

## REQUIREMENTS AND POSSIBILITIES TO ESTABLISH MONGOLIAN NATIONAL SPATIAL DATA INFRASTRUCTURE

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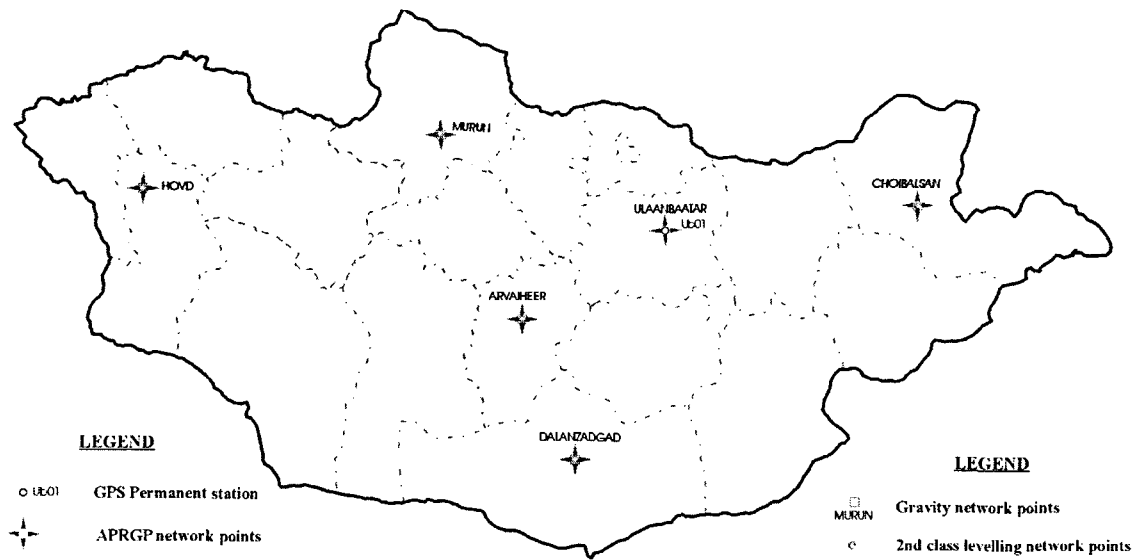
ALAGAC develops national policy on mapping the country and in scope of implementing this policy the agency runs several procedures such as establishing all types of geodetic networks, mapping urban areas, geodetic and cartographic functions on agriculture, geological prospecting and power plant stations, demarcating national border, providing all types of atlases, educational, special and logical maps to educational, scientific and cultural organizations in accordance with social development requirements.

Since establishment of geodetic section in Mongolia, extent of geodesy, mapping and cartography has increased enormously and its database has been enlarged and provided information services to other sections` customers. To summarize implemented works for the period of 35 years in brief: an establishment of 25.000 points astronomic-geodetic network, a network with around 30.000 km level and a gravimeter network with around 150 points, a topographic map of the whole country at scale 1:100000-1:1000000, a map of 35-45% of the country at scale 1:25000-1:50000, maps of Ulaabaatar city, all provinces and sub-provinces` centers at large scale 1:500-1:10000, an aero photographical map of 594.2 thousand square km area by converting 1:32000 scale, mapping and demarcation of approximately 8200 km length national border, reestablishment of 350 thousand geographical themes and invention of around 400 types of maps and about 10 atlases.

Due to entrance of information technology development into geodetic and cartographic sections, utilization and requirement of the geodetic and cartographic information trends to improve. Computer installment, regular renewal, maintenance and distribution of this information have become simpler. UN noticed this situation and organized world leaders` assembly under the plea "Natural Environment and Development" at Rio de Janeiro in 1992 and approved "Sustainable Development of 21<sup>st</sup> century" program. This programs` principles are being implemented by countries. A Standing committee on Asia Pacific Regional Spatial Data Infrastructure was established in 1994 by decision of Geographical Commission of Pacific Region of the UN, including 55 countries. The agency entered into the

committee as a representative of the Mongolia in 1998 and started participating its international projects, meetings and seminars dynamically.

We have participated in “Mapping the world” project under the UN and internationally cooperative long-term GPS network measurement of Asia Pacific region. /1999, 2000, 2001, 2003/



Making geodetic and cartographic information more open, increasing and inventing topographic map for public utilization and serving multi-ways to customers are demanded highly in accordance with requirements of market system.

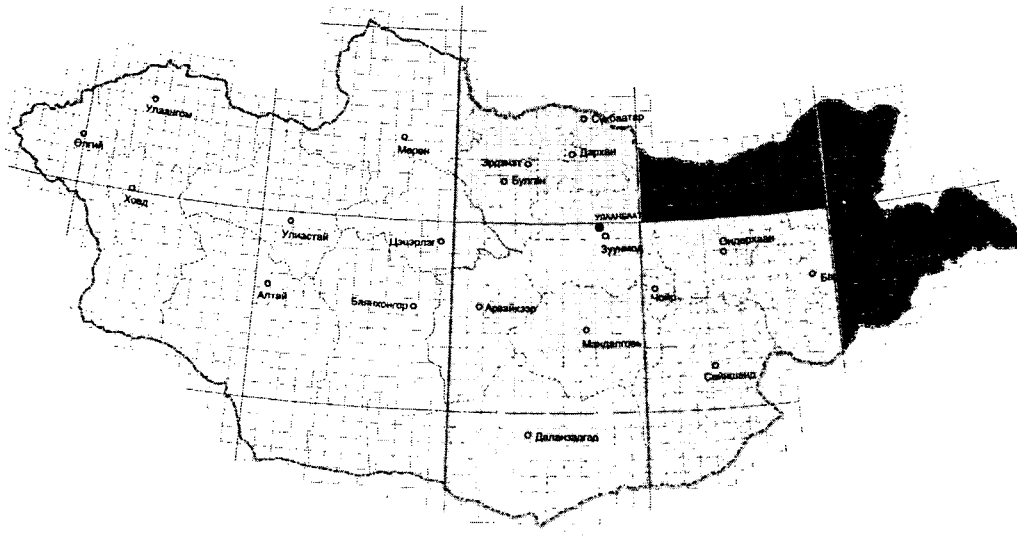
An authority organization affiliated to the UN, International Geodetic Union, Regional commissions and conferences have noticed necessities for making geodetic and cartographic information as basic information of spatial data infrastructure and stating higher criteria such as accuracy, theme reality and regular renewal of meanings and creating earlier than other sections' information, moreover, above authorities have set it as a main aim of national geodetic and cartographic agencies to achieve. Through increasing information exchange it is considered that wide possibilities, which could resolve many human-faced problems such as protection of nature, prevention from natural disasters and creation of sustainable resource for development, will be opened. In this situation, as for a country like Mongolia, which has vast territory, harsh climate, long term frost soil and situates in active earthquake region, moreover, occurs natural disasters such as zud disaster, fire, flood, storm, desertification almost regularly, the need for developing infrastructure by studying influence of above tangible factors and the significance of geodetic and cartographic information for providing sustainable development of the country has become more important.

Because ALAGAC is responsible for collecting, maintaining and renewing spatial geo information and providing social, economic, scientific and defense sections requirements, it functions according to the following aims that trend to establish Mongolian national spatial data infrastructure and develop strategy by creating easily used spatial information which meet required accuracy, quality and meaning standards, while providing national and international requirements. Aims are:

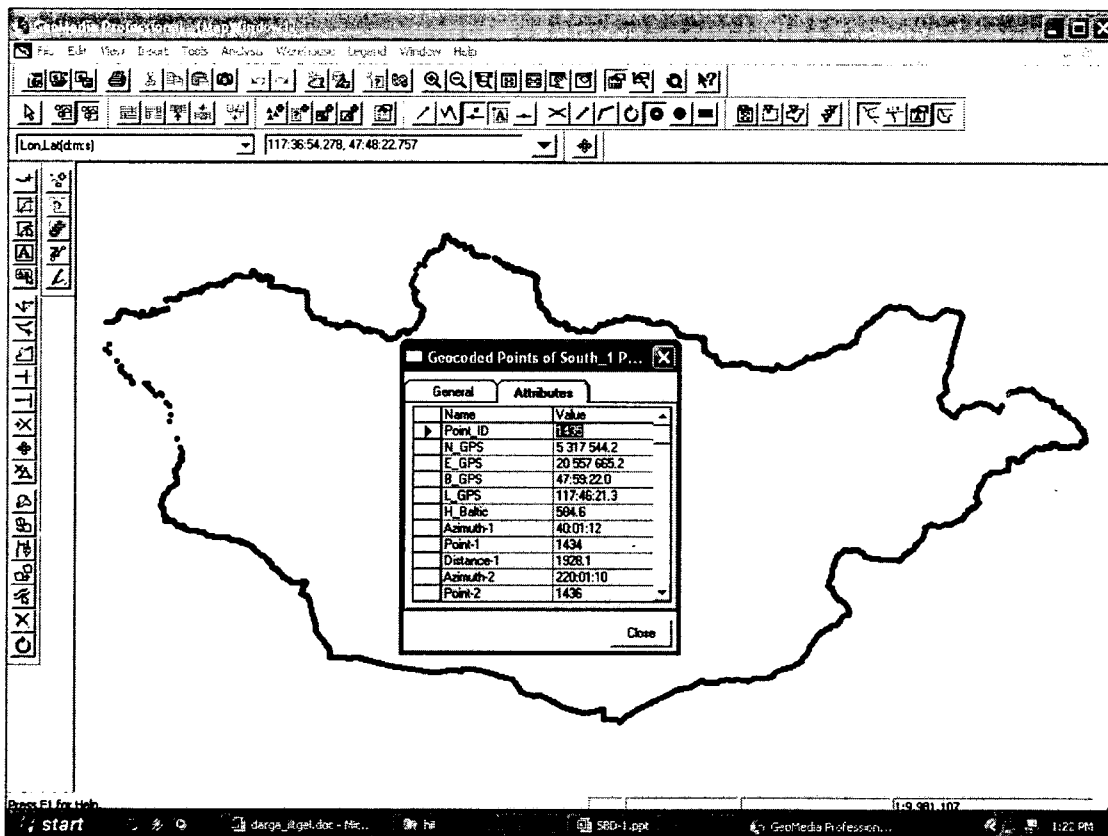
- Establishment of legal environment for creating and using spatial information, development and enforcement of basic standards, quality indicators and unified information formats
- Establishment of national geodetic network that meets current requirement level and providence of geometric accuracy for collecting spatial geo information
- Installment and arrangement for all types of the maps, digital data and attribute information of geodetic and cartographic national unified database into computer, establishment of technical and technological capacity for creating database
- Utilization of effective methodology for finding, installing, developing and distributing geo information to customers
- Creation of national spatial main geo information database and connect them with other databases and selection of information exchange format and software
- Creation of geographical theme data for meeting requirements of all ranges and levels
- Preparation for national professionals in this field and development of training programs
- Effective management among all related social, economic and scientific sections and various governmental agencies on this issue and functions for defining cooperative principles.

In scope of above aims, ALAGAC has performed following functions:

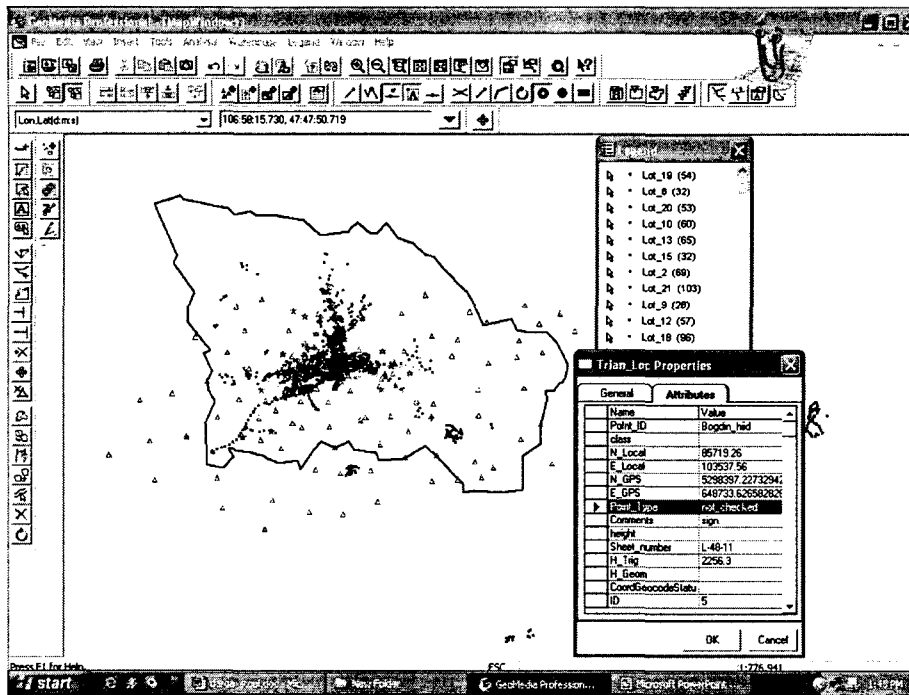
Since 2004, a topographic map 1:100 000 scale which has the largest scale covering Mongolian whole territory is being started to convert into digital data. Totally 178-page map was converted into digital data in 2004, whereas it was planned to be converted 426-page map into digital data in 2005.



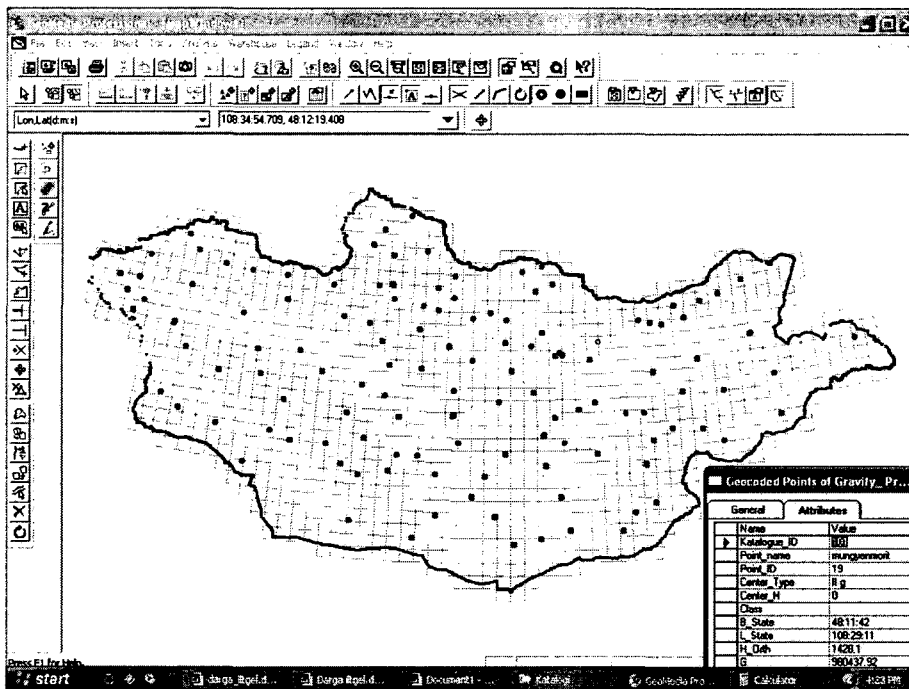
Mongolia-Russia and Mongolia-Chinese boundary mark /3721/ information was converted into digital form and boundary database was established.



Geodetic point database of Ulaanbaatar city was established by using around 2289 point information of triangulation, polygon meter, gravimeter, level and GPS networks.



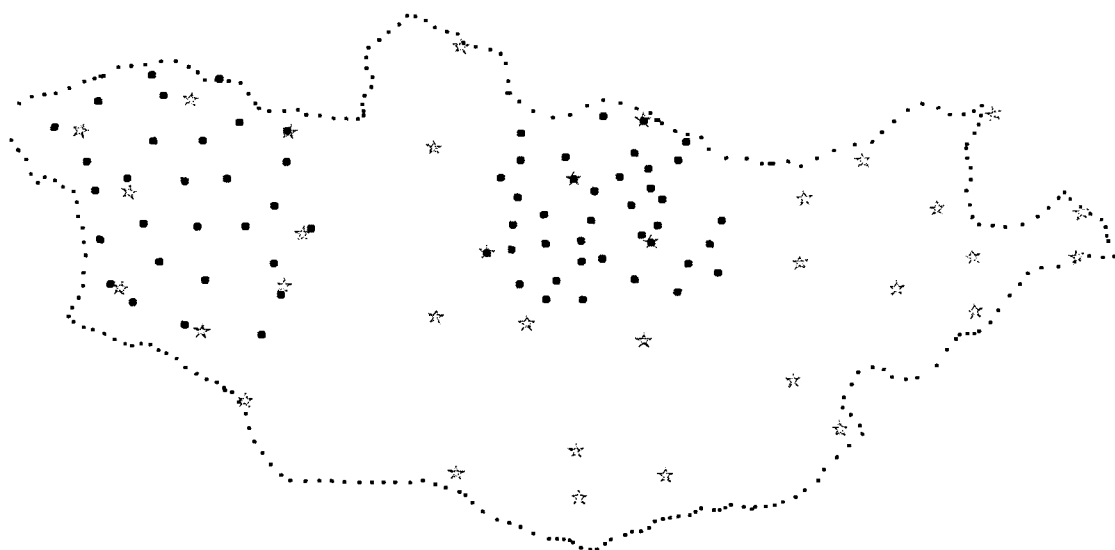
National gravimeter and height network point database was established.



At the present, national triangulation point network database is being developed. These are not only includes written information, but also includes topographic information. Further objective of our organization is to distribute geodetic fundamental point information through internet to the customers.

Monref 97 network was established in 1997-1998 at first. This network is implemented in order to map Mongolian territory through GPS /global/ coordinate system, moreover, cadastral maps used for implementing Law on Allocation of Land to Mongolian citizens for Ownership were made according to this coordinate system.

The network was renewed in agricultural region in 2003. Also the network in the western region and Khangai, Gobi regions are being measured in 2004 and in 2005 respectively.



From March, 2005, ALAGAC together with Governance Department of Sukhbaatar district is working on establishing land information database of Sukhbaatar district as a pattern for other districts and provinces. About this issue our senior officer Munkhtsetseg will make a presentation. We consider that it is possible to enhance information range and improve sophistication of this database through participation, support and information assistance of the public organizations ` which participated in this seminar.

We conducted a survey on how Mongolian other state organizations established land information database and as a result of this survey, most of the organizations are converting database into digital data and some of their converting activities are at the last stage. Organizations such as National Statistics Office, the Ministry of Health, the Ministry of Trade and Industry, the National Center for Civil Registration and Information have created written database at their level and been using it in their daily functions. However, it must be noticed that projects implementing at the Ministry of Nature and Environment are using geographical database at the high level.

During the survey taken from above all ministries and state organizations, it was observed that there were requirements for using written information with illustrated and figured information, furthermore, interest in working with us about this issue.

As observed in other countries` experience, for instance; USA `s experience on establishing spatial data infrastructure, related ministries and organizations which provide information jointly establish Spatial Data Committee and use unified basic map for creating their geo information database and distribute it to public.

In Mongolia, towards this direction state organizations need to develop their mutual cooperation, furthermore, it is required to develop and implement National Spatial Data Infrastructure. So it is pleasure to indicate again that this seminar plays significant role to solve this issue and conclude my presentation.

Thank you for your consideration.