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Klever Systems Company Group

Klever Systems Group was launched in 2014. companies that had created a consortium were involved in various activities in related industries. creation of a group allowed to exploit synergies in the implementation of complex projects. each company has a wealth of experience in its direction. companies in the consortium as for ownership are both private and public, which greatly increases the competitiveness of the group during public tenders and work with the corporate business in ukraine and abroad.

RPC "AGRORESURSSYSTEMS" LTD was established on October 7, 1995. During its existence, the company has expanded the scope of the entire territory of Ukraine. The company is engaged in research and development in the natural sciences and engineering. It also provides brokerage services for buying, selling, leasing and evaluation of land. Main activities of RPC "AGRORESURSSYSTEMS" LTD:

- Development of information systems and the establishment of relevant databases;
- research and development on natural sciences and engineering ;
- development of regulatory guidance documents, legislative acts in the field of land relations;
- Providing consulting services on regulation of land relations ;
- implementation of land surveying and evaluating works, geodetic surveying work.

"VEKTOR" LLC is engaged in surveying, land management, land assessment and conducts land audit. It also provides consulting services on land settlement conducts research and development in the natural sciences and engineering, develops regulatory guidance documents and legislative acts in the sphere of land relations.

"PRYRODA" STATE RESEARCH AND PRODUCTION CENTER was established in September 1992 with the aim of maintaining the archives of satellite imagery, dissemination of remote sensing data and its inter-sectoral and thematic processing. In the structure of the center three sections: and dissemination of there are data processing remote sensing, thematic aerospace information, support, and upgrade software and hardware complex archiving and data distribution center (PTC TSARD). The center has its Northeast branchoffice.

KLEVER SOLUTIONS is a team of highly qualified professionals with extensive experience in the development of distributed management of geographic information systems (GIS) with the use of modern tools. The company provides training, delivery and implementation of monitoring and GIS software and hardware solutions. Great experience, the professionalism of our staff, a systematic approach enable us to offer the most reliable, scalable and sophisticated solutions in the shortest possible time. We work with all the world's leading suppliers of remote sensing data and provide delivery and processing of remote sensing data and high resolution satellite image .

AGRICULTURE

INTEGRATED SYSTEM OF AGRICULTURE MANAGEMENT

We developed an geoportal for agriculture management using space monitoring. Geoportal is webbased application, allowing you to put into operation various information rapidly based on services created and supported by our geoinformation solutions. It is a geo-information complex, including hardware and software, as well as resupplied databases based on satellite images and thematic maps.

Agriculture geoportals were introduced for public authorities in Mykolayiv region and corporate business in Cherkasy and Vinnytsia regions.

Agricultural geoportal objectives

The purpose of the use of space technologies is to provide the most complete agro-objective operational and analytical information for management and technology solutions on plant production, presented in the most user-friendly manner.

The geoportal provides:

- integration of all available data in a unified information environment;
- visualization of maps and information from databases;
- on-line access in real time;
- management decision-making support for company executives;
- remote access from regional offices and mobile workplaces according to the level of competence of the user.

Basic functions of the agricultural geoportal

- interactive navigation on the map;
- changes in the list of layers and their visualization sequence;
- displaying images with vector layers;
- search for objects based on their attributes and location;
- obtaining precise information from the database of the selected objects on the map;
- forming reports and running queries to the database;
- thematic maps creation;
- monitoring the progress of agricultural operations.

Innovative value to users

- rapid remote assessment of plant agro-production;
- simultaneous line monitoring of the entire territory of crops;
- elimination of the human factor in collecting the operational information;
- obtaining impersonal information in an integrated manner and usable form.

Copyright models and mechanisms of data processing

Copyright models were developed as well as mechanisms for processing of remote sensing data, which allow:

- monitoring the condition of crops in time-mode;
- a qualitative comparison of the fields;
- construction of the substances distribution system in the fields;
- comparison of the fields of "one culture";
- tracking the fields of agricultural producers;
- construction of distributions of crops in the fields;
- monitoring the machinery operation;
- integration of meteorological data.

Monitoring the condition of crops in time



- 18.05; 0.24
- 05.07; 0.75

06.08; 0.66

22.08; 0.36

Quality comparison of two fields







Comparison of one-crop fields



Field of agricultural producers in the Geoportal





Distribution of agricultural crops in the fields

Machinery operations monitoring



Integration of meteorological data in agrogeoportal



ASSESSMENT AND FORECASTING OF WINTER WHEAT YIELD

The aim of the project is to improve the methodological approaches used to monitor and assess the productivity of winter wheat on the basis of a comprehensive treatment of ground measurements (hydro-meteo-monitoring of agrochemical data) and based on satellite remote sensing. Also the project included possible research of the use of satellite images with different spatial and spectral accuracy.



Based on collected primary data, an electronic atlas of thematic maps and grain yields was developed. The atlas contains information grouped by administrative areas in the last ten years. Yield data and agricultural meteorological situation accompanied diagrams and documents containing the results of the most common queries to the database.

Work on the project was carried out in 2005-2007.

INFORMATION SYSTEM FOR ANALYSIS OF THE STATE OF SOIL EROSION

Information system for analysis of soil erosion is designed for current and forecasted analysis of crisis events on the state of soil and throughout Ukraine.

Basis for analysis and prediction is the data obtained as a result of monitoring and nature protection measures by scientific institutions of Ukraine. According to data information and



analytical system on the first place processes, and then generates a cartographic representation of the integrated information for further analysis and forecast of development of the existing situation in the area of soil erosion in Ukraine.

Work on the project was carried out in 2000-2001.

LAND RESOURCES

ELECTRONIC ATLAS OF LAND RESOURCES AND LAND RELATIONS IN UKRAINE

The designed multifunctional electronic atlas of land and land relations in Ukraine fully satisfies the list of today's tasks in the field of land and land resources. Interface of the electronic atlas is focused on the user with initial training to work with the computer. But the advanced user has the ability to customize atlas and presentation. The project also included the methods and rules to



populate a database of available data sources. Developed software supports the ability to complement the atlas with new information blocks as tabular and geospatial information.

Work on the project was carried out in 2009.

SYSTEM-TECHNOLOGICAL COMPLEX FOR INFORMATION SUPPORT IN REGULATION OF LAND RELATIONS AND LAND ADMINISTRATION

The purpose of this project was to design and develop a system-technological complex for the analysis and evaluation of land reform measures, including the effectiveness of various forms of land ownership and forms of farming. Systemtechnological complex allows you to prepare an informed decision about further regulation of land relations and land management priorities, scope and pace of land reform.



Work on the project took place in the second half of the 1990s.

REGISTRATION SYSTEM FOR AGRICULTURAL LANDS IN UKRAINE (USAID)

The project by the U.S. Agency for International Development (USAID) and consulting corporation "Ronco" (USA) was to issue the state acts on the right of private ownership of land. The project foresaw creation of a system of land registration and legal documents for them in Radekhiv district, Lviv region.



Work on the project was carried out in 1999.

LAND CADASTRE AND LAND PRIVATIZATION IN UKRAINE (USAID)

The purpose of this project is the development and implementation in the selected pilot area of the information system for the collection, compilation and maintenance of cadastre data. For a pilot region was selected an administrative district, where the information system was implemented on the basis of GIS and database management systems. Information system was



obtained by integrating spatially distributed and text data on land parcels, as well as landowners, land and title documents.

Works on the PL-00-0101 project were conducted in 2000 in conjunction with the United States Agency for International Development (USAID) and the center of Ukrainian Land and Resource Management (ULRMC).

EXTENTION OF LAND REGISTRATION IN UKRAINE (TACIS)

Project TACIS FDUK 9501 under the European Commission in Ukraine "Extension of land registration in Ukraine".

The purpose of the project was the establishment of legal, institutional and technical framework of land registration systems and other property and rights on them. The project created a prototype



system of registration of land and immovable property and rights on them in Ukraine. The pilot system was implemented in the three administrative districts of Lviv (Zholkovsky), Kyiv (Zgurovsky), Donetsk (Pervomajskij) regions.

Work on the project was carried out in 1997-1999.

DUTY PLAN FOR LAND AREA INVENTORY

The Software package "Duty plan of land area inventory" is intended to create and maintain a bank of cadastral data land and their characteristics. This software package was developed for use at the level of the administrative district.

Software package is implemented as an add-on environment MapInfo. This approach allows the



user to take advantage of all the opportunities offered by this MapInfo, and use all the information in parallel in other applications of the medium and (or) to independently develop their own solutions.

Work on projects was carried out in 2000-2001.

REGULATORY-METHODOLOGICAL SUPPORT

To ensure registration of land resources a number of projects was carried out for the preparation of regulatory and methodological support:

- implementation of scientific justification of the draft Law of Ukraine "On Amendments and Additions to the Law of Ukraine" On Land Lease;
- conducting scientific justification document forms witnessing land rights of citizens and legal persons;
- development of the principles of formation, maintenance and regulatory affairs conducting cadastral land;
- implementation of scientific justification of the draft Law of Ukraine "On Delimitation of land rights of state and communal property rights in land;
- drafting standard form lease land and Draft Resolution of the Cabinet of Ministers to approve it;

- development guidelines for land inventory of the Southern coast of the Crimea;
- model design development samples of leases of agricultural land and non-agricultural purposes and preparing explanations on how to fill them;
- study collisions of current legislation regarding the authority of the executive authorities and local self-government;
- study of scientific fundamentals improve land management of state property during the transition to market land relations.

ECOLOGY AND NATURAL RESOURCES

ENVIRONMENT MONITORING SYSTEM

The system is a part of the integrated informationanalytical system of the Ministry of Ecology and Natural Resources of Ukraine. It was intended for state environmental monitoring using automation and geographic information systems.

The system allows using remote sensing data from space for automated identification and mapping the main types of impact on the forest



fund, mining areas of various types, industrial construction sites, transportation, agricultural and social facilities, places of public utilities impact on the environment (landfills) and following the extension of negative natural and human-caused processes.

TYPICAL COMPUTER SYSTEM OF CARTOGRAPHIC ENVIRONMENT SAFETY MANAGEMENT, ENVIRONMENTAL MANAGEMENT AND ENVIRONMENTAL PROTECTION IN THE REGION

A typical computer system is focused on the regional level and has the same structure for each region of Ukraine. It is designed to accumulate accurate, timely and complete information about the basic parameters of the current states of the environment components and technological factors affecting them. It is necessary for the effective management of environmental safety



and natural resources in emergency situations, as well as measures for their prevention and optimal allocation of resources involved for their localization and elimination at the regional level.

The developed system is based on modern technologies of remote sensing of the Earth.

Work on the project was carried out in 2007.

DATABASE AND GIS FOR FOREST COVER IN UKRAINE

The key purpose of the work was the phased definition of the current state of forest resources in the context of their protection, conservation, use and recovery. Satellite imagery, remote sensing data and GIS technology made it possible to upgrade managerial decision making process on forestry management and forest cover research.



As a result of the project the GIS database was

created containing forest cover base. Developed thematic maps enabled the analysis of forest resources in the system of public control and management in the field of security, protection, use and reproduction of forests.

Work on the project was carried out in 2004-2005.

ENVIRONMENTAL INFORMATION MONITORING SYSTEM

Environmental information monitoring system is designed to form the cadastral databases, cartographic information and remote sensing data, which shall allow placing the key focus to prevention of emergencies at the national level rather than emergency management.

The system is designed to operate in real-time

based on a distributed computer network using open systems like Internet / Intranet and is operated in close interaction with various sources of geo-environmental data, including remote sensing data from spacecraft as well as other information systems departments and services.

Work on the project was carried out in 2003 jointly with Ukrainian Center for Land and Resource Management (UCLRM).

MONITORING OF POTENTIALLY DANGEROUS OBJECTS AND TERRITORIES

An electronic register of technologically and ecologically dangerous objects was created as part of addressing natural and manmade security of Ukraine by bringing new tools to reduce the anthropogenic impact on the environment and the implementation of a continuous monitoring of the potentially hazardous objects and territories. Also, the mechanisms have been developed to predict



emergencies with the application of geographic information systems tools and remote sensing.

Was developed and implemented model of interaction and interpenetration of natural and anthropogenic factors. Based on the information of various departments and agencies the interagency information database of potentially hazardous objects and territories was created. Work on the project was carried out in 2001-2002.

OPERATING SYSTEM OF OPTIMIZATION OF WATER MANAGEMENT IN DNIPRO RIVER BASIN

The joint Ukrainian-Canadian project "Development of optimizing the operation of Water Resources of Dnipro River Basin" within the Canadian program "Development of environmental management in Ukraine (area of Dnipro river basin).



The key objective of this project was to develop

an information-analytical system for management decisions support on the choice of optimal operating cascade of Dnipro reservoirs based on mathematical modeling.

Developed information-analytical system was designed to optimize the management of water resources of the Dnipro River, its feeders and reservoirs, and control the use, protection and reproduction of water resources in the basin of the Dnipro, as well as monitoring the hydrological regime on security arrays cascade of the Dnipro reservoirs.

Work on the project was carried out in 1999-2000.

DECISION SUPPORT SYSTEM FOR THE ELIMINATION OF LONG-TERM CONSEQUENCES OF EMERGENCIES (JSP2)

Joint international project JSP2 (Commission of the European Union, Ukraine, Russia, Belarus) "Creation of decision support system to eliminate long-term consequences of emergencies". The project included designing of software package, with a purpose to assess the level of contamination of crops and design automation for optimal land use patterns at the level of agricultural enterprise.



The content and direction of simulated countermeasures to minimize exposure is defined as the volume of production, taking into account treatment and processing of staple foods, and taking into account the regional diet characteristics of the population.

The use of software complex provides the user a set of maps and documents describing the state of the territory, the level of contamination of products, patterns of land use of agricultural enterprise.

Work on the project was carried out in the mid 90s.

SPATIAL DISTRIBUTED COMPANIES

GEOINFORMATION SUPPORT SYSTEM OF RESOURCE MANAGEMENT JSC "Ukrtelecom" (GIS "Resources")

GIS "Resources" provides support for organizational units and information activities allows to automate decision-making on the whole complex of problems in accounting and management resources - lands of "Ukrtelecom" buildings, with structures, surface and underground technical objects.

GIS "Resources" is intended for the use of modern information technology capabilities,

telecommunications, computer technology by introducing them in the activities of the regional branch of JSC "Ukrtelecom" to create conditions for improved governance.

Work on the project was carried out in 2001-2003,

UNITED AUTOMATED ACCOUNTING SYSTEM OF LAND AND PROPERTY OF THE JSC "UKRTELECOM"

The main purpose of the project was to create unified automated accounting systems of land and property of "Ukrtelecom" as a basis for further decision support of company's property management.

In the center of the accounting system of land and property of "Ukrtelecom" is an electronic register of lands, buildings and structures, information

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regarding the lessees, lessors and legal documents confirming property rights. The system enables storage, update and analysis of data, as well as mechanisms to ensure database integrity and data transfer between different levels of the hierarchy - the district, regional and central.

The result of the operation of the system is constantly updated electronic register of lands, buildings and structures, as well as a set of output documents – estate record cards and analysis of data on objects contained in the database for the property of the JSC "Ukrtelecom".

Work on the project was carried out in 2002-2004.

WEB-SYSTEM OF ACCOUNTING FOR LAND AND REAL ESTATE JSC "UKRTELECOM"

The main purpose of the project was to develop a unified modern accounting web-system of land and property of "Ukrtelecom". This system is designed to monitor the condition of land and property, as well as for operational management of relevant information that can improve the efficiency of decisions on property management.



Development of this system is an evolutionary

extension of the project to create an integrated automated accounting system of land and property of "Ukrtelecom", which took place the year before.

Work on the project was carried out in 2004.

AUTOMATED ACCOUNTING SYSTEM FOR LAND AND PROPERTY OF JSC "UKRTRANSNAFTA"

The purpose of the automated accounting system of land and real estate is the maintenance of an electronic registry of land and buildings (facilities) owned or used by the JSC "Ukrtransnafta" based on a uniform legal, methodological and information support.

Established system can be considered as a basis for effective support solutions for property managing company.



Work on the project was carried out in 2004-2005.

REGULATORY AND METHODOLOGICAL SUPPORT

To ensure the registration of real property rights of large spatial distributed natural monopolies carried out a number of projects for the preparation of regulatory and methodological support.

For JSC "Ukrtelecom" order:

- development of institutional arrangements and regulatory and methodological framework (s) common framework for land and real estate;
- preparation, registration and state registration documents for the right to use land;
- creation of an information basis unified accounting of land and real estate businesses.
- For "Ukraine Naftogaz" order:
- development of methodological, organizational and technical requirements for adapting the existing legislation of Ukraine s rights to land plots, immovable property and to create a modern information system for recording real estate.

Work on projects conducted in 2001-2005.

GEOSPATIAL SUBSYSTEM OF GIS ASMK FOR IMMOVABLE PROPERTY AND LAND

The project was designed database structure of geospatial data and system software components of GIS subsystem ASMK to immovable property and land railway. Built database was completed and connected to the control system of railway property in Ukraine.

Work on the project was carried out in 2012.

