MULTIPLE NAMINGS IN THE INTEGRATED DIGITAL TERRITORY MODELS

Vladimir S. Tikunov

Faculty of Geography
M.V. Lomonosov Moscow State University
Vorob'ievi Gori, Moscow 119992 Russia
tikunov@geogr.msu.su

Realization of a number of national and international programs dealing with spatial data infrastructures – SDI (for details see Kapralov et al., 2005), including those of the global scale, i.e. GSDI, as well as such programs as the Digital Earth, Global Mapping Initiative (the Japan's response to the recommendations of the 1992 UN Conference on Environment and Development in Rio de Janeiro) and a number of European (EuroGeographics, SABE etc.) and national (American National Map of the US Geological Survey, OS Mastermap of the UK Ordnance Survey etc.) has already made it possible to compile a uniform digital base and a universal toolkit for the integrated description of territories. SDI may form a reliable basis of integrated digital territory models (IDTM) that are necessary for realization of any models of sustainable development for these territories (Tikunov, 2004). First of all, these are the digital model of territory considered as virtually-realistic model, supplemented with the set of the ordered remote sensing materials and with a number of thematic layers, socio-demographic, economic, ecologic etc.

It is convenient to form integrated digital models on the basis of atlas information or directly within the atlas information systems (AIS). Such systems are usually provided with well-developed modelling functions, they are capable of integrating expert systems and could be designed as full-scale multimedia products. AIS allow the integration of diverse information resources, modelling, visualisation and analysis, as well as the elaboration if various scenarios and possible development alternatives for such complex systems as those of nature-society-economy.

The structure of an integrated AIS includes closely interrelated social-political, economic (or production), natural resource and environmental blocks. They provide general description of socioecosystems of different territorial range, showing the importance of both natural and human resources. One should speak of both nature and social management within this line of research. All themes are described in terms of the hierarchy of their changes (from the global level to the local one) and specific features of phenomena at different scales of their representation are taken into account. This is the realisation of hypermedia system principle: the topics are integrated by associative links, for example the topics of lower hierarchical level represent a particular theme at

the appropriate scale and at the same time expand it and show it more in detail.

Regularities of phenomena evolution are shown for all thematic topics rather than their actual state. This requires the analysis of their dynamics, which is realised according to the evolution-dynamic principle of AIS development. Parameters characterising various phenomena at particular time periods or years, as well as thematic animations, are mainly used for this purpose. The block principle of the system should be also pointed out, because it is possible to change, supplement and expand individual logical blocks without modifying the structure of the system itself.

Elaboration of scenarios for the development of the country and its regions is among the principal application of such systems. In this case the multi-variant principle is realised: final users could obtain a series of scenarios (optimistic, pessimistic and other ones), which could be of interest to them. In reality this means, for example, the description of changes resulting from the construction of transport corridors through the territory of Russia. Such scenarios stimulate considerations and discussions which, in their turn, lead to new scenarios. The increasing complexity of these scenarios gives rise to a growing necessity of the system's intellectualisation with expert systems and neurone networks assisting in reaching plausible solutions for very complicated and often rather fuzzy problems.

Of particular importance is the possibility of mining modelling of complex phenomena within the information system. Such modelling is based on the integrated system approach to socio-ecosystem modelling.

Modern AIS are equipped with a range of instruments that makes it possible for users to compile their own cartographic topics using the base maps and acquiring necessary data through the Internet, for example. Specialised means of mathematical modelling are of particular importance, particularly those aimed at the elaboration of scenarios of regions' transition to the models of sustainable development. The most sophisticated AIS could be used as full-scale decision-support systems. Finally, it should be mentioned that AIS need multimedia principle as well, which facilitates the decision-making process.

All aspects related to geographical names are of particular importance in this case. Infrastructures of geospatial data should provide for both the whole spectrum of names of a particular geographical object and the history of their formation, as well as the differences in the existing names.

There are too many examples when the same geographical object has many place-names. It is often because objects are named in different languages. Man distinguishes a few approaches in transmission of foreign place-names: when native official form is used (Estado Español, Kongeriket Norge, Republik Österreich, Suomen Tasavalta, or brief form: España [Spain], Norge [Norway], Österreich [Austria], Suomi [Finland]); phonetical – when original pronunciation is simulated; transliteration, when each letter receives it's English equivalent; translation (Severnaya Dvina – Northern Dvina, Grønland - Greenland) and, at last, when we name so countries as Deutschland, Ayastan, Sakartvelo, Choson as Germany, Armenia, Georgia, Korea according to tradition. Even on the maps of the same multilingual country, such as Russia, Belgium, Switzerland we can easily find examples when many place-names are used for one geographical object, it maybe even the name of country - Schweiz, Suisse, Svizzera. It is also typical for lingering objects, situated in places where people speaking in different languages live, for example for rivers – Danube, Donau, Dunav, Dunarea and others. Often objects have a few names after discovering by foreign traveler when they receive new names together with original one. At that reverse replacement has been occurred. Man may remember mass renaming after liberation of African countries. International community (in particular official UN bodies) try to regulate this process, but nevertheless many disputable (for different countries) names still exist, for example Persian or Arabic Gulf, Japan or East Sea, Falkland Islands or Islas Malvinas. In this

cases the variant of place-name reflects aspiration to denote sovereignty or protection over territory (area of water), that may sometimes cause a military conflicts – such as the war between Argentina and Great Britain. Does civilized decision possible in such cases? Let's consider the last example. Both names Falkland - Malvinas Islands exist simultaneously on maps printed in many countries, sometimes together with special mark (disputable territories).

Such questions need a special decision in times when computer maps have been used more and more. Catalogues of place-names have been created in many countries, so it is possible to store all names which have any geographic object. Than characteristics need which will describe time period when a place-name was used, description – why a place-name changed (although different opinions are possible) and so on? But nevertheless the reader of computer map will receive much more information to draw his own conclusion. It will be timely to make this work at present time, when creation of national and international regional spatial data infrastructures (SDI) is going on at full steam. After USA projects of SDI becomes incarnates in a number of international and national organizations, such as Global SDI (GSDI), Canadian SDI (CSDI), SDI of Australia and New Zealand (ASDI), Asian-Pacific SDI (APSDI), Europian national initiatives in frames of Paneuropian (EUROGI). Basic spatial information in SID usually understand as collection of "basic", "fundamental", the most needed layers and groups of GIS, with content corresponding with basic map. Moreover, the layer of place-names should be one of it's main layers, and this layer should be informative enough, permit use plurality of place-names, and inform in details about them.

Moreover, subsystem of place-names sooner or later will contain elements of intellectuality. Let's, for example, analyze the next series of place-names: Cameroon, Chad, Congo, Denmark, Djibouti, Gambia, Georgia, Jordan and Nicaragua. Of cause, every geographer can says that this is countries enumeration, but the same enumeration may be transformed in the way when the same place-names will mean:

a) rivers – Congo, Gambia, Jordan, Danube, Mississippi, Nile;
b) lakes – Chad, Nicaragua, Victoria, Baikal;
c) straights – Denmark, Georgia, Gibraltar, Dardanelles, Magellan, Dover, Cook, Davis;
d) volcanoes – Cameroon, Etna, Popocatepetl;
e) cities – Djibouti, Moscow, London.

At this time, because of another neighborhood we will give to place-names other meaning, at that this notional branching may be continued. Let's consider rivers. We will add Albany, Arkansas, Churchill, Colorado, Columbia, Connecticut, Delaware, Humboldt, Illinois, Kabul, Mississippi, Ohio, Orange, Sabine, Salmon, Salt, Steward, Swan, White in addition to earlier mentioned. Among these place-names are: a) cities - Albany, Columbia, Delaware, Kabul, Orange, b) states - Arkansas, Colorado, Connecticut, Delaware, Illinois, Mississippi, Ohio, and if we want get out of place-names multitude, than by adding Bismarck, Clinton, Lincoln, Washington to a Churchill river we receive a number of politics. Here we can also find a list of cities (Bismarck, Clinton, Lincoln, Washington). If we group cities in other way (Lincoln, Mercedes, Toyota) together with Ford and Volkswagen anybody says that this is car marks. Cities as Zanzibar, Grenada together with Christmas turn into the islands, but Christmas itself together with Easter и Annunciation are holydays. Cape May together with January, February and so on are months, and city Leon combined with tiger and leopard are predators. If you turn to the list of rivers mentioned in the beginning of this paragraph you can easily find other continuations. Anybody can easily define sense of a list of names, classify them, the same must do heuristical program. In this case a system of place-names will use right notional association, which should be used and taken into account when plurality of place-names occured. A reader can test all existing kinds of place-names translation, search notional associations, select needed material connected with history of place-names. In other words, technological progress lets us

describe geographical objects in more ways, using for their description all that humankind collect through the ages.

At present we are starting the work on the specialized database with geographical names for the territory of Russia and adjacent seas providing mere detailed information for the southern regions of the country. Experiments were taken on the multi-variant positioning of inscriptions on digital models and models of virtual reality.

Literature

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