

ACTIVITIES TOWARDS DISSEMINATION OF GEOGRAPHIC INFORMATION IN MACEDONIA

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KEY WORDS: Developing Countries, Environment, Mapping, Cooperation, Education

ABSTRACT:

We report the result of an environmental thematic map contest for elementary and junior high school students and a map dissemination forum aiming for geographic information popularization in Former Yugoslav Republic of Macedonia. These activities were conducted as a part of 1:25,000 national spatial data infrastructure (NSDI) project of Macedonia funded by Japan International Cooperation Agency (JICA). The project consists of the establishment of NSDI, technology transfer training for surveying and mapping of NSDI and disseminating geographic information. Until today, maps and geographic information were of no interest or use to people in Macedonia. The reasons being that maps were not available to the public before independence, relatively expensive, inconvenient to purchase, and not used in academic activities. It is a must to increase the number of users and to be acknowledged by the public in order to realize the sustainable development of NSDI and wide use of GIS which will contribute to economical development. In the study, we aimed to enhance the future use of maps and geographic information by offering the opportunities to enjoy their use and to understand the benefit of them. It is a known fact that a top-down approach for promoting the use of geographic information using IT technology towards the whole society is effective. However it was also realized from this study that such continuous grass-roots activities are as well the effective approach.

1. INTRODUCTION

With the commission of the Japan international Cooperation Agency (hereinafter referred to as JICA), in April 2004 we began the “Study for Establishment of State Base Map” in the Former Yugoslav Republic of Macedonia (hereinafter referred to as Macedonia) (Population of approximately 2 Million). The main activities of this study are to establish a National Topographic Map of approximately 14,000km² (1:25,000 scale) within the whole area of Macedonia (area of 25,713 sqkm²), transfer technology to the Governmental Survey Institute and disseminate geographical information. The study period is approximately 3 years.

The investment and effectiveness of Official Development Assistance (ODA) is evaluated objectively. It is expected that the establishment of National Topographic Maps will become the foundation for various succeeding development aid and after completion will have a wide scope of practical uses.

This article reports how National Topographic Maps widely recognize the social infrastructure, and explains the geographical information dissemination activities which aimed to promote wide-spread use of these Topographic Maps. We will also make special mention of the reception of this grass-root activity Environmental Thematic Map Contest and Map Forum which had never been experienced previously.

2. GEOGRAPHICAL INFORMATION ISSUES IN MACEDONIA

When the Former Yugoslav Commonwealth was a Republic, Macedonia’s Topographic Maps were controlled as classified information and ordinary citizens had no knowledge of them at all.

Despite geographical information being presented to the public after independence, until now there has been hardly any use of it. The following tables 1-6 show the status of utilization of Geographical Information for Macedonia, neighbouring countries as well as Japan according to an inquiry survey.

Country Scale	Japan	Slove nia	Hunga ry	Czech	Maced onia
1:25,000	1986 - 2005	1993 - 1999	1976 - 2002	2004	1971 - 1972
The oldest maps currently sold	1986	1970	1976	1971	1944

Table 1. Production Year of Topographic Maps

Country Scale	Japan	Slove nia	Hunga ry	Czech	Maced onia
1:25,000	1.9	3.0	6.4	1.7	144

(in Euro)

Table 2. Price of Topographic maps (paper map)

Country Place	Japan	Slovenia	Hungary	Czech	Macedonia
Government Office	Map Center, Head Quarters	1	138	9	1
Others	1600 book store & Agents	Book stores	N/A	N/A	N/A

Table 3. Places to Purchase Topographic maps

Country Info Type	Japan	Slovenia	Hungary	Czech	Macedonia
Order of Geo-information through web-site	Yes	Yes	Yes	Yes	-
Free Download of Thematic Maps	Yes	Yes	-	-	-
Free Download of Topographic Maps	Yes	-	-	-	-

Table 4. Web-service by Survey and Mapping Organization

Country	Japan	Slovenia	Hungary	Czech	Macedonia
Waiting Time	5 min.	5 min.	5 min.	5 min.	5 Days

Table 5. Waiting Time for Purchasing Maps

Country	Japan	Slovenia	Hungary	Czech	Macedonia
1:25,000 Printed maps	1,308,000	8,000	15,000	28,694	46

Table 6. Number of Maps sold in 2004

Due to reasons such as information being outdated, expensive and the troublesome purchasing procedure, only 46 maps were sold throughout the whole country in the space of 1 year. We, the study team were strongly concerned that the new National Topographic Maps that we produced would not be effectively used and that the implementation of the constructed maps would not be utilized.

Furthermore, according to an interview confirming that there was a lack of formal education on topics such as Macedonia's domestic industry, the environment, geography, etc we thought that in future we would not see an increase in the number of potential map users.

3. GEOGRAPHICAL INFORMATION DISSEMINATION ACTIVITIES

3.1 Plan for Geographical Information Dissemination Activities

Using the clarification of the current status of the utilization of geographical information and the issues as a start point, we carried out a plan concerning activities for the dissemination of geographical information in order for the National Topographic Maps and geographical information developed by this project to be continuously utilized.

The afore-mentioned status of the use of geographical information is not simply the case for Macedonia. The establishment of National Topographic maps is one of the many cases which have to be considered for Official Development Assistance. For that reason it can be said that it is not a versatile process for the solution. This project intended to combine the collective efforts of various disseminating activities in order to produce results.

Firstly, mass communication and the internet were used to release the information to the general public. The details are shown in table 7.




Activities	Description
News Letter	Project information is released on the internet through a Survey Institute's website 
News Paper	An article introducing the project is released in major newspapers 
Television	The project is introduced on State owned channels
TV Comedy-show	Televised as a comedy by a famous comedians 

Table 7. Activities through mass-media

The benefits of releasing information to the general public this way are that it is cheap and has a wide spectrum. However the disadvantage is that it is difficult to realize its effectiveness. For this reason we also planned our dissemination activities focusing on respondents who have never experienced a grass-roots movement previously. This article reports on the activity of the Environmental Map Contest and the Map Forum.

3.2 Environmental Map Contest

3.2.1 Outline: In recent years there have been various map contests held in Japan. Most of these contests utilize high interest techniques concerning maps and map contents.

The aims of the Environmental Map Contest, as part of the dissemination of geographical information, are for the children to become familiar with maps and to learn about their surrounding environment. It is hoped that the geographical information will be used in education and will lead to future potential geographical information users or the cultivation of technical experts in this field.

The application period ran from October 2004 until early February 2005 and the exhibition and awards ceremony was held on the 18th of February. The subject area Prilep (Population 70,000) is a major urban area in the heart of Macedonia and the subjects were 5th year (age 8) to 8th year (age 11) students who are studying geography in one of the 7 schools for elementary education (8 grades).

3.2.2 Idea and Method: The ideas and techniques were drawn from a publication by the Environmental Map Education Research Society in Asahikawashi city, Hokkaido, Japan, entitled "Making maps of the environment around us" (hereinafter "Environmental Map Manual"), as well as the Environmental Map Exhibition carried out at Tamashi City Government Office in Tokyo. As this was the first time an environment related contest was carried out in Macedonia and it was also the first time for JICA to carry out this kind of event on the topic of geographical information, the references of the environmental map contests held in Japan were widely consulted.

3.2.3 Hearing: Firstly the Environment Manual was read carefully, it had to be adapted to meet Macedonia's country conditions then the manual had to be translated into Macedonian. After that we carried out a hearing with geography teachers and the Ministry of Education confirming whether or not there were admissible grounds for such as event, what problems would arise at the time of implementation and whether or not they would collaborate. Fortunately we were able to affirm that we would receive full cooperation from the schools and the Ministry of Education.

3.2.4 Problems: On another front, implementation problems arose. All of the schools had seldom budgeted for educational materials. It was discovered that because photocopiers and examination papers were not supplied, a fee was collected from students when they sat examinations.

Therefore the study team distributed 70 sets (total 350 sets) of Topographic Map making kits (containing A1 size drawing paper, A3 size notebooks for use during field study, colour pencils, crayons and markers) to each of the 7 subject schools. In addition we distributed extra copies of essential papers such as registers of participants, name tags to stick on their work; and the schools had no obligation to fund the preparations.

Moreover, the schools did not have topographic maps or aerial photographs so in order to help them prepare and plan the creation of environmental maps we provided them with aerial photographs which the study team had taken in July 2004.

3.2.5 Presentation: Taking into account the possibility that presenting teachers with translated manuals and posters is not going to effectively communicate the object to students, for 50 classes we carried out 10-30 minute presentations including introducing Japan. At that time we distributed a large number of pamphlets entitled "Holding of the Environmental Map Contest" and "Why are JICA supporting the creation of maps?". As a result, the presentation activities encouraged the teacher's efforts and led to an increase in output.

3.2.6 Result: After the Environmental Map production period, they were collected and evaluated. We first expected 10 maps from each school, a total of 70 maps, and 350 participants. However the results far exceeded our expectations, with 276 maps and 1109 participants.

The selection of the exceptional maps was carried out by the study team, Ministry of Education, Cadastral and Survey Institute and a local television channel. For the 5th year to the 8th year students a total of 19 prizes for things like each outstanding map, creativity etc were awarded from the selection parties. In addition a special prize was awarded to the school that produced the largest number of maps. The selection criteria were also in accordance to the Environmental Manual.

On the maps we could see an abundance of litter. In addition, we could see subjects of various measures such as maps surveying local tobacco cultivating areas, maps plotting the location of traffic accidents, surveys of households with pets, the activity of stray dogs, free spaces in car parks etc.

3.2.7 Exhibition and Awards Ceremony: The exhibition was held on the 18th of February over a period of 5 hours and approximately 2000 people attended. Furthermore, 200 people attended the awards ceremony that evening.

The students who received the outstanding individual award and group award were asked to give a presentation about things such as the reason for their selected topic, difficulties they faced when carrying out the survey and things they discovered. The students that this contest was aimed at had mostly never taken part in contests and the parents and relatives of the commended children watched proudly and warmly hugged the students.



Figure 1. The Environmental Map Content Presentation



Figure 2. The Environmental Map Content Exhibition



Figure 3. The Environmental Map Contest Awards Ceremony

3.3 Map Forum

With the aim of disseminating the project results and the Geographic Information, “New Era of Mapping in Macedonia” was held focusing on government agencies, relation to education, public institutions such as electricity and water suppliers, private companies, international organizations and aid agencies from each nation. The program of the forum is laid out in table 8.

Approximately 200 people attended the forum and there was active discussion. For the users it was an opportunity to become acquainted with the latest information and for the maintenance side it became an opportunity to hear first-hand the needs of the users.

Based on the needs of the users and advanced reports regarding the surrounding countries, the Cadastral and Survey Institute declared that hereafter they had a concrete plan to establish maps for Geographic information, sales plans and carry out organization control reforms.

Topics	Contents
The history of Macedonia’s maps	Introduction to the transition of establishing Topographic Maps
The current status of Topographic Map selling	Introduction to the current status of selling Topographic Maps and organization of issues
The required Geographic Information and the service	The arrangement of the required data and service
The application of new Geographic Information.	Introduction by a technical expert as to examples of how Geographic Information can be used
Macedonia’s GIS	Introduction to examples of how Geographic Information can be utilized for the case of Private GIS companies
The current status of Geographic Information of the neighbouring countries (Czech Republic, Hungary)	Introduction to the statistics for Topographic Map sales and utilization in the neighbouring countries.
Geographic Information Society in Japan	Introduction of Spatial data use utilization in Car Navigation Systems in the case of Japan
Improvement of the Acreage and Survey Agency’s Geographic Information Service	Using the results of the discussion to organize the necessary points for improvement

Table 8. Topics of Map Forum



Figure 4. Map Forum

4. CONCLUSION

Using this project as an example, for National Topographic Map Establishment projects under ODA, regardless of area or country, most of the data lifecycles have common issues (Figure 5). According to the study results at the hearing, it was realized that these issues are inter-related. For this reason it is expected that when one issue is resolved, it should have a favourable impact on the other issues.

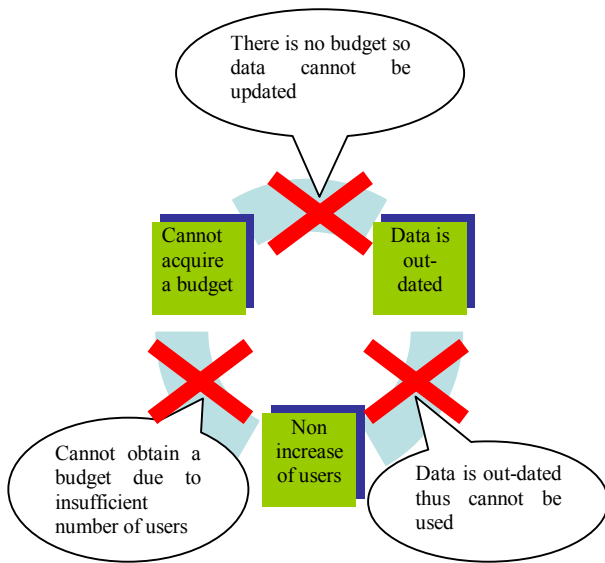


Figure 5. Problems on Data Life Cycle

The activities of this article intended to use various techniques and implement a relatively low budget to resolve the “Non Increase of Users” issue.

As we had no previous experience carrying out grass-roots activities like Environmental Map contests and Map Forums, we were concerned about the operation and results. We were particularly concerned about the level of interest that the children, who are unfamiliar with maps, would have for the Environmental Map Contest. Moreover the winter season had a lot of snowfall so we were also concerned about whether or not the children would be able to go outside for the study.

Consequently, our hopes for a certain level of findings in this initiative were realized. In terms of the Environmental Map Contest, we received an unexpectedly high number of participants and a high degree of interest. With the support of the Ministry of Education and the teachers, this event was a huge success for the child subjects who had hardly taken part in contests. We hope that by using Geographic Information in basic education it will raise interests and will be an impetus to produce future technical experts. From the active discussion at the Map Forum we were able to accumulate the user demands for the release of Geographic Information and their needs. Among these ideas the Cadastral and Survey Institute will have the information which will be very useful in creating an establishment plan, and fixing a budget for the basic creation materials.

It is difficult to link the results of the initiative with results such as the immediate increase in map sales. However we would like to think of one of the techniques to activate the development of Geographic Information and the utilization life-cycle (Figure 6).

The materials for this Environmental map Contest were provided by the study team but if backing can be obtained from all sides then this project could be adapted for any project on other developing countries. We realized that the creation of environmental maps is an extremely effective way of creating interest in maps and the surrounding environment. After the

support from JICA ended, the Ministry of Education and Map Establishment Agency became the main bodies and the new issue is how to arrange a plan for the sustainable operation with their collective efforts.

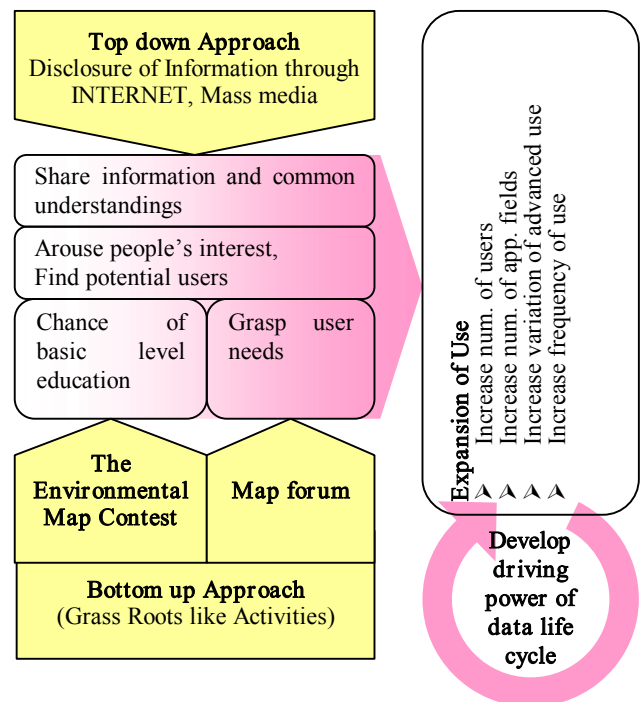


Figure 6. Conceptual scheme of disseminations

REFERENCES

Asahikawa-city Office Hokkaido, Manual “Making maps of the environment around us”

ACKNOWLEDGEMENTS

The results were also released in Japan when the outstanding maps from the Environmental map Contest were displayed this year at the “Maps of the Environment around us Exhibition” in Asahikawashi. We would like to express our gratitude to Mr Onodera of the Environmental Map Education Research Society for the valuable advice and data he provided.