is support in formation of new organizations or attraction of organizations from the region. Incubators, as well, present the instrument for expansion of clusters. They offer a support in providing of physical equipment, preparation of financial and business plans, affiliation of entrepreneurs with financial institutions and possible buyers.
- *Promotion of business development* through various operations, such as e.g. support in export promotion.
- *Promotion of commercial cooperation* so that companies communicate with each other, e.g. through mutual purchasing or exchange of service to decrease expenditures.
- *Promotion of innovation* through networking and improvement of cooperation between companies or through improvement of

[4] Ketels, C., *The Role of Clusters in the Chemical Industry*, Harvard Business School, 2007, p. 11

cooperation between business sector and research/academic sector.

- *Improvement of business environment* betterment of microeconomic business conditions (improvement of legal and institutional environment as well as physical infrastructure).

Cluster initiatives are faced with various challenges in their endeavor to develop and improve clusters competitiveness. Due to impact of development policy of small and mid companies in some states the support to small companies and those in formation is more expressed. In addition, due to minor participation of large companies there are certain prejudices on large multinational companies. In order to achieve a full effect of cluster initiatives it is necessary that all types of organization be connected regardless to their size or ownership. Besides this, the role of state is very often limited on providing of financial incentive only. Although this is of great importance for initiation of common activities, there is still missing the public sector involvement in elimination of barriers preventing the productivity growth and innovations. Further challenge relates to research of possibilities of regional clusters networking and to become complementary part of the value chain in certain economic sector. Cooperation of clusters is amounted to exchange of operational experience for now. Certain challenges appear even in view of prejudices on technologically-intensive clusters considered to present the large economic potential. Clusters policy is based on such prejudices even the case is that service-intensive clusters very often present larger potential (transport, financial services, tourism, entertainment, …).

Cluster initiatives do not present universal remedy. They represent a reflection of increasing environmental complexity where the success depends on individual performance, but on many decisions of independent employers and government. Cluster initiatives present unique platform for coordination of activities in conditions of multiple interdependency, but without limitation on the impact of competition.[5]

[5] Ketels, C., *The Role of Clusters in the Chemical Industry*, Harvard Business School, 2007, p. 15

8 CONCLUSION

Clusters in great extent may enhance the competitiveness of organizations in global economy as a location has, in dynamic economic environment, a significant role in improvement of competitiveness advantage. Of course, this statement should not be understood verbatim since clusters do not present universal remedy with success guaranteed. Clusters as a form of economic networking of organizations provides a numerous advantages to its members, but to become concretized such advantages should meet certain preconditions. Proactive management position is one of the key preconditions which have to recognize all advantages provided by such networking and ways such advantages could be utilized. Clusters enable increase of competitiveness through creation of such environment advisable for: innovation, entrepreneurship and increased productivity. Particular advantage emerges from the state involvement in development of appropriate infrastructure for clusters activity as well as participation of educational and research institutions which in synergic action with other participants, significantly operates on final clusters' success.

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KLASTER KREATIVNE INDUSTRIJE I GRADITELJSKE BAŠTINE U NIŠAVSKOM OKRUGU, POTREBA ILI SUVIŠNA FORMA?

Aleksandra Mirić[1]

Rezime: Učlanjenjem u Asocijaciju evropskih gradova kulture i nedavnim usvajanjem strateških dokumenata poput Strategije kulturnog razvoja Grada Niša od 2012 do 2015.god. i Lokalnog plana napretka Qualicities, ispoljena je težnja Niša da potencijal kulturno-istorijskog nasleđa sa šireg prostora grada iskoristi za unapređenje ekonomskog, društvenog i kulturnog razvoja.
Osim prikaza realnog preseka i razloga za stanje nepokretnih kulturnih dobara Nišavskog regiona, u tekstu je kroz analitički pristup i sintezu iskustava evropskih gradova predstavljen model udruživanja aktera kulturnih industrija sa ciljem zaštite kulturno-istorijske baštine.

Ključne reči: kreativne industrije, industrije kulture, klaster, zaštita spomenika kulture, graditeljska baština, održivo uravljanje spomenicima kulture

CLUSTER OF CREATIVE INDUSTRY AND BUILT HERITAGE IN NISAVA DISTRICT – THE NEED OR NEEDLESS STRUCTURE?

Abstract: By becoming a member of Association of European Cities of Culture and recent adoption of strategic documents like Strategy for cultural development 2012-2015 and Local development framework Qualicities, City of Nis clearly expressed its tendency to use the potentials of cultural-historic heritage located on wider city territory for economic, social and cultural development.
Apart from presentation of assessment on the state and background of cultural goods of Nisava region, this paper represents the model of associating of cultural industry stakeholders with the objective to preserve cultural-historical heritage. Paper uses analytical approach and offers synthesis of experiences from different European cities.

Key words: creative industries, industries of culture, cluster, cultural monuments protection, built heritage, sustainable management of cultural monuments.

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1 UVOD

Tokom poslednjih decenija kultura je postala deo svetske ekonomije, prateći sličan model proizvodnje, razmene i potrošnje kao i svaka druga industrija. UNESKO tretira kulturne industrije kao sektor visoke važnosti i definiše ih kao „one industrije koje proizvode materijalne i nematerijalne umetničke i kreativne proizvode, i koje imaju potencijal za kreiranje bogatstva i generisanje prihoda kroz eksploataciju kulturnih dobara i proizvodnju robe i usluga (tradicionalnih i savremenih) baziranih na znanju. Zajedničko za sve kulturne industrije je korišćenje kreativnosti, znanja iz oblasti kulturne i intelektualne svojine za proizvodnju robe i usluga od društvenog i kulturnog značaja“.[2] Pojam kreativne industrije je, iako se često koristi umesto pojma kulturne industrije, mnogo širi od njega jer prevazilazi polje umetnosti i uključuje sve proizvode bazirane na kreativnosti.[3]

U svetlu aktuelne globalizacije, kulturna industrija se razvila u skladu sa opštim tendencijama, težeći da dosegne do što različitijih i većih ciljnih grupa i da postigne što bolje ekonomske rezultate.

Činjenica da se u mnogim porodicama iz celog sveta mogu pronaći replike Ajfelove kule, ili drugih simbola svetskih metroplola, ne govori uvek u prilog kulturnom aspektu, ali svedoči da rastuće interesovanje za kulturu različitih civilizacija otvara nove ekonomske mogućnosti. Ipak, komercijalizacijom kulture treba upravljati znalački i sa velikom pažnjom, kako bi se izbegla opasnost stvaranja disbalansa u popularizaciji istorijskih perioda, i samim tim spomenika graditeljskog nasleđa, koji su po svojoj prirodi atraktivniji za prezentaciju i komercijalizaciju, od onih jednako vrednih, koji su manje atraktivni.

Zbog evidentnog ekonomskog potencijala istorijskog nasleđa, kulturni i kreativni elementi njegove prezentacije zauzimaju značajno mesto u politikama održivog razvoja razvijenih svetskih zemalja, kako na nacionalnom, tako i na lokalnom nivou. Prema podacima Ujedinjenih nacija, učešće kulturne i kreativne industrije u ukupnom fondu novootvorenih radnih mesta je od 1990.god. u stalnom porastu.[4] Svetska banka prepoznaje kulturne i kreativne industrije kao značajnu ekonomsku granu jer je procenjeno da one generišu više od 7% svetskog bruto domaćeg proizvoda i prognoziran im je godišnji rast od oko 5%.[5] Upravo zbog ekonomskog priliva koje savremena kultura i istorijska baština obezbeđuju i sve veće svesti o značaju kulturnog aspekta za savemeno društvo, klasteri kreativnih industrija su u žiži svetskih inicijativa.

U ovom radu će, s obzirom na raznolikost graditeljskog nasleđa šire teritorije današnjeg Niša, biti razmatrana potreba formiranja klastera kreativne industrije i graditeljske baštine.

2 STANJE I POTENCIJAL GRADITELJSKOG NASLEĐA U NIŠAVSKOM OKRUGU

Nišavski okrug čine grad Niš i opštine Aleksinac, Doljevac, Merošina, Ražanj, Gadžin han i Svrljig kao i gradske opštine Medijana, Pantelej, Crveni krst, Palilula i Niška banja. Grad Niš je administrativni centar Nišavskog okruga i društveno, privredno, obrazovno, zdravstveno i kulturno sedište jugoistočne Srbije.[6]

Brojni materijalni ostaci iz različitih perioda svedoče o kontinuitetu naseljavanja ovih krajeva. Najstariji tragovi života, artefakti pronađeni na lokalitetu Kremenac, potiču iz srednjeg paleolita. Ostaci neolitskog naselja pronađeni su na lokalitetima Bubanj i Velika humska čuka. Tokom kasnijih perioda, Niš je, zbog svog atraktivnog geografskog položaja bio primamljiv za mnoge osvajače, tako da su teritorijom na kojoj se nalazi današnji grad vladali Dardanci, Tračani, Iliri, Kelti, Rimljani, Huni, Avari, a zatim i Vizantinci, Srbi, Bugari i Osmanlije. U više navrata grad su zauzimali Mađari i Austrijanci. Od Turaka je oslobođen 1878. godine i od tada se ponovo našao u sastavu Srbije, s kratkim prekidima okupacije u toku Prvog i Drugog svetskog rata.

Arhitektonska raznolikost graditeljskog nasleđa posledica je uticaja različitih naroda koji su na široj teritoriji grada boravili. O značaju kulturne baštine svedoči činjenica da se čak 17 nepokretnih kulturnih dobara od velikog i izuzetnog značaja[7] nalazi na

[2] UNESCO, Backgrounder on Cultural Industries, str.1, preuzeto 10. juna 2012 sa: http://www.unescobkk.org/fileadmin/user_upload/culture/Cultural_Industries/HK_Open_Forum/Backgrounder-FINAL.pdf

[3] Kisić, V., Kulturne i kreativne umetnosti u Evropi, Kultura, br. 130, , 2011, str. 199-225, 201

[4] Cano, G.M, Garzón, A., Poussin, G., 2000, str.12

[5] World Investment Report: The Shift Towards Services, 2004, str. 3

[6] http://www.nis.okrug.gov.rs/src/index.php

[7] Zakonom o zaštiti kulturnih dobara iz 1977. godine nastala je kategorizacija kulturnih dobara, koja su u zavisnosti od značaja razvrstana na kulturna dobra, kulturna dobra od velikog značaja i kulturna dobra od izuzetnog značaja.

teritoriji Nišavskog okruga.[8] Stanje ovih objekata, kao i objekata iz ukupnog fonda nepokretnih kulturnih dobara, bez izuzetka, nije odgovarajuće s obzirom na njihov značaj. Nepotpuna istraženost objekata ili arheoloških lokaliteta, loše stanje konzervacije, neodgovarajuća prezentacija spomenika kulture i nedostatak osmišljenih kampanja njihove popularizacije karakterišu trenutno stanje graditeljske baštine u Nišavskom okrugu.

Slika 1 – Neki od amblematičnih spomenika kulture Nišavskog regiona, s leva na desno: Čegar-Niš, Medijana-Niš, Pasterov zavod-Niš, Latinska crkva-Gornji Matejevac, Crkva Sv. Stefana-Lipovac.

Razloge za ovakvu situaciju treba tražiti u niskom nivou svesti o značaju kulturno-istorijskog nasleđa i neadekvatnim zakonskim rešenjima u vezi zaštite nasleđa, kao i nepostojanju obaveze da se u njega ulaže i da se održava. Takođe je i centralizovanost službe zaštite spomenika kulture koja se sastoji od Republičkog zavoda za zaštitu spomenika kulture i mreže regionalnih, međuopštinskih, opštinskih i gradskih zavoda, kojoj pripada i Zavod za zaštitu spomenika kulture Niš, imala znatan uticaj na trenutno stanje nasleđa ne samo Nišavskog, već i drugih okruga van republičke prestonice. Naime, svi zavodi mreže na nepokretnim kulturnim dobrima koja spadaju pod njihovu nadležnost planiraju radove. Ovi planovi se usklađuju i određuju se prioriteti za realizaciju. U praksi, često politički i drugi pritisci utiču na promenu prioriteta, tako da značaj spomenika ili njegovo stanje ugroženosti prestaju da određuju redosled raspodele ograničenih finansijskih sredstava republike. Ulaganja Grada Niša u kulturu poslednjih godina iznose oko 6% ukupnog gradskog budžeta.[9]

Najveći deo ovih sredstava koristi se za finansiranje ustanova kulture, a samo neznatan deo se ulaže u realizaciju programa prezervacije, prezentacije i popularizacije spomenika kulture. Ovakva situacija je u mnogome posledica nedostatka jasno definisane politike održavanja i upravljanja spomenicima kulture na nivou Niša i Nišavskog okruga.

Nedavno donešene odluke Grada Niša pokazuju težnju da se situacija popravi. Grad Niš je oktobra 2009.godine postao član AVEK, Asocijacije evropskih gradova kulture, čime je ispoljio višegodišnju težnju da prezentaciji lokalnog graditeljskog nasleđa doda dimenziju internacionalne vidljivosti. Potpisivanjem Evropske povelje gradova i područja kulture i baštine, predstavnici lokalne vlasti su se obavezali da će sva buduća delovanja na zaštiti graditeljskog nasleđa, sa ciljem prezervacije spomeničkih vrednosti i očuvanja kulturološkog svedočanstva prošlosti za nasleđe budućim generacijama, biti podređena ciljevima oživljavanja baštine namenjene svima, nasleđa koje će biti mesto susreta i kulturnih razmena i koje će biti jedan od pokretača održivog razvoja zajednice.[10] Usvajanjem strateških dokumenata poput Lokalne Agende 21 za kulturu, Strategije kulturnog razvoja Grada Niša od 2012.– 2015.god. i Lokalnog plana napredka za održivo upravljanje spomenicima kulture Qualicities[11], jasno su definisani pravci delovanja u oblasti prezentacije kulturno-istorijskog nasleđa koje je prepoznato kao komparativna prednost na osnovu koje Niš sa svojom širom teritorijom treba da gradi svoju konkurentnost. Većina projekata predviđenih Strategijom kulturnog razvoja 2012 – 2015 odnosi se na istraživanje i zaštitu graditeljskog nasleđa, poput nastavka arheoloških istraživanja sa konzervacijom objekta sa oktagonom u Gradskom polju, dovršetka rekonstrukcija bedema Tvrđave, parternog uređenja prostora i revitalizacije objekata iz doba otomanske vladavine, izrade zaštitnih konstrukcija nad sačuvanim delovima Rimske vile sa peristilom kao i vrtno uređenje vile i njene neposredne okoline na lokalitetu Medijana, nastavka istraživanja na kompleksu

[8] Prema podacima Republičkog zavoda za zaštitu spomenika kulture u Beogradu, spomenici kulture od velikog i izuzetnog značaja na teritoriji Nišavskog okruga su: Zgrada Oficirskog doma-Niš, Zgrada Pasterovog zavoda-Niš, Zgrada starog Načelstva-Niš, Kulina (Balajnac)-Gradište, Latinska crkva-Gornji Matejevac, Logor 12. Februar-Niš, Manastir sv.Stefana-Lipovac, Manastir Sićevo-Sićevo, Mediana-Niš, Niška tvrđava-Niš, Ranovizantijska grobnica sa freskama-Niš, Srednjovekovni grad Koprijan (Kurvingrad)-Malošište, Ćele-kula-Niš, Humska čuka-Hum, Crkva Vaznesenja-Veliki Krčimir, Čegar-Kamenica i Šančevi iz I srpskog ustanka- Deligrad.

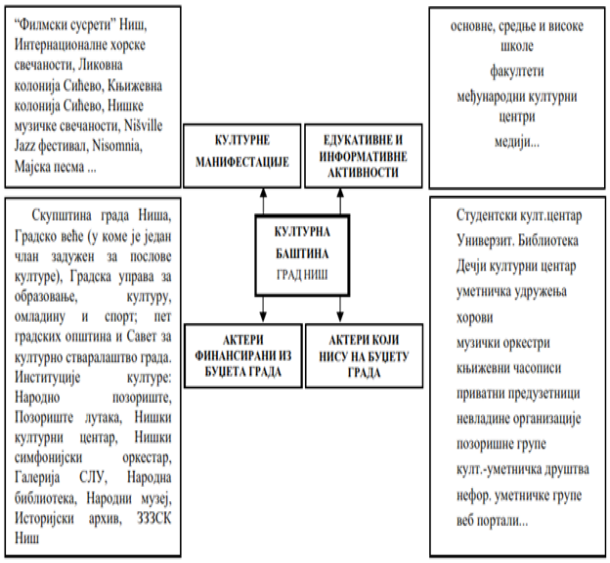
[9] Strategija kulturnog razvoja Grada Niša od 2012.– 2015.god, usvojena na sednici Skupštine grada Niša u decembru 2011.

[10] Prema Mirić, A., 2012, str. 487

[11] isto, str. 486, Metodologija Qualicities kroz adekvatnu edukaciju zaposlenih, umrežavanje i unapređivanje komunikacije javnih službi i ojačavanje simbiotičkih veza između preduzeća, građana i javnih službi za cilj ima diferencijaciju lokalnih zajednica kao celina specifičnih kulturno-istorijskih vrednosti koje su pozitivno vrednovane od strane stanovnika i posetioca.

ranohrišćanskih grobnica u Jagodin mali, izgradnje spomen kuće na Čegru i sl.

Osim graditeljske baštine Niša, materijalnog traga arheološke i umetničke istorije, kao potencijalni resurs lokalnog ekonomskog, kulturnog i društvenog razvoja, u pomenutim strateškim dokumentima prepoznata su karakteristična prirodna obeležja-pejzaži nesumljive lepote, dostupačnost i moguća atraktivnost javnih prostora, drevne etničke tradicije, akcenti i dijalekti, lokalni gastronomski proizvodi i produkti zanatskih veština, kvalitet trgovine, sporta i zabave, tradicije društvenog života koje, između ostalog, podrazumevaju festivale umetnosti i potkulture, pre svega potkulture mladih.



Slika 2 – Mogući učesnici u procesu prezervacije, prezentacije ili popularizacije kulturnog nasleđa Niša

3 KLASTER KREATIVNE INDUSTRIJE I GRADITELJSKOG NASLEĐA

Zaštita graditeljskog nasleđa je komleksna oblast koja obuhvata osnovnu zaštitu koja uključuje istraživanja, valorizaciju i proglašavanje nepokretnih kulturnih dobara, pravnu zaštitu, zaštitu kroz dokumentaciju, prostorne i urbanističke planove, kao i staranje o stanju nepokretnih kulturnih dobara. Sa druge strane, ne treba zaboraviti i operativnu ili tehničku zaštitu koja podrazumeva sve mere neposredne tehničke zaštite – počev od izrade programa, idejnih i glavnih projekata, preko izvođenja konzervatorsko-restauratorskih i drugih arhitektonsko-građevinskih radova, do potpune obnove, zaštite, revitalizacije i prezentacije nepokretnih kulturnih dobara. U skladu sa postulatima koncepta Gradova kulture kome Niš teži, popularizacija graditeljskog nasleđa je jedan od preduslova održivog upravljanja njime. Zbog toga se čini neophodnim uključivanje popularizacije kao poslednje faze u procesu zaštite nepokretnih kulturnih dobara.

Specifična znanja i veštine neophodna su za realizaciju svake od etapa operativne zaštite graditeljskog nasleđa, bilo da su u pitanju arheološka iskopavanja i obrada podataka prikupljenih na terenu kojima po pravilu rukovode istraživači- arheolozi, ili izrada projekata konzervacije i projektovanja u zaštićenim sredinama čiji su autori najčešće arhitekte-konzervatori, pa sve do realizacije konzervatorsko restauratorskih radova u koje, u zavisnosti od prirode posla, mogu biti uključeni majstori tradicionalnih zanata ili umetnici dekorativnih branša, kao i informisanja sa ciljem popularizacije spomenika koju mogu osmisliti stručnjaci iz različitih oblasti.

Strukovna multidisciplinarnost karakteristična za proces zaštite nepokretnih kulturnih dobara oslikava se u konceptu klastera kreativnih industrija. Iako proces identifikovanja, opisa ili određenja klastera nije standardizovan, mnogi autori se slažu sa činjenicom da „zreli" kreativni klaster mora biti mešovitog tipa, on objedinjuje preduzeća, javni i građanski sektor, umetnička udruženja, kreativne pojedince , umetnike i pojedince sa jakim društvenim kapitalom, univerzitete i naučne laboratorije.[12]

Većinu aktivnosti koje, po definiciji,[13] pripadaju grupi kreativnih industrija, bilo da su u pitanju kreativne aktivnosti neindustrijskog tipa (vizuelne umetnosti-umetnički zanati, vajarstvo, fotografija, izvođačke umetnosti-pozorište, ples, festivali, kulturno nasleđe- muzeji, biblioteke, arheološke znamenitosti, arhivi), aktivnosti industrijskog tipa (kinematografija, radio i televizijske aktivnosti, video igre, diskografija, izdavaštvo) ili kreativno-poslovne aktivnosti (dizajn, građevina i arhitektura, oglašavanje), moguće je prepoznati u ukupnom procesu praktične valorizacije graditeljskog nasleđa. Upravo zbog toga, strukovno povezivanje unutar klastera industrija kulture i kreativnih idustrija u službi zaštite graditeljskog nasleđa[14], a sa ciljem razmene znanja i isustava, prepoznavanja

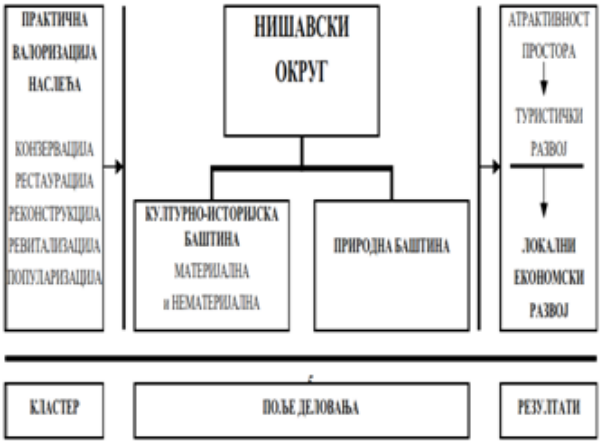
[12] Đerić, A., 2009, str.73

[13] KEA for European Commission, 2007, preuzeto juna 2012 sa http://ec.europa.eu/culture

[14] Dobar primer je regionalni klaster Pôle Industries Culturelles et Patrimoines sa sedištem u Arlu, francuskom gradu koji je po strukturi graditeljskog nasleđa u mnogome nalikuje Nišu, više informacija na www.industries-culturelles-patrimoines.fr/, preuzeto juna 2012.

komplementarnih delatnosti, uspostavljanja partnerskih odnosa i lakšeg pristupanja državnim fondovima, predstavlja model koji se u svetu često primenjuje.

Značaj udruženog delovanja u oblasti zaštite graditeljskog nasleđa ogleda se i u lakšem uspostavljanju standarda kvaliteta (a standarad održivog upravljanja spomenicima kulture Qualicities je samo jedan od njih) posebno kada su u pitanju akteri iz oblasti arhitekture i građevinarstva, čije se delovanje realizuje u oblasti operativnog sprovođenja mera tehničke zaštite. Strukovnim udruživanjem pojedinaca i preduzeća, arhitekte konzervatori, građevinski inženjeri, projektantske i izvođačke kuće i stručnjaci različitih zanata, postaju promoteri i implementatori uravnoteženog i kontrolisanog standarda rada. Takođe, udruživanjem svih ostalih aktera kulturnih aktivnosti neindustrijskog i industrijskog tipa koji učestvuju u procesu prezentacije i popularizacije spomenika kulture, moguće je obezbediti kontrolisan rad na uspostavljanju usaglašenog vizuelnog identiteta po kome će zaštićene sredine u kojima se deluje biti pretpoznatljive.



Slika 3– Moguća šema delatnosti, polja delovanja i rezultata članica klastera Kulturne industrije i baštine za Nišavski okrug

Važnost spomeničkog nasleđa, izražena ne samo kroz njegovu kulturno istorijsku vrednost, već i potencijal održivog razvoja, prepoznata je u razvijenim sredinama i podsticajno subvencionirana, tako da su mnoge laboratorije i privatna preduzeća svoje delatnosti prilagodile istraživanju i proizvodnji inovativnih materijali i uređaja, kao i implementiranju novih postupaka za konzervaciju zaštićenih arhitektonskih formi. Ovakav napredak rezultovao je unapređivanju brojnih neinvazivnih tehnika istraživanja i fizičke zaštite objekata sa spomeničkim svojstvima, a samim tim i očuvanju antropogenih vrednosti i kulturnih specifičnosti regiona, koja uz primenu odgovarajućih postupaka prezentacije i popularizacije postaju vidljiva, prepoznatljiva i u mogućoj funkciji održivog razvoja.

4 ZAKLJUČAK

U kontekstu opšte globalizacije, uspeh Grada Niša i celog Nišavskog regiona ne zavisi samo od ekonomskog napretka, već i od ostalih faktora koji utiču na život kvaliteta građana. Jedan od tih faktora je i očuvanje lokalne baštine nesumljivog kulturno-istorijskog značaja. Njena vrednost ogleda se i u velikom potencijalu za teritorijalnu diferencijaciju ove specifične sredine i lokalni ekonomski razvoj regiona.

Poslednjih godina, na nivou Grada Niša uloženi su napori u definisanju stretegije kulturnog razvoja grada i politike održivog uravljanja spomenicima kulture, koje bi mogle poslužiti kao model valorizacije kulturnog nasleđa za ceo region. Međutim, put do postizanja odgovarajućeg stanja kako zaštite, tako i prezentacije graditeljskog nasleđa na način koji doprinosi lokalnom ekonomskom razvoju, posmatran iz trenutka u kome je ono usled decenijskog zanemarivanja egzistencijalno ugroženo, i pored iskazane dobre volje lokalnih vlasti, čini se veoma dugačkim. Realizacija ovog kompleksnog procesa uslovljena je, uz postojanja stalne budžetske linije, razvojem seta veoma heterogenih strukovnih grana koje su uključene proces promocije nasleđa.

U Nišavskom regionu, osim institucija koje su korisnici gradskog budžeta, postoje brojni akteri koji se na neki način bave zaštitom graditeljskog nasleđa. Međutim, iz činjenice da, na primer, jedino Zavod za zaštitu spomenika kulture Niš[15], poseduje sve neophodne tehničke i stručne resurse za izradu terenske dokumentacije (što predstavlja neizbežnu fazu u svim akcijama istraživanja i zaštite nepokretnih kulturnih dobara), može se zaključiti da ne postoje uslovi za stvaranje zdrave konkurentnosti na tržištu. Jačanjem kapaciteta preduzeća, preduzetnika i fizičkih lica koja deluju u oblasti kreativne inndustrije koja se može staviti u službu zaštite graditeljske baštine povećao bi se potencijal stvaranja novih radnih mesta i ostvarila materijalna dobiti kroz strateški osmišljenu

[15] Zavod za zaštitu spomenika kulture Niš je najveći zavod u Srbiji. On ne deluje samo na teritoriji Nišavskog regiona, već sa ograničenim ljudskim resursima i finansijskim sredstvima štiti spomenike na prostoru 35 opština u Srbiji.

eksploataciju spomeničkog nasleđa. Takođe, kroz stvaranje konkuretne sredine povećao bi se kvalitet operativne zaštite spomenika kulture i obezbedila doslednost u određivanju prepoznatljivog vizuelnog identiteta zaštićenih sredina.

Upravo zbog svega rečenog, a u skladu sa težnjama da specifično graditeljsko nasleđe regiona postane jedan od prepoznatljivih simbola, nameće se potreba formiranja klastera kroz koji bi kreativni akteri koji u zaštitu nepokretnih kulturnih dobara mogu biti uključeni mogli da lakše profesionalizuju svoje delatnosti kroz pristup državnim fondovima, ostvare jednostavniju komunikaciju i partnerstva, kao i da razmene i unaprede tehničko-tehnološka znanja i informacije.

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[8] *Strategija kulturnog razvoja Grada Niša od 2012.–2015. god*, usvojena na sednici Skupštine grada Niša u decembru 2011.

[9] www.industries-culturelles-patrimoines.fr/, preuzeto juna 2012.

AUTOKLASTER SRBOJE, MODEL POVEĆANJA KONKURENTNOSTI PROIZVOĐAČA AUTOKOMPONENTI I REGIONALNOG RAZVOJA SRBIJE

Zlatica Pešić[1], Irena Panić[2]

Abstract:Većina proizvođača autokomponenti u Srbiji još uvek nije okončala proces privatizacije, u evropskim okvirima nije konkurentna, a ispunjenost proizvodnih kapaciteta daleko je od nekadašnje. Dobavljačka industrija, pogotovu onaj deo koji još uvek čeka na privatizaciju, suočava se sa problemima koji su nastali u prošlosti. Preduzeća pokušavaju da povećaju proizvodnju i da smanje zavisnost od domaćih proizvođača vozila. Prilagođavanje u međuvremenu znatno promenjenim tržišnim uslovma i zahtevima iziskuje od dobavljača ogromne dodatne napore.
Proizvodnjom auto delova i auto opreme u Srbiji bavi se oko 160 registrovanih preduzeća sertifikovanih po ISO standardima oko 35%, godišnim prometom oko 200 Mil Eur i blizu 36.000 zaposlenih.
Na osnovu sadašnjeg stanja, srpski proizvođači autodelova i opreme kratkoročno ne mogu računati sa planiranjem proizvodnje. Obzirom na postojeću svetsku ekonomsku krizu koja se najviše odrazila na autoindustriju, dobavljači su primorani da se na stranim tržištima bore za nove kupce svojih proizvoda. Veći aranžmani sa evropskim proizvođačima automobila do sada nisu realizovani, ali se vode pregovori i vrše auditi od strane renomiranih proizvođača, i pojedinačnih TIER 1 dobavljača.
Autoklaster Srbije, kao jedan od vodećih klastera u Srbiji, koji funkcioniše u ekonomskom prostoru jedne države, treba da bude integralni deo sveobuhvatne strategije koja vodi ka daljim ekonomskim reformama. Ovakav pristup predviđa da klasteri treba da imaju ograničen životni vek, gubeći svoj značaj kada se Država uključi u svetsko tržište i postigne projektovane makroekonomske parametre.Autoklaster Srbije, takođe, treba da bude značajni razvojni instrument domaće ekonomije - obezbeđujući priliv direktnih stranih investicija, novih tehnologija i potrebnu stranu valutu da bi se omogućile potrebe uvoza za domaću privredu. Stvaranje novih radnih mesta ključno je za države sa visokom stopom neuposlenosti i zato su one spremne da daju veliki broj povlastica kompanijama koje će uposliti lokalno stanovništvo.
U slučaju autoindustrije Srbije, Autoklaster Srbije je postao partner saradnik Drzavi-Ministarstvu ekonomije u procesu monitoringa, kvalifikacije i obuke članica, standardizacije kvaliteta proizvodnje i poslovanja, promocije potencijala članica na međunarodnim sajmovima i konferencijama, kooperacije sa međunarodnim asocijacijama GTZ, UNIDO, USAID,...
Koliku važnost i značaj u procesu ekonomskog razvoja Srbije Ministarstvo Ekonomije pridaje delatnosti Autoklastera Srbije, pokazuje i to da u svim aktivnostima na promociji i poboljšanju konkurentske pozicije članica klastera, učestvuje sa 50 % svih troškova i aktivnosti .Od početka svog postojanja-2005, Autoklaster Srbije daje značajan doprinos naporima srpskog dobavljačkog sektora autoindustrije, i tek predstoje aktivnosti i zadaci koje nameću i svetski proizvođači automobila, postojeći i potencijalni strani investitori.
Tehnička obuka, sertifikacija, zajedničke prezentacije, trening programi, kao i stvaranje radne discipline može biti trajna dobit u nastavku tranzicionih aktivnosti Srbije i restrukturiranja dobavljačkog sektora autoindustrije.

Ključne reči : Autoklaster ,edukacija, nove tehnologije, upošljavanje ,regionalni razvoj

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AUTOMOTIVE CLUSTER OF SERBIA, MODEL OF INCREASE IN COMPETITIVENESS OF AUTOMOTIVE COMPONENTS PRODUCTION AND REGIONAL DEVELOPMENT OF SERBIA

Abstract: Most of the producers of automotive components in Serbia has not completed the privatization process and they are not competitive on the European market and have scarce production capacities. The entities in the supply industry, especially the segment expected to be privatized are encountering problems that are inherited from the past. Enterprises are striving to increase production and free themselves from the dependant position in relation to national vehicle producers. Adapting to considerably changed market conditions and demands requires enormous additional efforts on the part of suppliers.

Around 160 registered enterprises, 35% of enterprises have certificates for ISO standards and annual turnover of 200 million EUR, nearly 36.000 employees

Concerning the present situation, Serbian producers of auto parts and equipment have no capacities to plan production on short term basis. The current economic crisis has reflected mostly in the car industry and the suppliers are forced to fight for new buyers on the international market. Big business deals with European car producers have not been concluded yet but there are negotiations and auditing going on with famous producers and individual 'TIER- 1' suppliers.

Automotive cluster of Serbia as a leading cluster in Serbia operating in economic sphere of the country should be an integral segement of comprehensive strategy in the future economic reforms. Such approach foresees a short life span of the clusters and losing its significance once the state becomes a part of the world market and achieves planned macroeconomic parametres. Automotive cluster of Serbia should also become aan important development instrument in local economy ensuring direct foreign fundings, new technologies and foreign currency for the import needs of local industry. Opening of new jobs is of crucial importance for the states with big unemployment rate which must be ready to offer special privileges to companies which will employ local people.

Automotive cluster of Serbia became a partner-associate to the State, to the Ministry of Economy in monitoring process, qualification and training of members, standardization of production quality and business, promotion of members at international fairs and conferences, cooperation with international associations GIZ, UNIDO, USAID,...

How important role in the process of economic development of Serbia the Automotive cluster plays can be documented by the fact that the Ministry of Economy co-funds promotion activities and improvement of competitiveness of the cluster members with 50%. Since its establishment in 2005, Automotive cluster of Serbia has contributed greatly in the activities of auto industry suppliers of Serbia to achieve standards imposed by world car producers, present and potential foreign investors.

Technical training, certification, joint presentation, training programs and ensuring of working discipline can represent a long term benefit in transitional activities of Serbia and restructuring of a supplier sector in the automotive industry.

Key words: Automotive cluster, education, new technologies, employment, regional development

1 NOVI ODNOSI U SVETSKOJ AUTOMOBILSKOJ INDUSTRIJI

Dobavljači automobilske industrije u Srbiji podeljeni su u dve grupe: s jedne strane postoje preduzeća sa privatnim kapitalom, odnosno uspešno privatizovane kompanije, a sa druge strane društvena preduzeća koja još uvek nisu završila privatizacioni proces. Njihov udeo na srpskom tržištu prema našim procenama iznosi oko 30%. Osnovni problemi sa kojima se suočavaju srpska preduzeća su slične prirode i mogu se razvrstati u probleme interne prirode, koji nastaju na osnovu situacije i odnosa u samim preduzećima, i u probleme nastale na osnovu krajnje nepovoljnih uslova za poslovanje tokom 90-ih godina prošlog veka, zbog kojih je domaća automobilska industrija izgubila korak sa kretanjima u svetskoj automobilskoj industriji i objektivno nije bila u mogućnosti da tokom prethodnih 15 godina prati svetske trendove i prilagodi se novim uslovima i fundamentalno izmenjenim odnosima u svetskoj automobilskoj industriji. Ti novi odnosi ogledaju se u sledećim činjenicama [9] i [3]:

Stvorena je svojevrsna dobavljačka hijerarhije (TIER 1, TIER 2 …), uključujući prebacivanje troškova istraživanja i razvoja na dobavljače.

Formiran je lanac dobavljača uz insistiranje na „Just in Time"-principu zbog insistiranja na stalnom smanjenju troškova.

Uvedena je obaveza stalnog smanjivanja rizika u procesu proizvodnje i na strani dobavljača, što srednjoročno vodi stremljenju ka obaveznoj toleranciji grešaka od 0% duž čitavog lanca dobavljača. Na osnovu toga se važeći međunarodni standard kvaliteta u svetskoj automobilskoj industriji ISO TS 16949 nametnuo kao merilo kvaliteta bez čije potpune implementacije nijedno naše preduzeće neće moći da opstane na tržištu.

U toku je stalno unapređenje proizvodne tehnologije koje nameću sve kraći razvojni ciklusi i potreba za stalnom redukcijom troškova proizvodnje.

Osim toga, moraju se uzeti u obzir i specifični problemi koji opterećuju sadašnju srpsku automobilsku industriju i otežavaju normalno funkcionisanje tržišta [1]:

- Nekadašnje tržište – godišnja proizvodnja od 230.000 vozila samo u pogonima Zastave – više ne postoji, FIAT najavljuje da će u doglednoj budućnosti 2015 godine dostići nivo od 300.000 vozila. Kao rezultat imamo veliku nezaposlenost, odnosno tehnološki višak radne snage.
- Proizvodnja teretnog programa kamiona FAP, Zastava Kamioni, Specijalna vozila i autobusa Ikarbus, Neobus, skoro da ne postoji,
- Srpski proizvodi često nisu na svetskom tehnološkom nivou, dakle nisu konkurentni,
- Industrijska i mašinska oprema u mnogim preduzećima zbog prosečne starosti od 20 - 25 godina ne zadovoljava tehnološki nivo svetske automobilske industrije. Zastarela tehnologija stvara dodatni višak radne snage, neefikasnu proizvodnju i male serije proizvedenih komada.
- Sertifikacija po standardu TS 16949 postaje formalni uslov za bilo kakvu saradnju sa zapadnim partnerima, a većina domaćih proivođača se nalazi u fazi pripreme za sticanje tog sertifikata,
- Segment razvojnih aktivnosti u sektoru uglavnom je pokrivala Zastava, i zbog tog nepovoljnog odnosa neophodno je usmeravanje aktera na međusobno povezivanje u okviru zajedničkih razvojnih i istraživačkih projekata i kooperacija,
- Još uvek u mnogim preduzećima rukovodstva koriste prevaziđene metode upravljanja ne koristeći u dovoljnoj meri principe savremenog menadžmenta,
- Kalkulacija troškova kao instrument upravljanja kompanijom se ne primenjuje u dovoljnoj meri, a metode kalkulacija su često paušalne,
- Stalna racionalizacija u proizvodnom procesu retko se sprovodi,
- Postoji velika potreba za implementacijom savremenih metoda upravljanja (n.pr. delegiranje poslova, timski rad, stalna razmena znanja i iskustava…) i sistematizovanog načina rada,
- Vreme i resursi utrošeni na izradu i vođenje statističkih baza podataka nisu srazmerne sa njihovom upotrebljivošću kao instrument za upravljanje preduzećem,
- Još uvek je izraženo verovanje da će stare poslovne veze iz predhodnih decenija ponovo oživeti, ali to se zbog promenjenih okolnosti neće dogoditi ,
- Starosna struktura zapošlenih je nepovoljna, jer nedostaju mladi kvalifikovani kadrovi,
- Nedovoljno poznavanje stranih jezika, izraženo pre svega kod starijih zaposlenih, otežava razmenu i prikupljanje informacija na međunarodnom nivou.

Ovaj nepovoljan razvoj doveo je srpske proizvođače autokomponenti u situaciju da sve ono što su sticajem okolnosti tokom proteklih 15 godina propustili moraju brzo i temeljno nadoknaditi kako bi se prilagodili novonastalim odnosima u svetskoj automobilskoj industriji [7].

2 FIAT SRBIJA

Razvoj automobilske dobavljačke industrije u velikoj meri zavisi od geografske blizine velikih proizvođača automobila (dobri primeri mogu se pronaći u novim članicama Evropske Unije, Češkoj i Slovačkoj). Postojan razvoj bez velikih finalista nije nemoguć, što potvrđuju primeri Mađarske i Švajcarske, ali je u tom slučaju razvojna perspektiva dobavljačkog sektora u velikoj meri otežana.

U tom smislu sklopljeni poslovni aranžmami sa Fiat-om, pregovori sa ostalim svetskim proizvođačima, predstavljaju dobru osnovu i svojevrsnu probnu fazu koja u slučaju pozitivnih obostranih iskustava, može biti dobra osnova za proizvodnju automobila u Srbiji i samim tim podstaći razvoj prateće industrije za izradu komponenti.

Skrećem pažnju na činjenicu da su zemlje kao Rumunija u slučaju privatizacije Dačije, ili Slovenija sa Revozom prilikom pregovora sa vodećim svetskim finalistima vodili računa o zaštiti i povoljnom tretmanu domaćih kooperanata, i smatram da su prilikom privatizacije Zastave-Fiat naši državni organi tu činjenicu imali u vidu. Aktuelna dešavanja u vezi sa Fiat-om, kratkoročno srpskim dobavljačima neće doneti veći obim posla, jer naši dobavljači trenutno ne ispunjavaju stroge kriterijume koji važe u svetskoj automobilskoj industriji. Fiat planira pocetak proizvodnje Novog modela Punta u Kragujevcu u drugoj polovini 2012 god u čiju proizvodnju će uključiti srpske proizvođače koji zadovolje visoke zahteve Fiat nabavke. Do tada, kontinuitet komunikacije sa Fiatom se nastavlja kroz akcione planove i aktivnosti proizvodjača na njihov ODIT. U procesu uključivanja kooperanata iz regiona, izabrani potencijalni proizvođaci su u fazi *sertifikacije isporučioca* .[3]

U procesui lokalizacije i pripreme za sertifikaciju proizvođača autokomponenti, Autoklaster Srbije je koordinator i moderator svih aktivnosti i procesa.

[3] Fiat –Z 10 Srbija ,2008

Vladin program podrške razvoju klastera u tom kontekstu predstavlja važan korak u pravom smeru. Zajednički projekat pod nazivom «Olakšavanje pristupa međunarodnom tržištu dobavljačima automobilskih komponenti u Srbiji» koji se sprovodi u saradnji Ministarstva ekonomije i regionalnog razvoja Republike Srbije, Ministarstva privrede Republčike Slovenije, Organizacije za industrijski razvoj Ujedinjenih nacija (UNIDO), slovenačkog i srpskog automobilskog klastera će kroz jačanje kapaciteta domaćih proizvođača autodelova doprineti unapređivanju institucionalnih kapaciteta i razvijanju regionalne mreže auto-klastera i na taj način omogućiti lakši i brži pristup međunarodnom tržištu automobilske industrije. U tom kontekstu za srpske proizvodjače autokomponenti je jako važan Autoklaster Srbije u upoznavanju sa savremenim strategijama i metodama u oblastima projektnog menadžmenta, organizacije proizvodnje, marketinga, razvoja proizvoda i menadžmentom kvaliteta [4].

Obzirom da je mali broj firmi u Srbiji spreman da tehnički, kadrovski, razvojno, softverski aplicira zahteve, to bi primarni cilj politike Autoklastera Srbije bio da zajedno sa članicama i Državom donese i definiše nova institucionalna rešenja koja mogu otkloniti defekte primenjivane politike regionalnog razvoja i nedostatke sistemskih i institucionalnih regulativnih mehanizama.

3 AUTOKLASTER SRBIJE I RESTRUKTURIRANJE PRIVREDE

Zakonski okvir za rad klastera u Srbiji ne postoji. Jedini pisani dokument je Radna verzija Nacrta Strategije konkurentnosti i inovativnosti malih i srednjih preduzeća 2008-2012. koju je prezentiralo Ministarstvo ekonomije i regionalnog razvoja. Cilj ovog nacrta je snažniji sektor malih i srednjih preduzeća koji podiže konkurentnost privrede i životni standard u Republici Srbiji i približava je Evropskoj Uniji.Ogleda se kroz: više preduzeća,veći izvoz (značajno poboljšanje trgovinskog bilansa Srbije),veću zaposlenost (posebno za visokokvalifikovanu i produktivnu radnu snagu) ravnomerniji regionalni razvoj [6].

Sa formiranjem jedinstvenog tržista EU,sa inteziviranjem globalizacije proizvodnih tržišta, značaj proučavanja i istraživanja industrijskih klastera ubrzano raste, postaje atraktivan za nosioce ekonomske politike kao mogućnost povećanja

kolektivne efikasnosti zarad pozitivnih eksternih ekonomija,niskih transportnih troškova, zajedničkih akcija u oblasti novih tehnologija, tržišta...

Pored integracije evropskih zamalja, prisutne su i brojni aktuelni procesi regionalnog ekonomskog integrisanja, što je dodatno uvećalo interesovanje za proučavanje prostorne distribucije ekonomskih aktivnosti i posledični razvoj ekonomskih odnosa među zemljama i integracijama.

Autoklaster Srbije kao partner Ministarstva ekonomije za oblast autoindustrije je od vitalnog značaja i mogao bi pokrenuti značajan investicioni talas u Srbiji. Naime, e-umrežavanjem, i naravno partnerskim odnosima sa državom (MERR-Strategija konkurentnosti i inovativnosti malih i srednjih preduzeca 2008-2012., koja se bazira na tri kriterijuma: tržišni interes, postojanje kadrova, supstitucija uvoza),svetski proizvođaci automobila sve svoje upite, zahteve, informacije, automatski aplikuju i na adresu Autoklastera Serbije, koji shodno delatnostima preduzeća , zahteve upućuje članicama.

Obzirom da je mali broj firmi spreman da tehnički, kadrovski, razvojno, softverski aplicira zahteve , to bi primarni cilj politike Autoklastera Srbije bio da zajedno sa članicama i Državom donese i definiše nova institucionalna rešenja koja mogu otkloniti defekte primenjivane politike regionalnog razvoja i nedostatke sistemskih i institucionalnih regulativnih mehanizama.

Obzirom da Država uvodi podsticajne mere i podelu na industrijske zone nacionalnog,lokalnog i specijalnog značaja , to partnerski odnosi Autoklastera Serbije i industrijskih zona omogućavaju mrežno animiranje privrednog potencijala Srbije.

Preduzeća koja su u klasteru, dele aktivnosti u tzv. lancu vrednosti na svetskoj osnovi sa brojnim partnerima u raznim poslovnim funkcijama: marketingu, proizvodnji, finansijama, istrazivačko-razvojnoj oblasti.

Da bi klaster zaista doprineo pomeranju konkurentske prednosti u korist preduzeća, potrebno je da postoji *domaća baza* za konkurenciju u grani. To praktično znači da Autoklaster Srbije u odgovarajućim resursima animira najbolje u industrijskoj grani, lidere jer je prevashodno interesovanje inostranih investitora za industrijske grane čiji proizvodni program obezbedjuje [2]:

- proizvode višeg stepena obrade, odnosno proizvode sa višom dodatom vrednosti,
- unapređenje i razvoj sektora usluga,
- visok izvozni potencijal,
- proizvode kojima se supstituise izvoz,
- otvaranje novih radnih mesta i ravnomerni regionalni razvoj
- saradnja sa univerzitetima .

U novoj međunarodnoj situaciji , konkurentska prednost preduzeća nalazi se sve više u njegovoj sposobnosti da kreira, pribavi i koordinira korisćenje izvora na međunarodnom tržištu , nego vlasništvo nad individualnom aktivom.

U novoj, umreženoj ekonomiji, suočena sa sve izraženijim zahtevima klijenata, preduzeća su izložena dodatnim pritiscima da zajednički koriste resurse uključenjem u proces kreiranja vrednosti.

Prednosti takvog rada su [8]:

- Podizanje tehničko – tehnološkog nivoa kooperacije,
- Primena novijih tehnologija prema najnovijim EU propisima,
- Otvaranje mogućnosti saradnje i sa drugim evropskim i svetskim proizvođačima automobila i njihovim isporučiocima u oblasti auto – komponentistike,
- Revitalizacija automobilske i auto – komponentističke industrije u regionu,
- Povezivanje regionalnih sa isporučiocima FIAT-a – mogućnost stvaranja mešovitih preduzeća, privatizacije i sl.,
- Mogućnost plasmana komponenti koje se lokalizuju a koje su zajedničke za ostale modele Fiat-a na svetsko tržište rezervnih delova,
- Podrška Regionalnom razvoju

Takvom kombinacijom različitih namena i koncentracijom svih pogodnosti koje je moguće pružiti,dobija se fleksibilan sistem koji zadovoljava sve potencijalne potrebe mogućih investitora gde svako može naći za sebe ono što mu odgovara.

Implikacije ovakvog načina povezivanja i poslovanja su brojne:

- inteziviranje konkurencije sa svim pozitivnim implikacijama za potrošača,
- stimulisanje inovativnih aktivnosti,
- geografsko koncetrisanje tradicionalnih industrija radi eksploatacije ekonomije obima,
- racionalizacija proizvodnje kroz geografsko dislociranje tradicionalnih industrija u regionu i inteziviranje inovativnih aktivnosti,
- intezivira se razmena između samih kooperanata i firme lidera, što će imati efekte na proces konvergencije samih aktera, kao i nacionalnih ekonomija.

U uslovima brzih tehnoloskih i trzišnih promena, ovakav Model poslovanja je neminovnost opstanka i razvoja preduzeća. To je ozbiljan , kompleksan i kreativan posao. Uspeh u komercijalizaciji tržišnih zahteva uslovljen je pored ostalog sposobnošću menagmenta preduzeća da proceni vaznost projekta, uključenošću svih organizacionih delova i funkcija u preduzeću.

U tom sinergetskom delovanju neosporno je da Autoklaster Srbije značajno doprinosi stvaranju i jačanju ključnih kompetncija preduzeća članica. To je proces kvalitativni promena u kome se šire skrivene sposobnosti preduzeća. Povezivanjem sa potrebama potrošača autokomponenti, skrivene sposobnosti preduzeća članica, prerastaju u ključnu kompetentnost.

Autoklaster Srbije učestvuje kod preduzeća članica i kao pokretač ključnih kompetencija u autoindustriji koji uključuje: restruktuiranje, inovacije, učenje, identifikovanje veština, usađivanje znanja. Tržišno zasnovana aktiva je većim delom nematerijalna, ali značajno doprinosi ne samo povećanju isporučene vrednosti kupcima, nego i povećanju materijalne aktive preduzeća i njegovih partnera. Klasterom umrežena aktiva je vrednija jer nudi veću dodatnu vrednost kupcima uvećavajući sposobnost preduzeća da stvara profite iznad onih koje generiše samo materijalna aktiva .Efikasnost se postiže povezivanjem duž lanca vrednosti gde se može pratiti profitabilnost svake ključne aktivnosti članica i izabrati najprofitabilnija sa odgovarajućim strategijskim značajem. Lojalnost marki je u direktnoj korelaciji sa profitabilnošću.

U eri ekonomije zasnovane na znanju, sposobnost prilagođavanja kulture, posebno u procesu povezivanja partnera, postaje imperativ razvoja .

4 ZAKLJUČAK

Autoklaster Srbija promoviše efikasan ekonomski instrument koji Državi Srbiji omogućava brzi priliv direktnih stranih investicija, povećanje upošljenosti, novih tehnologija, edukaciju radne snage, regionalni razvoj, industrijalizaciju i povećanje izvoza. Klasteri su veoma važan instrument međunarodne ekonomske politike čiji je ključni cilj razvoj slobodne trgovine u svetu.

Koncept razvija klastera omogućuje slobodan protok kapitala, robe, ljudi i ideja koji u isto vreme razvija i stimuliše domaću ekonomiju.

Autoklaster Srbije predstavlja samo jedan od mogućih instrumenata ekonomske politike razvoja privrede Srbije.Pravilno projektovane i razvijanje klasterskog poslovanja predstavljaju *složeni sistem* sa više međusobno povezanih funkcija i ciljeva od kojih su najvažniji: povećanje upošljenosti,direktnih stranih investicija, spoljnotgovinske razmene, razvoja industrije,istraživanja, servisa, obrazovanja i logistike, tehnološkog nivoa proizvodnje i obrazovanja radne snage,osposobljavanje da se uočavaju nove poslovne mogućnosti, podsticanje preduzetničkog razmišljanja i pristupa poslovanju. Autoklaster Srbije, takođe, treba da bude značajni razvojni instrument domaće ekonomije obezbeđujući priliv direktnih stranih investicija, novih tehnologija i potrebnu stranu valutu da bi se omogućile potrebe uvoza za domaću privredu.

U slučaju autoindustrije Srbije članica, standardizacije kvaliteta proizvodnje i poslovanja, promocije potencijala članica na međunarodnim sajm, Autoklaster Srbije je postao partner saradnik Državi,Ministarstvu ekonomije u procesu monitoringa, kvalifikacije i obuke ovima i konferencijama, kooperacije sa međunarodnim asocijacijama GTZ, UNIDO, USAID, ...

Tehnička obuka, sertifikacija, zajedničke prezentacije, trening programi, kao i stvaranje radne discipline može biti trajna dobit u nastavku tranzicionih aktivnosti Srbije i restrukturiranja dobavljačkog sektora autoindustrije.Inostrani prihod kroz priliv direktnih stranih investicija i transfer tehnologije (u sektoru autoindustrije samo od FIAT-a i njegovih dobavljača u Italiji, očekuje se oko 1,2 milijarde Eur investicija) su pored povećanja uposlenosti glavne koristi koje se očekuju od ovog koncepta.Da Država Srbija podržava primenu koncepta klastera kao instrumenta ekonomske politike, pokazuje u svom Nacrtu Strategije konkurentnosti i inovativnosti malih i srednjih preduzeca 2008-2012. Svrsishodnost svog postojanja i rada, Autoklaster Srbije je pokazao već sa FIAT-om, koji je uključio AC Serbia u analizu, pripreme, edukaciju članica, potencijalnih dobavljača autodelova.Takođe, svi upiti od strane svetskih proizvođača automobila, srpskoj dobavljačkoj autoindustriji, dolaze u Autoklaster Srbije, a potom se distribuiraju članicama.

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KLASTER – NOVI MODEL PRIVREDNOG RAZVOJA I RASTA KONKURENTNOSTI

Dr Zlatica Pešić[1], Ma Irena Panić[2]

Abstract: Pet globalnih trendova obeležava savremenu svetsku ekonomiju: reciprocitet (kao glavno načelo međunarodne ekonomske integracije), integracija organizacija u svetsku privredu kroz saveze-alijanse-klastere, reinženjering, velike i radikalne promene u strukturi organizacija, ispitivanje funkcije, uloge i legitimnost menadžmenta, dominacija brzih promena u međunarodnoj, državnoj i poslovnoj politici nad internom ekonomijom.
Početak 21 veka je okarakterisan pojavom partnerstva–alijansi-klastera globalnog ekonomskog fenomena, koji ne stavlja u prvi plan pravo kontrole i vlasničku dimenziju, već efekat strategijskog menadžmenta, a strukturi članova daje veći značaj od vlasničkih odnosa. Glavni cilj je pokriti sve tehnologije i tržišta koja su bitna za odredjeni proizvod-uslugu, redukovanja troškova i rizika istraživanja i razvoja novih proizvoda i procesa, izbegavanje uvozne barijere, postizanje ekonomije obima ujedinjenjem snaga u oblasti marketinga, finansija i proizvodnje. U poslednjih pet godina, broj ovakvih saveza raste po stopi od 5 % na godišnjem nivou.

Ključne reči: globalizacija, integracije, reinženjering, klaster, konkurentnost

CLUSTER – A NEW MODEL OF ECONOMIC DEVELOPMENT AND COMPETITIVENESS GROWTH

Abstract: Five global trends are predominant characteristics in modern world economy: reciprocity (main principle of international economic integration), integration of organizations into world economy through unions, alliances, clusters, re-engineering, huge and radical changes in organizational structure, examining of function, role and legitimity of management, domination of fast changes in international, state and business politics over internal economy.
The beginning of the 21st century was characterized by the emerging of a global economic phenomenon of partnership-alliances-clusters, whose primary goal was not the right of control and ownership principle but the effect of a strategic management and more significance assigned to the members' structure. The main aim was to cover all technologies and markets required for a particular product/service, costs reduction and risk of researching and development of new products and processes, avoidance of import barriers, achieving the economy boundaries through joint forces in the field of marketing, finances and production. In the last five years, the number of such unions is in increase at the rate of 5% on an annual level.

Key words: globalization, integration, re-engineering, cluster, competitiveness

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1 KONCEPCIJA KLASTERA

Englesku reč cluster (skup, jato, grozd, grupa) prvi je upotrebio jedan američki kompozitor da bi označio skup istovremenih, gusto nanizanih tonova. Svuda u svetu, preduzeća imaju tendenciju da se okupljaju u klastere, i imale su je mnogo ranije nego što je pojam klastera ušao u ekonomsku literaturu. Klasteri su ušli na velika vrata kad je Majkl Porter objavio svoju Competitive advantage of the nation, 1990. godine. Porterov koncept klastera je najčešće prihvaćen i definiše klastere kao: „Geografska koncetracija međusobno povezanih preduzeća, specijalizovanih dobavljača, pružalaca usluga, preduzeća u pratećim industrijama, i institucija u odredjenim oblastima, koji su konkurencija jedni drugima, ali takođe i saradjuju.“ M.E.Porter [6].

Klasteri su savezi, kooperacije više organizacija u istoj ili srodnoj privrednoj grani, tehnološkoj oblasti, stvoreni sa osnovnim ciljem da se obezbedi ili poveća konkurentska prednost. Oni se zasnivaju na pojedinačnoj efikasnosti, sposobnosti i snazi svakog partnera.

Iskustva pokazuju da efektivni klasteri spadaju u najbolja sredstva realizacije strategija na globalnim trzistima [9].

Klasteri su novi modeli privrednog razvoja koji nastaju umrežavanjem privrednih i neprivrednih subjekata i institucija u jednoj oblasti rada na nižim nivoima gradova,regija. Atmosfera u klasteru je vrlo konkurentna, ali većina u klasteru ne konkuriše direktno,već preko horizontalno umreženih subjekata iz iste delatnosti, ali su pri tom uključeni na različita tržišta što ih stavlja u poziciju da mogu globalno da konkurišu.Prema Porteru[3], klaster je velika grupa ili kritična masa funkcionalno povezanih firmi u specifičnoj geografskoj lokaciji, lokalna koncetracija izvesnih ekonomskih aktivnosti. Ova funkcionalna veza između firmi moze biti: vertikalna (klijenti), horizontalna (konkurenti) i kruženje akumuliranog znanja radne snage koja menja zapošlenje unutar klastera.

Teorijski koreni klastera nalaze se još u Maršallovoj i kasnijoj teoriji Aglomeracija, gde je posebno naglašena interakcija industrijskih organizacija, gde se naglašavaju industrijski distrikti kao aglomeracije u kojima se povezuju svi subjekti društva.[4]

Pitanje koje postavljamo na početku naše studije je pitanje teorijskih osnova koncepata regionalnih klastera koji bi se srpskim jezikom mogli nazvati grozdovi. Iako bi se moglo dokazati da se teorijski koreni klastera mogu naći još u Maršalovoj i kasnijoj teoriji aglomeracija, proučavanje literature o klasterima dovelo nas je do sazananja da se posebno 1970-ih godina u teorijskim razmatranjima regionalnih proizvodnih udruženja naglašavaju interakcije industrijskih organizacija i specifičnih socio-ekonomskih faktora [4].

Nužnost povezivanja i saradnje preduzeća i njihove međunarodne poslovne orjentacije su odgovor na globalizaciju. Globalizacija na taj način primorava preduzeća da se koncetrišu na svoje ključne sposobnosti i da na sebe preuzmu samo deo celokupnog lanca vrednosti od sirovina do gotovog proizvoda. Međutim, klasteri nisu samo preduzeća.

Klasteri uključuju preduzeća iz jedne delatnosti, ali i iz vertikalno povezanih delatnosti, proizvođače komplementarnih proizvoda, provajdere infrastrukturnih usluga, institucije koje obezbeđuju obuke, informacije, istraživanje i drugu tehničku podršku kao i posebne agencije za uspostavljanje standarda. Klasteri mogu da uključe i privredna udruženja, kao i druga tela koja im služe za podršku.Važnije od definicije je proces povezivanja u klaster kroz zajedničko delovanje i dijalog. Ključna prednost klastera leži u višedimenzionalnoj blizini svih aktera, ne radi se samo o geografskoj, već i o kulturnoj i institucionalnoj blizini i usklađenosti.

Blizina omogućava deljenje snaga i sredstava, zajedničke aktivnosti zahtevaju zajedničku viziju, zajedničke ciljeve, a lične i društvene veze jačaju poverenje i omogućavaju brži protok informacija. Udruživanje i aktivnosti na pojedinačnim zadacima nisu dovoljni [13].

Učinak povezivanja u klastere se dobro odslikava samo na dovoljno velikom broju stalno ponavljanih međusobnih veza. Komunikacija je olakšana zajedničkim jezikom, uključujući i profesionalni, kao i obrazovanjem. Naravno, mora se pomenuti kritična masa učesnika. Samo sa dovoljno velikim brojem učesnika može se dobiti kritična masa veština, znanja, tehnologija i sredstava, koja će se odraziti na učinak preduzeća[5].

Ono što klastere čini atraktivnim za nosioce ekonomske politike jesu mogućnosti za kolektivnu efikasnost koja proizilazi iz pozitivnih eksternih

[3] Porter, M.:The Competitive Advantage of Nations,1990.

[4] Becattini :Aglomeration and endogenous capital ,1990 .

ekonomija, niskih transpotnih troškova i zajedničke akcije. Zato brojne definicije klastera dodaju neke karakteristike osnovnoj definiciji klastera, prostornog koncentrisanja firmi, i fokusiraju se na eksterne efekte i interakcije [15]:[5]

- nizvodne i uzvodne veze (forward and backward linkages) između firmi unutar klastera,
- pozitivni eksterni efekti koji proizilaze iz postojanja lokalnog obilja kvalifikovanog rada i privlačenja kupaca,
- intezivna razmena informacija između firmi, institucija, i pojedinaca u klasteru čime se omogućava nastanak kreativnog miljea,
- zajednička akcija u pravcu kreiranja lokalnih prednosti,
- postojanje diversifikovanih institucionalnih infrastruktura koje podržavaju specifične aktivnosti klastera,
- socio-kulturni identitet stvoren od zajedničkih vrednosti i učvršćen lokalnim miljeom koji olakšava poverenje.

Imajući u vidu kompleksnost interakcija u klasterima i akcenat u literaturi na "meke", nemerljive varijabile kao što su poverenje, socijalne vrednosti ili kreativni milje, teško je dati preciznu definiciju klastera ili povući jasnu crtu između čistih saveza i kompleksnih klastera sa snažnim eksternalijama. Klasteri, kao regionalne grupacije preduzeća u lancu vrednosti sa njima bliskim pružaocima usluga, koja im daju podršku, su mreže kooperacionih odnosa različitih učesnika u proizvodnom sistemu.[6] Uspešni klasteri su većinom kombinacija tri vrste preduzeća koja se međusobno dopunjuju [10]:

- preduzeća značajne tržišne i tehnološke snage koja deluju na međunarodnoj osnovi,
- proizvođači-dobavljači , najčešće su to mala i srednja preduzeća,
- inovativne i dinamične stručne ustanove (isrtraživački instituti, univerziteti, ustanove za stručno usavršana preduzeća).

Porterov rad "Competitive Advantage of Nation" (1990) dao je izuzetan doprinos popularisanju i pripremi terena za moderno konceptualizovanje ekonomske geografije i njenog uticaja na tokove međunarodne trgovine, proučavanju aglomeracije i njihov uticaj na privredni razvoj i međunarodnu trgovinu, elaboriranju značaja velegradova i klasterizacije ekonomskih aktivnosti. Noviji empirijski rezultati ukazuju da čak i vrlo niski troškovi trgovine značajno utiču na prostornu distribuciju ekonomske aktivnosti i posledično izvedene tokove međunarodne trgovine. Transportni troškovi su jedan od faktora koji imaju najviše uticaja na na industrijski razvoj i "kretanje" industrijske aktivnosti u prostoru.

U razvoju ekonomske misli malo je literature o klasterima, najveći broj autora se bavio iskustvima industrijski razvijenih zemalja, koncipiranjem modela za što jednostavnije objašnjenje kako nastaju aglomeracije, kako utiču na podelu rada, privredni razvoj, tokove međunarodne trgovine. Iako se najveći deo literature bavio iskustvima razvijenih zemalja, ona su inspirisala i istraživanja o klasterima zemalja u razvoju[11].

Trenutno postoji relativno mala, ali brzo rastuća literatura koja ukazuje:[7]- da su klasteri bitni u zemljama u razvoju, da su uobičajeni, česti u velikom broju zemalja i sektora, - da klasterisanje može pomoći malim firmama u prevazilaženju ograničenja rasta, kao i da svoje proizvode plasiraju na udaljena tržišta u državi i inostranstvu.

2 KLASTERI I PRIVREDNI RAZVOJ

Sa promenom okruženja poslovanja menjaju se i firme. Jedan deo promena nastaje spontano, dok drugi deo nastaje isključivo kada firme u klasteru zajedno rade na njima. Pojedinačno gledano, mala i sredja preduzeća i preduzetnici, nemaju mogućnost ravnopravnog izlaska na velika tržišta, niti imaju kapacitete kojima bi mogli ispuniti zahteve takvog tržišta. Da bi ostala na tržištu, neophodno je da snize troškove poslovanja, povećaju kvalitet, ravnovrsnost i obim proizvodnje, razviju nove kanale distribucije i pojačaju svoju marketinšku kampanju. To je jedino moguće ako se akteri udruže u klastere i stvore velike sisteme ne gubeći pri tome fleksibilnost i pokretljivost malih preduzeća i preduzetnika.

Na najjednostavnijem nivou klasterizacija ohrabruje razmenu informacija i mogućnosti za učenjem novih tehnika poslovanja. Firme onda

[5] Schmitz,H. :Global competition and Local Cooperation ,1999.pp. 1628

[6] Gunter, S. Yallinger,L.,:Program podsticaja razvoja klastera u Srbiji , Priručnik, 2008.

[7] Zdravkovic M.: Aglomeracije i tokovi međunarodne trgovine ,dokt.disertacija,2006. pp. 58.

počinju da menjaju sopstvene poslovne aktivnosti, tako da se neke firme specijalizuju u proizvodnom procesu, druge se premeštaju iz proizvodnje u trgovinu inputima ili finalnim proizvodima, treće pružaju uslugu transporta na različita tržišta,... proces koji omogućava firmama da ostvare prednost malog i predvidivog rizika .

U cilju pojednostavljenja identifikovanja doprinosa privrednom razvoju, procesu industrijalizacije, klasteri se kategorizuju u grupe, pa shodno tome registrovane su tri kategorije klastera: klasteri koji pripremaju okruzenje za industrijalizaciju, klasteri koji su u ranoj fazi industrijalizacije, klasteri koji predstavljaju sastavni deo industrijskog sektora svojih zemalja.[8]

Eksterne ekonomije su značajne za rast, ali ne i dovoljne da dovedu do glavnih promena na faktorskim trzištima, te je klaster bitan pomak od pasivne ka kolektivnoj efikasnosti.

Kolektivnu efikasnost karakterišu nekoliko osnovnih dimenzija [2]:

- Eksterne ekonomije

  - Pristup trzištu, prva i najuniverzijalnija eksterna ekonomija za članice klastera, poboljšava pristup širem trzištu za njihove proizvode i usluge.

  - Pristup neformalnim mrežama, vazan faktor u lokacionom odlučivanju, interakcije u formi poseta gradskim, republičkim, državnim privrednim komorama, vladinim asocijacijama za promociju poslovanja, poslovnim udruženjima i slično, pozitivno utiču na poslovanje firmi.

  - Disperzija tehnologije, klasterisanje ohrabruje difuziju tehnološkog znanja i ideja, omogućava i poboljšava tokove tehnoloških informacija između proizvođača, dobavljača, trgovaca, institucija i drugih subjekata u klasteru, sto je za zemlje u razvoju sa slabom tehnološkom osnovom krucijalno za njihov razvoj.

  - Efekti međufaznih inputa kao posledca povezivanja sa klasterima iz drugih regiona, zemalja, ..

  - Široko trzište rada, kao rezultat kako unapredjivanja veština unutar klastera, tako i kao posledica razmena kvalifikovanih radnika sa drugih lokacija, drugih klastera.

- Zajednička akcija

Neosporan je znacaj mreža veza koje se stvaraju između firmi u klasteru, veća kolektivna efikasnost kroz zajedničku akciju koja moze biti horizontalna (saradnja izmedju konkurenata), i vertikalna (saradnja izmedju firmi koje su uključene u različite faze proizvodno-distributivnog lanca).

- Institucionalni konteks

Ekonomske, političke, socijalne institucije, odredjujući interakcije između ljudi, kreiraju specifične mreže poslovnih operacija i organizacija, kreiraju institucionalni ambijent delovanja klastera.

3 KLASTERI I KONKURENTNOST PREDUZEĆA

Konkurentska prednost kao kompleksni pokazatelj uspešnosti poslovanja preduzeća je stalno aktuelna tema koja zaokuplja pažnju i teorije i prakse. Brojnim faktorima je uslovljena konkurentska prednost, kako eksternim (makroekonomska politika, tržišna infrastruktura, razvijenost institucija, obrazovni sistem), tako i internim (resursi i sposobnost preduzeća). Promene su brze, kompleksne, nepredvidive, pa upravljanje savremenim preduzećem zahteva promenu razmišljanja o tome kako poslovati i konkurisati u novoj ekonomiji [3].

Razvoj tehnologije i znanja je ogroman potencijal koji je prouzrokovao duboke promene u privredi i društvu, promene su zahvatile u manjoj ili većoj meri preduzeća svih delatnosti i veličina.[9]Stvaranje visokokonkurentne privrede koja će rezultirati konkurentnom prednošću je kompleksan i kontinuiran zadatak svake zemlje koja želi da se razvija[8].

U tom kontekstu prevashodna uloga države je da kreira ambijent koji podstiče konkurentnost. Nacionalna konkurentnost je veća ukoliko je rezultat trajne konkurentske prednosti većeg broja njenih preduzeća.Kakav će biti uticaj međunarodne trgovine na značaj nacionalnih granica?

Koja je uloga klastera, aglomeracija, u povećanju konkurentnosti proizvođača, u definisanju tokova trgovine, regionalnog razvoja? Da li partneri imaju zadovoljavajuće privredne, organizacione i inovativne kapacitete, kakvu korist mreža nudi svojim partnerima, da li su ciljevi i zadaci klasterske mreže jasni svim relevantnim interesnim mrežama,...? Empirijska testiranja su sve učestalija, ali ne u dovoljnoj meri da bi se došlo do jednoznačnih rezultata na osnovu kojih bi se mogli donositi čvrsti zaključci za vođenje ekonomske politike.

[8] Hubert Schmitz ‘’ Global competition and Lokal : Cooperation Succes and Failure in the Sinos Valley ‚Brazil’’(1999)World Development Vol .27.No 9 .str 1630

[9] Stanković Lj.Radenković D. Đukić S.: Unapredjenje poslovne konkurentnosti 2007.pp 2-10.

Konkurentnost srpskog izvoza i posle osam godina tranzicije privrede je veoma nizak. To se vidi u strukturi srpskog izvoza u kom najviše učestvuju proizvodi niskog stepena obrade, što za rezultat ima visok spoljnotrgovinski deficit, zatim u sporom proboju srpskih kompanija na druga tržišta, kao i korišćenju stare prljave tehnologije.

Ovi upozoravajući podaci traže preispitivanje fenomena konkurentnosti, kao i instrumente, alatke za njeno povećanje, jer je rast konkurentnosti pretpostavka ukupnog društvenog rasta i zapošljavanja. Istražujući tokom protekle 3 godine koncept klastera, a počev od 2005 kada je među prvima u Srbiji osnovan Autoklaster Srbije, evidentan je njihov značaj za rast konkurentnosti proizvoda, regije, povećanje zaposlјenosti, međusobnog poverenja i socijalne odgovornosti.

Takodje treba ukazati na veliki uticaj stranih direktnih investicija na povecanje konkurentnosti preduzeca , industrijske aktivnosti, izvozu, aglomerisanje i tokove međunarodne trgovine. Rezultati ukazuju da samopodržavajući aspekt stranih investicija počinje da funkcioniše samo ukoliko je određeni stepen razvoja zemlje gde se investira dostignut.

U ranim fazama razvoja, investitori preferiraju dobar kvalitet infrastrukture u odnosu na poreske olakšice. Ukoliko zemlje u razvoju imaju infrastrukturni razvoj, značajan rastindustrijske proizvodnje, rastuće domaće tržište, stabilne međunarodne odnose, nepotrebno je da se takmiči u lokacionom privlačenju investicija .

Strane direktne investicije su prostorno mnogo više klasterisane od drugih formi proizvodnje. Priliv stranih investicija stimuliše nastajanje domaćih firmi koje zadovoljavajući kvalitetom potrebe filijale, postaju izvoznici međufaznih proizvoda. Ukoliko postoji povoljan makroekonomskiambijent, kao i faktori koji pogoduju aglomerisanju, dolazi do klasterisanja domaćih firmi oko stranefilijale.

4 KLASTERI U MEĐUNARODNOJ RAZMENI

Činjenica je da firme u klasteru imaju većih mogućnosti za izvoznu ekspanziju zbog pregovaračke snage koja proističe iz zajedničke akcije u odnosu na izolovane firme čiji se izvoz može javiti kao pasivan odgovor na slučajnu zainteresovanost domaćih ili stranih veletrgovaca diferenciranim proizvodima.

Poznato je takođe da bliskost firmi u klasteru olakšava disperziju informacija, širenje znanja u međunarodnoj razmeni, korisćenje sličnih resursa.

Takođe, ukoliko se na međunarodnoj sceni konkurencija i tehnologija promene, prethodna široka i hijerarhijska organizacija firme može se zameniti fleksibilnom mrežom poslovne organizacije u klasteru.Prisustvo jedne firme /industrije, stvara direktno/indirektno trzište za drugu firmu/industriju. Output jedne industrije se ekskluzivno koristi kao input druge (gume, gumeno-tehnička roba i automobili). Trzište rada dve nepovezane industrije mogu postati komplementarne(metalna zapošljava najčešće mušku populaciju)/tekstilna industrija (zenska populacija je u većini).

Način i značaj povezivanja malih lokalnih firmi i klastera u međunarodnu robnu razmenu potvrđuje i UNIDO [10].

Firme u klasteru imaju većih mogućnosti za izvoznu ekspanziju zbog pregovaračke snage koja proističe iz zajedničke akcije u odnosu na izolovane firme čiji se izvoz može javiti kao pasivan odgovor na slučajnu zainteresovanost domaćih ili stranih veletrgovaca diferenciranim proizvodima.

Istraživanja grupe eksperata[11], ukazuje da međunarodna trgovina između članova klastera ima različite implikacije u velikim u odnosu na male zemlje.

Naime,studija o trgovini u zemljama članicama OECD pokazuje da vertikalna trgovina izmedju međunarodnih čanova lanaca proizvodnje ima mnogo veći udeo u ukupnoj trgovini kod malih zemalja u odnosu na velike. Primer Holandije i Danske, gde je vertikalna trgovina u ukupnoj trgovini činila 42% u Holandiji, 25 % u Danskoj, u odnosu na 7 % u Japanu i 14 % u SAD, što je logična posledica potrebe za međunarodnom specijalizacijom u malim zemljama zbog nedovoljne veličine domaćeg tržišta.

Kada je međunarodna trgovina u pitanju , geografski klasterisana industrija kroz izvoznu orjentaciju ili uvoznu konkurenciju , najčešće se politički mobiliše zarad zaštite od konkurencije ili podrške izvozu. Studija industrijskih proizvođača u SAD u periodu 1990-2000 god. pokazala je da geografski klasterisana industrija, koja je pod uticajem robne razmene sa inostranstvom snažno povećava formiranje zajedničkih preferencija trgovinske politike radi zaštite od konkurencije ili

[10] UNIDO Industrial Development Report 2002-2003 ,str.197

[11] BergmanE.M., Charles D.Hertog P.” In Pursuit of innovative Clusters “. OECD (2002)

podrške izvozu, doprinosi finansiranju političkih kampanja i povećava stopu izlaznosti na izbore, što znači da su uspesniji u dobijanju zaštite u odnosu na geografski dislocirane firme.[12]Imamo uspešne primere : Italija ,najveci svetski potrošac keramičkih pločica i zemlja lider po broju klastera,područje Sassuolo ,geografski koncenrisana industrija keramickih plocica ,Španija,druga u svetu po potrošnji ker.pločica, područje Castellan,visoko koncetrisana proizvodnja, sa 170 proizvođača i 37% svetskog izvoza,London,dominantan klaster Britanskih aukcionara, Bazel, sedište najvećeg klastera farmaceutske industrije(tri svajcarska farmaceutska giganta).

5 KLASTERI I REGIONALNE EKONOMSKE INTEGRACIJE

Regionalne ekonomske integracije su jedna od glavnih karakteristika međunarodnih ekonomskih odnosa, koje utiču na preusmeravanja i kreiranja tokova međunarodne razmene i međunarodnog investiranja,menjajući postojeće obrasce ekonomske aktivnosti. Regionalne ekonomske integracije kreiraju brojne koristi za trgovinu, za strane direktne investicije, kao i za prostornu distribuciju ekonomske aktivnosti. Moderna teorija integracija registrovala je sledeće vrste koristi od regionalnih integracija:[13]

- klasična korist od realokacije faktora proizvodnje između sektora, shodno principima komparativnih prednosti,
- proširenje asortimana proizvoda kao posledica ekonomije obima i inteziviranja konkurencije,
- opšte povećanje ekonomske efikasnosti i stope rasta zbog bolje alokacije resursa i povećanja konkurencije,
- povecanje atraktivnosti regiona za domaće i strano ulaganje,
- veće integrisano tržište je motivacija firmama za klasterisanje, udruživanje, a radi boljeg poslovanja u konkurentnijem ambijentu,
- uvećanjem firmi povećavaju se njihove sposobnosti većeg investiranja u istraživanje, razvoj, marketing, uvećava se neopipljiva imovina preduzeća.

Tokovi kapitala i radne snage najvećim delom se odvijaju kroz strane direktne investicije u Regionalnim ekonomskim integracijama . Sve veće interesovanje za proučavanjem efekata regionalnih ekonomskih integracija na prostornu distribuciju ekonomskih aktivnosti , na klasterisanje, proizilazi iz zabrinutosti povodom implikacija globalizacije i stvaranja jedinstvenog tržista Evropske Unije.

Regionalne ekonomske integracije kao glavni produkt međjunarodnih ekonomskih odnosa stvaraju pozitivne dinamičke efekte za zemlje članice, kroz opšte povećanje ekonomske efikasnosti i stope rasta usled bolje alokacije resursa i povećanja konkurencije, utičući na povećanje atraktivnosti regiona za domaće i strano investiranje.

Znači, veće integrisano trzište motiviše konkurentske firme na udruživanje,klasterizaciju a radi boljeg poslovanja u konkurentnijem ambijentu, a samim tim njihova ulaganja u istraživanje i razvoj su veća .

U procesu regionalnih ekonomskih integracija, mogu se javiti različiti ishodi u pogledu koncetrisanja i/ili disperzije ekonomskih aktivnosti. Brojni faktori deluju u suprotnom pravcu, obilje velikih faktorskih razlika je u opticaju , i vrlo je neizvesno u kom pravcu će integracije ici, (razlike u kvalitetu infrastrukture, razlike u stepenu razvijenosti i stepenu koncetracije proizvodnje, dostupnost kvalifikovanog rada, razlike u faktorskom obilju i cenama faktora proizvodnje, uticaj na trgovinsko preusmeravanje tokova sa trećim zemljama, postojanje izlaza na more i druge barijere ….)

Osnovni empirijski nalazi svetskih ekonomista o uticaju Regionalnih Ekonomskih Integracija na klasterisanje ekonomskih aktivnosti i tokove međunarodne trgovine su [14]

- za potencijalne Transnacionalne Kompanije koje su van Evropske Unije , stvaranje ovako velikog evropskog unutrašnjeg tržišta uvećalo je poželjnost proizvodnje unutar EU u odnosu na izvoz u nju. Uvećano tržište dozvoljava nekim kompanijama da postignu efikasan obim proizvodnje unutar Zajednice , smanjujući neto troškove roba prodatih na tom tržištu ,
- zbog smanjivanja troškova trgovine , a pri postojanju relativno značajnih razlika u

[12] Busch M.L.Reinhardt E. Geography ,International Trade, and Political Mobilization in U.S. Industries 2000 Vol.44.No.4 str 703-719 .

[13] Determinants of foreign direct investment in Taiwan Province of China a new approachand finings " (1995).

[14] Dunning Explaning International production 1988 str. 76-80.

jediničnim troškovima rada seljenje tradicionalnih industrija u zemlje u razvoju zbog smanjivanja troškova trgovine,

- industrijske aktivnosti organizovane od strane transnacionalnih kompanija povećavaju domaću tražnju za radom ,utičuci na porast plata, a potrošači u ovim zemljama imaju koristi usled nižih cena industrijskih modela koji se u sve većem obimu i varijetetu rade u zemljama u razvoju,ohrabrujući proces klasterizacije,smanjujući trgovinske barijere i time dodatno uticati na veći priliv stranih investicija,
- stvaranje Evropske Unije je stimulisalo tokove Stranih Direktnih Investicija između zemalja članica . Na nivou zajednice došlo je do racionalizacije lokacija i koncentracije proizvodnje na bazi ekonomije obima .Primer Slovačke autoindustrije,
- priliv kapitala i znanja u nerazvijene zemlje uslovio je proces hvatanja koraka (catch-up) u sektorskoj produktivnosti u industrijama u kojima je došlo do priliva Stranih direktnih investicija iz razvijenih zemalja,
- priliv Stranih Direktnih Investicija u nerazvijene zemlje je uticao na polarizacije tipa centar-periferija,što je imalo za posledicu povećanje ekonomskih aktivnosti, povećanje regionalnih razlika,
- koncentracija ekonomskih aktivnosti-klasterizacija je nastupila u blizini granica razvijenih zemalja Severna Italija,Severni Meksiko, Barcelona, Solun,(Solun nije na granici sa razvijenim zemljama EU,ali poseduje prednost luke i tranzitnog centra susednih zemalja Bugarska, bivše zemlje SFRJ..),

Regionalne ekonomske integracije nesumnjivo utiču na prostornu distribuciju ekonomskih aktivnosti, industrijske proizvodnje i posledičnih trgovinskih tokova. Uticaj je kompleksan, mnogo je faktora sa suprotnim dejstvom, tako da se očekivani efekti mogu grubo predvideti, ali ne i precizno prognozirati, jer često slučajni događaji mogu usmeriti tokove stranih direktnih investicija i trgovine, dovodeći do rešenja koja prilikom stvaranja Regionalnih ekonomskih integracija nisu predviđjena.[15]

6 ZAKLJUČAK

Iskustva ne samo razvijenih, već i onih manje razvijenih, kao i post-tranzicijskih zemalja, pokazuju da su klasteri temeljni savremeni oblik rasta konkurentnosti, partnerstva i socijalne odgovornosti, te novog zapošljavanja. Kako su visoki regionalni dispariteti u stopama nezaposlenosti i novom zapošljavanju temeljni problemi privrednog razvoja Srbije, to se očekuje da regionalni klasteri budu optimalni, bottom-up (odozdo prema gore) put rasta novog zapošljavanja, privrednog rasta i jačanja konkurentnosti. Primena koncepta klastera je temeljni, savremeni instrument marketinga i ekonomske politike u ostvarenju rasta konkurentnosti, partnerstva i novog zapošljavanja . Primena koncepta klastera omogućava:

Koncept klasterskog povezivanja povećava konkurentnost preduzeća članica klastera,

Klasterizacija pospešuje priliv stranih direktnih investicija,

Koncept klasterskog delovanja pospešuje regionalne ekonomske integracije,

Klastersko povezivanje pospešuje specijalizaciju i unapređenje ljudskih resursa članica,

Klasterskim delovanjem kreira se dijalog između industrije, naučne zajednice i Vlade, čime se jača kvalitet poslovnog okruženja članica.

Konkurentnost firme u globalnom poslovanju najvećim delom se temelji na brzini kojom se može realozovati razvoj i primena novih tehnologija i kreiranje novih proizvoda i usluga. Inovacije proizvoda i procesa postaju imperativ razvoja.

Znanje koje dolazi od različitih partnera u klasteru inkorporira se u organizaciju firme, što doprinosi uspešnijem upravljanju ključnim procesima. Načini strategijskog reagovanja preduzeća usaglašavaju se sa potrebama ključnih stejkholdera što doprinosi efikasnijem poslovanju svih učesnika u lancu vrednosti.

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LITERATURE REVIEW OF ORGANIZATIONAL CHANGE AND RTC THEORYAND APPLICATION IN REGIONAL CHAMBER OF ECONOMY

Aleksandar Popovic

Abstract: Change is modus operandi in modern times and it will be even more so in the future. RTC is normal having in mind that positions of stakeholders are to be disturbed, but there are numerous other reasons for RTC, but real question is how to deal with it.
In this paper we will examine change and RTC happening in Regional Chamber of Economy in Nis, Serbia. These changes were inducted by transition of Serbia and its economy during past decades, but also by legislative reform in this sector.
Relevant literature was investigated having in mind similirarities and differences with current examples in order to find out what is change and what is RTC, why does it happen and how to deal with it.
As a conclusion,the guide - a practical modelwith check-list for change implementation and dealing with RTC was crafted. This model was developed with respect of existing change models and guides.

Key words: regional, chamber

Rezime: "Promena" je način rada u savremenom poslovanju, a sva je prilika da će i u budućnosti fokus na promenama biti još izraženiji. Otpor ka promenama je sasvim normalna pojava imajući u vidu da će se pozicije važnih aktera poremtiti, međutim postoje i dodtni razlozi za otpore, no pravo pitanje kao prevazići ove otpore.
U ovom radu ćemo ispitivati promene i otpor promenama koji se dašavaju RPK Niš u Srbiji. Ove promene su uzrokovane tranzicijom u Srbiji i promenama u srpskoj privredi u prethodnim decenijama, ali takođe i izmenama zakonske regulative u ovoj oblasti.
Relevantna literature je analizirana imajući u vidu razlike i sličnosti sa trenutnim primerima radi sagledavanja pojama promena i otpora ka promenama, da bi odgovorilo na pitanja-zašto se javljaju kao i kako ih prevzići.
Kao zaključak sačinjen je vodič-praktičan model sa ček listom za implementaciju promena i prevazilaženje otpora ka promenama. Ovaj model je razvijen u skladu sa poznatim modelima i uputsvima.

Ključne reči: regionalna, komora

1 INTRODUCTION

In order to grow and even survive in the new millennium, organizations and their management must be able to respond to the changes in political, social and technological sphere. Companies are challenged to manage the changes anticipating them in competitive, market and technological arena (Szamosi et Duxbury 2005, Buono et Kerber 2008). Moreover, it is anticipated that in the future pace and severity of changes will be ever greater because the changes are not mere trends, but the result of profound organizational change forces. Complexity of these forces and different systems of changes requires approach of systematic manner with appropriate planning (James, 2002). These changes can be called TQM, BPR, restructuring, cultural change, turnaround and many more, yet no matter the name far greater of number of these effort are utter failures (Kotter 2000). Therefore we can say that this is very important issue without the answer, which is going to be even more relevant in the future. Researchers agree that in the change management area, the resistance to change (RTC) is major reason why changes fail (Mabin et al. 2001), hence this is why we must place greater importance on human factors when implementingthe changes. Response of people inside the organizations which is being changed is rarely neutral, rather they will evaluate how it is going to impact them – their power position, job security or financial arrangement, and then they would act appropriately (Szamosi et Duxbury 2001, Szamosi et Duxbury 2005, Huang et Huang 2009). Even more, some studies suggest that no matter how it is obvious that the change is beneficial for organization and its employees, usually it will be sabotaged and met with resistance (Urlich et al 2005, Pederit 2000).

Aim of this paper is to see what is the change, what is RTC, why does it happened, how can we manage and minimize it. Findings will be implemented in the organizational change implementation in the Regional Chamber of Economy Nis (RCE). This organization is facing vigorous RTC from its employees in the process of complete change.

2 LITERATURE REVIEW

RTC has been studied for more than 50 years,(Lewin, 1947), but the definition of RTC researchers have borrowed the logic from physics as Piderit (2000) claims, where RTC is restraining force in the direction of the maintaining status quo. But let us first see what is change, which approaches to the organizational change we can adopt, how will the employees cope with the changes and which model of change can we apply.

Craine (2007) goes over a cycle of change which consists of 4 stages –the comfort zone, the "no" zone, the chasm and the "go" zone each consisting of different set of the emotions as portrayed in Picture 1

Figure 1: The Change Cycle

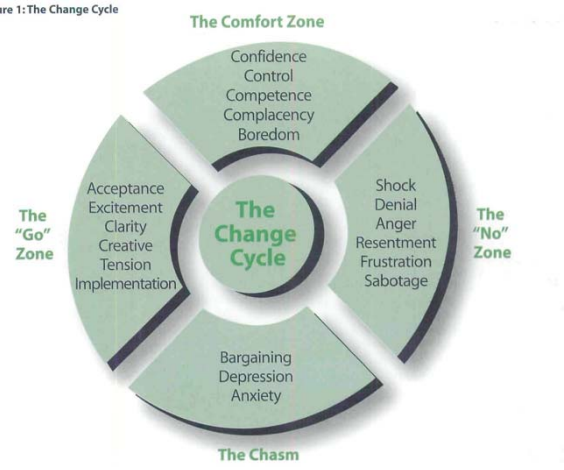

Figure 1- The Change Cycle

We can see that the emotions and the reactions critical for the process are in the second (resentment, sabotage…) and the third phase (bargaining, depression…). Moreover, the author explains how to help ourselves and others in each phase. But how do we approach the change? Buono et Kerber (2009) emphasized three approaches to the organizational change: direct, planned and guided change, closely linked to the boundaries, differences and exchanges.

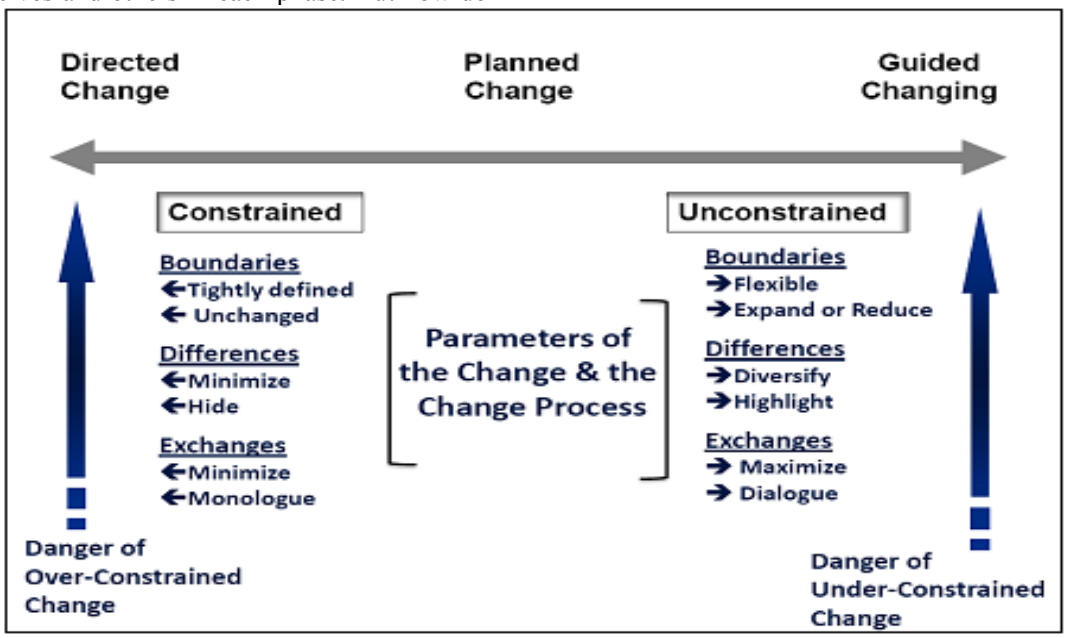

Figure 2 – Parameters of the Change and the Change Process

As we can see in Picture 2,if we move from the direct to the planned and guided change, manages must give up tight control, supervision and procedures, and substitute it with self organization founded on the general values and principles, where self organization depends on the business nature and the change challenge. In order to determine how the employees cope with the change, Fugate et al. (2008) claims those managers must change negative appraisal of the organizational change. They claim that this is done by communicating the organizational change information, reducing job uncertainty, involving the employees in change process and articulating clear vision - all these reasons and problems are taking us to the ground of reasons for RTC. Szamosi et al. (2005) states that the fear of loosing something valuable (power status, job security, relations) or fear that the employees will not be able to developthe skills or the behavior required from them, but also communication and supportive management are major reasons for occurring RTC. Szamosie et Duxbury (2005) groups factors associated with RTC in 3 categories:psychological (values, fears, beliefs);sociological (age, tradition); and organizational (culture, communication, job design); and these researchers summarize reason for RTC from reviewing literature in table 1.

Watson, 1969 homeostasis habit primacy select perception dependence superego self-distrust insecurity	Zaltman et al ., 1977 homeostasis cultural beliefs cultural values cultural traits group solidarity conform to norms power threats perception	Hultman, 1979 values beliefs	Kotter et al ., 1979 self-interest misunderstanding low tolerance for change different assessments
Bigelow, 1980 self-interest tradition society at large	Klein, 1984 status seekers sceptics equality seekers deal makers	Kanter, 1985 loss of control uncertainty surprise factor costs of confusion loss of face competence more work ripple effects past resentment real threats	Connor, 1993 lack changeability well-being threat violate values violate beliefs
Matejka & Julian, 1993 respect satisfaction ignorance strength traditions anxiety norms commitment	O'Toole, 1995 homeostasis fear power self-interest human nature imposition	Furukawa, 1996 lack of policy busyness of job negative rewards	Mamman, 1996 cognitive behaviour attitude personality age, gender, race org. culture workforce policy job design

Table 1- Reviewing literature

On the other hand Ford et al (2008) are trying to examine RTC from the other side, by viewing it from the recipient of change side, not only from the change agent side. They find that the change agents are labeling self fulfilling and self serving to the change when explaining RTC; furthermore RTC is the outcome of change agents actions or inactions such as the communication breakdown, violation of trust, and breach of agreements. Yet, many of these researchers find that the RTC can be necessary and positive force which benefits the change efforts by avoiding the group thinking and providing the alternatives to consider (Mabin et al. 2001, Huang et Huang 2009, Ford et al 2008). Huang et Huang analyzes RTC from the change agent's point of view, and found that there is a link between the employee's resistance, the organizational intervention and the change outcomes. The organizational intervention such as training, behavior modeling and motivating exceptive behavior has effects on outcomes; it increases positive effects of the RTC. Szamosie and Duxbury (2005) claim that there is lot of literature about how to overcome RTC, but little about the model of RTC – too much focus is on outcome, yet much less on the precursor. Moreover, many researchers focus on minimizing the RTC, rather than trying to understand the RTC; therefore, their strategies are based on the logic, and not on the empirical research. Hence, they propose model of the RTC presented in Picture 4

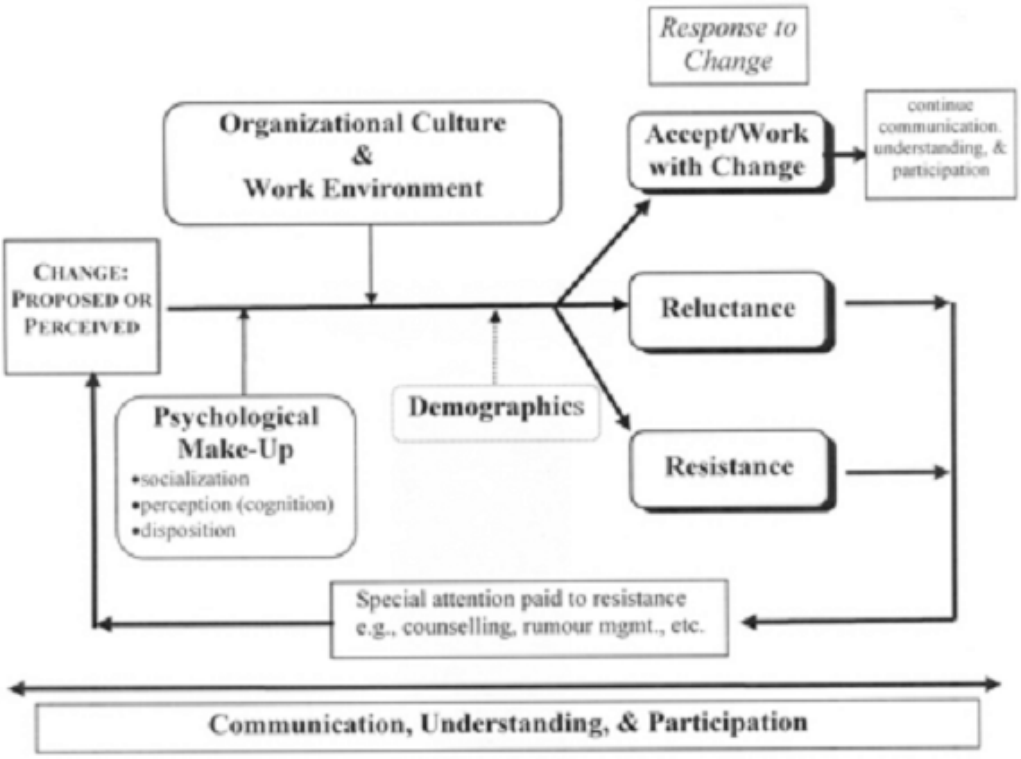

Figure 3- Communication, Understanding, Participation

Tree possible outcomes will depend on the individual factors (psychological make-up, demographic characteristic) or the organizational factors (organizational culture, work environment). As we can see many researchers find that the communication is a key issue in the change management, or the major problem if not done properly. Atkinson (2005) states that the many organizations do not manage change well, and in his paper tries to find the reason for which they fail to do it. He finds that RTC is normal, conclusion we found in most papers we reviewed in previous part. Atkinson claims that in order to overcome RTC we must sell the benefits persuade people resisting personally, because they ask: what will happen to me? Therefore, once again, communication is the key – we must segment all participants and address them separately, and trough all channels we must communicate why change.

As we can see there are proposed numerous models for managing the change and RTC, all of them have specific benefits and downsides. However, Mathews (2009) made reanalysis of the known models in order to develop the model of organizational change that consists of the balanced mix of hard and soft factors. Since different researchers explain change depending on the different set of factors – these factors can be behavioral and non-behavioral, or mainly hard and soft. Hence, author proposes the dynamic five forces activation model consisting of the individual activation forces, social activation forces, structural activation forces, environmental activation forces and the resource activation forces as seen on the table 2

Table 2: Activation Criteria
Individual Activation
• Nature of the intellectual processing
• Cognitive resources
• Personality functioning
• Motivational and emotional processes
Social Activation
• Persuasiveness
• Social facilitation
• Modeling and observational learning
• Cooperation, collaboration and team work
• Conflict tendencies
• Socialdifferentiation
• Group cohesiveness
Structural Activation
• Nature of the formal reporting relationships
• Group organization levels
• Control and coordinating systems
• Structural rigidity and flexibility
• Functional and cross functional processes
• Delegation, decentralization and empowerment
Resource Activation
• Adequate and sufficient supply of materials
• Modern technology
• Availability of financial resources
Environmental Activation
• Responsive strategic constituencies
• The extent of exchange between environmental agencies and the organization

Table 2 – Activation Criteria

Mathews further proposes weighed activation model (WAM), mathematical model derived from relative significance of either of five forces, depending on the form of change. WAM indicates relative significance of the five forces in relation to overall change program. By adding all five forces we can calculate change readiness score (CRS), thus measuring the precise state of all the 5 forces that can be used in the change program. WAM score relation to CRS score is crucial, telling us relative state of organization; high WAM score not accompanied with high CRS score tells us that organization is nor prepared for change. High CRS with low WAM means that planed state is on the threshold of change without required foundation. Having in mid the fact that we will discus problems in the organization in Serbia, we must analyze the specific issues of RTC in transitional economies. Szamosi et al. (2005) tries to link 3 key HR issues – job satisfaction, organizational commitment and management support – with employee's readiness to change in the transitional economy. By surveying 200 workers representing Bulgaria varying in gender, working experience, education and the size of the company, and comparing it with Canada they come to several conclusions. Blue color workers are more satisfied in the transition than managers, but their commitment to the organizational change should be monitored. Managers are in general supportive, but they lack the "soft skills". Also, managers must share more information's and be emphatic. In general employees in transitional economies are for the change but they have negative experience with changes.

Nevertheless, real question to answer is how to manage RTC, what to do to minimize it? Szamosie et Duxbury (2005) neatly summarizes methods from literature for minimizing RTC in Table 3.

Lewin (1951) unfreeze move refreeze Tichy & Devanna (1986) definitive ending transition phase / neutral zone new beginning	Hultman (1979) define the change determine focus of resistance develop a strategy to deal with resistance implement the strategy repeat steps 2 through 5 if required	Kotter & Schlesinger (1979) educate & communicate participation & involvement facilitation & support negotiation & agreement manipulation & co-optation explicit & implicit coercion
Caldwell and Gould (1992) develop a vision assess the climate develop leadership strategy develop and nurture trust improve communications develop and maintain mgmt. team develop a structure for change	Blake (1992) assess yourself assess the system assess the client develop intervention objectives select learning strategies allocate resources determine if things are working plan action evaluate celebrate	Jellison (1993) be positive state your request evaluate the response deflect resistor's tactics
Judson (1993) analyse and plan communicate change gain acceptance of behavioural changes make initial transition consolidate follow-up	Smith (1993) understanding desire minimum capability planning action reinforcement (back to step 1)	Stone (1995) monitoring events seek resistance out provide role models confront feelings sell need for change set small goals involve staff

Table 3 – Minimizing RTC

Yet, Szamosie et Duxbury found that many of these methods are based on the logic rather than the empirical research, and perceives the process as necessary evil. Common actions towards minimizing RTC are change of culture, communication improvement, and proper assessment of the change, structure of change process and involvement of the employees in the process. On the other hand, Sherman et Garland (2007) in reviewing the literature finds that there are 2 ways to pass RTC – to overcome it or to overwhelm it. In order to overcome it we must address all 3 states: emotional, behavioral and cognitive – this conclusion is in line with findings of Piderit (2000). In real life it means to reduce the opposing force by providing the empathy and support, communicating the reason, reducing rumors and fears, and involving those affected in the planning and implementation. Overwhelming on the other hand is increasing forces for change, both positive -carrot and negative-stick. Potential problem in regard of overwhelming can be if we undervalue the opposing forces, hence change efforts will be domed. Second problem can be if amount of the force for changing is lost before the end of the process – essentially if change efforts lose their sponsors in the top management. Generally, the idea of increasing forces that promote change until they are greater than RTC is the much worse scenario opposed to overcoming RTC because big amount of forces on both sides can lead to instable system. Sherman et Garland further claim that the another problem of overwhelming the RTC can be because results of resistance can be materialized after the change is accomplished – or worse after the change is failed. In both of these cases focus of the resistance is not on the change process itself, because it is finished – it is on change agents. Change agents usually have burned too many bridges, made to many enemies, and therefore we say that we must burry the survivors, because change agents have moved organization from the comfort zone.

By analyzing all these change and RTC literature we can set change model - a kind of practical guide for implementation of change and dealing with RTC. In the literature there are 3 well known models developed by academics with considerable practice experience (Mento et al., 2002). First is Kotter's8 step model of transformation for the organization (Picture 4a) developed in respect of study with 100 companies of various sizes from different sectors (Kotter, 2000). This model is for strategic level of the company and it underlines two points - first is that the change process consists of several phases, and each of them must last considerable time. Also, mistake in any of the stage can have enormous effect on the momentum of the process.

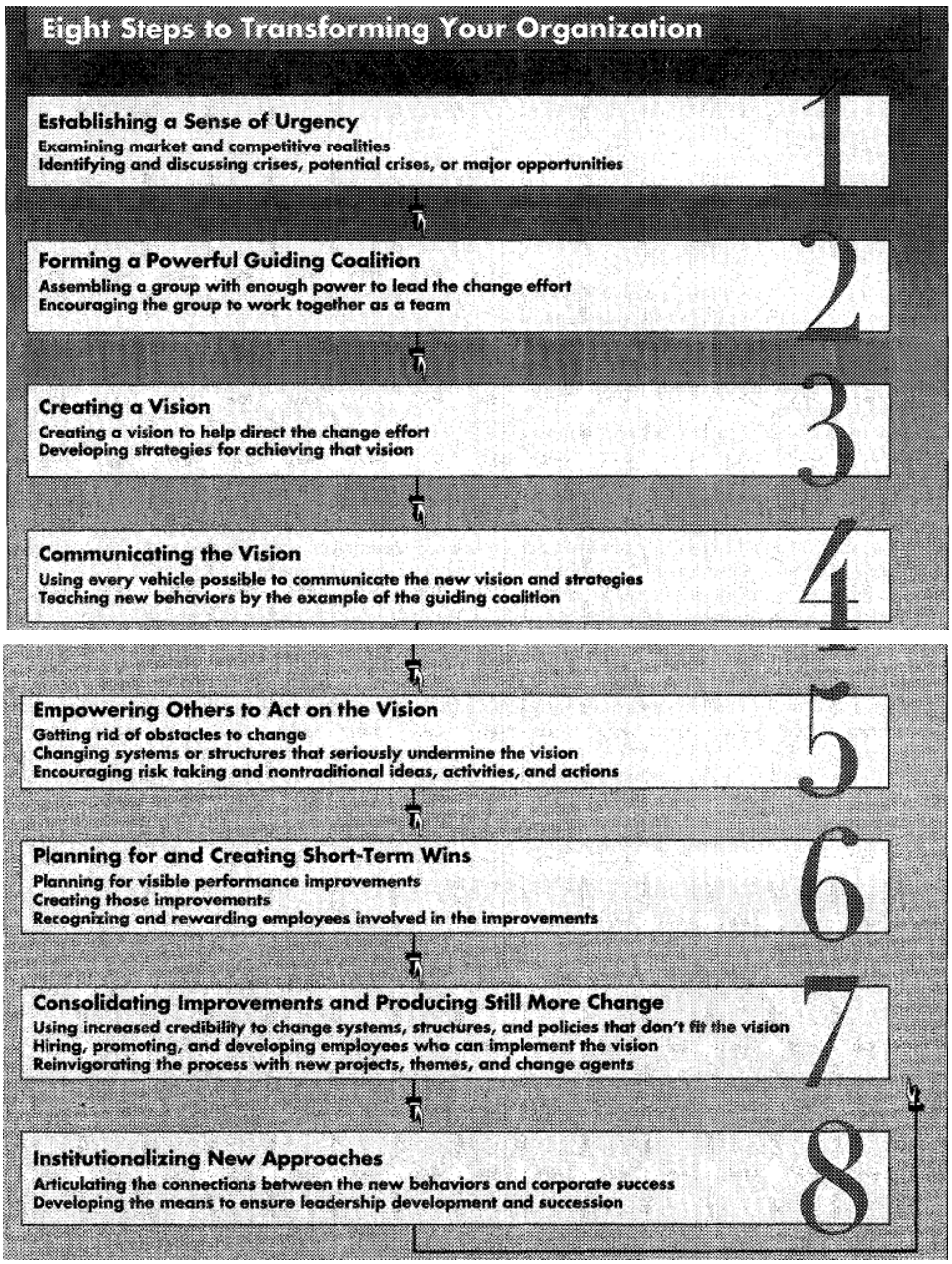

Figure 4a – Eight Steps to Transforming Your Organization

Next is Jick's ten step model (Picture 5), developed as a guide from both organizations starting the change, and evaluating the change in progress (Jick, 1991). He finds that implementation of the change is a process of discovery and it must be seen as a blend of the art and the science. Implementation depends on the nature of change, on the common sense of change agents who can refuse to hear the voices from the organization and at the end one must see the fact that change is continuous process.

Figure 5– Jick's ten step model

Third is the GE seven step model of the change acceleration (Garvin, 2000, p.131) developed on Lewin's model of unfreezing, movement and refreezing (Picture 6)? Model emphasizes the leader's role in creating the need for change, crafting the vision, measuring the change in several dimensions and institutializing the change. Institutializing the change or refreezing by Lewin means changing the design factor of organization; we must create complex system of structures harmoniously fitting.

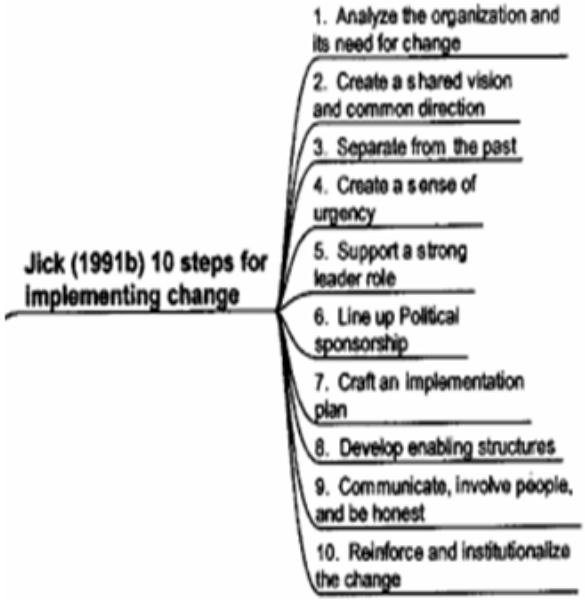

Figure 6 – GE seven step model

3 APPLICATION OF LITTERATURE IN PRACTICE

During the last 20 years Serbia has gone trough the process of enormous changes; along with the society, economy was transformed and is still going trough serious changes. Nevertheless, some parts of the society are resisting change. Among them, Chamber of Economy system is certainly trying to operate in same manner as 30 or 40 years ago. We can say that this is normal since it is inert structure operating on the same grounds for well over 150 years, and much of the employees are in their 60-ties.

But during 2009 new laws with delayed enacting in 2013 advocating voluntary membership was passed, and together with the privatization and disappearance of the old state owned companies seriously questioned business model and the financing of Chamber as it is now. This is why assembly voted new administration why is trying to enforce major change and is facing furious RTC.

First step is to put the idea in the context, and here we must see two concepts. First is when we focus on the problem solving, here energy for the change comes from whish to escape unpleasant status quo, but energy diminishes as the situation improves. Second concept says that if we create creative tension, energy for change comes from the vision, therefore we have new learning, opposed to adaptive learning in first concept. This step was properly addressed in our case in RCE, and by putting the idea of change into the context, the old management was changed.

Second step would be defining the change initiative. In practice it means defining the roles of all key players, strategists who are responsible for initial creating a need for change, crafting the vision, defining what is possible and who will sponsor and defend it. Change implementations are the one who make it happened. Recipients are in our case all other employees and members together with the interested parties.

Next step is to evaluate the climate for change. Both strategists and implementators must understand the environment around organization, how it operates, what are its strengths and weakness and especially what organization's history with changes is. Learning from the past efforts can help not to make the same mistakes. There is the first mistake in our case of RCE. Since RCE has specific structure with assembly of 55 delegates chosen from the Sector Boards managed by secretaries employed there is obvious circle of dependency. Therefore any change is problematic in this locked inertial system, yet new management crafted daring and swift plan for total changes creating great RTC. Furthermore all minor change efforts in the recent history was not implemented because of this issue, hence slower pace of changes must be implemented.

Step four is to develop the implementation plan, and this step is almost the same as Jick's step 7. The plan should define the specific goals and responsibilities for all actors, but the plan must be crafted with the respect of frame of reference of each individual, and the framing methods can be carrot, stick, prestige and challenge. In our case, the starting mistake from step three was emphasized here, plan was developed but wrong framing methods were used for the recipients. Instead of stick for secretaries of boards and carrot for few loyal ones, we must introduce prestige for few, change for young ones and more of them must be dealt with carrot rather than with stick.

Next step is to find and cultivate a sponsor, this step is the identical as Kotter's developing power coalition and Jick's line up political sponsor. In practice this means to find the individuals and groups whose commitment for the change is essential, decide abut the critical mass, and plan how to gain the commitment of this mass and monitor the progress. In the case of RCE, thecritical mass was not well defined; there was poor judgment about whose support for change is needed. Actions from previous step are the same.

Step six is to prepare the recipients of change. Almost every researcher referenced earlier emphasized communication as key issue during change process - we have it our matrix in every step, yet in this step it is crucial. This is most important point of change, and as such if not done properly can lead to disaster. In RCE not all recipients of change are prepared for change, therefore this is issue that must be upgraded immediately. Need for change from first steps must be emphasized again, the vision communicated better, but benefits of the change must be sold to all recipients. Moreover, all stakeholders must accept the change having in mind that external stakeholders can be sponsors of RTC if they are not convinced that the change is needed.

Next step is to make cultural fit e.g. ensuring that the change will last. Organization members must except the fact that change is reality and will be in

future. This is future step for RCE- rooting the change in existing culture and making sure that thing does not go back. This must be insured by changing the reporting relations, staffing, training systems, power roles, appraisal, reward systems and communication in the way that is complementary to change.

Further step is to create the change leader team; having in mind that the team can provide better leadership than one person. Since the leader must inspire the employees to embrace the vision, reward them for reaching the goals, but he must also create the organizational structure, it is obvious that this can not be done by one person. In RCE case, it is wiser to have the leader team than single man; therefore it is the task to craft such a team.

Step 9 is to create small wins for motivating the employees. This can be crucial in long and drastic changes. In case of RCE plan for creating visible improvements, the employees connected with it must be recognized, because people without it may give up on change. This can be done by happy hour events or lunches, or milestone events with the congratulations and the rewards.

Next step must be done from beginning of the process till the end – to constantly communicate the change. In our case communication must enhance organization s understanding and commitment for change, to reduce RTC and confusion, and to prepare recipients to good and bad side of change. The process of communication can and must do much better in RCE.

Step 11 is to craft the system for monitoring the progress of the project using milestones, benchmarking and by charting the progress. In RCE case it could be connected with the creating the small win to reward progress. Change progress must be measured during all stages not just in the end, and proper measurement is crucial for keeping the project on the track.

Finally we must integrate the knowledge gained in the process by stepping away, reflecting and drawing up sound conclusions about mistakes done. In this way we are ensuring all the knowledge in disseminated to all other employees who maybe facing same problems.

4 CONCLUSION

The change is inevitable occurrence, and the pace and scope of changes in all spheres of life is going to be ever greater in the future. RTC is the natural response, since one is disturbing status quo, but there are more reasons for occurrence of RTC. Having in mind the fact that lot of the change efforts fall because RTC, real question is how to manage it and deal with it. There are numerous approaches to RTC and few researchers have even developed manuals for change, but fact is that change is the painful process which must go trough few phases. Each of the phases must last some time, and it must be prepared and accomplished with care, yet almost every researcher finds that communication is key issue during change process, and for managing RTC.

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OBRAZOVANJE I RAZVOJ KLASTERA

Maja Stanojević Gocić[1]

Rezime: Koncept klastera postaje jedna od vodećih ideja razvoja nacionalnih privreda krajem XX veka. Pored značaja lokacije klastera, posebnu pažnju treba obratiti na podizanje svesti o potrebi za poboljšanjem obrazovanja i usavršavanjem kadrova koji bi činili okosnicu razvoja klastera. Zato poseban akcenat u radu je stavljen na značaju obrazovanja i potrebi za njegovim poboljšanjem radi ostvarivanja što bolje sprege klastera i jedinica obrazovnog sistema.

Ključne reči: klaster, obrazovanje, pismenost

Abstract: The cluster concept is becoming one of the leading ideas of development of national economies at the end of the twentieth century. Apart from the importance of cluster location, special attention should be paid to raising awareness about the need to improve education and training of the staff that make the backbone of cluster development. Therefore, special emphasis in the paper is given to the importance of education and the need for its improvement in order to achieve better relation between clusters and units of education system.

Keywords: cluster, education, literacy

1 UVOD

U doba svetske ekonomske krize i globalizacije tržišta, potreba za udruživanjem malih i srednjih preduzeća u klastere sve više dobija na značaju. U Srbiji, zemlji u tranziciji, preduzeća mogu da postanu konkurentna u međunarodnim okvirima jedino po osnovu udruživanja (Đorđević et al., 2010).

Uprkos činjenici da je u Srbiji preko milion stanovnika nepismeno, najveći broj ima samo završenu srednju školu, a PISA istraživanje pokazuje da naši učenici postižu rezultate ispod proseka, zbog posedovanja samo enciklopedijskog i nefunkcionalnog znanja, obrazovanje će u budućnosti predstavljati bitan faktor za razvoj klastera.

Ovaj rad sadrži sledeće odeljke: u drugom se objašnjava pojam klastera, u trećem se daje trenutna situacija u Srbiji na polju obrazovanja, a četvrti i peti odeljak daju mogućnosti poboljšanja obrazovanja i značaj upliva obrazovanog kadra u klastersko organizovanje. Na kraju rada izložen je zaključak o značaju obrazovanja za razvoj klastera.

2 POJAM KLASTERA

Prema Porteru (1998), klasteri (engl. *clusters*) predstavljaju geografsku koncentraciju međusobno povezanih preduzeća, preduzetničkih radnji i poljoprivrednih gazdinstava, srodnih i različitih delatnosti, specijalizovanih dobavljača, pružaoca usluga i sa njima povezanih organizacija podrške koje se na odgovarajućem području delatnosti nadmeću, ali i sarađuju. Dakle, iako su preduzeća koja ulaze u sastav klastera međusobni konkurenti, ona istovremeno sarađuju na raznim poljima. Članice klastera sarađuju u pogledu nabavke, prodaje, organizacije poslovanja, korišćenja radne snage i drugih usluga na tržištu. Koncept klastera postao je centralna ideja konkurentnosti i ekonomskog razvoja nacionalnih ekonomija krajem XX veka. Povezivanje u klastere prihvaćeno je kao efikasan način za povećanje konkurentnosti preduzeća kako na domaćem tako i na međunarodnom tržištu (Mićić, 2010).

Brojni su primeri u literaturi koji obrađuju pojam klastera. Tako na primer, Banneworth i Charles (2001) prave jasnu razliku između pojmova klaster i klasterizacija, iako se ekonomske politike definišu i sprovode za oba koncepta, dok Schmitzu (1999) potencira značaj geografske bliskosti za odnose između firmi.

Klasteri formirani u industriji predstavljaju složen organizacioni model geografski umreženih srodnih preduzeća iz jedne ili nekoliko industrija, kao i preduzeća iz komplementarnih i različitih delatnosti, i mogu se klasifikovati kao:

- horizontalni klasteri - partneri na istom nivou u lancu stvaranja dodatne vrednosti koji koriste zajedničko tržište, tehnologiju, prirodne resurse i radnu snagu,
- vertikalni klasteri - povezuju preduzeća iz industrije i drugih delatnosti u lanac stvaranja vrednosti,
- regionalni klasteri - partneri iz regionalnog industrijskog sektora,
- klasteri u branši - partneri u specifičnom polju delovanja,
- preduzetnički klasteri - partneri mala i srednja preduzeća i preduzetništva i
- međunarodni klasteri - preklapajuće industrijske mreže klastera.

U Evropi najuspešniji klasteri nalaze se u oblasti prerade metala, drveta i plastike, proizvodnje tekstila i konfekcije, kože i obuće, kućnih aparata, optike, videotehnike, hardvera i softvera za personalne računare.

Klaster se razlikuje od drugih vidova povezivanja u okviru svojih geografskih granica i to po osnovu (Bošković and Kostadinović, 2011):

1. uključivanja i korišćenja sredstava,
2. upravljanja informacijama,
3. načina razmene proizvoda i poluproizvoda i
4. važnosti načina povezivanja.

Članice u okviru klastera povezuju:

- zajednički interesi i potrebe na području nabavke i prodaje specijalizovanih usluga, radne snage i drugih resursa,
- bolji lični kontakti,
- jačanje odnosa kupci/dobavljači,
- razmena iskustava i primeri dobre prakse putem podizanja nivoa znanja,
- primena novih materijala i tehnologija,
- mogućnosti lakšeg pristupa fondovima i povoljnijim kreditima.

Lokacija klastera ima veliki uticaj na njihov razvoj, pa se najčešće razvijaju u blizini najvažnijih resursa za ostvarivanje poslovanja, u blizini velikih industrijskih centara ili u okviru univerzitetskih centara i poznatih naučno-tehnoloških instituta i parkova. U Srbiji jedan od strateških ciljeva treba da predstavlja brži razvoj malih i srednjih preduzeća i njihovo povezivanje u klastere (Ilić, 2006).

Takođe, svedoci smo činjenice da je trend da se preduzeća integrišu u svetsku privredu kroz poslovne saveze sve izrazitiji, jer se tehnologija i tržišta brzo menjaju, integrišu, presecaju i preklapaju. Osim toga može se zaključiti da je stvaranje saveza neophodnost ne samo za sektor malih i srednjih preduzeća, već i za velika preduzeća (Urošević and Đorđević, 2010).

Da bi se to ostvarilo potrebna je pomoć lokalnih samouprava i regionalnih razvojnih agencija, jer one imaju prepoznatljivost i potreban kapacitet da mobilišu aktere iz javnog i privatnog sektora, uključujući i organizacije za podršku poslovanju, bankarski sektor i stručne institucije.

3 TRENUTNO STANJE NA POLJU OBRAZOVANJA U SRBIJI

Obrazovanje, odnosno pismenost odraslog stanovništva, danas je u doba svetske ekonomske krize i globalizacije tržišta jedna od bitnih tema kako u razvijenim tako i u zemljama u tranziciji. Svetska privreda zahteva pismene radnike, odnosno dobro praktično obučene i obrazovane. Prema članu 5 Zakona o osnovama sistema obrazovanja i vaspitanja "opšti ishodi obrazovanja i vaspitanja rezultat su celokupnog procesa obrazovanja i vaspitanja kojim se obezbeđuje da deca, učenici i odrasli steknu znanja, veštine i vrednosne stavove koji će doprineti njihovom razvoju i uspehu, razvoju i uspehu njihovih porodica, zajednice i društva u celini".

Program za međunarodnu pismenost odraslih (Programme for the International Assessment of Adult Competencies - PIAAC) definiše pismenost kao proznu pismenost (razumevanje i korišćenje informacija dobijenih iz tekstova), dokumentacionu pismenost (informacije koje se nalaze u različitim formularima) i kvantitativnu pismenost (razumevanje, na primer, izveštaja o stanju na računu u banci, određivanje poreza, kamata).

Istraživanja PIAACa pokazala su da je u Švajcarskoj 35% pismenog stanovništva, dok je u SAD 20% pismenog stanovništva. S druge strane, po obuhvaćenosti stanovništva obrazovanjem posle obaveznog školovanja na prvom mestu su SAD i Japan sa 96%, Švajcarska sa 82% i Austrija sa 79%.

Međutim, u svetu je više od 900 miliona ljudi nepismeno, od čega je u Srbiji 1,35 miliona stanovnika bez dana škole ili sa nekoliko razreda osnovne škole.

U Srbiji je među obrazovanim stanovništvom najviše onih sa srednjom školom, dok je sa visokim obrazovanjem svega 6,5% građana. U razvijenim zemljama, najveći broj stanovnika ima srednju školsku spremu - od 47% u SAD, do 61% u Austriji.

Prema podacima Ministarstva prosvete, nauke i tehnološkog razvoja u Republici Srbiji postoji 1712 osnovnih i srednjih škola, 8 državna i 11 privatna univerziteta (od kojih su dva u procesu akreditacije), 47 državnih i 16 privatnih visokih škola strukovnih studija.

4 OBRAZOVANJE KADROVA I NASTAVA ENGLESKOG JEZIKA

Jedan od ciljeva klastera je i analiza potreba za specifičnim obukama u klasteru, organizacija obuka, kao i organizacija studijskih putovanja. Na taj način se sprovodi obrazovanje kadra u klasteru. Stoga poseban akcenat treba staviti na analizu potreba za specifičnim obukama u klasteru, a jedna od tih potreba je nesumnjivo i poznavanje engleskog jezika. Potrebe učenika i studenata utvrđuju se na osnovu analize potreba koja se sprovodi na početku odgovarajućeg kursa. Richards et al. (1992) tvrde da analiza potreba podrazumeva proces utvrđivanja potreba koje su neophodne učenicima i uređenje tih potreba prema prioritetima. Sastoji se iz skupljanja objektivnih i subjektivnih informacija o učeniku kako bi se utvrdili ciljevi učenja jezika, situacije u kojima će se jezik koristiti i nivo znanja koji je neophodan. Nunan (1988) tvrdi da analiza potreba obuhvata tehničke postupke i procedure za prikupljanje podataka koje se koriste prilikom pravljenja nastavnog plana i programa.

Kod analize potreba neophodno je ne samo sakupiti odgovarajuće podatke, već i utvrditi kako će oni biti iskorišćeni u nastavi i koju će korist od njih imati studenti. Jedan od mogućih projekata za prikupljanje podataka o potrebama studenata na početku školske godine je i *on-line* upitnik, a kako kurs napreduje i svest o potrebama raste, on može postati uslov za analizu trenutnih potreba. Potrebe se

ne smeju pretpostavljati, već se moraju opsežno analizirati kako bi nastava bila uspešna.

U tom smislu jedna od obuka koje se mogu organizovati u okviru klastera je i kurs ili nastava engleskog jezika. Tako, na primer, u nastavi engleskog jezika namenjenoj inženjerima, prema Stanojević Gocić (2011a), između ostalog potrebno je obraditi tehničke termine i tehnički jezik. Primera radi, ako se obrađuje tekst o alternativnim izvorima energije on je vezan za temu zaštite životne sredine o kojoj se može dalje diskutovati na času, a s druge strane, aktivnosti slušanja i interaktivne verbalne vežbe doprinose komunikativnom ishodu i veoma su pogodan okvir za uvežbavanje jezika u upotrebi.

Takođe, nastavnik mora ostvariti integraciju teorije i prakse i učenje kroz rad. On mora proveriti da li se određena rešenja uklapaju u opšte ciljeve nastave i proceniti svrsishodnost primene savremenih tehnologija (Stanojević Gocić, 2011a, 2011b).

Pored uvođenja savremenih tehnologija, obrazovanje se može poboljšati uvođenjem interaktivne nastave (Stanojević Gocić, 2012). U interaktivnoj nastavi uči se kroz sopstvene aktivnosti. Da bi išao u korak sa tendencijama u savremenom društvu i unapredio nastavu, od nastavnika se očekuje da uvede inovacije u nastvani proces. Naime, pokazalo se da je tradicionalna nastava, koja se zasniva na klasičnim predavanjima, izlaganjima i demonstracijama nastavnika koje učenici slušaju, memorišu i kasnije reprodukuju, pasivna. Za razliku od tradicionalne nastave, interaktivna nastava se zasniva na aktivnostima učenika u procesu učenja i ima za cilj primenu i dalji razvoj znanja u praksi. S druge strane, zadaci koji se zadaju trebalo bi da liče na stvarne životne situacije kada je u pitanju metodologija zasnovana na zadacima, a vrednuju se u zavisnosti od ostvarenog ishoda. Time bi se savladano teorijsko gradivo upotpunilo praktičnim znanjem i postigli bolji rezultati.

5 UTICAJ OBRAZOVANJA NA RAZVOJ KLASTERA

Uključivanje visokostručnog kadra u razvoj klastera omogućilo bi prvenstveno bolju organizaciju klastera i povećanje broja dobijenih domaćih i međunarodnih projekata. Osim toga, poseban značaj imala bi:

- izgradnja klasterske kulture,
- promocija klastera,
- obuka menadžmenta i članica klastera,
- organizacija B2B manifestacija,
- obuka i razvoj radne snage.

Takođe, klasteri bi dobili posebnu podršku pri pisanju projektne dokumentacije pri konkurisanju za finansijska sredstva, a ogledala bi se kroz:

- podršku kancelariji klastera,
- pomoć u organizaciji radionica,
- podršku u promociji klastera kod potencijalnih članova,
- promociju regionalne industrije,
- usluge u obliku istraživanja tržišta i obuke.

Posebna pažnja u obrazovanju kadra mora se posvetiti inovativnim idejama. Inovativnost i umrežavanje stručnih kadrova u mnogome bi doprinelo bržem razvoju klasterske organizacije u Srbiji. Osim toga, mora se voditi računa o identifikaciji, definisanju i planiranju saradnje sa naučno-istraživačkim organizacijama i uključivanju nastavnog kadra i mladih istraživača na projektima klastera i obuci članica klastera.

Organizovanjem radionica vršila bi se razmena iskustava među klasterima i učesnicima iz iste industrije ili sličnih industrijskih grana, kao npr. građevinske, poljoprivredne, automobilske.

6 ZAKLJUČAK

U ovom radu prikazana je veza između obrazovnih institucija, obrazovanog kadra i klasterskog povezivanja preduzeća. Uprkos brojnim problemima pri razvoju klastera nastalim usled sporih procesa integracije Srbije u svetske ekonomske tokove, malog ulaganja u obrazovanje, kao i novonastale svetske ekonomske krize, radi njihovog prevazilažanja potrebna je i dodatna finansijska podrška države osim ulaganja osnivača klastera.

Uplivom obrazovanih kadrova sa stečenim praktičnim znanjima na osnovnim i master studijama omogućiće u budućnosti nadamo se brži razvoj klastera i omogućiti kako povećanje broja zaposlenih tako i povećanje proizvodnje i izvoza robe na strana tržišta.

Zato je potrebno (1) raditi na stalnoj edukaciji menadžera klastera, saradnika razvojnih institucija, članica klastera i ostalih zainteresovanih kako bi se unapredili njihovi kapaciteti za podršku razvoju klastera; (2) uvesti akademske i stručne programe za

obrazovanje menadžera klastera i (3) aktivno raditi na promovisanju ideje umrežavanja i povezivanja u klastere.

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CLUSTER FACILITATORS – CONCEPT, ROLE AND SIGNIFICANCE

Jelena Vučković[1]

Abstract: The concept of a cluster facilitator has only been recently elaborated in economic literature, whereas sources of information on cluster facilitators on the territory of Serbia are scarce. Therefore, further in the text the role and the significance of a cluster facilitator will be demonstrated through an empirical aspect of activities and operation of LEDIB Cluster House. That particular aspect implies examples of good practice of cluster facilitators from other countries cooperating with Cluster House in enhancing interaction and exchange of experience. LEDIB Program has invested significant resources in the training of the cluster facilitators and the following text represents a combination of acquired theoretical knowledge and practical experience. The most significant series of cluster facilitators training modules organized by the Cluster House was held in REG X Danish Cluster Academy, so that some of the definitions and conclusions cited in the text have been taken from the experts working at this prominent institution for the cluster development.

Key words: facilitators, acquired theoretical knowledge

KLASTER FASILITATORI – POJAM, ULOGA I ZNAČAJ

Rezime: Pojam klaster fasilitatora je tek poslednjih godina detaljnije obrađen u ekonomskoj literaturi, a izvori informacija o klaster fasilitatorima sa područja Srbije su malobrojni. Stoga će u daljem tekstu uloga i značaj klaster fasilitatora biti prikazani i kroz iskustveni aspekt delovanja i rada u okviru LEDIB Kuće klastera. Taj aspekt odnosi se i na primere dobre prakse klaster fasilitatora iz drugih zemalja, sa kojima Kuća klastera podstiče interakciju i razmenu iskustava. LEDIB program je uložio značajne resurse u obuku klaster fasilitatora i tekst koji sledi je spoj stečenih teorijskih znanja ali i iskustava u radu. Najvažniji od niza modula koji je Kuća klastera organizovala u cilju obuke klaster fasilitatora održao se na Danskoj Akademiji za klastere REG X, tako da su neke od definicija i zaključaka u tekstu preuzete od stručnjaka ove renomirane institucije za razvoj klastera.

Ključne reči: fasiliatori, stečena teoretska znanja

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1 CONCEPT AND SIGNIFICANCE OF CLUSTERS

The concept of cluster was first introduced in economic literature in 1890 in the work of Alfred Marshall on industrial districts in England. However, the introduction of the cluster concept is assigned to Michael Porter who defined clusters as "a geografical concentrations of interconnected companies, specialized suppliers, service providers, affiliated sectoral industries and associated institutions (e.g. universities, agencies, chambers of commerce) which are competing in a specific field of work but at the same time cooperating with each other" [2].

The term "cluster" was used by an American composer for the first time to denote a group pf simulteneous, dense consecutive tones in a scale. In translation, this English term signifies "a grape, group, flock" but its original meaning is widely accepted.

European Commission adopted the concept of cluster as an important initiative in competition and innovation in 2008, due to an improved interaction among sectoral companies, education, scientific and research institutions and public sector. The studies of relevant international institutions show that the cluster concept is an important drive in competition and innovation and as such influencing the economic development of a particular region. Joining of companies into clusters and cooperation with supporting institutions (education, scientific and research institutions and public sector) may lead to a synergy of action and an increase in competitiveness of cluster members in relation to those in the same environment acting individually. The studies showed that in almost three forths of companies that are members of clusters there has been an increase in their competitiveness.[1]

There are three key elements that make up cluster „Ekosystem" [1]:

1. Economic entities
2. Public institutions
3. Education, scientific and research institutions.

The level of success in cluster functioning depends on the level of understanding and cooperation among all three elements and on interpersonal relationsa among individuals in each of the afore listed elements. That is exactly why it is necessary to have a cluster facilitator.

2 CLUSTER FACILITATOR – CONCEPT

In contemporary business environment, the economic entities encounter numerous challenges such as frequent changes in buiness environment, competition, globalization and necessity of continual improvement of products and production process. One of the ways to achieve competitiveness in such dynamic conditions is joining in into clusters [3].

The benefits of such kind of association are numerous, increase of production and employment, increase in innovation, specialization and improvement of professional education, knowledge and technology transfer, quality improvement, higher level of production, export growth, efficient use of resources, cutting down on expenses at various levels, increase of flexibility, easier access to grants, information update, etc. However, clusters cannot be taken as a "medicine to cure all diseases", as there are also negative implications of clusterization such as, economic entites are not interested in joint activities, lack of trust among members, inadequate system of information sharing, low coincidence of structure and business culture of interconnected actors, lack of funds, lack of enterpreneurial spirit, etc.

Benefiting from the cluster membership and overcoming challenges one encounters during the establishment and functioning of the cluster does not happen spontaneously. That is where a cluster facilitator plays a key role [7].

Generally, the term cluster facilitator defines a person responsible for successful functioning of a cluster. According to the definition of the Danish Cluster Academy, a cluster facilitator is "a person responsible for managing relationsamong economic entities, education, scientific and research institutions and public sector in order to achieve economic development and benefit for all members within the cluster" [5].

In different parts of the world the term " cluster facilitator" may have other titles. For example, in Scandinavian countries they are called "process leaders" and in other parts of Europe "cluster managers", whereas in USA the term "executive director" is often used. Regardless of the term used, it denotes the same concept everywhere.

Referent sources make the division of cluster facilitators into two categories: internal and external cluster facilitators [8]. External facilitators are experts who are objective, impartial, not completely introduced to all cluster elements but havewide network of contacts and capabilities to recognize

business opportunities. On the other side, internal facilitators are familiar with the cluster structure in detail and are in direct contact with cluster members whose trust they have. In practise, the combination of characteristics of both types of facilitators can be found in one person, with certain of characteristics from both types prevailing more than the others.

A cluster facilitator "manages" the cluster in the most acceptable way to all cluster members. He takes care of both individual and collective needs of the cluster members. A cluster facilitator has not the title of a director but is expected to manage the cluster impartially and independently.

The role of a cluster facilitator is therefore very complex and involves a series of activities that require adequate knowledge and skills. The theoretical aspect defines five personal characteristics essential in cluster facilitation [1].

1. Modesty- absence of imposing one's personal beliefs during the process of facilitation;
2. Flexibility – embracing changes, new ways of thinking and unobstructed by the existing structures;
3. Honesty – empathy and acting in accordance with personal system of values;
4. Professionalism –integrity and trust inspiring among cluster members;
5. Awareness – fully aware of his role and cluster members interest during decision making, as well as of the risk taken once the decision is made.

A cluster facilitator must have trust of all cluster members and he must make costant efforts in securing quality improvement in interpersonal relations among cluster members.

Some of the most important characteristics and skills required for the successful cluster facilitation are listed below [4]:

- Innovativeness
- Organizational skills
- Social skills
- Communication skills
- Team work orientation
- Decision Making competence
- Creativity
- Enthusiasm
- Conflict resolution competence, etc.

The role of a cluster facilitator may be compared with a sports team coach whose task is to unite different actors and coordinate their activities in order to achieve a common goal.

3 ACTIVITIES IMPLEMENTED BY A CLUSTER FACILITATOR

Activities implemented by a cluster facilitator are numerous. The most important activity is maintaing constant contact with cluster members. Only then, a cluster facilitator can keep an update of the opportunities and needs of cluster members which is the basis for cluster activities implementation. This type of approach prevents creation of an unreal picture of the situation and needs of the economy and strengthens social relationships between cluster members and a cluster facilitator. One of the most significant tasks of a cluster facilitator is creation and strengthening of social relationships among cluster members. It implies a series of activities, one of them being to convene informal social events. Organizing cluster business club events, study tours, visit to fairs and alike are the examples of good practise implemented by the Cluster House since its foundation.

The main goal of a cluster is to contribute to achieving the added value for its members and therefore the activities of a cluster facilitator must be streamlined in that direction. It implies a series of secondary activities which will eventually result in an increase of profit for the cluster members. Such activities take considerable time but if the social relationships are adequately established there will be no drop off in membership.

One of the basic tasks of a cluster facilitator is to recognize and analyse essential needs of the economy, i.e. sector. The state of our economy is such that small, family companies unable to afford sufficient number of workers to cover all aspects of business are predominant.Cluster facilitators must recognize what activities have been "neglected" by enterpreneurs or for what particular activity each of them individually lack sufficient funding. In previous experience it has most often been marketing activities so that on the basis of a detailed analysis of the cluster member needs by the Cluster House a set of projects were implemented in that field, such as joint web site design, joint catalogue, promotion material, organization of joint exhibiting at fairs and alike. These and similar activities led to the fact that some of economic actors joined the clusters they do not naturally belong but whose products and services meet the needs of the cluster members in that particular sector. Such a case is evident in agro sector where producers of package and marketing agencies dealing

in product and branding design are members of the cluster.

Clusters include big number of actors very often. Therefore, the necessity of establishing successful system of information and uniting partners within the cluster arises which again represents one of the activities of a cluster facilitator. Namely, a cluster facilitator has to collect, analyse and distribute information in accordance with the established system of information. It implies further necessity to update new information and to recognize favourable opportunities where a cluster may achieve some of its goals.

The activities implemented by a cluster facilitator are also promotion of the concept of cluster, promotion of joint projects, lobbying and intermediating between economy, education and scientific and research community and government sector, promotion of education, identification and inclusion of all relevant institutions into a cluster, support of cooperation between education and scientific and research institutions, etc.

A cluster facilitator must be familiar with the sector very well but it would be good if he does not come from the state administration or from some of the economic entities who are cluster members.

4 LEDIB CLUSTER HOUSE CLUSTER FACILITATION UNIT

LEDIB Cluster House Cluster Facilitation Unit was established as a result of the need to improve the existing structure and efficiency, as well as to make a detailed analysis of the needs of the economy in the region. It was established during 2012.

Initial activity of the Cluster House Cluster Facilitation Unit was to introduce the first module of training for potential cluster facilitators. The cluster facilitators who applied for the assignment and successfully completed the training and gained required skills visited a big number of economic entities and established direct contacts with enterpreneurs. In order to simplify the activity of information collecting for the need assessment of cluster members and economy, a special questionnaire was designed to explore the potentials and problems of the cluster members, and a sector as a whole. The Cluster House Cluster Facilitation Unit has the aim to establish a comprehensive database of precise and detailed information on economic entities in southeast part of Serbia, as well as on their capacities and challenges they encounter.

The strategic goal of the Cluster House Cluster Facilitation Unit is to establish and improve capacities of human resources in view of professionalisation and professional improvement of cluster facilitators which is in accordance with the main goal of the Cluster House as a supporting institution of the cluster development in the region.

5 CONCLUSION

A cluster facilitator is a relatively new job profile in Serbia which requires further promotion and increase of awareness of economic entitites and other elements of the cluster ecosystem on significance of cluster facilitators as an essential segement in cluster development and economic prosperity.

Besides, cluster facilitators already engaged in this activity must invest additional efforts in further education and in mastering new skills and improvement of skills they have already adopted. One of the required characteristic of a cluster facilitator is never to be satisfied with own accomplishments but to aspire to new ones, one of which is surely upgrade of personal education.

Having this in mind, the LEDIB Cluster House in cooperation with the experts from Denmark is working on ensuring advanced education for the cluster facilitators on the territory of Serbia and on the increase of awareness on the role all actors relevant for their development.

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HUMAN RESOURCES AS A FACTOR OF SUCCESS OF BUSINESS CLUSTERS IN SERBIA

Svetlana Vukotić[1], Jugoslav Aničić[2], Marko Laketa[3], Aleksandar Gračanac[4]

Abstract: Small and medium companies can significantly increase their competitiveness by interconnecting into business clusters, business incubators or technology parks. This interconnection contributes to the growth and development of not only cluster members, but has a regional and a national dimension. Without it, there can be no significant penetration into international markets. Due to all these factors, the issue of encouraging cluster connectivity must be given much greater attention in Serbia. In addition to a simulative economic policy, the process of development of clusters must be based on adequate human potentials where the key place belongs to the management of companies in a cluster and the management of the entire cluster**.**

Keywords: clusters, management, employees, small and medium enterprises, SMEs, the real sector

LJUDSKI RESURSI KAO FAKTOR USPEŠNOSTI KLASTERSKOG POVEZIVANJA

Abstract: Mala i srednja preduzeća mogu značajno podići svoj nivo konkurentnosti poslovnim povezivanjem preko klastera, poslovnih inkubatora i tehnoloških parkova. Ovo povezivanje doprinosi rastu i razvoju ne samo članica klastera, već ima i regionalnu i nacionalnu dimenziju. Bez njega nema značajnijeg prodora na međunarodna tržišta. Zbog svega toga pitanju podsticanja klasterskog povezivanja u Srbiji se mora posvetiti znatno veća pažnja. Osim podsticajne ekonomske politike proces razvoja klastera se mora zasnivati na adekvatnim kadrovskim potencijalima u kojima ključno mestu pripada menadžmentu članica i celog klastera**.**

Ključne reči: klasteri, menadžment, zaposleni, mala i srednja preduzeća, realni sektor

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1 INTRODUCTION

Technical progress and adequate staff profiling are two essential conditions for the development of forces of production, in one company and one country alike. Therefore, countries are the most responsible for the creation of a good business climate in their territory (Savić, 2010). Developed countries achieved prosperity owing to the favourable conditions in which companies could improve their productivity. In small and medium enterprises (SMEs) innovation is given priority over productivity. Association of SMEs into clusters can achieve increased productivity. This type of association allows the members of a cluster to find their way to business success by sharing experience and mutually streamlining their business operations. By interconnecting into clusters, SMEs alleviate the asymmetry of power that they face in relation to large multinational companies. Successful implementation of management operations implies that a company must rely on the loyalty and expertise of its staff, but also on the target market.

The comparative advantage of SMEs grouped into clusters is based on three aspects. These aspects are: specialization, cooperation and flexibility. Specialism of companies is most important for the success of a cluster, because in this fashion small companies focus their resources (which are usually extremely limited) to what they do best. Specialized firms usually have no problems with quality control, as they deal in only one business activity, but it this activity they need to give their full contribution so as to meet the set standards. Cluster development is accompanied by an increase of specialized technical and market capabilities of local human resources. Local workers, technicians, managers and consultants often move from one company to another and thus the advantage of specialization is shared by the local business system, not just one company. By this fact, the local infrastructure and the training institutions become specialized in the activity of the local cluster. Trust and interpersonal relationships are highly developed, which furnishes the cluster with a high level of social capital (Mesić, 2009).

Bearing all this in mind, the domain of management of a cluster, as a new form of business, requires special attention. From this starting point, this paper considers aspects related to human resources and management of companies linked in clusters. The key points considered are: staff qualifications and the training level of the workforce, productivity and innovation, collaboration with universities and research institutions, use of consulting services and adopted standards of quality. The importance of management in all these aspects is particularly emphasized. The paper also provides appropriate comparisons between the management of individual SMEs and the management of clustered SMEs .

After the introduction and the methodological concept given in the first, theoretical part of the paper, further discussed are the entrepreneurial and managerial practices in SMEs and clusters in Europe. Subsequently, we deal with human resource management in SMEs and improvements that association into clusters brings in Serbia. As part of the survey, we studied the real sector clusters that are part of the Serbian economy. Based on the analysis and the summary of the results of the survey, we report the implications that ensue from the results.

The aim of this paper is to gain insight into the actual status of the SMEs associated in clusters from the human resource point of view, and to point out the underestimated importance of clustering in Serbia. The concept of clustering does not only contribute to the strengthening of the competitive position of just its members, but also of the entire economy. Increase of exports and access to new markets, cheaper and more efficient use of inputs, technology transfers, sharing of know-how are just some of the advantages that business clustering induces. Therefore, it is necessary to generate initiatives at all levels in order to promote performance increases of clusters.

2 METHODOLOGY

The survey for the purposes of this paper was performed in the period between April and September 2011. It covered 74 respondents from small and medium enterprises of Serbia's real sector, associated in the following nine clusters: Automobile cluster – Belgrade, VOJPLAST (plastics) – Subotica, Netwood (furniture) – Kragujevac, Asstex (textile) – Novi Pazar, Agency for wood – Belgrade, Galenit – Belgrade, MEMOS – Inđija, Agro cluster – Obrenovac.

The structure of respondents according to the number of employees in their enterprises is: up to 10 employees – 41.89 %, from 10 to 50 employees – 33.79 %, and more than 50 employees – 24.32 % of enterprises.

The respondents had prevailingly managerial competences. They also represented a combination of managers and founders, or managers and owners, or co-owners.
The following hypotheses were set:

1. The structure of employees in the SMEs associated into clusters is favourable from the standpoint of training, qualifications, experience and tradition
2. The management is an important factor of growth and development of SMEs associated into clusters
3. Clustering leads to improved employee performance, increased productivity and faster adoption of quality standards as necessary elements for the increase of competitiveness of the cluster members.

Data collected by questionnaire, which had a form of closed-end questions, were analysed for the most part using the chi-square test (χ^2). This method is applied in the processing of categorical variables, and is used to calculate the statistical significance of differences in the frequency of respondents by variable category in relation to the frequency that is expected based on the null hypothesis. The chi-square test can also be used for the processing of contingency tables, i.e. when two or more variables are cross-referenced in a table.

3 ENTREPRENEURIAL AND MANAGERIAL PRACTICES IN SMES AND CLUSTERS IN EUROPE

The first and very important question that has different implications for the entrepreneurial and managerial practices relates to the diversity of human resources that are employed. It is an expression of increased complexity and dynamism, of both the environment and the enterprises themselves in the contemporary world economy. The cyclic movements in the world economy, which are characterized by a prevailing trend, tended, at one time, to create different multinational companies, which emerged through globalization. By contrast, in recent years, one could say decades, affirmation of SMEs takes place again.

In the European Union, classification of enterprises by number of employees: micro (up to 10 employees), small (up to 50 employees), medium (up to 250 employees) and large (over 250 employees) is just one of the methods of classification. The total annual income and average value of property of enterprises are also indicators of their size. It should be noted here that the decisive criteria can also be the amount of engaged capital, production volume, level of innovation, market orientation, etc. However, for the purposes of this study only the number of employees was taken as a criterion for classification of enterprises.

In developed countries, small and medium enterprises make up to 99.8% of the total number of businesses: employing 60% to 80% of the total engaged labour force and making a significant contribution to achieving high gross domestic product (GDP). This is also shown by European trends, because already since the beginning of this century, small businesses employed 66% of the total number of employees in the European Union, in the following manner: Italy – 79%, France – 63%, Germany – 60%, UK – 61.5% of the total number of employees (Burns, 2001).

By contrast, in underdeveloped countries with significantly lower GDP, the sector of small and medium enterprises has been neglected and underdeveloped. Efforts to increase the competitiveness of individual enterprises in the undeveloped environment cannot make a significant impact. Hence the adoption of the Lisbon Treaty, which is all about the management of transition, based on the economy of knowledge, represents a challenge for the European Union.

A step further was the adoption of the Small Business Act (SBA) in June 2008. Ten principles of this document are based on the SME sector, entrepreneurship and entrepreneurs, who become the barrier to global processes of domination of transnational corporations.

In underdeveloped countries or regions, SMEs cannot cope with the dominance of large companies alone. SMEs may be torchbearers of development only if they are interconnected and if this connection does create a synergistic effect. One of the aspects of this interconnectivity is clustering of businesses.

Clusters may combine local and global perspectives (Bardalen, 2009). On the one hand, this type of network association enables businesses to be successful in terms of increasing global competition (Möhring, 2005). On the other hand, interconnection of SMEs represents another way to look at the existing relationships in the local economy (Lynch, 2010). The largest number of successful clusters emerged spontaneously, by economically motivated interconnection of already existing businesses, but

there are clusters that have emerged from completely new enterprises (UNCTAD Conference Secretariat, 2003). Hence the need to involve local and regional institutions in the development of clusters is larger than in some other developmental ventures, due to the fact that alongside infrastructure building, a large number of start-up companies emerge at the same time (Grandov et al, 2011). Similarly, apart from regulating the topic, it is necessary to maintain transparency and a certain degree of freedom that individual companies, as integral parts of clusters, and clusters in general, have, because entrepreneurs often complain about the red lines that limit their fields of activity (Möhring, 2005).

Apart from the fact that clusters generally achieve the economy of scale and reduce transaction costs, the specific benefit of this form of interconnection can be felt in the industrial sector. According to Lynch (2010), clusters in this sector play a fundamental role in the local economy.

Clusters are labelled as the most relevant macroeconomic factors that affect the development of regions, while economic growth in the EU regions is related to the level of strength of their clusters. Approximately 38% of employees in the EU work for the companies that are members of a cluster, which makes clusters an indispensable part of economic reality in the EU (Commission of the European Communities – CEC, 2008).

Generally, a new business formula imposes itself on the management structures, which associates competitive success with better performance of a greater number of tasks with fewer resources. More pronounced are competence strategies, strategies of openness, interconnectivity and cooperation with others, which are indeed present in clustering as such. In addition to strengthening of mutual influences, clustering also causes an increase of innovative capabilities, and attracts customers, investors and experts. According to Bardalen (2009), strengthening of the international focus through cluster expansion is yet another additional beneficial factor that this type of connection entails.

With this in mind, Cocker (2009) also includes in the indicators of sustainable development of clusters the professional management of clusters. The typical fields of activity in the management of clusters, this author divides into five categories. These are: 1) information and communication, 2) training and qualification, 3) raising the operations on the international level, 4) initiating cooperation, and 5) marketing and public relations. Training and qualification include: analysis of educational needs in a particular industry, activities of providing qualifications for the company employees and regular special events (whether in terms of workshops and seminars or study visits for employees).

The essence of clustering is that exactly because of geographical proximity each can learn from another, developing a unique local knowledge (Möhring, 2005, 21). Introduction of new technologies and transfer of their implementation is also facilitated by clustering. Special efforts should be undertaken to improve employees' skills after graduation in order to attract foreign direct investment (Pyke et al, 2002). Indirectly, the business clustering contributes to this process as well, because highly qualified and specialized workforce overcomes and accepts additional training more easily in this way. The members of a cluster continually build relationships of trust and cooperation. From the aspect of human resource management, particularly emphasized is activity that is manifested in teamwork. Teamwork is also an important feature for SMEs, even when they are looked upon individually.

The introduction and improvement of quality standards and processes within the clusters and the cluster members is another benefit for the SMEs (Mesić, 2009). According to the same author, in addition to relationships between SME members in the cluster, within the cluster they also develop relationships with: the scientific sector, the industrial sector, the central government and accompanying industries.

All this requires cluster management to be *know-how*-oriented. A parallel between managing a company and managing a cluster may be made by comparing Figure 1 with Figure 2.

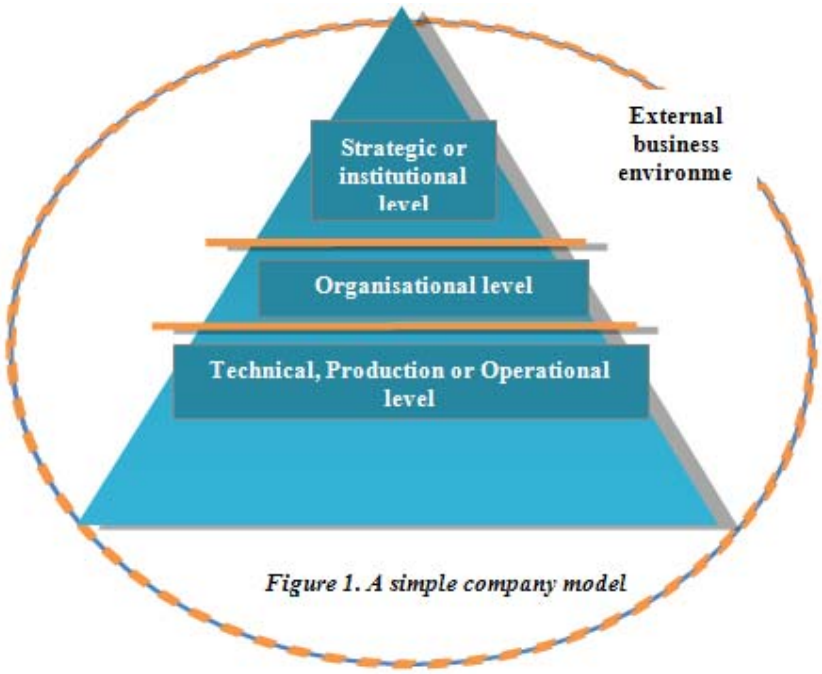

Figure 1. A simple company model

Source: Langford, Male, 1991.

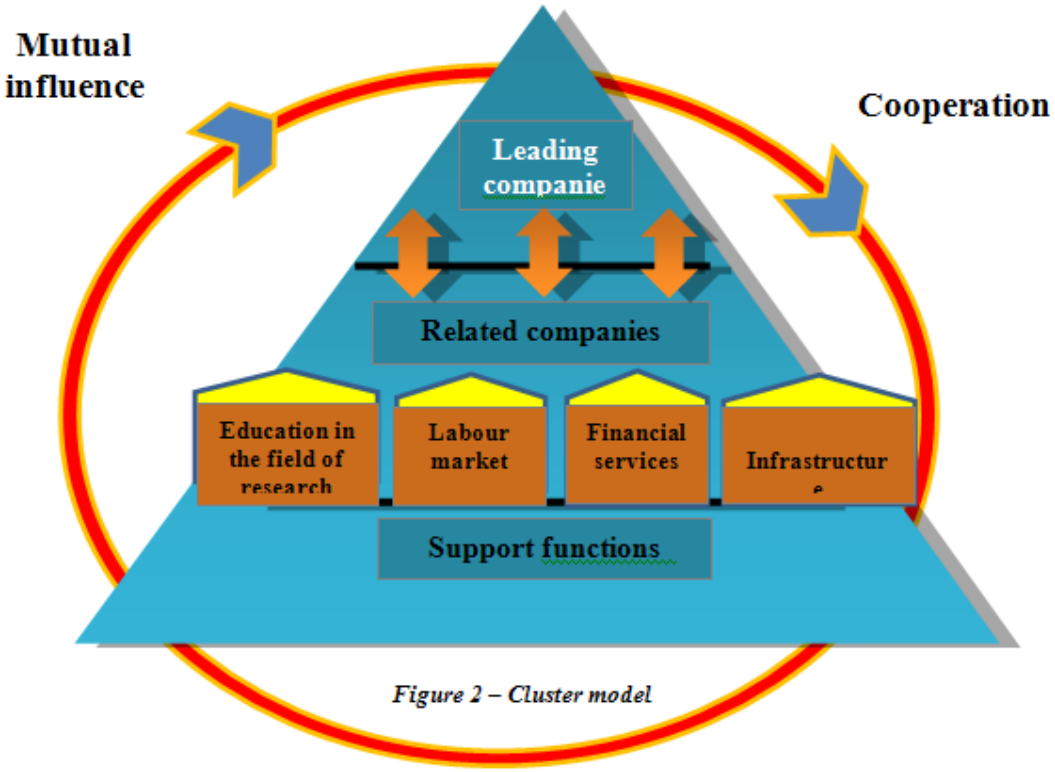

Figure 2 – Cluster model

Source: Bardalen, 2009.

It is noticeable that in the very foundation of a company – the basics are – the production, technical or operational levels. Counterparts to these levels in the cluster are supporting functions. Support of scientific institutions to clusters plays an important role in their development. The intermediate or organizational level of a company is the set of similar enterprises in the cluster. At the top of the organizational pyramid is the company's strategic and institutional level. Top positions in the management of clusters are occupied by leading companies.

There is a necessary reciprocal relationship between the related and leading companies. Hagenauer (2009) points out that good governance is vital to the mobilization of partners for the needs of joint activities. The key tasks of cluster management would be: networking, initiating and monitoring of projects, finding the right subsidies for SMEs, and public relations. According to the same author, the European review of qualifications of cluster managers contains 14 jobs and tasks, which need to be performed with more or less attention so as to successfully manage a cluster. Owing to the specialization in clusters, one does not have to do everything, which brings benefits.

4 CLUSTERING IN THE FUNCTION OF IMPROVEMENT OF HUMAN RESOURCES OF SMES IN SERBIA

Available human resources are an important asset of the Serbian economy. Nevertheless, the impact of the economic crisis in Serbia led to the situation that unemployment is not viewed as a temporary state, but as a long-term process. According to the Status Report of the European Commission on the SME sector and entrepreneurship (2011), this sector employed 65 000 workers in 2008 and 2009, which is about 7% and insufficient to achieve prosperity. Correspondingly, institutional support makes progress according to the aforesaid Report from the Commission. Adoption and implementation of best practices, procedures and rules is all the more important as employees in the SME sector account for almost half of total employed workforce (45.4%) in Serbia (according to the National Agency for Regional Development, 2011).

In this context, there are different strategies for the support and the development of entrepreneurship and small and medium enterprises. The social and economic importance of SMEs is reflected in the fact that they represent a generator of economic development, the backbone of employment and help maintain the welfare of regional communities (Gračanac, 2011). The reasons for the incentives are also found in the fact that entrepreneurship leads to increased self-employment. The main features that entrepreneurship has brought to companies in Serbia are private property and alignment with small and medium enterprises (SMEs News, 2004).

Coincidently, it is also characteristic that in Serbia in recent years there has been an imbalance of supply and demand in the managers' *market*. No matter which business category they belong, no matter what activities they pursue, even though there is an imbalance between supply and demand for certain profiles, in the environment of high unemployment the companies will still be in a situation in which they make a selection who to recruit among the numerous candidates (Torrington et al, 2004). In the nexus of events are the joint efforts to recruit employees carefully and to, according to improvement programs, exchange them between companies, if such exchanges are prudent. Among other prerequisites for association of SMEs into clusters, there is also the interaction of human resource practices and increase of competitive advantage, which is the ultimate goal. For the management of a cluster, it can be said that also applicable is that which Ikač (2005) states about a modern organization, which has to be directed by modern management, which enjoys authority, and is not imposing, but inspiring.

The upper hand of small companies is their flexibility. At the same time, that which is advantageous may become a disadvantage. On the one hand, the ability to adapt quickly encouraged by a smaller number of employees who may have a better interaction and more direct relationship with the owner contributes to the easier identification of the staff with the company and their greater willingness to put effort into achieving the goals, the vision and the mission of the company. On the other hand, this hypersensitivity makes such companies *vulnerable* when it comes to, for example, costs. Often, small businesses are in a dependent, almost vassal status in relation to large companies. Their resource capacity is small, and they cannot cover all the business functions with sufficient specialized staff. Such organizations resort to hiring people with general education for the purposes of rationalization. However, such expertise is harder to attract and retain, because large companies often offer faster advancement to such staff, more attractive initial compensation, more motivation and enable their speedier career development. Small, and even medium enterprises, necessitate provision of coordinated and as concrete as possible institutional

support through the education system, the classification of educational profiles and vocations, as well as through subsequent (permanent) education, personnel selection, etc. (Vukotić and Dukić, 2010).

In the overcoming of all these shortcomings in the management of individual SMEs of great benefit are cluster interconnections.

In addition, it is exactly at those places where networks and partnerships are poorly developed the idea of clustering (association) should be pushed so as to raise interest with the managers of small and medium enterprises for such an idea. In this context, there are different strategies for entrepreneurship development and support adopted by the Government of the Republic of Serbia. One of the latest examples of this support is the formation of the Council for Clusters by the Serbian Chamber of Commerce. The best way to ensure participation and support is to showcase to the managers of small and medium enterprises the direct benefits of clustering and the opportunities that they might miss if they do not join them (Strategy for Vojvodina, 2007-2011).

Clusters increase the capacity for innovations, the diffusion of technologies, the concentration of professionals and experienced staff, i.e. increase productivity. Innovation is provided by the fact that the companies within the cluster are often able to more clearly define the needs for innovation, the new needs of customers, to create and implement ideas more rapidly (Mićić, 2010).

However, the analysis of the current status of clusters in Serbia indicates that the level of development of clusters in our country remains minute. A small number of enterprises in Serbia are involved in cluster operations – slightly less than 2% of domestic companies and only 3% of the workforce (Cluster Development Strategy, 2010). For the purposes of comparison, if 45.4% of the total employment is related to the SMEs (NARR, 2011), then we can unambiguously conclude that enterprises in Serbia insufficiently participate in cluster networking. According to the data from the Global Competitiveness Report, by cluster development Serbia ranked 117th in 2009, which is a deterioration of position compared to 2008 (World Economic Forum, 2009).

This type of interconnection has a regional dimension. The cluster may be the one that contributes to the success of other industries, but also preserves its own culture, such as information-technology services or distribution/logistics. It is only necessary that the regions discover their potential (Strategy for Vojvodina, draft version, 2007 – 2011).

Professionalization of management, strengthening of corporate governance, recognizing and facilitating the growth of leadership skills are important factors in transcending the traditional business framework and streamlining with modern business practices in the world. In this context, continuous training programs and active cooperation between the economy and institutions of higher education must take a prominent position in the country's public (Džunić, 2010).

The educational structure of the population is of particular importance in the researches aimed at finding opportunities for the establishment and development of clusters. This is particularly important since in the educational structure of the population aged 15 and over (according to data from 2002), completed high school is the most common level of education with 41.1% of the population, the second most common being primary education – in 23.9% (mostly elderly people). In the total population 6.6% are those with higher education, and 4.5% are those with two or three-year college degrees (Republic Statistical Office – RSO, according to the 2002 census).

In 2009, a slight increase in all levels of education is noticeable, except the primary education, which endured a slight decrease in its share out of total. Comparison between 2002 and 2009 by the educational level is given in Table 1.

Table 1 – Educational structure of the population in Serbia (age 15 or older – in percentages)

Educational level in %	**Year 2002**	**Year 2009**
Primary	23,9	22,32
Secondary	41,1	48,63*
Post-secondary (2 or 3-year degree)	4,5	5,02
Higher (4-year degree)	6,6	7,56

Source: the RSO, the 2002 census and Alliance for Regionalisation of Serbia (ARS), 2009.

*Note: the percentage signifies the sum of graduates from three-year and four-year secondary schools

Success formulas are found by the cluster management in comparison, or better yet, in imitating the management style of large organisations. On the other hand, Cocker (2009) supports active involvement of cluster managers and comparisons of the cluster management with that of other clusters. Džunić (2010) goes a step further covering not only the managerial and leadership structure, but also the structure of employees. This concept insists on proactivity, as opposed to reactivity.

5 FINDINGS AND IMPLICATIONS

The survey has shown that the most common level of education in the analysed clusters is congruent with the dominant educational level in Serbia. Most employees have a high school diploma – 65.39%. The highest level of education is represented in 15.92% of the surveyed sample. The average percentage of workers with primary education is 18, 68% (Figure 3).

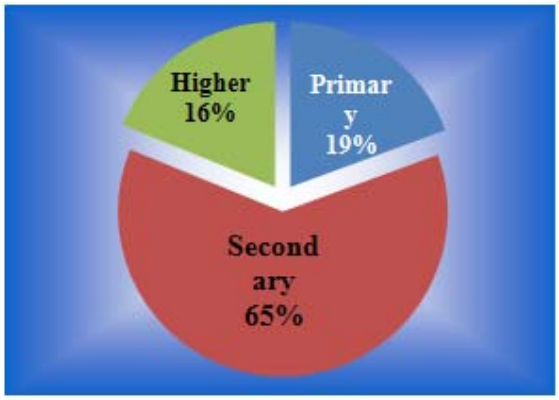

Figure 3 – Structure of qualifications of employees

If we observe the management of companies involved in surveyed clusters, then we see a significant preponderance of highly educated staff, which is the most suitable for managerial positions. This level of qualifications is possessed by managers in the surveyed sample in the area of nearly 60%. With the addition of 18.92% for the post-secondary two-year education, the exact sum of these two categories is 77.02%. Secondary education is possessed by 20.28% of the sample, as depicted in Figure 4.

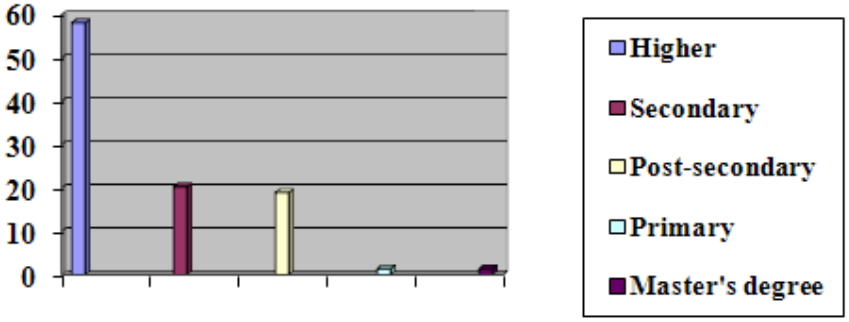

Figure 4 – Educational level of respondents

Similarly, if we analyse the participation of enterprises in the cluster by level of education, the following indicators have been obtained: the majority of employees with primary education is in 6% of the enterprises; with a majority of employees with secondary education there is 50.7%, and with a majority of employees with higher education there is 7.5 % of enterprises. Equal number of employees from all three levels of education figures in 35.8% of companies (hi-k. = 38 851, df = 3, p <= 0.01). Presented survey results, as well as the fact that clusters operate in traditional sectors of the economy of Serbia (metalworking, automotive, wood, textile

and plastics industries) fully confirm the first two hypotheses of this survey.

The views of respondents regarding the impact of clusters on the increase of the level of training and qualifications of employees are affirmative in 62.16% of cases. Within the clusters, scientific and research institutions can be found either as full members, or as support. One such example is the Faculty of Forestry in Belgrade, which is an equal member of the cluster *Agency for Wood*. This implies that in addition to information exchange within the cluster, there is transfer of knowledge, complementary skills and the overall experiential potential.

When it comes to consulting, over 80% of respondents uses it occasionally or continuously (hi-k.=21.808, df = 2, p <= 0.01). This data indicates that there is understanding of the importance of resources rationalization. Graphically, this can be represented as in Figure 5.

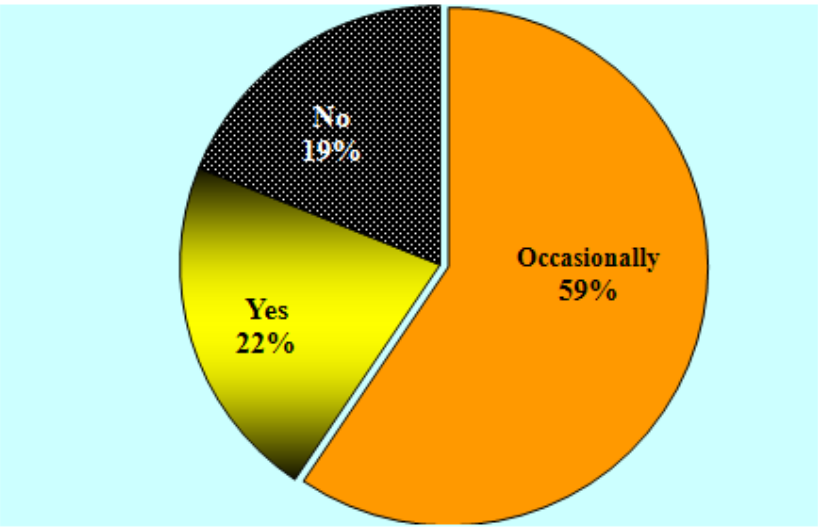

Figure 5 – Frequency of use of consulting services

The next very important aspect is the impact of clusters on the productivity. The positive effect was evaluated to exist by 74.33% of the respondents (hi-k. = 12.162, df = 1, p <= 0.01). When it comes to innovations, then this percentage is somewhat lower. Positive responses were found in 63.52% of the sample, and neutral in 36.48%. The statistical significance of this indicator is: hi-k. = 5.405, df = 1, p <= 0.05.

In terms of the adopted standards of quality, only half of the respondents stated that their companies have adopted quality standards (52.70%). On the other hand, a slightly higher percentage (70.28%) plans to introduce quality systems in the subsequent three years (hi-k. = 13.928, df = 1, p <= 0.01).

Also, among the necessary elements for the development of competitive capacity of enterprises, the respondents ranked at the top positions the following: the use of modern technological solutions and equipment, standardization of the quality of operations and continuous improvement of knowledge and skills of both the management and the employees. This is shown in Figure 6.

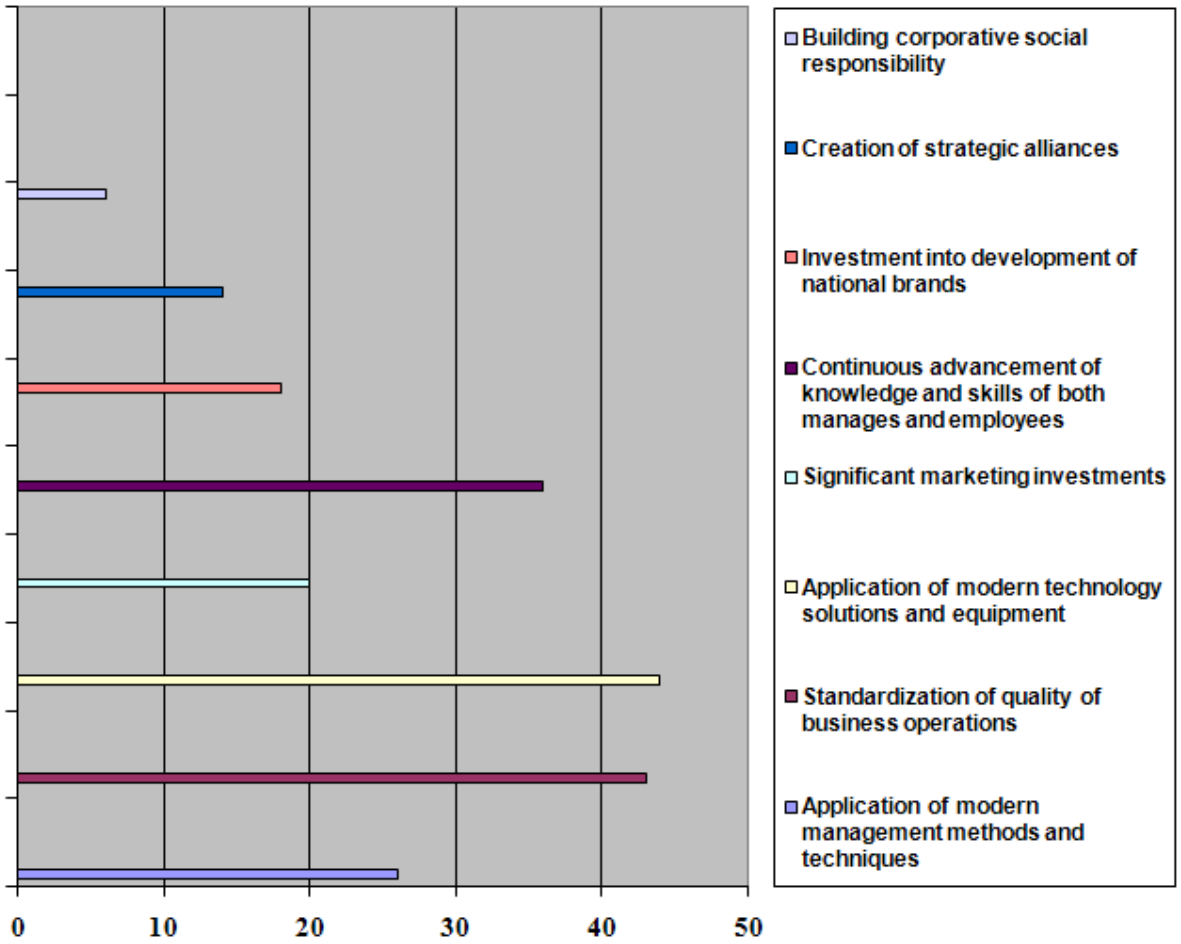

Figure 6 – Necessary elements for the development of competitive capacities of enterprises in a cluster.

Given the fact that the respondents have emphasized the use of modern technology solutions, quality of business operations and continuous improvement of knowledge – of both the leadership and the employees, we can conclude that they have comprehended the importance of orientation to know-how. A cluster that connects such SMEs makes them organizations of learning, further stressing knowledge, which is an all-out modern trend. The results of our study given above fully confirm our third working hypothesis.

5 CONCLUSION

The cluster policy has to be one of the priority developmental policies of Serbia considering that the experience of developed countries has shown that business clusters are carriers of the prosperity of national economies through increased productivity, stimulation of hi-tech innovations, improvement of systems of quality and raising of the competitiveness level of its members. Consequently, the SME sector should have to be regarded as the solution to the long-term economic growth, and not as part of the problem. Escalation in competitiveness brings a surge in profitability, the volume of investment and employment. The tax policy can also stimulate employment. Clusters also represent an adequate response to globalization and become an effective lever of balanced regional development of a country. Of particular importance is the development and clustering of SMEs that operate in the real sector, which by interconnecting develop their comparative advantages based on specialization, cooperation and flexibility.

In Serbia, apart from the material conditions, there are adequate human resources for the successful implementation of the policy of business clustering. The highly trained and qualified workforce and management structure, along with adequate macroeconomic policy development, are the prerequisites on which the economy can achieve a

significant competitive advantage in international markets. Management is nowadays compelled to follow a new business formula that bases competitive success on the enhanced performance of more tasks with fewer resources. Emphasis is given to the strategies of competence, openness, association and cooperation with others, which is exactly what business clustering offers.

ACKNOWLEDGEMENTS

This paper is a result of the project Geography of Serbia – National Economy (Geografija Srbije – Nacionalna ekonomija), 47007/III, funded by the Republic of Serbia Ministry of Education and Science, 2011.

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[36] www.klasteri.merr.gov.rs (VOJPLAST)

Kuća klastera

Pokretač klasterske izuzetnosti u Srbiji

Kuća klastera je inovativna razvojno poslovna organizacija za podršku klasterima i udruženjima u Srbiji.

Osnovana je na inicijativu sedam klastera sa područja jugoistočne Srbije i uz tehničku podršku danskog programa za lokalni ekonomski razvoj na Balkanu LEDIB u januaru 2011. godine.

Cilj Kuće klastera je podrška klaster inicijativama, informisanje klastera i njihovih članica, podsticanje razvoja, umrežavanja i promocije klastera u Srbiji.

Uz podršku LEDIB programa Kuća klastera radi na projektima razvoja klastera u regionu, kreiranju mreže klastera u Srbiji i promociji razvoja klastera na nacionalnom i među narodnom nivou.

U saradnji sa savetom za klastere Privredne komore Srbije, domaćim i međunarodnim organizacijama, Kuća klastera radi na mapiranju, informisanju i zastupanju interesa klastera u Srbiji.

U partnerstvu sa stručnjacima za razvoj klastera iz Danske, Kuća klastera je osnovala inovativni trening centar za razvoj klastera u Srbiji. Klaster-fasilitatori, klaster menadžment i predstavnici javnog sektora i obrazovno naučnih institucija mogu biti korisnici specijalističkih programa obuke TRENING CENTRA KUĆE KLASTERA u Nišu.

Kadrovski i logistički kapaciteti Kuće klastera su u potpunosti usklađeni sa potrebama partnera iz evropskih zemalja. Novo formirani CENTAR ZA KLASTER FASILITACIJU Kuće klastera raspolaže obučenim saradnicima za rad sa MSP i povezivanje u klasterske organizacije na području južne i istočne Srbije.

Cluster house

Driver of cluster excellence in Serbia

Cluster House is an innovative business development organization for support to clusters and associations in Serbia.

It was founded upon the initiative of seven clusters from South-East Serbia and with technical support of LEDIB – the Danish Programme for Local Economic Development in the Balkans, in January 2011.

The objective of Cluster House is to support cluster initiatives, inform clusters and their members, and motivate development, networking and promotion of clusters in Serbia.

With LEDIB Programme support, Cluster House is working on projects of cluster development in the region, creating the network of clusters in Serbia and promotion of cluster development at national and international levels.

In cooperation with the Cluster Council of Serbian Chamber of Commerce, local and international organizations, Cluster House is working on mapping, informing and advocating to the interests of clusters in Serbia.

In partnership with experts for cluster development from Denmark, CLUSTER HOUSE founded an innovative trAIning Center For Cluster Development In Serbia. Cluster facilitators, cluster management teams and representatives of public sector and educational-scientific institutions can be beneficiaries of special training programs of the Cluster House Training Center in Nis.

Personnel and logistics capacities of the Cluster House are in full compliance with the needs of partners from the European countries. Newly established Centre for Cluster Facilitation of the Cluster House has trained associates working with partners in SME sector and establishing a network of cluster organizations on the territory of South and East Serbia.

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Univerziteta u Nišu / glavni i odgovorni urednik Slaviša Trajković. – 1993, br. 1- . – Niš : Građevinsko-arhitektonski fakultet, 1993 (Niš : M Kops centar). - 24 cm

Godišnje

ISSN 1451-8341 = Nauka + praksa (Niš. 1993)

COBISS.SR-ID 48721676

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The project is financed by the Kingdom of Denmark, through the Neighbourhood Programme and managed by the LEDIB Programme.

Ovaj projekat je finansiran od strane Kraljevine Danske, kroz Susedski program, a sprovodi ga LEDIB Program.

Inženjerska komora Srbije
Beograd
Bulevar vojvode Mišića 37/II