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Outsourcing whole production out of NMO: Croatia as an example

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Summary

State Geodetic Administration (SGA) of Republic of Croatia as a responsible national mapping organisation, facing the fact that only one of six official mapping products were produced in Croatia has made in the beginning of the nineties strategic decision to outsource almost whole of its production to the private sector.

Background, reasons for doing it, organisational and technological model developed for this purpose and results achieved, are described in this paper on the example of the production of new digital topographical map in scale 1:25.000.

It is also purpose of the paper to present functioning model developed under specific conditions. Beside results also the problems encountered during model development are described as well as solutions how to solve them. Specific task was transition of relations between SGA and private sector and development of cooperation on new basis.

Introduction

Because of the specific history and developments in the first ten years of independence and transition in Croatia, it was necessary to develop completely new system of cartographic production, including standards and norms, technology, organisation, quality control, pricing policy and maintenance. Big steps towards the development of a new system have been made, but the system is still under development.

Namely, until the nineties, the only topographic map produced in Croatia was Croatian Base Map in the scale of 1:5.000. All other map scales were produced in Military Geographic Institute in Belgrade. After the breakdown of former state, no map originals in any of those scales became available to Croatia until now. It means that recently used map series are the copies from printed sheets either in analogue or digital form.

Therefore it was necessary to develop production of maps in the scales of 1:25.000 and smaller as well as to transfer the production to digital mapping.

Parallel to this process, a decision has been made that the SGA, a responsible national mapping organisation, will not build up its own production facilities, but the mapping production will be outsourced to private companies, as a part of general strategy to outsource all practical jobs to private sector. According to the author's knowledge, such a solution is unique in Europe.

Public sector

At the end of the eighties, before Croatia had gained its independence, geodetic and cadastral system consisted mostly of public - state and private sector. At the top of the public sector there was State Geodetic Administration of the Republic of Croatia authorised for legal and sub legal regulation, annual and long-term program, systematic works, as well as second-degree procedures. Cadastral offices, 107 of them, were organised within the municipality administrations with high level of independence including the cadastral documentation and the possibility of offering primarily cadastral services in the market. Geodetic works that encompassed the production of the Croatian Base Map at the scale of 1:5.000, cadastral survey, land consolidation and other fundamental works were carried out by geodetic firms owned by the state, about ten of them that were to a great extent responsible for contracting the works within the frame defined by the program.

At the beginning of the nineties, the process of transition was initiated within which the state geodetic firms were completely privatised in a very short time, two years, depending on the initial situation or adjustment abilities, or they failed in a very short period. Already in 1994, the public production capacities in geodesy did not exist any more. At the same time, caused by the change of the state administrative organisation, as well as by direct war activities, the municipality cadastral offices were reorganised into county bodies - offices, 21 of them with 94 branch offices. The number of employees was also reduced then by approximately 10% - 20%, and some offices split.

The above illustrated situation had difficult consequences with regard to the system that had to solve essentially different tasks due to the process of transition and the change property significance with continuous growth of work quantity and the simultaneous leaving of professional staff. Therefore, already in 1996, the initiative for passing a new legal regulation was set into motion, and realized in 1999, that would regulate the running of business in public, as well as in private sector. The Law of State Survey and Real Estate Cadastre (Official Gazette, 1999) passed in December 1999, started to be applied on the 1st of April 2000, regulate these issues, and all cadastral offices were included into SGA, except the office of the City of Zagreb, and the basis for the establishment of the Croatian Geodetic Institute (CGI) was created. The application of this new Law resulted in the today's SGA that has got 1150 employees in 113 offices and CGI with its 13 employees.

Private sector

The existence of private sector in geodesy in Croatia was made possible even in the time of socialism, in the seventies, and apart from Slovenia that followed the example of Croatia, those were unique solutions in the former state, but also in other socialist countries. The activity of the private sector was limited, primarily to the services directed to the needs of cadastre clients, but its existence alone was the basis for the development of the system we have today in Croatia.

The change of the economic system and due to a very liberal Law of Corporations (Official Gazette, 1993), the geodetic firms owned by the state were privatised completely, and at the same time numerous private geodetic firms and offices were founded, however, often without sufficient professional and business skills. A large part of owners of the newly formed firms were the cadastre employees who left the civil service, or remained in it but organised the firms as their additional activity. On the basis of the poll carried out in 1999, it was found out that there were about 1.100 subjects at that moment in Croatia in geodetic and cadastral system whose work, professional skills and equipment were neither stipulated nor controlled. The reason for such a boom was primarily and almost exclusively the need of citizens and economy to have the property-rights relationships with regard to the land and real estate settled.

By passing the new Law that regulates geodetic and cadastral system, it has been decided that some order should be brought into the activities connected with these works, and the system of licences for performing the state survey and real estate works has been introduced. Pursuant to the passed Ordinance on the Conditions and Measures for Approving the Activity in the State Survey and Real Estate Cadastre (Official Gazette, 2000), 470 licences have been issued with 180 of them only temporary, valid until 1st January 2006 for the firms that have got no engineer of geodesy being the Chamber member, but they are allowed to work in the transition period on the basis of the acquired rights.

The essential fact in establishing the system is the existence of ten large firms (more than 30 employees) and a larger number of medium firms (10-30 employees) that have "survived" the first transition years and have made themselves skilled in professional and technological sense for performing demanding geodetic, cartographic and cadastral works.

Private-Public Cooperation Model

Previously mentioned circumstances have stipulated the solution that all production should be outsourced in private sector, which has been accepted and carried out in Croatia. The present model itself has not been made at once, but the collaboration between the public and private sector experienced three essentially different phases and it reflects the transition from the negotiated socialistic economy into the market economy. The first phase was the continuation of the negotiated economy in the market frames and it lasted as long as the jobs lasted that had been contracted in the previous system, i.e. up to the moment when the firms were privatised. After that, the dualism in authority was established between SGA and privatised geodetic firms that found the work more or less alone, and SGA provided the finances. Finally, after passing the new Law, and even more, after passing the Program of State Survey and Real Estate Cadastre for the period from 2001-2005 (Official Gazette, 2001) a model was produced in which SGA took over the responsibility for defining the program, providing the funds and negotiating the jobs with other subjects, the geodetic firms took over the responsibility for the execution and the quality of work, as well as for offering extended services to the mentioned partners.

The model that has been developed and is being applied can be seen in the best way on the project referring to the production of a new digital topographic map at the scale of 1:25 000. The decision of SGA that was preceded by extensive consultation with the largest geodetic firms and the Faculty of Geodesy, University of Zagreb, initiated already in 1992 the defining of the project connected with the production of new Croatian digital topographic maps. Already in 1992, the Study on the Establishment of the Official Topographic and Cartographic Information System of the Republic of Croatia (Institute for Photogrammetry, 1992) was implemented setting the bases for the Official Topographic and Cartographic Information System (STOKIS), the initial bases for the map production, production technologies and standard drafts necessary for the map production. In continuation to this study, SGA ordered several studies that define the norms and standards necessary for the realisation of the project that are unified in the document "Topographic Information System of the Republic of Croatia - CROTIS" (Geofoto, 2000).

On the basis of the above-mentioned studies, the first tenders were invited for the production of test topographic map sheets (see Fig. 1) where both segments, the public and the private, gathered experience and skills necessary for producing such a demanding product. Simultaneously with the production, the needed studies were also made. On the basis of the acquired experience in producing the first sheets, although the whole system was not completely defined, SGA continued with inviting the tenders for the sheet production.

Recognizing how demanding the whole project was, SGA founded in the year 2000 the working party on STOKIS consisting of the specialists from geodetic firms, Faculty of Geodesy, CGI and SGA. The task of the working party was to monitor continuously the realization of the project, to suggest sub legal documents, as well as relevant norms and

standards, their constants updating, and to propose the production of studies and analyses necessary for the further development of the project. During its work, this working party made the Ordinance on the Manner of Topographic Survey and State Map Production (2001), as well as further 12 studies and analyses that are essential for the project implementation.

Already in the process of passing the Law, the foundation of CGI was planned with one of its basic tasks to establish and perform the quality control system for all products made by SGA. Namely, already in the process of taking over the first made sheets, there was a functional inadequacy noticed in the organisation of the project, because SGA appeared as an orderer of works and the controller of the product quality. These two activities have been in collision from the beginning, and it was evident that the model should be improved. For that purpose, as well as wishing to provide impartial quality control, all preceding actions were completed and CGI was founded. Although being in the process of establishment, the Institute started to deal with all its tasks already in 2002 with the quality control of the topographic map 1:25 000 set as the priority among its jobs.

In thus developed model, SGA took over the task of providing the continuity of works on the production of the topographic map 1:25.000. The above-stated is not a very easy task because the map production is financed from the SGA budget (50%) and from the funds of interested subjects, counties, cities, municipalities, national public systems and economic subjects that provide the other half of the funds. This model has been applied successfully in the last three year (see Fig. 2), but it demanded extraordinary efforts from SGA in organising the whole process of co-financing, of contacting interested subjects and planning and coordinating the dynamics of works and financing.

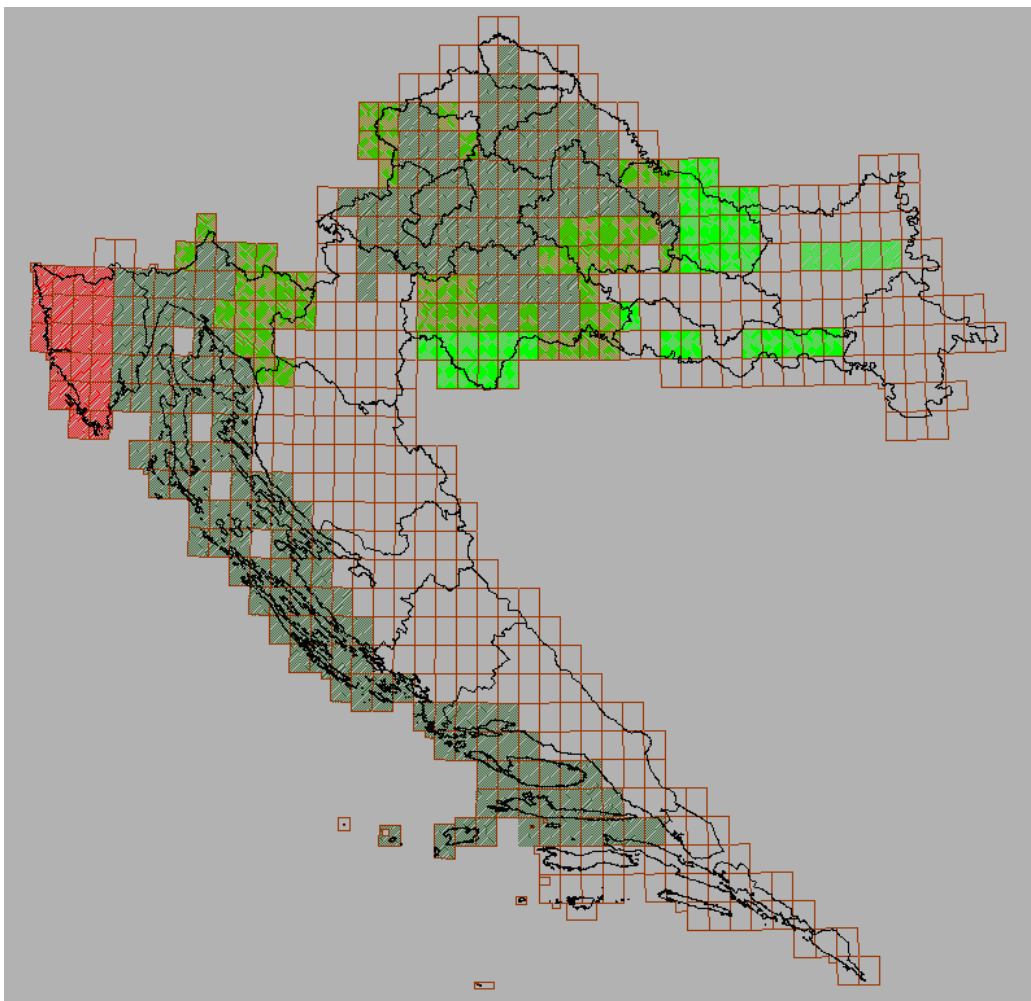


Fig.1: Overview of the situation in the production of the topographic map 1:25.000 in Croatia

Effects achieved

Based on the above-mentioned Program of the State Survey and Real Estate Cadastre for the Period from 2001-2005 and on the developed mode, SGA has succeeded to complete the production and release the official usage of 43 sheets of the topographic map 1:25.000 up to now, further 140 sheets are in the process of production, and there is this year tender for the production of the next 89 sheets being invited (see Fig. 1).

The above-mentioned has been possible because the model of financing the works was developed in the Program of State Survey and Real Estate Cadastre for the Period from 2001-2005. This model has extended the financing sources, and long-term agreements about the mutual realization of the Program have provided the financing stability. This enlarged the funds intended for geodetic works financed and co financed by SGA four times, (see Fig. 2).

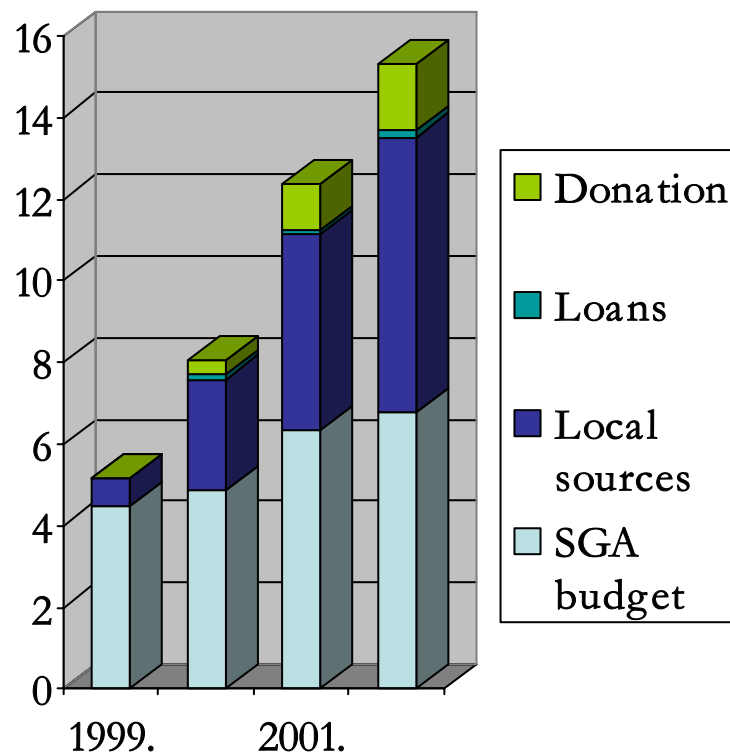


Fig.2: Sources and amounts of financing the works by SGA in mil of €

The problems noticed

Three basic groups of problems have been noticed in the process of map production so far:

- providing the continuity of jobs and employment of capacities that have been developed in geodetic firms for the purpose of map production,
- the problem of quality control solved organisationally by founding CGI, but there is also
- the problem of trained personnel present.

The first problem belongs completely to the domain of SGA, because it has taken over the obligation to execute the Program that plans the completion of the topographic map 1:25.000 till the end of the year 2005. Long-term program defines the issuing of annual programs as well on the basis of which the funds would be provided and the tasks realized. Although the Fig. 2 clearly shows a significant growth of the funds for geodetic works, the level of provided funds in relation to the planned funds is 80%, which means that the realization of the project will probably be postponed to the year 2006. However, a much bigger problem has been noticed in the recent years referring to the dynamics of tender invitation for map production because it has depended on a demanding process of agreeing with the co-financers, of preparing and carrying out the invitations for tenders. Since the tenders have been invited on the one-year basis in accordance with the Croatian regulation about public purchase, the production processes in firms have been interrupted several times which has been negatively reflected on the continuity of jobs, but also on the price of the product. Analysing the situation and consulting the Ministry of Finances, SGA started to apply from this year the long-term, more concretely, three-year job agreement with successive product delivery.

The problem data quality control has been formally solved by establishing CGI. However, it is still present, so CGI and SGA have initiated the project of technical cooperation called „Croatian-Norwegian Geoinformation Project” in collaboration with the Norwegian Mapping Authority (Statens Kartverk) through the program of technical assistance of the Government of the Kingdom of Norway. One component of the project is dedicated exactly to the production of capacities in CGI and the production of the quality control system. Of course, the task does not involve only CGI, but also the producers of maps, because the efficient quality control can be achieved only by controlling the entire production process. More details about the whole project are given in the paper by Prof. Rožić, Strategy and System of Quality Control of the Official Geographic Data Produced by the Private Companies in Croatia.

The problem of qualified personnel in the process of map production, as well as in the process of quality control is something permanently present. Although the geodetic firms, CGI and SGA invested a lot of energy in solving this problem, it will finally be solved by the time itself, because we are aware of the fact that we need the time to acquire special skills connected with the experience in map production. For the purpose of shortening the time necessary for maturing, all subjects are regularly consulting and exchanging information about new cognitions, especially between the producers and CGI.

Conclusion

All above stated leads to the conclusion that on the basis of all essential factors, the historical heritage, development of public and private sector, technological facilities, transition impulses, a model of cooperation between public and private sector has been developed in Croatia for the production of official cartographic documents that is unique in Europe. The developed model has got many advantages, first of all the transparency of expenses, but as such, it has also generated some new problems that are not standard in classical models of producing cartographic documents by public institutions.

Based on the experiences gathered so far, SGA and CGI, geodetic firms and the Faculty of Geodesy continue their cooperation of realising this project within the frame of which the above-mentioned model is being improved, because this model will be applied also in the realisation of the project on producing cartographic documentation at other scales starting in the year 2005.

Although this model is not standard in Europe, its presentation enables the comprehension of its advantages and disadvantages and its comparison with the map production in public institutions.

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