

Transferable Cluster Policies in the South-East Europe Region

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Presence of a multitude of regulations in the area of cluster policies in EU member countries has not resulted in the expected outcomes. The degree of cluster development is exceedingly uneven among some European countries, as is the perception of their role and their importance in social and economic development of the EU and its member states. While clusters are recognised as agents of innovations for small and medium sized enterprises in some countries, cluster development is still in its infancy in other. What is recognised as the principal cause for unbalanced development are cluster policies, which however at the same time carry the potential for initiating future cluster development.

Owing to the above mentioned differences in the perception and role of clusters in different EU countries, the research that this paper is based on started from interpreting cluster policies as a set of different regulations adopted in order to strengthen existing clusters and create a positive environment for developing new ones. Cluster policies can concern various areas, but in this analysis are treated with regard to the following six thematic areas: Research & development and innovation; Sustainability; Internationalization, cooperation and networking; Financing; Regional smart specialisation; and New skills and jobs creation.

The research problem of this paper is associated with the necessity for providing a strong basis for discovering transferable components of cluster policies thru identification and analysis of strengths, weaknesses, opportunities and threats of regional cluster policies in South-East Europe (SEE) region. The data on regional cluster policies was gathered from relevant stakeholders in 10 countries of the specified region. The research itself was conducted by use of the modified SWOT method. A data gathering software solution was developed to facilitate the process and assure that the obtained data is more suitable for further analysis. The software solution was accompanied by a template defining the standards that the respondents observed while preparing their replies.

Based on the gathered SWOT analyses of 28 respondents from SEE region, authors completed a regional quantitative and qualitative analysis of the cluster policies, and established the basis for regional learning and transfer of positive experiences in the region, which should stimulate development of clusters in the SEE area as the place of innovation.

Keywords

Cluster policies, positive experience, South East Europe region, SWOT analysis.

1. Introduction

In terms of semantics, the phrase “cluster policies” refers to a set of various regulations adopted in order to strengthen the existing clusters, and create a positive environment for developing new ones. Such regulations may relate to highly diverse areas, but in this particular analysis, cluster policies are treated from the aspect of the following key areas (KeyA):

- Innovation, R&D driven cluster development (KeyA1);
- Sustainability through cluster development (KeyA2);
- International cluster cooperation and networking (KeyA3);
- Financial framework improvement (KeyA4);
- Cluster and regional specialization (KeyA5); and
- New skills and jobs creation (KeyA6).

EU member countries have so far adopted a multitude of regulations in the area of cluster policies. Such regulations were passed at both national and regional levels. Policy makers have come to understand the importance of clusters as early as at the point of success of major cluster ventures, such as the Silicon Valley, which lead them to attempt to use regulations to create benefits that would stimulate the development of clusters based on the triple helix principle. Such actions resulted in uneven development of clusters among European countries.

Cluster policies are defined very diversely in different sources related to this topic. There is no single definition of cluster policy that could be applied uniformly across EU Member States. Regardless of the differences in their definition, cluster policies all aim to promote and support knowledge based network building, which in turn contributes to increased value creation and the development of innovative solutions [1].

Research into cluster policies is the subject of numerous studies and scientific articles published in renowned scientific journals and presented at scientific conferences, conventions, round tables etc. According to these sources, the main motivation behind establishing such policies is arguably similar. The main aim is to support their emergence based on “the common assumption about the value of agglomeration of firms and the importance of connecting resources in a given place” [2]. The same source states that all cluster related activities are structured as policy development level activities and implementation level activities, both of which can be at the EU, national or regional level. The following table elaborates on their characteristics [1], [2].

Table 1 Policy and implementation at different levels

Policy development level	Directives	At the EU level
	Legislation	
Implementation level	Policy communication documents	At the national level
	Programmes	At the regional level
	Funds	
	Organisations	
	Management bodies	

At all three levels, EU, national or regional, policy is most often translated into action through enactment of directives, legislation or communications. Policy is then implemented, again at the three levels, by developing programmes, establishing of funds or organisations and instituting management bodies.

At the EU level, policy is quite general, and aims to cover the European added value of these activities. At the national level, individual European countries take different approaches to

dealing with the establishment and implementation of cluster policies. At the regional level, cluster policies are normally integrated as a segment of regional development policy, science and technology policy and/or industrial policy of individual EU countries. It must be pointed out that an overarching cluster policy that is more explicit and a policy on its own can also be found at this level [2]. Programmes at the implementation level mostly integrate two policy streams, although also programmes that integrate three policy streams also exist.

One of the more prominent sources, a research study entitled "Cluster policy in Europe", prepared for the European Cluster Observatory, lists three forms of cluster policies [3]:

- Cluster development policies that are more directed at establishing clusters by mobilising funds and relevant stakeholders;
- Cluster leveraging policies that tend to provide indirect incentives to SMEs or other companies to formalise or to join clusters; and
- Cluster facilitating policies that create a favourable business environment at the company level, allowing companies to join clusters.

The same study states that the above listed three forms of cluster policies are most frequently used for deriving programmes harmonised with the objectives to be achieved by cluster development. The implementation modes of these programmes also vary. They can be conducted by existing bodies, or new actors / organisations can be set up in order to implement / manage these programmes. In any case, funding usually comes from the programme itself, on a limited time basis with criteria that apply at the regional / national level [3].

Existing literature already provides a good summary of the status of cluster policies across EU Member States. The different levels of adoption of cluster policies by individual European countries is presented in the Europe Innova's interim report [3], [4]. This analysis encompasses 31 European countries. The most significant findings of this document, which provide a basis for setting the cluster policy of the SEE region, are as follows:

- All European countries have cluster policies on a national and/or regional level.
- The mapping shows that in most instances there are no persons or organisations behind the cluster policy, although in a minor number of EU countries, introduction and development of a country's cluster policy can be associated with a particular individual/political party/research institute.
- There are huge variations among the European countries when it comes to how many and what kind of national ministries are responsible for the implementation of cluster policy.
- The importance of cluster policy at national level varies to a great extent.
- Clusters may play a role as a framework in a number of policy areas.
- Two thirds of the EU countries have published cluster policy papers on a national level, public and / or official studies, white papers where the cluster approach is part of the innovation policy.
- A high number of national or state-level cluster agencies have been identified in the EU countries.
- There are fewer regional cluster programmes than national ones. The number of cluster programmes varies greatly between the countries.
- The focus of cluster policies in national cluster programmes is broadly distributed and diverse. Cluster programmes predominantly provide financial support, although those with support to knowledge building or network building tend to appear in a small number of cases.
- Cluster policies in most Eastern European countries are highly to moderately significant at the regional level as well.

- The number of agencies responsible for the implementation of cluster policy at a regional level is very high and difficult to be determined precisely. Furthermore, it is very difficult to identify the types of regional cluster organisations.
- Most of the mapped EU countries have regional cluster programmes. Regional programme policies are characterised by overall policy focus. Nevertheless, most programmes have regional focus, industry and enterprise focus, and science and technology focus.
- The regional cluster programmes can be targeted at businesses, research institutions, educational institutions, public authorities and others.
- In general, the regional programmes can offer finance, knowledge/network or both. Differences between countries in terms of contents offered by programmes are insignificant.

The presented results may serve as an experiential basis for defining the cluster policy in the SEE region, where special attention must be devoted to providing the best framework criteria by nourishing innovation, excellence and cooperation across the countries to be covered by the cluster policies. To support this approach, common efforts are needed to achieve better synergy and complementarity between different policies, programs and initiatives. It is especially important to highlight the significance of cluster programmes in implementing cluster policies, “which would promote construction of clusters and networking in society to overcome market imperfections and improve structures to allow free movement of knowledge” [4].

Two main goals were set for this research:

- Identify strengths, weaknesses, opportunities and threats of regional cluster policies in SEE region in six predefined key areas.
- Provide strong basis for identifying transferable cluster policies in the SEE region based on current practice and experience of analysed countries.

This paper is structured into four chapters. The introduction elaborates on the result of previous research on cluster policies in EU countries. The second chapter expounds the selected methodology that was used to conduct the research. The third chapter gives a brief overview of results of quantitative and qualitative research, while the last chapter reveals initial conclusions that can be used for identifying transferable positive practice and experience among countries in the South East Europe region.

2. Research methods

The survival of any organisation is conditioned by continuous actions in the present, taken in order to create a better position in the future. The choice of actions that need to be taken in order to attain set objectives must be prudent and based on the analysis of internal and external indicators. One of the most frequent techniques for identifying an organisation’s current position and the potential avenues of future action is SWOT analysis. SWOT analysis is a valuable technique for understanding one’s own strengths and weaknesses, and identifying both the opportunities and threats one is faced with in the chosen area of research. For this paper, this is the area of cluster policies and programmes in South East Europe countries [5].

E-survey research type was chosen for resolving the research problem and achieving the set goals. It is a typical form of quantitative exploratory research, but this time it was applied (alongside SWOT analysis) for gathering qualitative data. This research, therefore, has some features of both quantitative and qualitative research. In this research, the qualitative (Qual) and quantitative (Quan) components are expressly combined only in the data analysis and interpretation phase, so that the design of this research belongs in the class of partially mixed research designs. As, in view of the problem and purpose of this research, qualitative

analysis and interpretation are more significant than quantitative, the quantitative analysis and interpretation of data, and as quantitative and qualitative data analysis in this research are predominantly simultaneous rather than expressly sequential, the design of this research can be said to belong to the class of partially mixed Qual + Quan research designs.

2.1 Data gathering methods

Starting from the defined research problem, considering the defined research objectives/questions and research design and strategies, the authors set out to determine the most suitable method and manner of gathering primary data. Bearing in mind, on the one hand, the limitation that data gathering by the interviewers was not realistic, and other, the requirement that data gathering had to be done cheaply and quickly, self-completion via e-mail imposed itself as a logical and realistic alternative to structured interviews (as the most natural choice), with all the advantages of the former (for instance, avoiding the risk of interviewer bias, easy distribution by e-mail, convenient for respondents, cheaper and quicker administration) and its risks (cannot ensure that the 'right' person answers, respondent fatigue if too many questions, greater risk of missing data, lower response rate etc).

In the next step, focus was placed on future respondents, with the objective of minimising their concerns regarding the software and ensuring maximum possible facilitation of concentration on the replies they are to give. The research covered a total of 28 respondents from 10 countries of SEE region: Albania, Austria, Croatia, Bulgaria, Greece, Hungary, Italy, Romania, Serbia, and Slovakia. The respondents comprised different organizations: ministerial departments, regional and local public authorities, national and regional development agencies, business associations, national cluster associations, chambers of commerce, development funds, university research centres.

The expected outcomes were predominantly qualitative, subjective replies, that were not supposed to be assessed as right or wrong (as their quality might be assessed by the surveyors' projective techniques), but rather to serve as input for descriptive (detection and description of a phenomenon), explorative (establishing correlation between phenomena by using statistical correlation methods), and, possibly, explicative (verification of hypotheses) analysis, i.e. research. The responses were therefore to be archived in a manner suitable for further analyses, but without setting requirements related to storing responses before the respondents, but rather resolving this required by means of software, in the background, without the users being aware that it is happening.

As the predefined set of 70 criteria, structured into six predefined key areas for analysis, which was initially offered to the respondents was comparatively large and comparatively complex (which means that its overview required a considerable time and mental effort), it was realistic to expect that the respondents will not provide answers at once, in a short time, but rather on several successive occasions over a period of time. The future respondents, therefore, had to be enabled to provide their answers in the time and environment they find suitable, without the prerequisite of having internet connection at their disposal.

Furthermore, given successive manner of filling in questionnaires described above, it was realistic to expect that the respondents will modify and add to their earlier replies. The future respondents, therefore, had to be provided with easy and simple manipulation with lists and straightforward and intuitive entry and modification of text.

The initial assumption was that a certain number of future respondents would find it a difficult to install a program for capturing the survey replies, for various reasons: unavailability of administrator rights over the computer, non-existence of .NET framework, lack of experience in installing software, or simply resistance to it, etc. It was therefore necessary to provide an extremely simple method of distributing and running the program for response capture: without prior installation, without many adjustments, and with extremely simple way of

returning the entered replies by e-mail. Files arriving from respondents were further processed with the Excel VBA program, in order to select, group and export the gathered data into forms suitable for importing into statistical processing programmes.

2.2. Data analysis methods

The quantitative analysis of data obtained by this research used: Statistical description procedures Multiple response – frequencies/ cross-tabulation (tables and bar graphs); Correlation (Pearson r) and distances; Goodness of fit One-Sample Kolmogorov-Smirnov test; Statistical tests for related samples: Wilcoxon matched-pairs signed-ranks test; Friedman two-way analysis of variance; Cochran Q test; and Exploratory procedures: Hierarchical cluster analysis (for binary variables) and MDS (Multidimensional scaling) for binary variables. Statistical packages SPSS and StatSoft STATISTICA were used for quantitative analysis.

In addition to the traditional qualitative data analysis and interpretation by re-reading, interpreting and classifying the respondents' responses, two qualitative analysis methods were applied: The Word Usage Frequency method and The Key Words in Context (KWIC) method. The VIVO QDA computer software package was used for the application of these two methods.

3. Research results

Results gathered thru a regional SWOT analysis that involved 10 countries of the SEE region were quantitatively and qualitatively analysed using methods stated in the previous chapter. Considering the great number of methods applied and the length limit for this paper, the authors have presented and interpreted only on a number of selected results. Further results of the SWOT analysis can be found on the learning platform of the "Smarter Cluster Policies for South East Europe" project (<http://www.clusterpolisees3.eu/ClusterpoliSEEPortal/>)

Of the 70 criteria identified in the SWOT analysis, previously associated with one or more key areas of cluster policies, respondents had most frequently used the criteria C09 - Degree of correlation between the regional innovation and cluster policies from the KeyA1; C01 - The development stage of the cluster policy from the KeyA2; C14 - The Extent to which the cluster policy provides support to networking and partnership from the KeyA3; C46 - Financing sources of cluster programmes from the KeyA4; C63 - The role of clusters and cluster policy with regard to the setting up of smart specialization strategies from the KeyA5; and C17 - Extent of support to the availability of human capital to the cluster companies from the KeyA6. On the other hand, 43 criteria under S (strengths), 37 criteria under W (weaknesses), 34 criteria under O (opportunities) and 51 criteria under T (threats) were unused (not stated) by any of the respondents, and were therefore excluded from the further analysis.

In terms of frequency, the use of individual criteria varied vastly in the analysis strengths, weaknesses, opportunities and threats. The most frequently used criteria in the analysis of strengths were C46 - Financing sources of cluster programmes ($f=7$) and C15 - The ways in which the cluster policy provides support to networking and partnership ($f=6$). The most frequently used criteria in the analysis of weaknesses were C46 - Financing sources of cluster programmes ($f=11$), C04 - Ministries responsible for cluster policy implementation ($f=8$) and C09 - Degree of correlation between the regional innovation and cluster policies ($f=7$). The most frequently used criteria in the analysis of opportunities were C46 - Financing sources of cluster programmes ($f=8$), C02 - The significance of the cluster policy at national or regional level ($f=7$) and C27 - The various roles of the government in the cluster policy ($f=7$). Finally, The most frequently used criteria in the analysis of threats was C46 - Financing sources of cluster programmes ($f=7$).

Criteria with frequencies exceeding four ($f > 4$) reveal that the greatest number of criteria used in the analysis of strengths belong to KeyA3 and KeyA1; in the analysis of weaknesses belongs to KeyA1 and KeyA4; in the analysis of opportunities belongs to KeyA3 and KeyA4 and in the analysis of threats belongs to KeyA2 i KeyA4. It is obvious that criteria C46 - Financing sources of cluster programmes is regarded as significant as an strength, as a weakness, as an opportunity, as well as a threat.

Table 2. Criteria with the highest frequencies ($f > 4$)

(S) Strengths		(W) Weaknesses		(O) Opportunities		(T) Threats	
Criteria	Frequen.	Criteria	Frequen.	Criteria	Frequen.	Criteria	Frequen.
C14	5	C01	6	C01	6	C01	5
C15	6	C04	8	C02	7	C04	5
C17	5	C08	5	C21	5	C46	7
C21	5	C09	7	C22	6		
C45	5	C14	6	C27	7		
C46	7	C17	6	C28	5		
		C40	6	C34	5		
		C46	11	C46	8		
		C47	5				
		C50	5				
		C59	6				
		C70	6				

The following results were obtained by analysing criteria common to combinations of strengths, weaknesses, opportunities and threats. The criteria common to S&W&O&T are C01 - The development stage of the cluster policy and C46 - Financing sources of cluster programmes. The criterion common to S&W&O is C14 - Extent to which the cluster policy provides support to networking and partnership. The criterion common to S&W&T is C26 - Extent of support to the availability of human capital to the cluster companies. The criterion common to S&O&T is C26 - The significance of the role of support activities of public authorities. The criterion common to W&O&T is C24 - Ministries responsible for cluster policy implementation. The criteria common to S&O are: C06 - Support to cluster policy making, C21 - The ways in which the cluster policy provides support to enhance regional physical infrastructure and C45 - Cluster programmes offer. The criteria common to W&O are C08 - Incentive methods employed by the local, regional and national policies for supporting the achievement of key cluster policy objectives, C02 - The significance of the cluster policy at national or regional level, C27 - The various roles of the government in the cluster policy and C28 - The components of internationalisation strategy in cluster policies/programmes. The criterion common to W&T is C09 - Degree of correlation between regional innovation and cluster policies. The criteria common to O&T are C22 - Cluster policy in respect of securing the presence of large firms C27 - The various roles of the government in the cluster policy.

Analysis of criteria specific to particular segments of the SWOT analysis has produced the following results:

(1) *Criteria specific only to strengths* are C11 - Means of linking innovation or R&D policies with cluster policy, C15 - The ways in which the cluster policy provides support to networking and partnership, C27 - The various roles of the government in the cluster policy, C49 - The level, content, role, and significance of industry-academy cooperation in the cluster policy and C66 - Skills and critical know-how for cluster management in cluster policy.

(2) *Criteria specific only to weaknesses* are C02 - The significance of the cluster policy at national or regional level, C07 - The significance and use of the cluster policy evaluation results, C23 - Extent to which the cluster policy provides access to finance for cluster members, C40 - Level of R&D involvement in cluster programmes, C34 - Coordination and

implementation of cluster programmes, C47 - Key improvement area the cluster policy is addressed to, C50 - The position, role and significance of intermediaries in the cluster policy, C59 - Cluster financing and self-financing models in the cluster policy and C70 - Evaluating and measuring cluster policy effectiveness.

(3) *Criteria specific only to opportunities* are C27 - The various roles of the government in the cluster policy, C28 - The components of internationalisation strategy in cluster policies/programmes, C29 - The contents of international activities at the national/regional cluster policies, C51 - The use of R&D results in innovativeness identified in the cluster policy, C58 - Forms of effective and sustainable cluster support in the cluster policy and C69 - New and creative industries in cluster policy.

(4) *The criterion specific only to threats* is C52 - Sustainability of cluster programmes by ensuring a leadership role in the cluster policy.

For the purpose of qualitative analysis of results obtained thru SWOT analysis, responses from 28 respondents were subjected to text coding, with the aim of identifying words with the greatest impact on the subject of work of each key area. The obtained key words are given in table 3. The analysis of gathered data was performed in accordance with the key words and additional classification of criteria. The only analysed replies for a corresponding key area were those containing some of the above listed key words, which were given for the criteria related to the key area.

Table 3. Key words for individual key areas of cluster policies

Key Area	KeyA1 Innovation, R&D driven Cluster Development	KeyA2 Sustainability through Cluster Development	KeyA3 International Cluster Cooperation and Networking	KeyA4 Financial Framework Improvement	KeyA5 Cluster and Regional Specialization	KeyA6 New Skills and Jobs Creation
Identified key words	R&D; regional; innovation; correlation areas; support; results; industry- academy cooperation	development stage; incentives methods; sustainability; support; forms; eco-innovation	international; cooperation; networking; partnership; methods; ways; contents; forms	financing methods; support; sources; forms; models; tools	S3; smart specialization; regions; areas; roles; collaboration	skills; jobs; training; courses; programmes; roles; forms; competency

It is interesting to view which criteria were most commented on by the respondents, in which quadrants of the SWOT matrix and within which key areas, presented in table 4. This table shows the number of entries/comments in individual quadrants of the SWOT matrix and in individual key areas. The table clearly shows that respondents commented opportunities, as many as 115 times. Opportunities were most mentioned in the largest number of SWOT matrix of KeyA2, KeyA3, KeyA4, and KeyA5, whereas the criteria of KeyA1 was most commented in the context of weaknesses. Strengths and weaknesses have an equal number of comments in KeyA6.

In relation to the number of comments related to opportunities, half as much attention was devoted to other quadrants of the SWOT matrix: weaknesses 58, threats 53 and strengths 48. The most commented criteria were C08 - Incentive methods employed by the local, regional and national policies for supporting the achievement of key cluster policy objectives (35 comments), C27 - The various roles of the government in the cluster policy (34 comments), C09 - Degree of correlation between the regional innovation and cluster policies (12 comments) and C21 - The ways the cluster policy provides support to enhancing regional physical infrastructure (12 comments).

Table 4. Number of comments by key areas in the SWOT matrix quadrants

	S	W	O	T	Total
KeyA1	10	22	16	9	57
KeyA2	12	13	22	13	60
KeyA3	13	6	43	18	80
KeyA4	4	13	18	8	43
KeyA5	3	2	10	1	16
KeyA6	6	2	6	4	18
Total	48	58	115	53	274

4. Conclusions

By use of software tools, the authors have applied chosen qualitative and quantitative methods to analyse data gathered thru SWOT analysis. The research also had some limitations:

- The SWOT analysis criteria were predefined, thus channelling the rewards towards the established working groups. Admittedly, the respondents were given the possibility to expand the existing list of criteria with their own criteria, but only a small number of respondents used this opportunity, so that the semi-structured character of research was only partially achieved.
- Insufficiently precisely and strictly established structure of respondents, including cluster policy makers. It would have been much more significant for the research if the analysis had included respondents affected by cluster policies while not being directly involved in their adoption. Actually, the interests and viewpoints of policy makers, different implementation agencies and clusters affected by cluster policies can be different, and even opposed.
- Various structures of respondents contributed to the variety of capture of the areas of cluster policies from national through regional, to local.
- Some of the responses were not in compliance with the defined criterion/criteria; their occasional ambiguity can be blamed on unclearly defined criteria, or the respondents' failure to understanding.
- The level of some respondents' commitment to providing detailed answers is different.
- The number of SWOT analysis from individual regions is different, and in many cases inadequate for making general conclusions.

Despite the above limitations, the SWOT analyses gathered from the respondents provide an appropriate input for further activities on the achievement of the research primary objective – establishing common elements for developing smarter policies in support of existing/developing, improving the understanding of existing data and information related to cluster development, and, at the same time, strengthening support to result-oriented transnational cooperation for the design of new strategies and as contribution to support SEE area as the place of innovation.

A great number of identified strengths and opportunities in key areas analysed in different South-East Europe countries points to potential possibilities for their transfer and use in the development and redesign of cluster policies of other countries in the region. The greatest number of strengths in KeyA1 were identified in Serbia and Bulgaria; in KeyA2 – Serbia and Albania; in KeyA3 – Hungary and Serbia; in KeyA4 – Serbia and Hungary, in KeyA5 – Albania, Serbia and Hungary and in KeyA6 – Albania and Serbia. Most opportunities in KeyA1 were identified in Hungary, Greece and Croatia; in KeyA2 – Bulgaria, Greece and

Croatia; in KeyA3 – Austria, Croatia and Albania; in KeyA4 – Bulgaria and Croatia; in KeyA5 – Austria and Croatia and in KeyA6 – Albania and Hungary.

It should be highlighted that the greatest number of strengths and opportunities was identified in KeyA3 and KeyA1, which indicates that “*International cluster cooperation and networking*” and “*Innovation, R&D driven cluster development*” are areas with the most potential for determining elements of cluster policies transferable between different regions. At the same time, the least strengths and opportunities were identified in the KeyA6, which suggests that “*New skills and jobs creation*” is the area with least possibility for determining transferable elements.

The question that was raised was what actually can be learnt from identified experiences. We saw that the possibility of drawing lessons depends on several 'contingencies'. These preconditions present both opportunities and difficulties in transferring a particular cluster policy elements from one area to another. Identified strengths and opportunities in specific regions, similar to successful examples of cluster policies, cannot be transferred mechanically. Instead, they should be perceived as sources of inspiration, rather than as recipes for successful regional economic development. In each specific case, they should be considered with regards for national and regional limitations, i.e. uniqueness of fundamental regional cultural characteristics.

Acknowledgements

This work was supported in part by the Provincial Secretariat for Science and Technology Development of AP Vojvodina, under the Grants 114-451-4591/2013-01.

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