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CHEMONICS INTERNATIONAL INC.

REAL ESTATE INFORMATION SYSTEM PROJECT
FINAL REPORT

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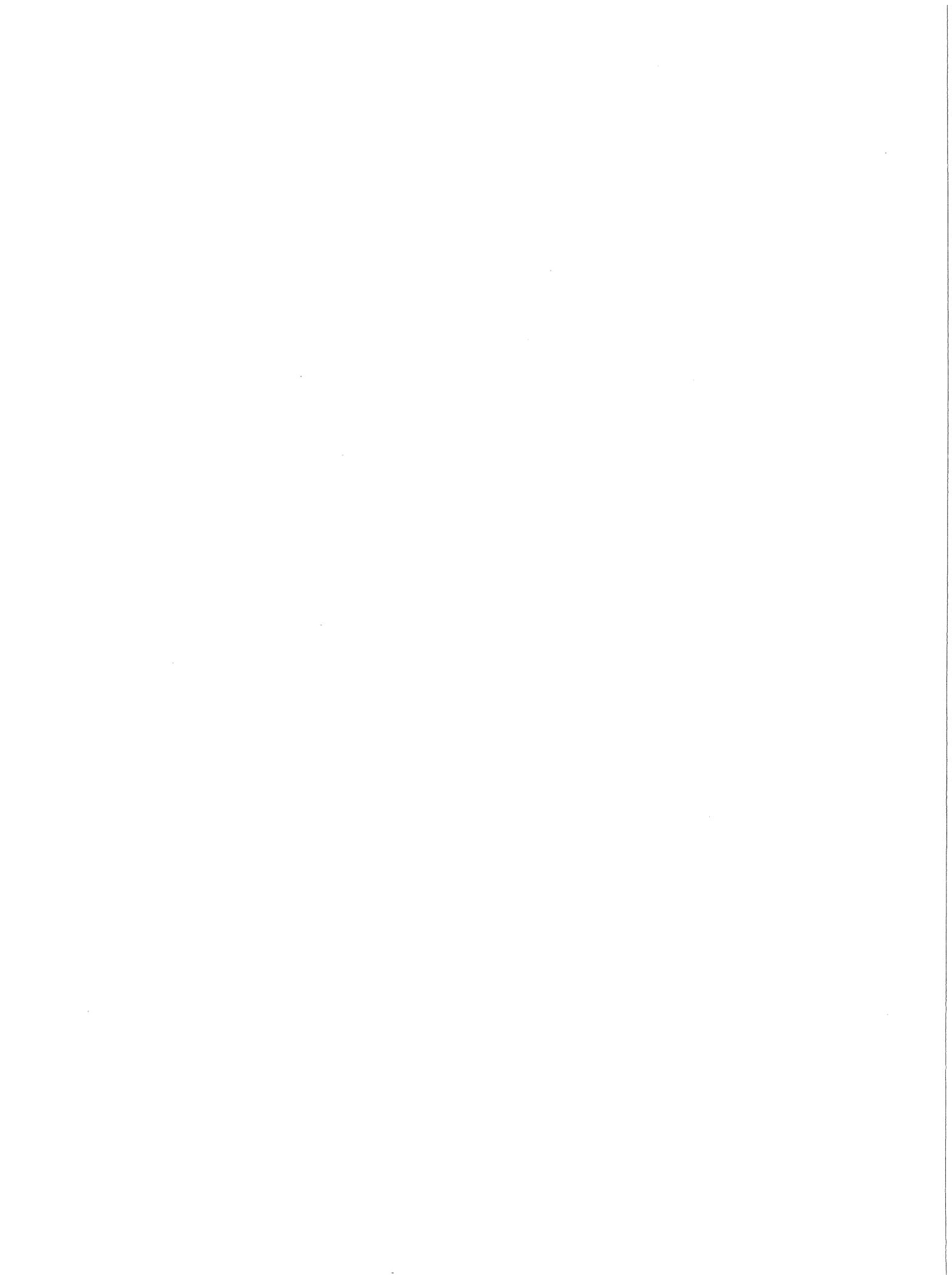
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ACRONYMS

BTI	Bureau of Technical Inventory
DDE	Dynamic Data Exchange
ESRI	Environmental Systems Research Institute
GIS	Geographical Information System
GKI	The Committee for the Management of Russian State Property
LPC	Local Privatization Committees
MOSCOMZEM	Moscow Land Committee
ODBC	Open Data Base Connectivity
OOPL	Object-Oriented Programming Language
OOPS	Object-Oriented Programming Syntax
PMU	Project Management Unit
ROSCOMZEM	Russian Federation on Land Resources and Land Management
REIS	Real Estate Information System
RPC	Russian Privatization Center
RSFSR	Russian Soviet Federated Socialist Republic
SMP	Symmetric Multiprocessing
VPF	Visual FoxPro
USAID	United States Agency for International Development
WABI	Windows Application Binary Interface

EXECUTIVE SUMMARY

A crucial ingredient of land reform is the development and implementation of a real estate information system to support registration of title. Between 1994 and early 1996, Chemonics International Inc. laid this important foundation in the Russian cities of Nizhny Novgorod, Yaroslavl, Vladimir, Krasnodar, Barnaul, and Novgorod. Known as the Real Estate Information System or REIS, the project was part of the U.S. Agency for International Development's NIS Land Privatization initiative. This report describes Chemonics' work on the project,¹ summarizes the lessons learned, and makes recommendations for the future.

A. Background

The REIS project began in May 1994 at a time of significant change in Russia. With a new constitution and emerging legal frameworks, the Russian government had been seeking workable solutions to pressing economic problems. Recognizing the need to help Russian efforts to develop a market economy, and seizing an opportunity for what might be a limited opportunity to bring about rapid change, USAID launched a technical assistance effort to assist Russia in several key areas, including real estate registration. Registration of real estate is fundamental to an orderly and active real estate market. To make investment and management decisions on real estate, information about rights associated with real property must be well defined, easily accessible, and transparent. Through establishment of a registration system, claims of ownership derived from predecessors' claims are raised to one of state-granted title. Security of title is assured and transfers of property are facilitated.

However, after talks with Russian agencies claiming responsibility for land title registration, USAID determined the technical assistance should provide for the development of information systems that would support real estate registration. The decision to help develop an information system rather than a registry was made because of conflicting jurisdictional claims by several Russian governmental agencies, each of which assumed responsibility for real property management (this is described more fully in Section II). Thus, the REIS project was designed with the objective of creating an information system to record data on ownership and other rights associated with land and structures sufficient to support a registry. By being easily accessible to real estate professionals and the public, these information systems would provide the information necessary to identify rights to real estate and thereby encourage the growth of a private real estate market. Toward the end of the project, emphasis began to shift again toward USAID's original idea of establishing a registry.

B. City Implementation Strategies

Cities interested in participating in the project contacted personnel at the Russian Privatization Center (RPC). The RPC, with personnel from the Committee for the Management of Russian State Property (GKI) and USAID/Moscow, selected candidates from the cities expressing interest in the project. Seven cities were initially selected to participate in the project.

¹The REIS project was divided into two task orders. The first TO covered the cities of Nizhny Novgorod, Yaroslavl, Vladimir, and Krasnodar. The follow-on TO implemented the project in Barnaul and Novgorod.

registration law was not in force, and legislative delays were frequent. Lacking a modern land code, much of the existing real estate law in Russia dates from the Soviet era, creating obstacles for the country's nascent real estate market.

Registration practices and procedures were also problematic. Title registration was found scattered among at least three different agencies, including the bureaus of technical inventory, which registered rights in buildings, apartments, and rooms; the local land committees, or Goskomzems, responsible for registration of rights in land; and the municipal property committees, which register rights in commercial spaces such as retail stores located on the ground floors of large apartment buildings. Without a general registration law at the national level and no local "home rule" ability to pass similar laws, city officials were forced to rely on the existing fragmented offices for registration and were reluctant to develop a unified real estate information system to support a registry. The legal framework and legislative restrictions thus limited Chemonics' flexibility and inventiveness in implementing the project.

Training and Public Awareness

A training team based in Moscow worked with educational institutions in the REIS cities to provide training courses in how to use and operate personal computers, data entry, the Windows operating system, and geographic information systems (GIS). City personnel in all the cities also received REIS software training.

Staff working on a complementary communications project joined the REIS teams in presenting demonstrations and round table discussions to help educate Russian city officials and real estate professionals on the benefits of the REIS, registration, and private real estate markets.

Institutional Structure

Teams faced heavy city resistance to establishing a single REIS office. Cities' resistance was strong to a perceived loss of power, funding, and control over information, despite their desire to stimulate the real estate market and introduce a flexible, transparent system. Over this resistance, each team accomplished the goal of interagency cooperation by creating working groups or working committees consisting of a representative from each agency involved with real estate information. Once each participating agency understood the benefits of the REIS, resistance to change decreased dramatically and new institutional arrangements were agreed upon.

Software

The Chemonics teams developed three software components during the project. The first system, a demonstration prototype developed early in the project in Nizhny Novgorod, was used as the starting point in each city. As each city developed its software, management concluded that the design developed in Yaroslavl would be suitable in all the cities. This second "Yaroslavl system" was unique in that it attempted to merge data from various agencies into one database. After extensive testing of the Yaroslavl software in the other cities, this second software design was restricted to use in Yaroslavl because of its unique requirements. The third software package, building on the concept of a generic core REIS system, was designed and programmed by experts from each city and based in Moscow.

This third software package, originally named the "enhanced system," was designed in both English and Russian, is suited for small cities with limited budgets, but can be expanded to

Once a system is developed for gathering information, a city analysis proceeds quickly. The Barnaul team experience shows that having accurate information before beginning a project and a clear format for collecting additional information saves substantial time. Barnaul was able to implement a REIS within four months because the team was able to use the recently completed "enhanced" REIS software and focus on tailoring it to the specific needs of the city. Hardware was procured only after the system design was completed.

Public Access

The REIS required open public access to information. Yet this represented a political and legislative issue beyond the control of city teams or project management. With federal legislation essentially forbidding public access to information, the REIS teams recommend that a strong education campaign through round table discussions and other forms of communication emphasize the economic benefits of an open and accessible real estate information system.

Training

Because of the limited, six-month duration of the contract, training had to be carried out early in the project. If the project had not been structured over a six-month period, training could have taken place on installed software.

Two types of training should be implemented in the future. If early training is to be held before system implementation, it should be limited to basic computer training. Once the system has been developed, those trained in the initial stage can then be trained on the completed system.

G. General Recommendations

The USAID program to develop the REIS should be continued. Chemonics found that city administrations and real estate professionals see the REIS as necessary for sustaining real estate activity and the development of an active real estate market. The lessons learned during implementation of the project led to the following recommendations for future projects.

- Work to ensure legal and legislative foundations are in place, including a registration law, to ensure widespread REIS implementation and adoption.
- Use a generically designed REIS such as the Chemonics' "Core REIS" as it avoids having to design in requirements unique to particular cities and permits site-specific modifications at a later time. Furthermore, using established software products shortens development time and limits software problems.
- For projects involving software design and development, provide for a longer implementation period so training can occur near the end of the project rather than early in the development phase.
- Develop a strategic plan with operational goals and the political support to carry them out. If the political and legislative foundations are not in place, the project will not be sustainable.
- Continue to support Russian real estate specialists who have been trained to implement, maintain, and enhance the REIS software, and to assist city officials in the development

SECTION I

INTRODUCTION



SECTION I INTRODUCTION

A. Economic Change in Russia

The transformation of the Russian economy from the Soviet centralized planned system to a more Western-oriented market model has caused severe dislocations in virtually all sectors of the Russian economy. The problems of transition have their roots in the underlying ideology and structure of the two systems. Under the Soviet system, the state owned the means of production, including commercial and industrial enterprises and residential property. The private ownership of real estate and productive assets and the pursuit of individual financial profit through private enterprise was considered immoral by Marx's criticism of mid-19th century European capitalism. This philosophy was incorporated into the ideology and practice of the early Soviet leadership. Thus, ideology determined how social and economic values were ascribed, how public policy was formulated, and ultimately how the society developed.

Based on this ideology, an integrated economic system of centralized planning developed over a span of 70 years. For example, factories built what planners instructed them to build and received the resources deemed necessary to achieve desired goals. Urban land was allocated and developmental investments were made to facilitate achievement of production or political goals. Prices were distorted based on the state's perceived use-value of a commodity and not its cost of production or its value to consumers. People were told where to live so that their presence and labor could support a larger economic goal. Furthermore, the Great Patriotic War (the name given to World War II in Russia) utterly devastated Russian urban housing stock and productive resources in the western regions of the country. Soviet planners had to rebuild virtually all this urban infrastructure. Along with the race to rearm militarily, such construction became the primary economic goal for the next 30 years.

Soviet anti-market ideology and corresponding socioeconomic policy and practice had enormous consequences for the Russian economy and on how the population lived. Among the outcomes was the absence of a land market. This absence and a greatly distorted pricing system had certain critical effects:

- Land had no site value in relation to other uses and to its location relative to its larger environment, only specific use value for a particular plot for housing or factory locations.
- Interest on capital was not recognized.
- Energy prices were a small fraction of world prices.

These effects influenced the physical form of urban areas. Residential construction consisted of medium-rise apartment blocks located on available serviced land, but without regard to the commuting distances or other quality-of-life needs of their occupants. Russian cities thus sprawled over the landscape. However, most residents were thankful to have adequate housing regardless of its location; housing was very difficult to find, while utilities and public transportation were available at little cost.

development of a real estate market system in which public revenues are generated on the basis of real property taxation.

Since existing and permitted use and location influence property values, federal and local bodies may better appraise real estate for property taxation. A secure and predictable tax base may thus develop, allowing cities to enter the municipal finance market to secure funds to operate their jurisdictions. Secure and mortgageable rights lead to the development of mechanisms for verification of rights, enforcement of contracts, and the adjudication of conflicting claims, thus resulting in a functioning mortgage finance industry.

C. Project Objectives and Expectations

The Real Estate Information System (REIS) project was conceived to support USAID's land reform program by making reliable, transparent, and integrated information regarding real property titles accessible at one location. The REIS was designed to contain all information necessary to support a unified office for registration of title to real estate objects, while also making the information available to real estate professionals, investors, governmental agencies, and the general public. REIS information can be used to verify title, identify encumbrances and other property interests, and provide information on sales and other transfers, thus providing data necessary for establishing property market values. Since such data was fragmented and dispersed throughout governmental agencies, the REIS, by centralizing real estate data in one location, helps establish a unified registration system.

A REIS has four components:

- Enabling legislation to create the REIS and define the rules and regulations required for successful operation of the system
- Public information to create awareness of and support for registration and the REIS and training of personnel who will operate the system
- Institutional changes and modifications
- The computer system itself, including the procedures, data, software, and hardware

During the project, prototype systems were developed and implemented in select pilot areas in the four cities of Nizhny Novgorod, Vladimir, Krasnodar, and Yaroslavl. In addition, a generic software system was developed that, with minimum modifications, could be used in a variety of environments. Combining the experiences of the four cities, the system was refined and implemented in the cities of Barnaul and Novgorod.

The support and commitment of multiple agencies in each city was vital to the success of the project and cannot be overemphasized. As part of the overall USAID strategy to build upon the local real estate privatization effort, achieving consensus on REIS implementation was essential. The required acceptance had to be demonstrated in several ways.

First, city administrations needed to provide firm and continuous political support for the REIS. Institutional problems could only be solved by determined decision-making at the highest levels of the city administration. Without political support, the REIS project could not succeed.

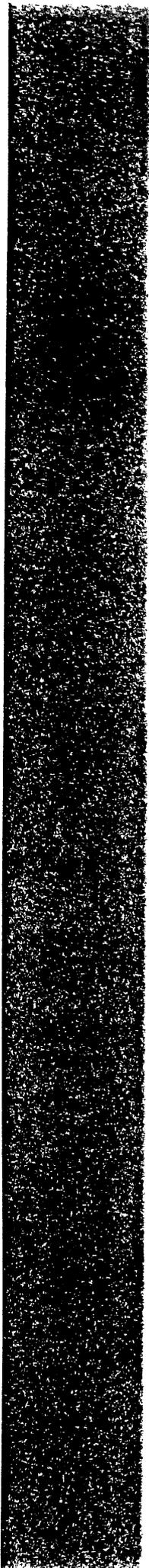
Three separate automated systems were designed and are described in Section III. These are the Nizhny Novgorod prototype, the Yaroslavl prototype, and the enhanced system.

City implementation is detailed in Section IV. The section first discusses needed legislation and the creation of organizations to carry out the REIS function, and concludes with a focus on implementation in each city. The latter includes the technical aspects of the implementation as well as public access to the REIS database and public information and education.

Finally, Section V discusses the lessons learned during the project. This is a particularly important section that other contractors can draw on to implement similar systems. It includes valuable lessons learned in a variety of settings.

SECTION II

PROJECT ENVIRONMENT AND CONTRACTOR STRATEGY





SECTION II

PROJECT ENVIRONMENT AND CONTRACTOR STRATEGY

A. Overview

The REIS project was initiated at a time of significant change in Russia. The project began in May 1994, just five months after the approval of a new Russian constitution and election of a new parliament. While market reforms had been undertaken before the beginning of the project, much of the economy remained under state ownership. Legislation required to implement market reform and privatization in most sectors of the economy, including real estate, had not been enacted due to the inability of parliament to reach consensus on many basic principles, including land ownership.

In spite of the lack of federal enabling legislation, some local government officials were willing to move forward with privatization of real estate and registration of rights associated with privatized real estate objects. Adding impetus to this process was the World Bank Housing Loan program, which identified five cities as recipients of housing loan funds so long as these cities implemented land titling and registration statutes. These "exempt" cities were awarded broad flexibility by federal authorities to enact such laws. Nizhny Novgorod, one of the REIS cities, was among the exempt cities.

Two agencies of the Russian federation government had interests in the REIS project. These were the State Committee of the Russian Federation on Land Resources and Land Management, known by its acronym ROSCOMZEM, and GKI. While ROSCOMZEM's stated legislative responsibility was management of all agricultural land resources, it claimed jurisdiction over registration in urban areas as well, believing it had the authority to manage all aspects of registration of title to real estate objects. At the same time, GKI asserted the right to control registration as part of its legislative mandate to supervise enterprise privatization. It argued that enterprises could not be privatized unless the underlying land was also privatized; therefore, it was responsible for the title registration process. Furthermore, GKI claimed that its jurisdiction extended to registration in urban areas. Adding to this jurisdiction question was the provision in the Civil Code, Part I (then in draft form but enacted into law in 1995) identifying the Ministry of Justice as the agency responsible for registration of rights to real estate.

These conflicting jurisdictional claims and efforts to resolve them delayed the spring 1994 start date of the REIS project. A satisfactory solution could not be found, and ultimately ROSCOMZEM and GKI agreed that the project could begin, provided all references to registration be avoided and that the contractors not perform any registration activities. Because of this compromise, implementation was limited to development of a real estate information system that would contain the information necessary to support a registry, which, in turn, would be established once a law was passed.

It was in this context of major political change, tentative support for economic reform, lack of adequate enabling legislation, and interagency competition that the REIS project began.

B. Project Environment

This section discusses the legal framework and the political and administrative setting for the project. After discussing the legal setting for titling and registration, this report examines how

cities were selected to participate in the REIS. Next, we discuss Chemonics' administrative structure for carrying out the project, followed by a survey of the legal and institutional changes required in the cities. The last part of this section discusses the project roles of USAID and the RPC.

B1. The Legal Setting for Real Estate Title Registration

As noted above, the REIS project objective, originally conceived as a registration project that would result in the issuance of certificates of title for real estate objects,¹ was modified because of the unresolved jurisdictional issues between GKI and ROSCOMZEM. The change required the development of a computerized real estate *information* system that would support registration on passage of appropriate legislation. Nevertheless, the system still had to support a registration process. Thus, as will be explained in this report, the consultants were required to automate the fragmented registration process absent a clear directive from Russian real estate and registration law.

First, the legal setting in which the REIS was developed posed many obstacles. For one, many existing laws lack consistency and are often mutually contradictory. Another problem is that many laws refer to future implementing legislation, but such legislation has not been enacted and is not likely to be enacted soon.² A third difficulty is uncertainty on the direction of future legislation, particularly following the sweeping victory of the Communist Party during the December 1995 Duma elections. Finally, the goal of public access to the REIS database, which was a major USAID goal when it initiated the project, is compromised in light of existing Russian legislation governing information ownership, privacy, and political considerations. These issues are discussed below.

B1a. Russian Real Estate Law

A number of statutes directly affect registration of title to land and buildings. These laws are largely rudimentary. By assigning registration rights to different agencies, the laws complicate rather than clarify a fragmented system. Furthermore, several laws anticipate and depend on future legislation to carry out or define their purpose. Most anticipated laws have not been adopted.

In 1990, a law entitled *On Property in the RSFSR* was enacted, charging the state with responsibility for creating and protecting property rights. However, the law makes no direct reference to registration as a tool for protecting those rights. This is a classic case of anticipated future regulation. As of the date of this report, the projected registration legislation has yet to be adopted.

In 1991, a Presidential decree and a federal statute established land reform doctrines including the reallocation of agricultural land and requiring registration with the local

¹ Despite many attempts to define "real estate" as "land and all improvements attached to the land," the concept did not find ready acceptance even though such definition appeared in the Civil Code, Part I, section 131. This resulted in the creation of a system which, to some extent, retained the separate classification of "real estate objects" as land and structures.

² One example of this may be found in Section 131 of Part 1 of the Civil Code. Section 131 governs rights of registration, but it cannot be effective until a Land Code and Registration Act is adopted.

administration. At that time, the ROSCOMZEM was established. The federal law empowered ROSCOMZEM to develop "mechanisms for the market regulation of land relations." It was not until December 1992 that the obligation to register land by the local "komzem," or land committee, first appeared and was enacted.

The foregoing statutes and Presidential decrees were restated in the 1993 Presidential decree entitled *Regulation of Land Relationships and Development of Agricultural Reform in Russia*. A major thrust of the decree, which permitted the free sale of land, was to require the local komzem to issue a certificate of title for each land plot and then register the plot. Although this decree did not require title to be registered for interests previously acquired, all rights acquired subsequent to the date of the decree required registration.

In December 1995, the proposed new Land Code was voted down in the Duma by an unlikely coalition of Communist and reform parties, who thought that the law was either too liberal or not liberal enough, respectively. The proposed Land Code would have adversely targeted foreign investment by forbidding land ownership by foreign entities or by Russian entities with any percentage of foreign ownership. As a result, the country remains under the jurisdiction of the 1991 Land Code of the RSFSR. That code specifically provides for registration, but only in rights to land, including rights of possession, use, inheritable possession, and leasehold.

It is revealing that Russian laws and decrees apply solely to land. Until recently, no attempt has been made to establish the concept of real estate as a unification of land and all improvements located on the land. A separate set of laws governs registration of buildings, apartments, and rooms. These laws include the old RSFSR Civil Code as well as the Law on Privatization of Housing Stock.

In 1995, the new Civil Code, Part I, came into effect. This new code supersedes the old civil code and provides for registration of rights in real estate objects under Section 131.³ The code defines real estate as "land and all things attached to the land that cannot be removed without permanent damage." It implies that land and buildings can be registered as a single unit. However, neither the code's registration section nor any other section dealing with rights to real estate are to be effective until the federal law, "On State Registration of Rights to Real Estate and Real Estate Transactions," and Land Code are enacted. Consequently, all legislative actions by local city governmental authorities must either be authorized by a federal entity, such as the oblast or krai surrounding the city, or enacted as "normative" acts that make administrative changes such as reallocating local city agencies' responsibilities. Either choice faces preemption by future federal legislation. Understandably, local governments are reluctant to establish regulations that appear to conflict with existing federal law or that may be deemed unauthorized and later declared invalid.⁴

³ Part II, dealing with commercial transactions (including real estate), passed the Duma in December 1995 and took effect on March 1, 1996.

⁴ To illustrate this problem, the city of Yaroslavl determined that parking was becoming a serious issue in the central city. To ameliorate the problem, the city passed a law that permitted police to "boot" cars found in violation of parking regulations. The oblast administration issued an order directing the city to repeal the law since it did not constitute a normative act and was preempted by the right of the oblast to pass "laws". The preemption principal directly affected the project because Chemonics was directed by USAID/Moscow not to deal with the oblast authorities in any city.

Although the Russian Duma is considering the draft registration law, its failure to be adopted continues to pose difficulties. The draft itself is too detailed and attempts to govern all registration offices nationwide, rather than setting forth effective registration guidelines and requirements. Because the registration act has been delayed, some local city and oblast administrations have passed temporary legislation regulating registration of rights in real estate in their jurisdictions. However, such legislation results in legal uncertainty. To compound the difficulty, there is no legislative way to resolve conflicting language among statutes. Current Russian laws regulating registration are maladapted and require modification.

These issues are political problems, not a failure of the legal system. Nevertheless, absent the political will to impose reforms, initial and tentative remedies will not develop into permanent legal solutions. This is especially true when the reforms affect real estate, since many governmental agencies and individuals see no interest in relinquishing power without compensation for the loss.

The striking tendency of government and individuals toward secrecy is another obstacle to registration. At the beginning of the project, authorities seemed to be moderating their secretive attitude toward several critical areas of REIS development, including mapping and information exchange. Then, on January 25, 1995, the law "On Information, Informatization, and Protection of Information" took effect. A detailed analysis of this statute is not possible in this report. However, sections of the law clearly state that access to information in paper or electronic data banks can be severely restricted. Because data are considered the property of the individual or entity creating the data (with a few exceptions not applicable to registration data), Russian law does not permit those data to be distributed to the general public. Personal data are considered confidential and may only be disseminated to the individual to whom the data apply and who therefore "owns" them. The draft registration law mirrors this restriction by preventing open access to transactional information. Furthermore, aggrieved parties have legal redress to prevent the dissemination of information or to claim damages if the information has already been distributed. Since registration systems should be transparent and accessible, this broad statute and its corollary in the draft registration law are serious obstacles to open data access in the registration office. It is, however, possible to deal with the issue on the local level and influence the current "top down" approach to legislative reform. Privacy safeguards, such as that found in Great Britain's open registration statute, also offer viable alternatives.⁵

B1b. Existing Registration Procedures

Contrary to some opinions, a system does exist for the registration of rights to real estate in Russia. Registration procedures for various possessory and ownership rights vary among local governments, but generally follow the pattern described below.

In Russia, the three basic types of real estate are land, buildings, and apartments, and are referred to as real estate objects. Interests attached to each type of real estate object are registered, but different registration methods and agencies are used. The vast majority of real

⁵ Historically, detailed information on property in Great Britain was not available to the public without the consent of the property owner. This has gradually changed, and an open registry now exists in Great Britain whereby the public can obtain information regarding rights affecting real property without the owner's consent; however, such information will not reveal names or addresses, but indicate the existence of mortgages, liens, encumbrances, and other rights affecting the property. Copies of documents can only be obtained through consent. This may be a suitable alternative for protective privacy in Russia.

estate has been subject to initial privatization beginning in 1993.

The Bureau of Technical Inventory is responsible for the inventory of all structures. The BTI may fall under federal, local, or combined jurisdiction. Formed during the Czarist period, the BTI maintained basic information on individual structures. Currently, all information on a building's physical characteristics, valuation, floor plans, ownership or possessory rights, and depreciation are maintained in BTI offices and are contained within a building "passport." A passport can be large since an apartment building with many units will keep detailed information on each. Information on ownership, leasehold, rights of possession, inheritable rights, the names of those holding the enumerated rights, and identification of documents with original documents are entered in the "passport." The BTI functions as a registration office for any act affecting ownership or possessory rights to a building or any of its legally constituent parts.

Registration begins after the privatization of real estate objects. The most common form of privatization is apartment privatization. This transfer of ownership and control from the state to an individual is permitted once for every adult. The process is straightforward and efficient, requiring an individual to obtain information such as the physical description of the apartment and a list of registered occupants from the building management office's "abstracts." The next stop is the local BTI office, where the applicant receives a "spravka," which contains a list of all liens, the inventory value, and the building address. This spravka is delivered within 10 days to the apartment privatization committee, which prepares the legal document constituting a sales agreement between the state and the individual. Characterized as an "application" to privatize, the document, together with a certificate issued approving the sale, is the operative document providing evidence of the new ownership right. This certificate and the approved "application" are then delivered to the BTI office, where the passport information is adjusted to reflect the new owner, who retains a copy much like a deed. The result is registration of a right to the apartment. The new owner is then able to convey, mortgage, transfer, or devise the apartment.

Registration of land parcels is the responsibility of the city land committee, an agency of federal rather than local jurisdiction. An individual wishing to privatize a land parcel completes an application, which is supplemented by an ordinance from the city Soviet with a plot description from the city architect. After a special commission approves the package, it issues a certificate that is registered with the land committee. This is a limited process because registration of a right to a land parcel is usually limited to a use or lease right and is not yet subject to private ownership.

Secondary transactions, or all transactions affecting rights to real estate after initial privatization, are registered in the same way as described above except that the only document required is the one providing evidence of the transaction.

B2. Initial City Selection

B2a. Criteria for City Selection

For practical and financial reasons, the REIS project could not be implemented in every Russian city. USAID/Moscow, with the RPC and GKI, decided which cities would participate in the project based on RPC criteria. These criteria include:

- City officials' attitude toward privatization in general and the privatization of land markets in particular

- City willingness to commit resources to the project
- City willingness to adopt the necessary ordinances to give the REIS a firm legal basis

Because World Bank housing project cities needed to have operating registration procedures, it was also important to include some of these cities in the REIS project. Of the initial four cities selected to participate in the Chemonics' REIS project, Nizhny Novgorod was a World Bank housing fund recipient. Barnaul and Novgorod (discussed below) are also both World Bank housing project cities.⁶

B2b. Site Visits

Chemonics initially fielded an interdisciplinary team including a project supervisor, a retired U.S. surveyor general, a land titling and registration consultant, and a geographic information systems (GIS)/automation/land use consultant. The purposes of this trip was to visit selected cities and oblasts to determine likely candidates for participation in the REIS project. Between May and July 1994, the teams visited the following cities and oblasts: Yaroslavl Oblast, Vladimir Oblast, Kaliningrad (Moscow Oblast), Syktyvkar, and Komi Republic. Team members also made an informational visit to Krasnogorsk.

B2c. The Selected Cities

The "paired city" concept. The cities selected were Nizhny Novgorod, Yaroslavl, Krasnodar, and Vladimir. In the project's early stages, each city team (except the team in Nizhny Novgorod) was to work in two cities. Accordingly, the cities of Krasnodar, Yaroslavl, and Vladimir were paired with neighboring cities of Stavropol, Ivanovo, and Suzdal, respectively. Teams were to begin in Yaroslavl, Krasnodar, and Vladimir, and after the project was under way in those cities, the teams would move to the neighboring mate city and begin to implement the REIS there. However, the plan was delayed so work could begin fully on the first four cities.⁷ In June 1995, Chemonics presented USAID/Moscow a revised work plan to begin the delayed "paired city" implementation in the cities of Suzdal, Rostov (paired with Yaroslavl), and the rural raion surrounding Yaroslavl.

The June 1995 plan would have accomplished the original project objectives using existing staff and budget had USAID/Moscow reacted promptly to the work plan. Unfortunately, no

⁶ A secondary consideration for city selection was the presence of a representative office of the RPC, known as LPCs. The local LPC could help with local political problems that were outside the brief of Chemonics and USAID and acted as the local liaison with the RPC in Moscow.

⁷ Also critical was the level of effort required to implement the REIS in any one city. As it turned out, writing the user analysis report, preparing hardware and software specifications, equipment procurement time frames, maintaining good working relations with city officials, and testing and implementing the REIS software proved to be a full-time effort, with little time left to duplicate the work in the other cities in light of the original six-month time period.

Factors unique to each of the second cities also influenced the decision to forego the paired city approach. In Ivanovo, GKI representatives reported that the city administration was actually hostile to privatization, and RPC removed the city from the list. Stavropol became inaccessible, to some extent, due to the Chechnya conflict. Suzdal was removed from the list by the RPC following a determination in the summer of 1995 that it was not representative of Russian cities.

response to the revised work plan was received during the ensuing 12 weeks and the opportunity to implement the original "paired city" concept was lost; in that time, RPC withdrew Suzdal from the list because of its small size, and the Yaroslavl raion decided to withdraw from the program.⁸

The four original REIS cities. The four cities originally chosen for implementation of the REIS, (Nizhny Novgorod, Krasnodar, Yaroslavl, and Vladimir) were selected because of their willingness to participate in the project, the positive attitude of the cities' leaders toward privatization (especially in the field of real estate), and their willingness to provide the necessary resources to support the project. These cities had also solicited RPC to be included in the project.

Additional cities. Under a separate task order in April 1995, USAID/Moscow asked the REIS chief of party to make exploratory visits to the cities of Barnaul and Novgorod to evaluate their possible participation in the REIS project. Accordingly, teams visited Novgorod on April 20-21, and Barnaul from May 30-June 1.

Both Barnaul and Novgorod were among the five cities selected by the World Bank to receive housing construction loans, and so were eager to participate in the REIS project. Novgorod had already established, through local legislation, a centralized real estate department to register all types of real estate objects. This department assembled representatives from 10 agencies with roles in real estate registration so citizens could have a "one-stop" office to register interests in real estate objects. The agencies represented in this department are the Bureau of Technical Inventory, the Land Committee, the Legal Department (notaries), the Tax Department, the Chief Architect's Office, and the Committee for Management of Municipal Property. The office consults with citizens on real estate matters, issues ownership documents for real estate objects, assists with privatization of garden plots and housing, collects property taxes, and provides information about real estate matters requested by other city agencies.

This registration office is supported by a large-scale computer system, using client/server processors and Paradox database software. Unfortunately, the city had included so much data in the database that the system was approaching paralysis. The city requested help to develop a system restricted to supporting the real estate registration function. Because of this request, USAID/Moscow agreed that a REIS project be undertaken in Novgorod.

Barnaul was also enthusiastic about participating in the REIS project. The Deputy Head of City Administration for Construction, Mr. Igor Petrovich Peremazov, expressed strong interest in creating a real estate information and registration system for Barnaul. The director of the Land Committee, Ms. Raisa Sergeevna Argunova, was also a strong supporter of the project, as was Mr. Gennady Efimovich Malkov of "DOM," a private real estate company. Mr. Malkov attended most of the meetings between the Chemonics team and city officials, and provided logistical support when Chemonics staff returned to visit to the city at the end of September.

Because of the expressed need of these two cities, their status as World Bank housing project cities, and the support both cities' officials offered to the Chemonics' teams, USAID/Moscow asked Chemonics to field teams in Barnaul and Novgorod. Chemonics' assignment was to develop real estate information systems along the lines that had been developed

⁸ During the twelve weeks, of course, funds continued to be expended to implement the REIS in the original four cities and insufficient resources prevented expansion of the REIS into "paired cities".

in the other four cities. The opportunity for Chemonics was to apply accumulated knowledge and test a consolidated, streamlined approach to REIS implementation. Experienced personnel from teams in the other Chemonics cities were recruited to work in Barnaul and Novgorod following USAID written authorization in mid-September. The teams were fielded in the latter part of October 1995, and completed the required work by the end of February 1996.

B3. Administration

B3a. Central Administration

In addition to teams in the six cities, the REIS project fielded a central administrative staff in Moscow to manage and supervise the project, as well as to provide specialized services to the city teams and the cities. Their roles and responsibilities are described as follows.

Roles. The major roles performed by the staff in the Moscow office were project management, accounting of project funds, legal analysis and advice, training, and software development.

Responsibilities. The REIS chief of party provided project management, supervision, and general policy direction. Supporting the chief of party and the entire REIS project team in Moscow and in the cities were several local arrangement coordinators who handled matters such as transportation, procurement of supplies, and obtaining visas and other necessary documents. One of these individuals provided translation and interpretation. The accounting function was handled by the project's administrative officer, with some support from the Chemonics accounting staff in Moscow. A legal and real estate specialist provided legal advice, with a significant amount of his time spent drafting model ordinances for the cities to establish a legal basis for registration or consolidated data collection, storage, and processing on ownership of real estate objects.

Training was handled by a staff of training specialists. The training team included five expatriate and Russian professionals. Training team members defined project training needs, identified institutions in the cities to provide the required training courses, worked with the cities to find appropriate students for the courses, and evaluated the training to verify that the courses met the training team's objectives. Training team members also helped prepare graphics for REIS team presentations and publications, and helped organize the round table discussions at the end of the project.

Public information and education was handled by the training team, and by a separate public information task order. The goal of the public information effort was to inform the public through broadcast and print media of the benefits of registration so that citizens would be motivated to register their interests in real estate objects and support privatization.

B3b. The City Teams

Composition. At the outset of the project, the four city teams' composition was almost identical. Each city team leader was an expatriate contract employee of Chemonics with responsibility over day-to-day project management. Assisting the city team leader was a Russian contract employee, called the city co-team leader, who was a native Russian. Because they were native Russians, the co-team leaders understood the city politics and thus were able to establish contacts and open opportunities for the project more so than the expatriate city team leaders. The

city co-team leaders were also positioned so they could assume leadership roles during REIS expansion to other Russian cities at the close of the project.

Two other expatriate Chemonics' employees were on each city team. One individual was a titling and registration expert. This position required an expert in land tenure, conveyancing of real estate objects, and the design and operation of systems, both manual and computerized, to support the registration process. The other expatriate expert on each city team was an automation specialist who was an expert in either GIS, the installation and use of personal computers, or systems analysis and database design.

Several Russian contract employees were included on each city team, including systems specialists, GIS specialists, translators/interpreters, office managers, facilitators, and drivers. As the project continued, additional Russian personnel were added as the need arose. Some cities added systems personnel, other cities added data entry personnel, and in some cases a secretary was added. As the project ended, these employees were furloughed as staffing needs were reduced.

Smaller teams were fielded in Barnaul and Novgorod. Each team had an expatriate city team leader, with a Russian city co-team leader. The Barnaul team also had an expatriate titling and registration specialist for two months. Staff in those cities also included Russian system specialists, office managers, translators, and drivers. The teams were smaller in Barnaul and Novgorod because less design work was required on the existing REIS software and because the staff was experienced. With the exception of the city team leader and the systems specialist in Barnaul, all professional and technical staff members in the two cities were recruited from other REIS cities.

Responsibilities. The city teams were responsible for establishing effective working relationships with city officials. The teams also had to establish, staff, and maintain a professional office.

To be accepted and used by the cities, the REIS was developed to meet the needs of its users. As a first step, the capabilities and needs of REIS "users," such as the BTI, Land Committee, City Architect, or other agencies and real estate professionals, were assessed. The needs assessment covered all the REIS components, including computer support. Elements of the needs assessment included identification of the user and the type of data collected, stored, and provided to others by such user; the type of data the user required from the REIS and for what purposes; an analysis of the software currently used, its functions, and the functions that should be performed; an analysis of hardware and communications requirements; and, most importantly, an analysis of the legal and institutional changes required to implement the REIS.

Each team was to independently analyze each city's needs and then design and implement a system to provide the support it would need for the registration process. The teams were to begin their work by preparing a detailed user analysis report based on the needs assessment with the elements described above. This user needs study formed the basis of the computer system design and equipment procurement. Once the computer system was designed, programmed, and tested, the teams were to select a pilot area in their cities and enter the data for all the real estate objects in that pilot area. This pilot area test would exercise the software to permit further debugging and provide training opportunities for city personnel. City personnel were then to assume control over the system and continue the data entry process for all real estate objects in the cities, and enter data on all real estate transactions as they occurred. In this way, a complete database on

ownership and tenure for all real estate objects would be created. Before leaving the cities, each team was to prepare an implementation plan to guide the cities as they continued to build the databases.

As the project evolved, however, the city teams' mission changed somewhat. While each city was to independently develop the software component to support the registration process, it became apparent that it was more efficient to design one software system that could be used, with perhaps minimal modifications accommodating local conditions, in each of the original four REIS pilot cities. Thus, the work of the systems and titling specialists in Krasnodar, Vladimir, and Nizhny Novgorod was suspended while a system was developed in Yaroslavl for use in all four cities. As the Yaroslavl software was developed, copies were distributed to the other teams for testing and debugging. Much time was spent in the other cities attempting to enter data into the "Yaroslavl system" before testing. After several meetings at which the cities presented their progress and suggested changes, it became clear that the Yaroslavl system did not meet other cities' needs for real estate data. Thereafter, software development was centralized in the Moscow office to design a generic software component. System specialists from each city designed, programmed, tested, and documented the system in Moscow under the direction of a software engineer hired by the project. The system developed in Moscow was a streamlined and flexible component that would be accessible and easily modified to suit a variety of environments and local situations throughout the Russian Federation.

Relationship with city administrations. The REIS teams needed to maintain cordial, effective working relationships with their city administrations to ensure they believed in the REIS concept and thus would use the system after project completion. Thus, it was important to ensure that city administrations were persuaded that funding and continued system support and development were vital to their cities' economic well-being. This effort was primarily in the hands of the city team leader and the city co-team leader in each city. Without exception, each city team met this goal. By the conclusion of the project, each of the six cities' administrations had enacted supportive legislation (or were prepared to enact such legislation) and had provided funding for the continued development and expansion of the REIS in their respective cities.

B3c. Chemonics' Corporate Support

Chemonics provided support to Moscow administrative personnel and the teams in each city. Support was provided through a project management unit (PMU) in the home office in Washington, D.C., and a core management team in Moscow.

The home-office project management unit (PMU). The PMU was overseen by Chemonics senior vice president for Europe and the NIS, Elizabeth Bassan. In addition to the senior vice president, the PMU included a project supervisor, a project administrator, and an administrative assistant. The PMU had ultimate responsibility for project success and was the final decision-making body. The PMU was responsible for recruiting project personnel, budgeting, and logistical support for field personnel. While most of the PMU's contact was with the Moscow administrative staff, PMU personnel provided support for team members in the cities as the need arose.

The core management team in Moscow. Chemonics fielded a core management team in Moscow to support the REIS project and the other Chemonics task orders in Russia. The core management team was headed by a country director (later, a Chemonics senior vice president), a senior administrative officer, and Russian support personnel including accountants, bookkeepers,

and an office manager. The core management team maintained high-level relations with the USAID mission in Moscow, assisted in procurement matters, and provided the office facilities for all Moscow-based personnel.

B4. Required Changes in the Cities

B4a. Legal

A major hurdle faced by city teams was strong resistance from city administrations to implementing REIS without appropriate legislation. First, the cities were reluctant to begin a centralized process of registration without federal authority that courts might subsequently invalidate. This was understandable, and was supported by the city attorneys. Unlike most municipalities in the United States, for example, there is no “home rule” in Russia. Real estate, termed “immovables” in the Federation, is virtually the exclusive domain of federal law.⁹ Unfortunately, this status did little to move the cities toward registration of interests in real estate objects and thus a strengthening of the local real estate markets.

Second, the cities were equally reluctant to require the agencies that process data on real estate objects to cooperate with each other because there was no legal mandate requiring such cooperation. When approached with the concept of consolidating real estate data into one database, the cities uniformly reacted by stating that such consolidation could not take place without the appropriate ordinances. Overcoming this second obstacle depended on strong city administrative leadership. Nizhny Novgorod, because it had a federally granted right to experiment in undertaking the registration process and was supported by the administration of the surrounding oblast, was able to enact a registration ordinance that included a provision for consolidated real estate data processing. The other three original REIS cities, because they did not have such freedom, enacted more modest ordinances creating REIS centers and permitting data consolidation that could be used to support the registration process once an appropriate federal law was passed.

B4b. Institutional

As previously discussed, the process for registering real estate objects and collecting real estate-related data is fragmented among several agencies, including the BTI, the Land Committee, and the Committee for Management of State Property. Other agencies, such as the Chief Architect’s Office and the Housing or Apartment Privatization Committee, may also be involved in land privatization and transfers of ownership interests. The REIS project was to help the cities establish a centralized registration office. This office would also house the REIS computer system. Creating this office would require significant changes in governmental organization in the REIS cities.

There were three models for creation of this office. The Novgorod model was a central real

⁹ For example, in most jurisdictions of the United States, municipalities retain the right to pass laws so long as such laws do not infringe rights guaranteed by the state and federal constitutions or other preemptive statutes. Russian cities, with the notable exceptions of Moscow and St. Petersburg, cannot pass “laws” affecting rights without the support and enabling legislation of the surrounding oblast or krai, both federal entities. Municipalities may only enact ordinances or “normative acts” affecting administrative matters. This is an important distinction as administrative functions could be manipulated to establish a REIS office but whose powers could not extend to any guarantee of a legally enforceable right to real estate.

estate department composed of representatives from all real estate-related offices in the city. This department merely provided one office to house agency representatives so the public need visit only one central office to register ownership interests in real estate objects. All real estate data, however, was maintained in a single database.

The second model entails the creation of a separate registration office to actually absorb many functions of the BTI, Land Committee, and Municipal Property Committee. Most importantly, registration of ownership rights in all types of real estate objects would take place in the registration offices, and registration would not be performed in the individual offices currently registering ownership interests.

The third model is a simplified information center or "REIS Center." Several REIS cities were reluctant to register titles to real estate objects because of the lack of a federal authorizing statute. This legal impediment meant officials in those cities believed the most they could do under local legislation was to create a center for processing data from the real estate-related agencies in a centralized computer system. Creation of this much simpler REIS center was the third institutional model that could be adopted by the REIS cities.

B5. Oversight Role of AID and RPC

Throughout the project, the Chemonics REIS team had periodic review and reporting sessions with USAID/Moscow and RPC personnel. Both organizations offered constructive comments and suggestions on project management and substance, and received periodic reports of the project's progress and budget status. USAID/Moscow sponsored review meetings to share information and promote attainment of project goals.

RPC personnel reviewed legal documentation and helped each city through its regional representative office. RPC, USAID/Moscow, and the Chemonics Moscow office were able to review the status of implementation in each city and address issues in a timely fashion.

C. Contractor's Strategy

C1. Introduction

In determining a strategy to develop and implement the REIS, Chemonics had to balance a variety of interests and meet contractual requirements. While the REIS design and implementation, were not difficult per se, the project's implementation environment complicated matters, and organizations with interests in the development of the REIS had an impact on project management and progress.

One issue was determining which organization had final authority over the project. While USAID/Moscow was the funding authority, other organizations also directed Chemonics' activities and influenced the project outcome. One such organization was the RPC, which was responsible for overseeing the project from the Russian federal government's perspective and was heavily involved in the negotiation and drafting of the agreements and work plans for the REIS cities. RPC personnel at the federal and local level (the latter in the Local Privatization Committee, or LPC) provided oversight, guidance, and assistance to the REIS city teams.

The city governments were also heavily involved in the project. Each city created a working group of individuals from agencies with responsibility for land and real estate. The

working groups provided day-to-day liaison with the Chemonics teams in the cities, providing advice and direction. The cities also provided office space, telephones, and other physical means of support to the project teams. In addition, policy and legal guidance, principally in the form of enabling legislation, was needed from the cities. Because of these factors, the Chemonics city teams worked closely with city officials and often felt that the cities were the primary clients, rather than USAID/Moscow or RPC.

In balancing this multiplicity of interests, Chemonics had to carefully consider the interests and needs of the cities, RPC, and USAID/Moscow in developing its project management strategy.

A second issue, determining what type of system to develop, required resolution before work could begin. There were essentially two choices for system design. One choice was to develop an information system capable of storing all data regarding real estate objects. Many city system specialists were familiar with this kind of design because the BTI historically collected voluminous data on buildings and apartments. There was some pressure by working group members in several cities to develop large databases to store the data already being collected by the BTI and other agencies, such as the Land Committee. A second choice, to develop a system to support the registration process, is fundamentally different from a simple data repository.¹⁰ The design of a process support system requires a careful analysis of the underlying manual process to be automated, including a study of work and data flows and data required for decision-making within the process itself. A process support system will generally result in a database with fewer data items than a simple information system because the process support system only contains the data required to support the process being automated, whereas the information system may contain virtually unlimited data items. In some of the cities, the working groups put considerable pressure on the city teams to include data in the REIS that had nothing to do with data required for registration. Because of their lifelong experience with the BTI and the inventory of real estate objects, the groups had difficulty separating data supporting the registration process from all data that may be collected and stored on real estate objects.¹¹ Ultimately, the REIS database was streamlined to include the data required to support registration, with only a few additional data items incorporated into the system.

A third issue addressed by Chemonics' strategy was management of the systems development process.¹² Again, two models of system development were available: independent development of REIS systems in each city, or development of a master REIS to be delivered to each city and used with little or no modification.

¹⁰ In this paper, the term "information system" is used to mean a collection of disparate data stored together in electronic format. A process support system, on the other hand, is designed to support the strategic goals of an organization by automating its functions to the extent realistic or feasible. The process support system is transaction based, i.e., data are added to the system as privatization or sales transactions occur.

¹¹ An interesting example of this problem occurred in Novgorod, which had developed a registration office and supporting computer system. However, the city was too ambitious in its data collection process and created a system that literally bogged down because it contained too much information. One of the assignments Chemonics had in Novgorod was to develop a system with only the data required to support the registration process.

¹² As used in this context, "systems development" refers to the software component which, by its nature, was required to reflect the legal, legislative, and organizational components of REIS.

At the beginning of the project, the plan was to develop a system in each city. Each system would be compared and, if necessary, a final version incorporating the best features of all the systems would be produced. The city teams were staffed to implement this model. Each team included a titling and registration specialist to perform the analysis required for system design, plus at least two systems analysts. Most cities had at least one person with GIS experience.

This strategy was modified as the project was implemented. First, even though each city had its own experts, each consultant's expertise was different, and city team members found themselves relying on their counterpart colleagues when questions arose. This collaborative process led to collective thinking about the system design, and the sharing of ideas about how the system should be developed, ultimately affecting the remaining factors below.

A second reason city-based systems were not developed was because of the evolving need to develop a generic automated registration process. Because the REIS is a process support system and not simply an information system, Chemonics consultants needed to overcome the fact that there was no process in place to automate. However, the REIS amended task order required that the REIS should be able to support a unified real estate registry. To do that, a model unified registration process had to be created. This was accomplished by the titling and registration specialists in early January 1995, and the design became the basis of the automation process in the cities.

As work progressed, it became clear that it was more efficient to develop one basic software system for all the cities. The single development process required that most Chemonics REIS personnel assemble in Moscow to work together on the design. This meant problems were identified and resolved much faster than if the teams had performed four designs separately. The Yaroslavl model, where most of the design had been done, was selected for use in each city. Ultimately, when the Yaroslavl system proved to be incompatible with other local environments, the software design team was stationed in Moscow and the "enhancement" of the system, as discussed below, was completed. The REIS design and development experience in the field ultimately indicated that collective design was more efficient and resulted in a superior product.

In addition to these general considerations of strategy, a number of specific points included in Chemonics' overall strategy are discussed separately below.

C2. Implement the REIS in "Paired Cities"

At the outset of the REIS project, the Chemonics REIS team was to implement the system in seven cities. It was thought that the team in Yaroslavl could work in Ivanovo, the Vladimir team could work in Suzdal, and that the Krasnodar team would be able to work in Stavropol. Nizhny Novgorod was not paired with another city, but team members from Nizhny Novgorod would have been deployed to Ivanovo, Suzdal, or Stavropol if necessary.

As previously mentioned, that strategy could not be implemented, mainly because of factors unique to each city. For the city of Ivanovo, there was a change in position on the appropriateness of a market economy in general. In the case of Stavropol, problems related to Chechnya was the reason. Finally, in the summer of 1995 the RPC removed Suzdal from the list for being unrepresentative.

However, Chemonics could have implemented the strategy in June 1995 under a deferred proposal that essentially adopted the paired cities concept for sites in Yaroslavl Raion, Rostov,

and Suzdal. This proposal would have implemented a REIS pilot at each site using the resources then available. However, following an extended 12-week period to review the proposal by USAID and RPC during which time Suzdal was removed from consideration, both time and resources militated against implementation and the opportunity to complete the paired city concept was lost.

C3. Support for Legal and Institutional Change

Russia has a relatively new constitution, with few of the necessary laws in place to allow development of a free market economy, especially in real estate. Most city administration attorneys advised that the REIS could not be officially implemented unless there was appropriate authorizing legislation that must come from the Russian Duma. Such legislation was not enacted during Chemonics REIS teams' work in their cities, thus no proper legal foundation for a registration process was created.

Nevertheless, the lack of federal enabling legislation did not prevent the REIS from being developed. Chemonics actively helped develop appropriate legislation to create a legal basis for data sharing, REIS database development, and establishment of a REIS office. The REIS legal and development specialist prepared several versions of sample ordinances as cities prepared REIS authorizing legislation. In addition, the specialist prepared sample registration legislation for Nizhny Novgorod, a city that was allowed to experiment with registration arrangements even without federal enabling legislation. During the drafting of the Nizhny Novgorod registration ordinance, the specialist reviewed and provided significant input to the proposed legislation. Chemonics REIS teams leadership in the cities, as well as the chief of party, consistently urged the city administrations to develop appropriate legal support for the REIS effort.

C4. Utilize Lessons Learned in Nizhny Novgorod

Nizhny Novgorod was the first city Chemonics selected for REIS participation. Chemonics personnel first arrived in Nizhny Novgorod in July 1994, and the REIS team arrived in Nizhny Novgorod to begin its work in mid-August. Because the teams for the other three REIS cities were not fielded until mid-October 1994, the Nizhny Novgorod team had a two-month lead on the other teams. Chemonics wanted to use this knowledge to help the other teams reduce the time required to begin working effectively on the project.

As teams were fielded in Russia, Chemonics held an intensive four-day orientation in Moscow. This orientation by Nizhny Novgorod team members included general information about working in Russia and specific information about how to organize and execute the project. Russian and American team members shared their experiences and expertise.

C4a. Personnel Trained in Nizhny Novgorod Assigned to Other Cities

To diffuse the knowledge on registration of real estate objects, several original Nizhny Novgorod team members were assigned to other city teams. Andrei Shikolin, automation specialist, was assigned to the Vladimir team and Alexander Sokolov, also an automation specialist, was assigned to the Yaroslavl team. Christopher Shove, who served as both acting city team leader and as automation specialist in Nizhny Novgorod, made trips to both Nizhny Novgorod and Vladimir to help the teams in those cities. Mr. Shove also prepared a paper on REIS implementation in Nizhny Novgorod for the Chemonics REIS teams in the cities and in Moscow.

C4b. Design Generic System Applicable for Use in Each City

The Nizhny Novgorod team arrived about two months before the teams for the other three original REIS cities. In this two-month period, the team conducted the user needs assessment and made the initial draft of the design of the database system to store the basic attribute data on real estate objects.¹³ After the permanent team was deployed to Nizhny Novgorod in November of 1994, database design and programming continued in earnest. By the end of February, the system was sufficiently complete for demonstration to municipal and oblast officials.

By the time the other city teams had completed the user analyses reports, they had acquired sufficient knowledge of existing and proposed real estate registration procedures to design a system to support the registration process. At this stage of the project, team members were called to Moscow to participate in the joint design of the REIS database. The database structure was modeled after the design implemented in Nizhny Novgorod, although the data processing was changed significantly to reflect conditions unique to Yaroslavl, where most of the design work took place. However, the underlying data structure was based on the early work in Nizhny Novgorod.

C4c. Standardize Documents

Because the project began in Nizhny Novgorod, the documents for Nizhny Novgorod served as a template for the project documents in the other cities. Among these documents was the protocol of intent, which evidenced a city's intention to participate in the REIS project. This protocol was jointly executed by Chemonics, the city administration, and the RPC.¹⁴

In a second document, a project agreement, the same three parties agreed to carry out the project and specified legally binding obligations to support and complete the project. This document also contained the work plan and the schedule for project deliverables and completion.¹⁵

Additional documents developed or used in Nizhny Novgorod were also made available to the other city teams. These documents included the output form, referred to as the "Clear Title Form," which presented the data stored in the system on each real estate object. Another document was the questionnaire developed for conducting the analysis for the user analysis report. Another document was the outline for the user analysis report itself. This outline was

¹³ Because the REIS contemplated the use of GIS technology, a distinction must be made between the two types of data to be stored in the REIS. One type is called attribute, or tabular, data. Attribute data are data that describe real estate objects and are typically found in BTI office files or in the files of the Land Committee or the Municipal Property Committee. Attribute data consist of such data items as owner name, property address, BTI number, cadastral number, market value, lease term, etc. The other type of data is graphic data, and consists of maps digitized so they can be stored and displayed by the GIS software. The design of the REIS in Nizhny Novgorod was, at this time, only concerned with the database system storing the attribute data.

¹⁴ Chemonics' legal advisor judged this document to be redundant, amounting merely to an "agreement to agree" and convinced RPC and USAID/Moscow to abandon its use for Barnaul and Novgorod.

¹⁵ Experience revealed that the original template did not establish clear obligations on the part of the city. Consequently, Chemonics' legal specialist, together with RPC, redrafted the agreements to detail specific prerequisites for the cities of Barnaul and Novgorod. The resulting progress in each of those cities was achieved with far less debate on obligations to be executed.

originally prepared in draft form by an Arthur Andersen consultant, and adopted by Paul Firstenburg on behalf of the RPC. This outline became the model under which all user analysis reports were prepared.

C5. Use of Geographic Information Systems (GIS)

A major part of Chemonics' strategy was the use of GIS technology in REIS design and implementation. GIS was considered early in the project planning stage, and one of the first specialists deployed to Russia was a GIS specialist. However, GIS was not mentioned in the early drafts of the scope of work for the project because of the emphasis at that time on registration and the corresponding de-emphasis on the systems development aspects of the project. However, as the project scope changed and registration and issuance of certificates were no longer project goals, GIS became more prominent. By the end of July 1994, position descriptions included a knowledge of GIS as a requirement for the core team systems specialist. Similarly, both the Chemonics August 9, 1994 draft work plan and August 10, 1994 Arthur Andersen planning document contained proposed data models that included both graphic and attribute data.

The reason for including GIS in the systems design is clear. A principal use of GIS technology is management of both land records and data (tabular and graphic) associated with those records. Display of the graphic data in GIS allows faster and more detailed analysis of real estate, and because the software links attribute data to the graphics, the data can be organized by spatial location. It was believed that GIS would be a valuable tool for cities as they developed the software tools to support registration.

As the project progressed, however, it became apparent that the GIS emphasis required modification. Shortly after representatives of the Information Systems Department in Nizhny Novgorod had selected a robust and expensive GIS package, the Nizhny Novgorod team was told that USAID/Moscow wanted to de-emphasize GIS. Later in the project, as the database system for attribute data storage and processing was being developed, it became clear that a fully functional REIS needed to support a registry could be developed with attribute data only. Consequently, neither system in Barnaul or Novgorod was designed with a GIS component, resulting in considerable savings. While graphic data would enhance the REIS, increasing functionality and ease of use, graphic data were not necessary for a basic system to support the registration of real estate objects. Furthermore, USAID strategy emphasized the need to quickly implement market-oriented systems within the window of opportunity available. This was in contrast to the World Bank, which considered mapping and surveying, a time-consuming process, a critical prerequisite to land reform. Because a registry could be supported without GIS and time was limited and the political situation might change, REIS implementation in support of a registry need not be delayed by GIS installation and mapping.

However, the four cities in which Chemonics originally worked anticipated using GIS in their systems, and agreements for performing the work included procurement of GIS software. Thus, Chemonics was contractually obligated to provide GIS as part of the REIS in those cities. The four cities did receive GIS software, and the cities anticipate using GIS in the future.

C6. Training a Cadre for Roll Out

Training was an important part of the REIS project. One of the first consultants sent to the field was a training specialist. The training specialist was required to identify the courses required for the REIS and locate Russian training institutions that could teach them. As the project

progressed, four courses were identified for city personnel who were to manage and operate the REIS. These were:

- Introduction to personal computers
- Database entry
- Basic and advanced Windows
- Introduction to GIS for computer operators and technicians

Each of the four courses was taught in the four cities.

C7. Public Information and Education

Regardless of the technical quality of the REIS, the system and the project would only succeed if Russian citizens understood and accepted the concepts of the private real estate market and the registration of interests in the real estate objects. The contractual terms between USAID and Chemonics required that an effective marketing campaign be established to educate and inform Russian citizens in the basic concepts of real estate ownership and the benefits of registration for those who held ownership interests in real estate objects. This work was to be performed mainly under a separate task order for public communications, but the REIS teams did contribute to the education process through system demonstrations and round table discussions.

D. Summary

The REIS project began at a time of tremendous change in Russia, and the unsettled environment had a marked impact on the project. The jurisdictional conflict within the Russian government over registration delayed deployment of the city teams and caused the project to be somewhat disjointed (insofar as the work in Nizhny Novgorod was at least two months' ahead of the work in the other cities). The lack of proper registration legislation at the federal level also created obstacles as three of the original four REIS cities could not, in the opinion of their legal counsel, pass local registration laws in the absence of appropriate federal law. This led to enactment of local normative acts that authorized data sharing among agencies and the REIS center, but did not create a unified registry where all interests in all types of real estate objects could be registered. Tied to these legal and legislative issues were the election campaigns for the Duma that distracted many important local officials from the project as well as the prospect of a new President who would freeze or roll back all privatization initiatives.

Implementing the REIS in multiple cities resulted in some internal disputes between the central project administration in Moscow and the four teams in the cities. There was some desire by city team leaders to develop their own systems independently. This was natural, given the city team leaders' responsibility for their own city's projects and the fact that each team had adequate resources to develop a REIS on its own. Nevertheless, the decision to develop one system for use in each of the four cities was the better choice. The implementation of that decision will be discussed in Section III of this report. The centralized system development represented a change in the original plan for administration of the project, and led to a reallocation of project resources and use of project personnel.

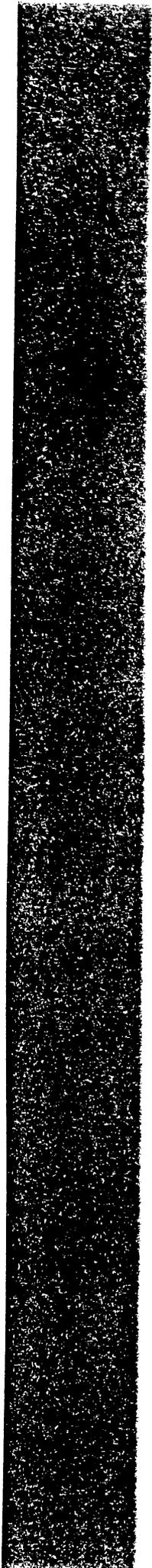
The REIS anticipated using GIS software to manage graphic data. As the project developed, however, both USAID/Moscow and the Chemonics REIS project team personnel realized that GIS was emphasized too heavily in the early stages of the project and may not have been entirely necessary. However, each of the first four cities received GIS software and training

and intended to incorporate GIS into the REIS as it became operational.

Finally, USAID personnel in Washington and in Moscow, as well as RPC and Chemonics staff, recognized the need for both training and public education. Training was provided as part of the REIS project by a team of training professionals with broad experience. Public education efforts were delegated to communications project staff, which were also working in Russia to communicate the broad benefits of privatization, including real estate.

SECTION III

SYSTEM DEVELOPMENT PROCESS



SECTION III SYSTEM DEVELOPMENT PROCESS

A REIS project goal was to develop a computer system to store the data required for a unified real estate registry for Russian cities. As a process support system, the computer component design was dependent on the creation of a process to support. As covered previously in Section II C, once the process had been designed, the steps to create the computer support could take place. The traditional steps of analysis, requirements definition, design, and implementation were followed in the REIS development.

A. User Requirements Analysis

The REIS teams' first task was to study the existing registration process and ascertain the cities' requirements for technical support. The teams in each city met with the organizations involved in land and real estate-related matters to learn about their procedures first-hand.

In August 1994, the teams prepared an outline for the user requirements analysis. This outline was subsequently approved by an RPC official and became the basis for each user requirement report. The reports covered six main topics as follows.

Project definition. This section described the project objectives and mission, as well as background information and any relevant project history.

Detailed technical design. "Detailed technical design" is somewhat of a misnomer. Rather than design, the section includes a detailed technical analysis of the situation in the cities, including a detailed description of each agency involved in the registration process. The description estimated the volumes of data expected to be generated by each agency. A second part of the detailed technical analysis estimated the data required to support the registration process and roughly laid out the database structure.

Conceptual design. This section described the data flows among the agencies and presented a schematic drawing of the computer system, showing the type, number, and location of devices around the system.

Organizational design. This section identified the institutional and organizational requirements for the REIS to operate effectively. Documents specifying how the agencies will share data were also included.

Economic design. This section indicated the financial requirements for system operation and identified possible revenue sources.

Risk assessment. The consultants identified problems or potential difficulties that may impede project implementation, both during the project and after turnover to the cities.

While local conditions contributed to variations in the four user requirements analyses, each report covered the six basic categories of information and was subsequently used to design the system.

B. Development of the Registration Process

As noted previously in Section II C1 above, the REIS was to support the process of registration and not simply be a repository for vast quantities of data on real estate objects. The registration process thus needed to be properly defined before the system was developed.

The registration process was to be unified in consolidating the Russian offices' disparate registration processes, including that of the BTI and the Land Committee. Definition of a unified process began at the end of 1994 by a team of the titling and registration specialists from each of the four REIS cities, the legal and development specialist, and the city team leader from Nizhny Novgorod. The team members had skills in real estate law and conveyancing, land surveying, land records management, title registration, and computerization. Over seven working days, these individuals developed an initial registration process for each of the four cities that was the basis for development of the REIS basic electronic configuration.

B1. Synthesis of Existing Procedures in the Four Cities

In developing a generic registration process, the team's first responsibility was to synthesize the processes in each of the four cities into one process. Because the institutions and procedures in each city were very similar, a process was designed that incorporated the major features of each. These features included:

- Data gathering for initial privatization from the agencies from which data are currently collected
- Compliance with rules on issuance of spravkas for privatization or sale
- Storage of files currently kept in each office after implementation of the unified registration process

These procedures addressed the initial part of registration and involved the data gathering required in the privatization and conveyancing processes. By leaving intact these processes, it was not necessary to change procedures or data flows in those offices. This minimized the potential disruption from the new registration procedures.

B2. Design of Model Registration Process for Automation

The registration model developed by Chemonics had the following major components:

- A centralized office for registration of titles to all real estate objects in the city
- Use of existing Land Committee and BTI offices for archiving all paper documents
- Enhanced indices for easy access to the data
- Document imaging for backup purposes in the event paper records are lost
- Public access to computerized titling and registration data at the registration office, the raion BTI offices, and the Land Committee offices

This process required a centralized registration office where citizens would bring all documents for privatization and conveyancing of interests in real estate objects. The original draft of the registration model included an automated cashiering function to speed the initial collection

of data, the calculation of fees, and the printing of receipts. Following processing at the cashier's counter, the documents for the interests to be registered were processed through the registration office. The process at the registration office included the following:

- Data abstraction and entry
- Document scanning
- Creation of indices
- Automatic registration absent third-party challenges

This process is presented in Exhibit III-1.

The model registration procedure was modified in each city. For example, the automated cashiering function required computer hardware that the project could not procure because of resource limitations and that therefore was not developed. Equipment was purchased for document imaging, but the time required for REIS software development precluded the scanners from being incorporated into the networks established to support the system.

Likewise, the indexing function was not developed as intended. In this case, geographic indices based on the addresses of the real estate objects were planned but could not be implemented because agencies that maintained real estate records did not always have the same addresses for a specific real estate parcel. These specific indices were not developed. However, the FoxPro software used to develop the REIS had the capability to easily develop the kind of indices that the consultants envisioned. Chemonics programmers developed reports that can be modified to produce indices so that the indexing function can be incorporated into the system as it is implemented in the cities.

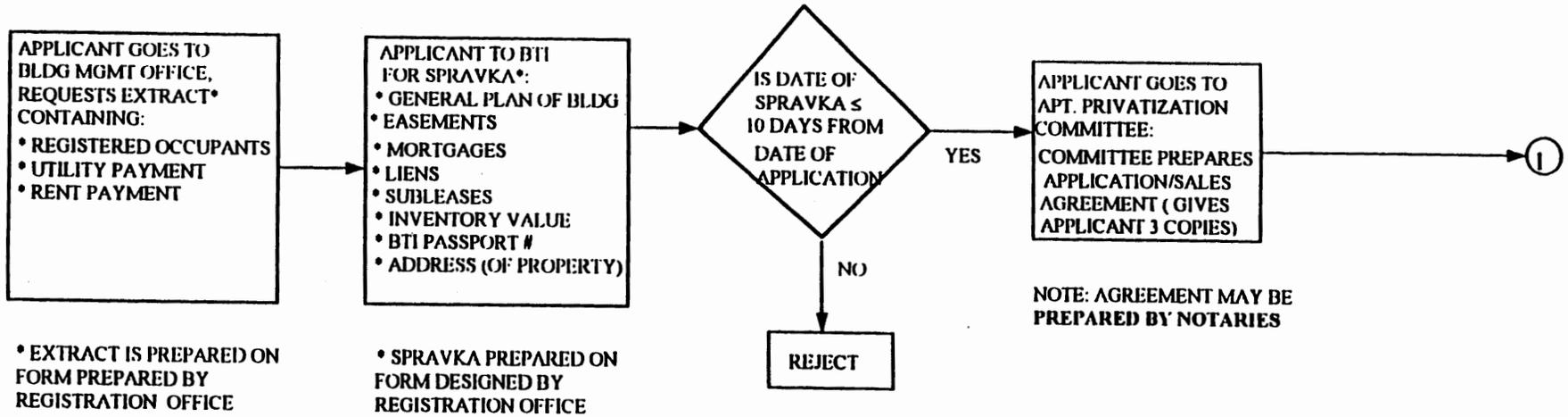
While the model registration procedure was not fully implemented in any of the cities, preparing the model was useful for several reasons. First, it enabled team members to define the parts of the unified registry the REIS was to support based on local environments. This had to be done before project design could begin. Second, it provided the basis for REIS hardware requirements. Finally, and most importantly, defining the model titling and registration process gave officials in the six cities a starting point to develop their own registration procedures within the draft federal law's guidelines. Even though three of the six cities did not adopt titling and registration ordinances, all the cities adopted either registration ordinances or ordinances establishing the REIS office. Whether it was Nizhny Novgorod, which adopted the registration ordinance, or whether the cities adopted the REIS ordinances, all the cities adopted registration procedures that met their needs. By defining the model registration procedure, momentum toward registration was created that moved each city toward successful completion of the project. Adoption of legislation took them as far down the registration path as they were legally capable of going at the time the project was completed.

B3. Selection of Hardware Platform and Database Software

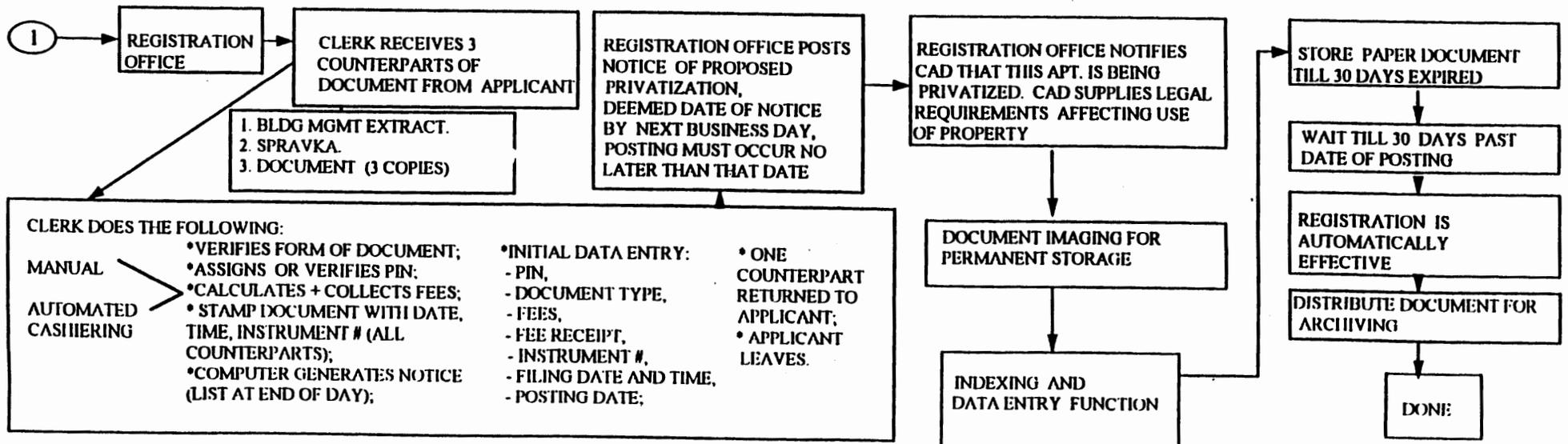
A significant portion of the REIS project budget was devoted to hardware and software procurement. This occurred because the project changed from a registration project issuing certificates of title to a systems project supporting the registration process. REIS team members spent a significant amount of effort determining the appropriate hardware and software for the project.

**Exhibit III-1
Registration Process**

APARTMENT PRIVATIZATION PROCESS



REGISTRATION STARTS HERE



B3a. x86 processors vs. RISC Processors

From the beginning, Chemonics advocated the use of Intel x86 processors as the hardware platform for the REIS. Arthur Andersen, the other REIS contractor, urged the use of RISC workstations. Arthur Andersen installed the RISC workstations in its cities, while Chemonics introduced a mix of 486 and Pentium machines for its cities.

While there are many technical specialists and extremely good computer technicians in the cities where the REIS was implemented, the level of technological sophistication and the transportation infrastructure are problematic. The level of technical support for cutting-edge technology is simply not as high as it is elsewhere, so the question became what kind of technology is appropriate in such cities: simpler, cheaper technology familiar to the specialists and maintainable at low cost, or more expensive and unfamiliar technology requiring outside specialists to maintain.¹ Based on its experience, Chemonics recommended the simpler, less expensive, Intel technology.

This simpler technology, however, does not mean that the Russian cities will be burdened with a hardware platform that will not support the REIS. On the contrary, the Intel platform is more than sufficient to support the REIS and includes advantages in processing power, operating systems, client/server computing, and scalability.

Processing power. While RISC chips may be faster and more powerful than the chips used in even the high-end 486 Intel processors, the Intel Pentium chip approaches the performance of the RISC processor, and some advanced Pentium chips exceed the processing power of RISC processors. Each REIS city received some Pentium processors, and some of the cities have purchased their own Pentium machines for the project. Therefore, the REIS cities have machines with processing power comparable to RISC machines. The RISC platform is not necessary to acquire the computing power needed for the REIS.

Operating system. DOS and Windows, the operating systems typically run on x86 platforms, are 16-bit operating systems that degrade the speed and power of the 32-bit architecture of 486 and Pentium processors. Windows is not stable enough to support the mass of data that may be processed through the REIS. Now, however, 32-bit operating systems are available that can operate on these more powerful Intel machines. More importantly, two of those operating systems, Windows '95 and Windows NT, are made by Microsoft, the maker of the Windows operating system with which virtually all the Russian systems specialists in the REIS cities are familiar. Thus, upgrading to a more powerful operating system familiar to the specialists will not be difficult if that were to become necessary to operate the REIS. It will not be necessary to move to UNIX, an operating system foreign to most of the specialists.

Furthermore, there are legitimate concerns regarding the use of UNIX.² One concern is that it is more difficult to load and use standard products such as word processing and

¹ There is a scarcity of UNIX specialists in Russia, especially in the outlying cities, and the number of personnel trained to repair RISC machines is likely to be similarly low. This scarcity of UNIX specialists, when coupled with the relative high maintenance required, represented a high cost factor which few Russian cities could afford.

² The use of RISC workstations does not require the use of the UNIX operating system. However, UNIX is commonly used with RISC processors and was considered for use in some REIS cities.

spreadsheet programs on machines using the UNIX operating system. The Intel-based PC can be used for both REIS applications and standard office automation applications; use of UNIX workstations for these applications requires additional software and may not provide Cyrillic fonts, as are available on machines using operating systems supplied by Microsoft. Thus, the Windows, Windows '95, or Windows NT operating systems offer much more flexibility.³ Also, there is concern about the long-term viability of the UNIX operating system. Speculation that the system may not survive as a viable operating system is suggested by the fact that there are few programmers, insufficient management tools, multiple versions, and new inroads by other operating systems such as Windows NT and IBM's OS/2. These other operating systems have a broader user base and can be used on systems produced by a number of vendors.

Client/server computing. The Chemonics REIS was not initially designed for a client/server environment. However, if it becomes necessary to move to a client/server environment, the Chemonics system will accommodate the change. Through use of Open Data Base Connectivity Tools (ODBC), REIS FoxPro screens can be used for data entry while a more powerful database, such as Oracle, is used on the server to store data. More importantly, the hardware Chemonics provided to the cities is suitable in that environment. The Pentium machines can be used as servers, and the 32-bit operating systems discussed above can be used in the client/server environment. Again, a move to RISC/UNIX is not necessary to support client/server computing. Intel platforms with the proper operating system can support that upgrade when needed.

Scalability. Even assuming that the Pentium machines would not be capable on their own to support the client/server environment, they are capable of upgrade by adding additional processors. Therefore, if the REIS becomes too large for the cities' current machines, the machines can be upgraded and thus retain the ability to serve the REIS. This will obviate, or at least reduce, the need to purchase more or faster machines, including RISC machines.

This is not to say that the Intel/Microsoft computing environment is flawless. It is not. Windows 95 is a new operating system and has not been used widely in Russia as of this date. Russian system specialists will need to learn the system, and that will take time. The same is true of Windows NT—it may be an option, but it may require additional study before the specialists are as competent with it as they are with DOS and Windows. Windows NT is also not as fast as some other client/server operating systems, and it reportedly does not scale well using Symmetric Multiprocessing (SMP). The point is not that this solution is perfect. Rather, the point is that in the existing Russian environment, use of Windows is a practical, cost-effective, and reasonable solution that can be implemented with minimal learning and at an affordable price.⁴

³ Windows Application Binary Interface (WABI) software is available to allow the use of Windows applications on UNIX workstations, but it is not known if WABI has been used successfully in the Russian environment with Cyrillic fonts.

⁴ Some authors even suggest that "more than 90 percent of client/server application needs" can be met by "Intel-based servers supplemented with SMP." Orfali, Harkey and Edwards, *Essential Client/Server Survival Guide* (New York: Van Nostrand Reinhold, 1994), page 86. Most of the technical information in Section III B3a. was taken from Chapters 6 and 7 of this book.

On balance it appears that x86 chips and computers are more suited for the Russian environment. The Chemonics REIS team recommended these Intel-based processors, and the recommendations were uniformly followed by the cities in which Chemonics worked.

B3b. The Database “Engine”

The Chemonics REIS team selected Visual FoxPro version 3.0 (VFP) as its database engine. There were several reasons for this choice. One of the most important reasons was the ease with which VFP can be adapted for use with Cyrillic fonts. Because VFP runs under Microsoft Windows, and Windows uses Cyrillic fonts, VFP also has the capability.

Another reason for selecting VFP is that it runs well in the REIS environment. In the cities in which Chemonics worked, the configuration will likely be a very small local area network with only a few machines. This is the environment in which FoxPro was designed to work. The REIS, at least in the Chemonics cities, is not so large nor does it have so many users that the power of a more sophisticated database engine, such as Oracle, is needed at this time. If the REIS in those cities grows to be so large as to require Oracle or another similar database product, VFP can easily be used as a front-end tool on the clients, with Oracle on the server. The system can be upgraded without changing the user interface screens with which the data entry staff will have become familiar. Thus, VFP is an ideal tool because it can be used as a stand-alone product when the REIS is small, and then be used as the front-end in a client/server environment as the system expands. Because the city of Novgorod already had an operating REIS, the latter case represented the only solution and represented the exception to the other cities in which Chemonics worked.

There were other reasons for choosing VFP. VFP is a rapid development tool, meaning that it is very easy to use for building applications. It has a very good graphical user interface, making it highly user-friendly. It runs on the relatively inexpensive Intel-based PCs, which most Russian cities have. It will also run on the Windows '95 operating system, making it compatible with 32-bit operating systems. Its enhanced database technology includes features such as file buffering, data integrity triggers, update-commit-rollback, and more compact data types. In addition, it has a popular language with enhanced Object-Oriented Programming Syntax (OOPS), high-speed performance, and technical support readily available in Russian.

B3c. GIS Software

Early in the project (when information systems rather than registration was the development target), it was decided to incorporate GIS technology into the REIS. GIS is a valuable tool for managing land-related data, both graphic and tabular, and can be useful for supporting titling and registration systems. Indeed, GIS was used in Russia to manage land-related data even before the REIS project was undertaken. MOSCOMZEM, the Moscow Land Committee, had installed an Intergraph GIS and related equipment and used that system to prepare certificates of title. Thus, it was believed that GIS was a natural component of the REIS.

Each of the four initial city teams had at least one GIS specialist. After a period of analysis, most GIS specialists came to see two major uses for GIS in the REIS. One use was to scan the floor plans of the apartments found in the BTI offices. These scanned images can easily be incorporated into the database and linked to the attribute data that the database contains for each apartment. The software can display a given building floor plan and then, after an appropriate query, also display the relevant attribute data for a particular apartment. This function

would be particularly useful for public access, because entry of a simple address could lead to the display of relevant data for a given real estate object.

The other use for GIS in the REIS is processing, manipulation, and display of traditional cartographic data. By scanning the maps currently maintained by the Chief Architect's Office and the Land Committee, the maps can be used as tools for the planning and management of city-owned real estate, such as buildings, open spaces, streets and other public facilities. While not directly related to the registration of titles to real estate, these maps can be linked to the database and thus become tools for management and planning of municipal resources. In this way, the REIS can become the foundation for municipal GIS in the REIS cities.

USAID regulations required that software could only be purchased from U.S. companies properly licensed to do business in Russia. Three GIS software companies met that criteria: Intergraph Corporation, Environmental Systems Research Institute (ESRI), and MapInfo. Three of the cities (Yaroslavl, Krasnodar, and Vladimir) chose ESRI's GIS products. At least one of the cities, Krasnodar, had used ESRI's ARC/INFO before the beginning of the project. Nizhny Novgorod chose Intergraph's GIS software in a competitive evaluation that involved demonstrations of software from both Intergraph and ESRI.

While the GIS specialists' original intent was to have the graphic data attached directly to the relational tables created in VFP version 3.0, this was infeasible because of the way the attribute database was structured. Instead, it became necessary to link the graphic data stored in the GIS to attribute data extracted from the FoxPro tables and read it into a separate, non-relational file ("flat file") created to hold that data. While this will not give "real-time" access to the data in the REIS database, the flat file can be updated on a periodic basis and a relatively useful GIS product can be created.

GIS technology was not offered in the cities of Barnaul and Novgorod for different reasons attributable to local conditions and the development of the "Core REIS" concept (see below). The Novgorod project involved adapting the Chemonics REIS to an existing system while another contractor supplied the GIS under a separate task. The situation in Barnaul was affected by cost considerations and time available to complete the project. More importantly, Barnaul wanted to develop a less expensive, quickly operational registry. As a result, the REIS team developed what came to be known as the "Core REIS"⁵ using the "enhanced" software as its engine.

C. The Nizhny Novgorod Prototype

Because Chemonics began working in Nizhny Novgorod earlier than in the other cities, the team was able to demonstrate the REIS software, both the database and GIS, and present its findings at an early stage of the project, on February 22, 1995.

⁵The "Core REIS" was designed to permit small- and medium-size cities implement a REIS quickly and at far less cost than an expanded system that would include a GIS component. The critical element to the design was the requirement that only that information required to support a registry be included. Ultimately, this design was recommended to any city wishing to establish a REIS quickly, gain immediate benefits, and raise revenues from users and efficient tax collection that could then be utilized to expand the REIS incrementally.

C1. Database Component

The database design for the initial system developed in Nizhny Novgorod was designed by the systems specialists who originally worked in Nizhny Novgorod, including Christopher Shove, Andrei Gavrilov, Andrei Shikolin, and Alexander Sokolov. Igor Rummyantsev, city co-team leader, also made a significant contribution to the design effort.

The database program was developed in Visual Object for Windows, which is an object-oriented programming language (OOPL) produced by Computer Associates. At the time the program was developed, Visual Object for Windows was just released on the market. Although Microsoft FoxPro version 2.6 for DOS was considered, Andrei Gavrilov, the lead developer, decided to use Visual Object instead, for two reasons. One, Mr. Gavrilov was not familiar with FoxPro and would have needed to spend time learning to program in that system. Second, he wanted to use an OOPL because it is at the cutting edge of software development. Mr. Gavrilov did, in fact, program most of the database system in Visual Object for Windows. But before he could completely finish it, the team discovered that the GIS software being used would not link directly to the Windows-based Visual Object tables. Therefore, Mr. Gavrilov reprogrammed the entire system in Clipper for DOS. The version of the program presented in the demonstration was the Clipper for DOS version. The Visual Object version was never finished.

Organization of database. Both Visual Object and Clipper create relational databases made up of a number of files called "tables."⁶ The Clipper database consisted of 13 tables, as shown in Table III-1 on the following page. Of these tables, seven contained data relating to the registration of title to real estate objects; five contained reference tables, such as codes for street names or raion names; and one was a table that linked the seven main tables together. Each occurrence of a record for a particular real estate object, document, or person was posted to the appropriate table. For example, if data were being entered for a parcel, a record would be created in the parcel table for that parcel. The name of the owner of the parcel, if the owner is an individual, would be posted to the people table. If the person's rights to that parcel were created by lease, entry of the data describing the lease would be entered in the docles table. The REIS table would link all of those records together so that a query on the parcel record, for example, would permit the viewing of the data on the owner and lease document as well.

User interface. The Clipper database program was developed with easy-to-use data input screens. Separate screens were developed for entry of data for the various tables. The input screens were in Cyrillic so that the clerks in the BTI offices and in the Land Committee offices could easily use them. They were designed for use without abstraction forms so the data could be entered directly from the source documents. For purposes of the Nizhny Novgorod demonstration, a member of the staff of the Sormovo Raion BTI was trained to use the screens. Even though this person had no previous computer experience or training (except for participation in two Chemonics-sponsored training courses) she was able to use these screens after only brief training and successfully presented this part of the demonstration.

⁶In a relational database management system, the database is composed of a number of tables which can be linked together, or related, by use of a single data item common to two or more tables. If a change is made to a particular data item in one of the tables, the same change is made to that data item found in any other table in the database.

Table III-1. Tables Used in the Nizhny Novgorod Prototype Database

Table Name	Table Description
Parcel	Contains basic data on land parcels
House	Contains basic data on buildings
Flats	Contains basic data on apartments
People	Contains basic data on individuals who own or lease interests in real estate objects
Entity	Contains basic data on legal entities that own or lease interests in real estate objects
Docown	Contains basic data about documents that give ownership interests in real estate objects
Docles	Contains basic data about documents that give lease rights in real estate objects (leases from the state)
Street	A reference table giving names of streets and their associated codes; used to save space in the main database tables
Raions ⁷	A reference table giving names of raions and their associated codes; used to save space in the main database tables
Proper	A reference table giving the type of property interests and their associated codes; used to save space in the main database tables
Usage	A reference table giving the type of uses of property and their associated codes; used to save space in the main database tables
Busins	A reference table giving the types of business and their associated codes; used to save space in the main database tables
REIS	Linkage table to ensure that all related real estate objects are linked together

C2. GIS Component

The team in Nizhny Novgorod began procuring hardware and software for Nizhny Novgorod early in December 1994. Because procurement was begun at this time, Intergraph's GIS software, selected by the city, was available for the February demonstration. The specific packages used included Microstation, software used for graphic data entry and manipulation; MGE, used to link graphics with attribute data and perform geographic and spatial analysis; IRAS/B, an image processing package for binary data (raster imagery); and IGEOVEC, a program that allows easy vectorization of raster data. These four sets of programs were purchased to give the city the GIS functionality needed for the REIS, as well as the basic functionality required to develop a full-scale, city-wide GIS as resources became available.

⁷A raion is an administrative subdivision roughly akin to a county or parish in the United States. However, in the larger cities, such as Nizhny Novgorod, several raions may be found within the borders of the cities.

Maps of the pilot area were obtained and were scanned to convert them to digital format. In addition, floor plans of some pilot area buildings were also scanned. Those scanned images were vectorized as required (minimal vectorization only), and for the raster images not vectorized, centroids were created to which the attribute data for those parcels could be attached. Flat files were defined and data from the relational database were input to those flat files. The flat files were then attached to the centroids or other map features so attribute data could be related to the graphic elements.

C3. Evaluation of the Nizhny Novgorod Prototype

The system demonstration at Nizhny Novgorod was well received and was attended by over 30 people representing the City of Nizhny Novgorod, Nizhegorodsky Oblast, USAID/Moscow, the RPC, and others. The database software, while suitable for demonstration, was not ready for implementation in a production environment, and required additional design modifications. Specific problems included:

- The database was not structured around the documents supporting the registration function; this change in emphasis from real estate object to document was necessary to better organize and define the database.⁸
- The system did not store historical data; rather, each record in the tables was overwritten when another record was posted to that table.
- Quality control and security needed to be improved.
- The relationships among the various tables in the database needed to be more clearly defined and structured.

Notwithstanding these problems, the system could have been improved and delivered to the cities in a number of formats without difficulty. As noted, the system was originally written in Visual Object for Windows; it was also rewritten in FoxPro 2.6 by a contract programmer. Thus, the required changes could have been made in all three versions and other cities could have had their choice of database engine for a simple yet viable REIS.⁹ However, the decision was made by the then-REIS project management to redesign the REIS according to the needs in Yaroslavl and make that system the model for all REIS cities. The Yaroslavl system is described in the next section of this report.

D. The Yaroslavl Prototype

The Yaroslavl prototype REIS was distinct from the concept of the REIS as designed in Nizhny Novgorod. The reason for the difference stemmed from the city administration's strong desire to enhance existing data processing capabilities, which were already much greater than that

⁸This change was implemented in the "enhanced" REIS software. See E1a.

⁹Ultimately, the REIS prototype designed for Nizhny Novgorod was modified and structured around documents. This new design was utilized in the development of the "enhanced" software delivered to all the cities and implemented by the team in Barnaul.

of Nizhny Novgorod and the other cities. In response, a system requiring a substantial investment in hardware and unique software was designed.¹⁰

The city wanted to combine all of its databases, and it saw the REIS as the vehicle to do that. This led to the concept of the “merge,” a process by which the REIS computers would automatically and with little or no human intervention relate all data pertaining to a given parcel of land. The merge was also intended to consolidate or aggregate the data found in the existing disparate databases. This desire for an automatic merge drove the design of the system. While Yaroslavl was unique among the cities in its high level of automation—and the merge feature was cumbersome and problematic due to a lack of a common property identifiers—REIS project management determined that the Yaroslavl model would be used as the generic REIS model for all cities. For reasons discussed below, the approach to the city’s merge requirements proved unworkable in other cities, and ultimately the “enhanced” system was developed.

The Yaroslavl REIS, and the design in the other cities, represented an aggregation of components, all of which are prerequisites to a functioning REIS. These components include the legal framework, institutional/organizational requirements, the computer system itself, and administration and procedures.

The administrative component at Yaroslavl is represented by two organizations: (1) the REIS center, a new city agency established on November 27, 1995 and (2) participating agencies—the existing city agencies responsible for gathering and processing real estate information for the database and that have authority under present Russian law to register ownership and use rights. The first step in Yaroslavl was to create the legal basis for the REIS. This aspect of the project was one of the more difficult to achieve because the city attorneys felt strongly that federal legislation was a prerequisite. The objective of the Yaroslavl effort, and for all the cities, was the drafting and adoption of a number of critical legal parameters, acceptable to the city attorneys, including an initial directive from the mayor that the participating agencies be required to share information. Although this might be considered insignificant, data sharing is relatively unknown among Russian agencies, which historically have protected and hidden, not shared, their data.

The second stage of administrative development centered on the organization of the REIS center. As the development process evolved, the REIS organizational alternatives considered by the city administration included a municipal enterprise or a new department in the mayor’s office, either under the Analytical and Information Center or under the Committee for the Management of Municipal Property. The issue of ownership of the information figured prominently in this debate. The city administration, directed by the mayor, decided that no one agency owned any of the information; rather, it represented public information owned by the people who were represented by the city and its agencies. Chemonics had voiced this opinion earlier but was unsure whether the city would adopt such a position. Given the existing federal regulations and the relative political strength of various agencies, the ultimate resolution of this issue will not be known for a period of time. Nevertheless, the RPC apparently supported the position of the mayor by stating that it was firmly opposed to the municipal corporation theory—on the grounds that a quasi-private agency could not disseminate information as required under the “open access” requirement of the project.

¹⁰The hardware configuration developed from this design contained far more components than was necessary for the REIS itself, resulting in a greater hardware expenditure than may have been necessary.

The result was the legislative formation of a new department in the mayor's office under the guidance of the Committee for the Management of Municipal Property. The legislation also specified that the new REIS center director would be appointed and directed by the Analytical and Information Center. Although the legislation established the REIS center as an information center, it did not address aspects of registration, which the city anticipates to resolve at the time the federal law on registration is enacted. Also included in the legislation was the requirement of a new line item in the city budget financing the REIS center for the first fiscal year of operation. This funding, combined with the assignment of personnel, fee schedules, and a budget, completed the administrative component of the REIS.

D1. Use of Outside Consultants

The Yaroslavl database component was a joint effort between the city team and an outside consultant. Although the initial design rested with the team specialists, after three months' work in Yaroslavl, a decision was made to employ the services of a consulting firm with in-depth experience in database design and development using Microsoft's FoxPro 2.6 for DOS. Accordingly, an American firm, Prosoft, was retained to finalize the development of the system and modify it for use in all other cities. The consulting firm provided on-site specialists to assist in the software development over two and a half months. Database design in the remaining cities was essentially on hold pending development of the system in Yaroslavl. For various reasons, Prosoft's contract was not extended to permit participation in modifying the system for other cities. However, without the modifications the system was not operational in the other cities. This situation, coupled with the difficulties encountered in the "merge" and the "Core REIS" concept, ultimately led to the development of the "enhanced" system, discussed in subsection E below.

D2. Database Component

The Yaroslavl REIS database, like the REIS databases for the other cities, has two parts: a tabular or textual database, containing the attribute data associated with real estate objects, their owners, and the documents that create rights in them; and a graphic database of scanned floor plans, scanned building outlines, and vectorized large-scale city maps. This section describes the tabular database.

The Yaroslavl REIS tabular database contains two types of data. The two types are referred to as type A data and type B data. Type A data are the basic data required to support a real estate registry. Type B data include 28 additional data items that were deemed important enough to include in the REIS database by the participating agencies. No other data are included in the REIS database, thus keeping files to a manageable size.

As noted above, the city wished to use the REIS as a vehicle to aggregate the data it collected in various agency-specific databases. The goal was to create a complete, merged database at the REIS center. For this to happen, a property identification number had to be created that could be used to link the various data items together. As of the conclusion of the project on November 30, 1995, that number had not been created. Therefore, the merge was instituted by using the BTI number and letter which, for various reasons, is a much less optimal number for the merge. It is the city's responsibility to create this property identification number.

D2a. Organization of Database

The Yaroslavl REIS database organization reflects the high level of automation in the city's various land-related agencies. There are two separate but related "parts" of the Yaroslavl REIS database: the parts at the participating agencies, and the part at the REIS center. The system is designed such that data from the participating agencies feed the database at the REIS center.

When the REIS is implemented, agency personnel will enter the usual data. Data for the REIS will then be extracted from these sources and sent to the REIS center on floppy disks for entry into the main REIS database. By using the BTI Number and letter (and later the property identification number, when it is developed), participating agencies' data are merged such that real estate objects that are related are linked together. In this way, land parcels, buildings, apartments, built-ins, and rooms in an apartment can be properly associated. The merged data will then be sent back to the participating agencies for their review, correction, and use. Members of the public can thus access REIS data at the participating agencies.

As noted above, the REIS center data from the participating agencies are entered from floppy disks into the main database. In addition to this procedure, data are entered from individuals who come to the REIS center to process their papers evidencing registration of interests in real estate objects. The REIS center is also the principal place of access to the REIS database and the place where the title information report (see the next section below) is produced.

The Yaroslavl REIS data tables are similar to those used in the Nizhny Novgorod demonstration system described in subsection C. Thus, there are tables for parcels, buildings, apartments, built-ins, documents, owners, etc. A complete listing of the tables in the Yaroslavl REIS database is found in Appendix C of the Yaroslavl city report, which is attached as Annex B to this report.

D2b. User Interface

Yaroslavl REIS users include:

- Data input clerks
- Department and agency heads and other administrative personnel from the city administration, raion administration, and land committee who use the data in the system
- Members of the public who receive outputs from the system on their own real estate objects and other real estate objects about which they wish to receive information

The data input clerks' user interface consisted of a variety of data entry screens organized around the concept of the real estate object. Data were to be abstracted from the source documents and placed on an abstraction form. From this abstraction form, the data were to be entered into the system. The data entry procedure included a number of "pick lists" containing commonly used data items, such as street name, address, building type, land use, etc. The data entry clerk was to use these pick lists instead of typing data from the abstraction form. Two reasons for using the pick lists were to reduce clerical errors and to speed data input.

There were a number of problems with this user interface, including the organization of data. Because the screens were not designed to follow the flow of the source documents, it was difficult to enter the data from source documents directly. The abstract forms developed for this system also did not follow the source documents. Consequently, when completing the abstract form, the abstractor had to search the page when coding the data.

A second problem was the use of the pick lists. The pick lists had to be used from the menu bar, which increased the number of keystrokes or mouse clicks needed to access them. This also increased the time required to input the data. Finally, a number of screens were required to enter data on just one real estate object. If basic data regarding the object, such as the address of the object, had not been entered previously, even more screens had to be utilized. In short, the user interface for the data entry staff was somewhat cumbersome, although with practice those who used it became good at entering data using those screens.

Government users and members of the public primarily use data in hard-copy form. The principal data output form is called the title information report. The title information report contains the basic data required for registration purposes, primarily the type A data referred to earlier. More complete data are provided on the property information report form. This form contains all the type A data, plus all the type B data. As the REIS center is established, these reports and others may be available on line as well as in hard-copy format.

All property information collected at the REIS center will be delivered to each participating agency on a weekly basis. Therefore, each agency will have the capability to view all data, print the property information report (the participating agencies will not be able to print the title information report), and make it available to the public. The public may also access data at the REIS center.

D3. GIS Component

The Yaroslavl REIS used geographic information system software from the Environmental Systems Research Institute (ESRI). The GIS packages procured for the Yaroslavl REIS included PC-based ARC/INFO, version 3.4.2; ARCVIEW, version 2.0; and the Avenue programming language.

The graphic component of the Yaroslavl REIS was initially built by scanning 1:500 maps from the Chief Architect's Office, then cleaning and vectorizing them. Because the maps were "dirty," this process did not give the sharp graphic product required for the REIS. When the city obtained its digitizer, the 1:500 maps were hand digitized. This produced cleaner images and, although hand digitizing is a labor-intensive process, gave the needed results. In addition to digitizing the Chief Architect's maps, the Yaroslavl GIS specialist scanned building floor plans for use in the system.

With this combination of raster and vector data, the Yaroslavl REIS team envisioned an ambitious program of public access using the GIS. Using the digitized maps from the Chief Architect's Office, the planned outputs from the GIS included plot plans for individual owners showing the following:

- A drawing of the boundary of the property, along with the outline (footprint) of every building on the property

- Easements that affect the property as shown on the maps from the Chief Architect
- Pertinent data on adjoining properties

In addition to this vector data, the public access counter would also provide an image of the scanned floor plan of a building upon request.

The data in the FoxPro database was initially linked to the graphic data indirectly by the creation of a flat file, with the necessary data from the FoxPro database being copied to the flat file for use by ARC/INFO. However, the Yaroslavl GIS specialist was able to link the FoxPro tables directly to the graphics in ARC/INFO by using dynamic data exchange (DDE). This gave real-time access to the FoxPro database through the graphics stored in the REIS.

E. The Enhanced System

The Yaroslavl REIS, as developed by Prosoft, was considered somewhat problematic by the REIS teams in Nizhny Novgorod, Krasnodar, and Vladimir. Specific criticisms included:

- The Yaroslavl REIS was designed for use in a city with a high degree of automation in the offices that processed land or real estate-related data. Except in the case of Novgorod, similar offices in the other cities did not have that level of automation. Therefore, the model developed for Yaroslavl did not fit in those other cities and, because Novgorod had an established REIS, the Yaroslavl model could not be considered.
- The data structure of the Yaroslavl REIS was based on the same design flaw as the original Nizhny Novgorod prototype (corrected in the "enhanced" software), in that it was designed around real estate objects and not around the data-source documents.
- The user interface was especially difficult to use. One analysis revealed that it took 15 screens and 9 pick lists just to enter the data on 1 real estate object.
- The data structure was somewhat confused by the excessive use of reference tables.
- The merge process did not work properly without the creation by the city of a unique identifier, slowing system processing time.
- The system required an excessive amount of hardware.

It was clear that a generic model that was flexible and reliable was the optimum direction for development. For these reasons, in mid-June 1995, the REIS team decided to develop an "enhanced system" to replace the Yaroslavl system.

The enhanced system, or "enhanced REIS," was developed over a five-and-one-half month period, from the middle of June through the end of December 1995. The design and programming was supervised by Royal Cardon, a FoxPro development expert hired as a member of the Moscow REIS office. Mr. Cardon was assisted in the redesign effort by five system specialists: Timor Khokabura of the Yaroslavl team, Andrei Gavrilov of the Nizhny Novgorod team, Alexander Murzin of the Vladimir team, and Vladimir Zhuravlev and Rifat Gantsev of the

Krasnodar team. Natasha Abukanova of the Moscow office provided interpretation services and wrote much of the documentation. Additional support in documentation was provided by Dmitri Dmitriev and Andrei Shikolin of the training team.

E1. Database Component

The database component of the enhanced REIS was programmed in Visual FoxPro version 3.0. This software runs under Microsoft Windows for Workgroups or Windows '95. The programs may run on a stand-alone basis on one PC or may be modified for use in a file server environment. The reasons for selecting Visual FoxPro 3.0 are discussed in subsection B3b above.

E1a. Organization of the Database

To the extent possible, the database was organized not around real estate objects, such as land parcels or buildings, but around the documents that evidence rights in real estate objects. While the names of the various tables may appear to be the same or very similar to the names of the tables in the other two systems, the definitions of the fields in those tables were taken from the data-source documents.¹¹

Reorganizing the database around a document, as opposed to a real estate object, was a crucial conceptual breakthrough in the development of the system. Documents, not real estate objects, were the basic components of the manual system that the REIS supported. The REIS thus had to parallel the manual process. The BTI offices and the local land committees did not register real estate objects. They registered documents evidencing rights in real estate objects. Furthermore, the only source for data for the system was the documents themselves. To simplify data entry, the input screens had to follow the source documents. This was another reason to structure the system around the documents used in the various offices. Thus, the logical building blocks of the REIS were the documents processed by the agencies. Finally, during this time, the political emphasis had moved back toward the implementation of registries. A document-based system design to protect associated rights became a priority.

The database structure of the enhanced REIS differs from that of the Nizhny Novgorod system in that several of the tables used at Nizhny Novgorod were consolidated into one table in the enhanced REIS. For example, at Nizhny Novgorod documents were split between those of ownership and lease. The two were combined in one table in the enhanced system. Likewise, individuals and entities were in two separate tables in the Nizhny Novgorod system. In the enhanced REIS, they were combined into one table. By using codes, the differences between the types of data in the table can be differentiated. Using codes and consolidating tables reduced the size of the database, thus speeding processing time and conserving system resources.

The enhanced REIS also included a table entitled "Rights," which was a description of the type of right the "owner" had in the real estate object. The document that gave the owner the interest specified the nature of the right. The list of permissible rights in real estate objects is defined by the Russian Civil Code.

¹¹The screen layouts were designed to be in parallel with the fields as they appear in the source documents. Thus, data entry can take place directly from the source documents by simply reading through the document. Alternatively, abstraction forms can be used if the data entry staff is more comfortable abstracting the data first and then entering the data from the abstraction forms. Data abstraction forms were designed for use with this system and were included in the system documentation.

The enhanced REIS addresses the problem of the “merge” by requiring the data entry clerks or abstractors to identify which real estate objects should be related to other real estate objects. This is done manually and not by the computer software. Once the clerks have identified the objects to be linked, they can then input the data using the proper fields and keystrokes to establish linkages in the database. This combined computer/manual process is simpler than the automatic merge of the Yaroslavl system, and requires far less coding and error checking in the software. While this does require manual preparation of the data, which may in certain cases be rather time consuming, this process should result in fewer errors and mismatches of data. The latter is, of course, a material consideration for any future registry. Nevertheless, the Yaroslavl system provided for manual correction of transactions rejected by the merge, and the difference in effort between preparing transactions manually and correcting errors found after the merge may not be significant.

Finally, the “enhanced” REIS software provides for the maintenance of a “chain of title,” thereby creating a history of transactions affecting a real estate object that is important for the protection of rights created by the transactions.

In addition to the tables listed in Table III-2, a number of reference tables help the system operate more efficiently. Among these are tables for streets, raions, cities, entity types and agency types, all of which are linked.

Table III-2. Major Tables in the Enhanced REIS

Table Name	Description
Parcel	Contains basic data regarding land parcels
Building	Contains basic data regarding buildings
Unit	Contains basic data regarding apartments
Room	Contains basic data on rooms in communal apartments
Entity	Contains basic data regarding people and legal entities owning or leasing interests in real estate objects
Doc	Contains basic data about documents which create or transfer rights in real estate objects
Rights	Contains basic data about the rights which exist in real estate objects

E1b. User Interface

The user interface designed for the enhanced REIS has the look and feel of a typical Windows environment. The data input screens are set up as a series of tabbed cards, much like the options screen under the tools menu in Microsoft products such as Word or Excel. In entering data, the data entry clerk first enters parcel and building data, if available, then the unit (apartment or built-in) data, and finally the room data.¹² If data for the parcel, building, or unit are already in the system, the clerk simply creates the link for the object currently being entered with the appropriate “parent” object and then enters the appropriate data. The screens use color

¹²A room may qualify as a real estate object if separate rights attach to it as part of a communal apartment.

coding and other techniques to help the data entry clerk know which fields require data and which data are already contained in the database. For standard items, such as document type, building use, etc., pick lists can be activated either by typing the first few characters of the name or by simply clicking with the mouse on an arrow button located beside the field and then making the selection from the resulting pick list. When data have been entered on one screen, the clerk simply clicks with the mouse on the tab for the next screen and can begin data entry as soon as that screen appears. Data that carry over from one screen to the next automatically are displayed on the subsequent screen.

E2. GIS Component

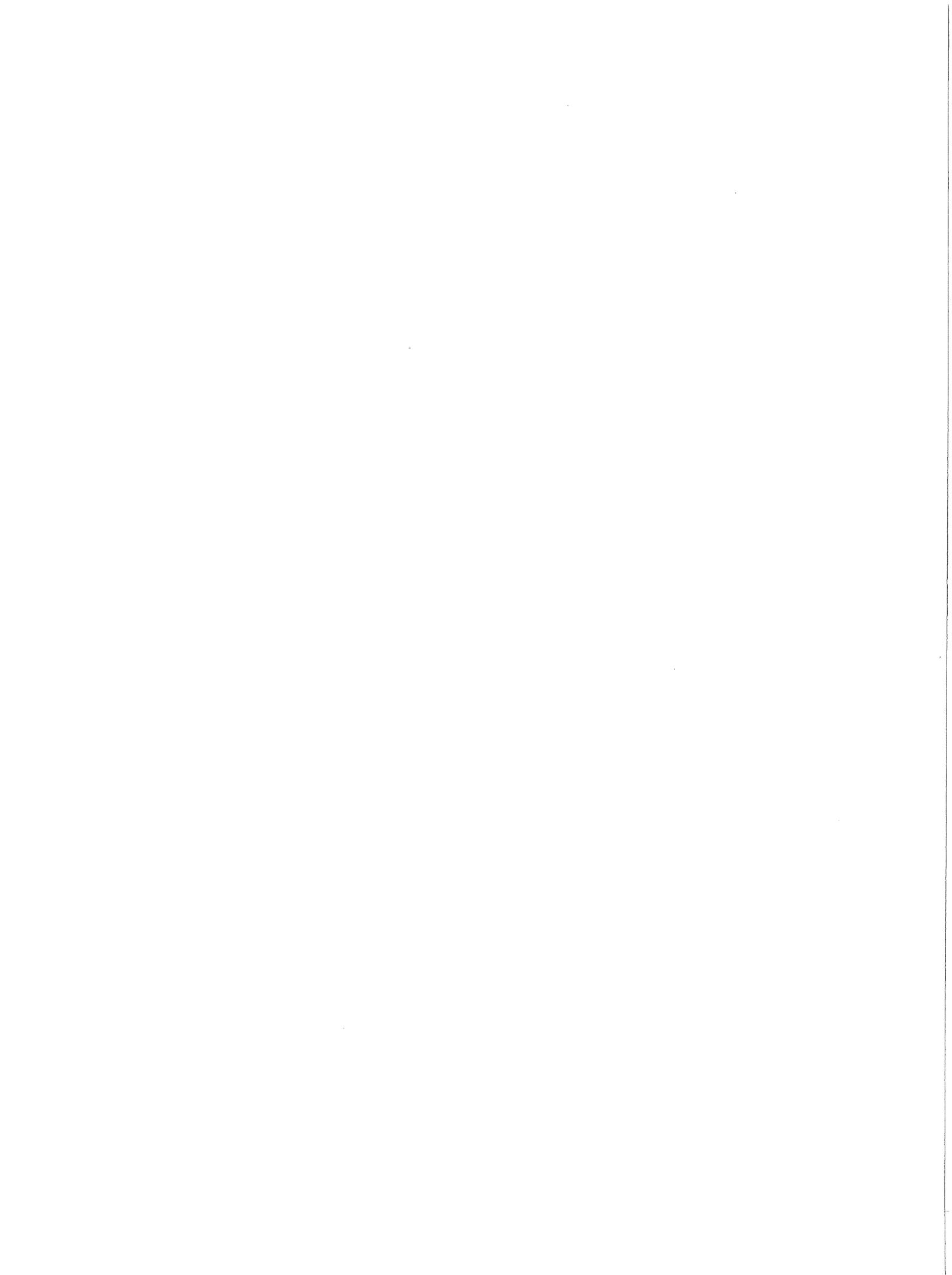
The enhanced REIS is programmed to be linked with a GIS component such as that of the Nizhny Novgorod prototype and the Yaroslavl system. Linking the attribute data contained in the enhanced system to the graphic features in the GIS requires a program to move the data needed for the GIS to a flat file, which is then linked to the graphic features. While not offering real-time access to the attribute data from the GIS, the updates to the flat file from the FoxPro database can be run on a frequent basis (e.g., once per week) so that the data in the GIS are relatively current. If a user accesses data from the GIS and wishes to receive more current information, the previous week's data can be accessed from the FoxPro database. Property information no more than one week old should not prove to be a problem for those in the Chief Architect's Office or others who might use the GIS for planning and analysis.

As noted earlier in subsection B4, three of the four original REIS cities selected ESRI's ARC/INFO GIS software, while Nizhny Novgorod selected Intergraph software. By writing data from the FoxPro files to a flat file for use with the GIS, virtually any commercial GIS software can be used by the REIS. Therefore, if the system is adopted by other cities and those cities choose other GIS packages, they should be able to easily use that software with the REIS by creating the flat file for use with the GIS and copying data from the FoxPro database into it. Linking the tables in FoxPro to the graphics in the GIS may also be possible by means of dynamic data exchange, as was done in the Yaroslavl system.

SECTION IV

IMPLEMENTATION IN THE CITIES





SECTION IV IMPLEMENTATION IN THE CITIES

While the REIS computer system is relatively uncomplicated, project implementation in the cities was not an easy task, involving more than hardware and software considerations. Political, legal, and budgetary concerns often required more attention than systems development. Specific issues faced by each city included:

- Drafting and adopting legislation to authorize the establishment and operation of the REIS
- Making changes in other organizations such as the BTIs
- Establishing, funding, furnishing, and operating the REIS office
- Hiring REIS personnel
- Generating and sustaining political support for the REIS

This section focuses on implementation in each of the REIS cities.

A. Establishing the REIS or Registration Offices

As stated earlier, USAID specified two primary objectives for the project:

- To assist local city administrations in establishing unified land and real estate information systems that would promote efficient, cost-effective procedures of land and real estate registration and property management
- To make available to individuals, as well as real estate professionals (brokers, mortgage bankers, and developers) real property records with sufficient information to verify title, encumbrances, and other property interests, as well as sales transactions, and spur the growth of real estate activity and real estate professions

Establishing the physical location of the REIS facility, creating a legal basis for its use and operation, and basic planning for its continued existence were necessary to meet the project objectives. These activities are discussed in the following sections.

A1. Enabling Legislation

To establish the REIS, the mayor of each city issued an order mandating cooperation among select bureaus and directing them to work with Chemonics to set up a REIS center. Subsequent legislation would establish the REIS office, appoint or direct the REIS center personnel, and establish rules and regulations governing the organization and operation of the REIS center and its use by the public.¹ The mayoral order directing cooperation by agencies was required by the city work plans approved by the RPC and USAID/Moscow. Without this official direction, agencies would not participate in the project. Furthermore, by requiring interagency cooperation on data sharing, many of the initial roadblocks to disseminating data were overcome. Subsequent legislation was developed with the advice of the Chemonics teams.

¹ This legislation was generally in the form of a decree or executive order by the head of the city administration.

While there was some difference among the ordinances enacted in the cities, their general provisions included a directive, usually to the city information department, to draft ordinances on the location, organization, and use of data within the REIS framework. According to this ordinance, a person would be appointed to coordinate the interdepartmental activities for REIS development. Agency cooperation would be determined by separate agreement with provisions for information exchange within the REIS framework. The ordinance establishing the REIS center would be accompanied by rules governing the submission of documents; the creation of a fee structure; assignment of personnel and definition of their duties; and the overall administrative organization of the REIS center. The ordinance establishing the REIS would also provide for public access to and use of the REIS center.

A2. Organizational Changes

Development of the REIS center organizational framework was the source of lively debate within the city administrations. Chemonics' city teams actively took part in these discussions.²

There were three models for REIS organization in the cities:

- Creating a REIS office as a separate department under the office of the mayor
- Placing the REIS office in the city property committee
- Organizing a new office as was done in Novgorod, where representatives from each cooperating agency (BTI, Land Committee, City Property Committee, Housing Privatization Committee) provided information and registration in a "one-stop" shop

Regardless of the model followed in the cities, creation of the new REIS office represented a fundamental organizational change.³ Staffing the REIS centers was accomplished by transferring active personnel from existing, cooperating agencies to the new offices. In some cases, the center hired system specialists who had worked on the project and were involved with the REIS development. Either a director appointed by the mayor or head of the municipal or city property committee was put in charge of center operation.

B. System Implementation

Because the Chemonics REIS teams worked with two separate systems—the Yaroslavl system and the enhanced system—there were two separate implementations. The first implementation followed Chemonics' contractual requirement that the teams input data from a pilot area into the REIS database. This requirement was met by the Yaroslavl system. The implementation of the enhanced system took place after the Yaroslavl system had been used in the pilot areas.

² These organizational discussions were not considerations in Novgorod because the REIS had previously been established.

³In Nizhny Novgorod, the REIS was established in a new Registration and Technical Inventory Unit within the City Property Committee. In Vladimir and Krasnodar, the REIS was established as part of the Office of the Mayor. In Yaroslavl, the REIS was made a part of the Municipal Property Committee.

B1. Creating the Pilot Databases

USAID directed the REIS team to identify, with city officials, an appropriate area to test the REIS. The size of the pilot areas varied among the REIS cities. In Yaroslavl, for example, the pilot area was 600 hectares in size and included 249 real estate objects of different types. In Nizhny Novgorod, the area was defined in each of two raions, with more than 2,000 real estate objects, primarily apartments in large apartment blocks. Using the Yaroslavl REIS, each city team entered tabular data on each real estate object in the pilot area. From the data in the database, the "Clear Title Form" was produced. This form shows the state of the properties' title and helps demonstrate how the system should operate. Each city was able to do this work, thus proving the effectiveness of the REIS concept. Teams in several of the cities also digitized the corresponding graphic data.

B2. Installing the Enhanced System

For reasons cited in Section III, the enhanced system was developed to correct the perceived deficiencies in the Yaroslavl REIS and to create a flexible "Core REIS." Development and testing of the enhanced code was completed in late November 1995, and was subsequently delivered and installed.

The systems specialists who programmed and tested the system delivered the code to the cities. Each specialist spent three days working with the cities to help them install and use the software. In this brief time, no extensive data entry work could be performed, but the city technical specialists were able to become familiar with the system. As of November 30, 1995, the system had been installed and was ready for operation in each of the four original REIS cities. The software also was delivered and installed in Barnaul and Novgorod by February 29, 1996 for use there.

B3. Training City Personnel

Extensive training was conducted in each REIS city. Training consisted of formal classes at Russian institutions and hands-on training by REIS team members on the installed software in the REIS offices. For the formal classes, the REIS training team identified training institutes in each city and evaluated the training results. Training classes included:

- Introduction to personal computers
- Database entry for the real estate information system
- Basic and advanced Windows
- Introduction to geographic information systems for computer operators and technicians

More than 100 people per city were trained in courses at Nizhny Novgorod, Yaroslavl, Vladimir, and Krasnodar.

Training at Barnaul and Novgorod took a somewhat different form. Budgetary and time constraints prevented Chemonics from offering the formal training courses provided to the other four cities. The project also added a requirement to implement the registration function (see Section C below) instead of to develop an information system to support registration. Training in Barnaul and Novgorod thus emphasized practical, hands-on experience in operating the "enhanced" REIS software in the context of a registration office for which it was designed.

Registration personnel in the two cities were intensively trained on the system, learning skills such as data abstraction, data entry, and report generation.

In each city, the REIS teams hired data entry personnel and trained them in techniques of data abstraction and data entry. This training took place over several months and resulted in a small but highly experienced and trained core of people who could effectively analyze and abstract records for the REIS.

Furthermore, the systems specialists and city co-team leaders on the project became experienced in the design, development, and management of computer systems to support the registration process. Two Russian professional staff were recruited for significant positions after their tenure on the project. Igor Rumyantsev, the city co-team leader in Nizhny Novgorod, was selected to lead REIS-type projects for the RPC. Alexander Murzin, a systems specialist who helped develop the enhanced REIS, was selected to be a member of the systems staff in Vladimir. He is responsible for implementing and enhancing the REIS in that city. The city co-team leaders in Yaroslavl and Krasnodar were selected to fill corresponding positions in Barnaul and Novgorod when Chemonics began working in those cities.

B4. Public Information and Education

Informing the public about REIS activities was accomplished via a separate communications project—a USAID effort to develop and administer a communications program in support of land reform and privatization in Russia.⁴ This complementary effort made several important contributions to the REIS project, including attitudinal surveys, privatization seminars, and television and radio spots explaining land privatization. The survey of Russian citizens' attitudes toward privatization contributed vital information to the REIS team, helping them better understand the political and social environment. The seminars held in various cities, including Vladimir and Nizhny Novgorod, provided much-needed information to government, business, and academic leaders about privatization. The television and radio spots explained privatization and encouraged citizens to take advantage of opportunities to privatize real estate objects or otherwise become real estate owners.

The REIS teams supported these efforts with added public information activities, including demonstrations of the software's use and capabilities in each REIS city. All demonstrations were successful. Members of the city administrations, representatives from oblast departments and federal government agencies, and members of the press attended the demonstrations—the latter provided favorable coverage in the local media. Thus, governmental officials at all levels and the public were able to learn about REIS.

Another successful event organized by the REIS teams was a series of roundtable discussions. These roundtables were hosted by the cities for city officials working on the project and interested members of the public, including realtors, mortgage bankers, developers, and other real estate professionals. Discussions focused on how the REIS operated and, more importantly, on the issue of public access to the REIS database and the necessary preconditions for permitting access. Real estate professionals and city government representatives had informative exchanges

⁴Communications Task Order, Contract # CCN-0005-C-00-3116-00. The contractor is Chemonics International Inc., with Ogilvy Adams & Rinehart as a subcontractor.

at these roundtables. Demonstrated enthusiasm for the REIS and public access to the REIS database during these roundtables will likely lead to continued discussions in the cities. The success of the roundtables led Chemonics to use such discussions much earlier during the subsequent Barnaul implementation, ensuring that the public was aware of the REIS project and its importance for development of a local real estate market.⁵

C. Implementation in Barnaul and Novgorod

REIS implementation in Barnaul and Novgorod differed from REIS implementation in the other cities. The work scope for the Barnaul and Novgorod phase of the project required Chemonics to implement a registration system—a requirement not imposed in the other cities—but only provided a four-month time period. In addition, the enhanced REIS software was completed shortly after the teams were deployed in Barnaul and Novgorod. This meant that the teams had working software to deliver to their cities almost immediately. With such software available, the teams could focus on tailoring it to meet the specific needs of the cities. The delays caused by software development in the other cities were not present in the work at Barnaul and Novgorod.

Another difference at Barnaul and Novgorod was level of experience. Except for the expatriate city team leader in Barnaul, all city team leaders and city co-team leaders were REIS project veterans. Consequently, they knew what to do and how to do it and worked more efficiently in those two cities than in the first four cities.

Despite the additional registration requirement, the work in Barnaul and Novgorod progressed more smoothly than work in the first four cities. In Barnaul, a comprehensive working group was established to guide the project, and each participating agency, including the police department, agreed to cooperate and provide the necessary data. City officials undertook an ambitious renovation effort to create the new office for the registration department. Basic consensus was also reached on the framework for registration legislation.

After completion of the user analysis, systems specialists at Barnaul modified the REIS software, making it more responsive to city needs. A pilot area was also defined, as was done in the four original REIS cities, and pilot area data was entered into the system to ensure that the software, as modified, met the city's needs. The pilot test was successful.

The experience in Novgorod was similarly positive. Before the REIS project got underway, Novgorod had created a real estate department composed of representatives from all city agencies responsible for registration of real estate objects. The real estate department acted as a "one-stop shop" for registration and was serviced by a computer system that stored far more data than was required for support of the registration function. This organizational structure, different from all other Chemonics' cities, required a change in the implementation strategy for the computer component of REIS. The large amount of data maintained resulted in the use of a client/server environment and the software provided by Chemonics was configured as a front-end tool. Chemonics' primary task in Novgorod was to help the city better define data needs to support registration, and to help the city select proper hardware and software. Chemonics' consultants worked with the city to identify needed changes to the REIS software and to implement those changes. When the software modifications were complete, selected data from the existing

⁵ The Barnaul Deputy Mayor created a permanent Roundtable Committee whose purpose was to continue the dialogue and information exchange on a periodic basis.

databases were imported into the REIS database to ensure that the system worked properly. The test results were again positive, as they had been in Barnaul.

While efforts at Barnaul and Novgorod have been successful, some problems arose because of the shortened time frame for these projects. The estimated time for the original REIS project was six months, which, as will be discussed in the conclusion of this report, was not adequate. The time frame in Barnaul and Novgorod was reduced to four months, which made completion of the required work more difficult, even though the software was already in place. Four months is too brief a time to introduce and enact legislation in Russia, particularly at the local level, which was preempted in this area by federal law. In addition, as mentioned in Section II D, implementation in Barnaul and Novgorod was affected by the Duma elections, which distracted local officials concerned about their political futures. In addition, a delay in the project start date—owing to constraints faced by USAID/Moscow—prevented much of the planned overlap between the original REIS project and the Barnaul/Novgorod project, and thus many project economies were lost. Unfortunately, the initial delay was exacerbated when USAID/Moscow tried to coordinate all real estate-related projects in Novgorod.

In spite of these difficulties, the work at Barnaul and Novgorod accomplished what was intended—an example of effective software implementation, and development of procedures for registration of documents that represent rights in real estate.

D. Summary

Each city implemented the REIS at its own pace and in its own way. While progress may not have been as great as expected, given the difficulties faced by the cities, the amount accomplished by each is remarkable:

- All have established a REIS or registration office and have appointed a director
- All have funded the office for the next fiscal year
- All have installed or are redesigning the software to best fit fluctuating local needs
- All have promised to provide some form of public access to the REIS database

While the project took much longer than the original estimate of six months, such time was necessary to allow the cities to make fundamental changes. While ultimate success cannot be predicted, the cities have done their utmost and have made a credible start.

Perhaps the degree of success is best illustrated by events at Nizhny Novgorod and Barnaul. In July 1995, it appeared that the project in Nizhny Novgorod had reached a standstill. While the city had created a registration office through appropriate enabling legislation, the city was not able to find facilities to locate the office and was even having trouble finding office space for the REIS team. Without the office space, it was unlikely the system would be properly implemented.

However, in less than six months, the city made dramatic progress. The city property committee, which had authority over the registration office, dedicated a building for use by the registration office. The building, a 2-story, 30-year-old facility, was renovated from the basement to the roof. The property committee committed \$200,000 of its own funds to pay for the renovation. Virtually completed by early 1996, the building will house the 28-person registration unit, including 8 lawyers dedicated to the registration function, to service an estimated 200 transactions per day. In addition to renovating the building, the property committee has invested

\$100,000 of its own funds to purchase two powerful servers to support the registration function. These servers will be networked to the computers the project bought for the city to support the eight registrars. The system and the registration unit are fully functional.

Despite the short four-month time period allocated to the Barnaul project, a new Registry was established in renovated space adjacent to the BTI. The city funded the renovation and a Registry head was appointed. The Chemonics REIS software is being modified to operate in a client/server environment, for security purposes and to allow expansion for city land use management. Finally, the city of Barnaul and the surrounding Altai Krai have committed to expanding the REIS throughout this region of Siberia and even solicited, unsuccessfully, USAID/Moscow to extend and expand Chemonics' work to include the Krai.

With the steady support of the Chemonics REIS teams in Nizhny Novgorod and Barnaul, and with the patience and dedication of key supporters of privatization in agencies in both cities, fully functioning registration offices have been established in these former cities of the Soviet Union. This is a remarkable achievement and reflects the success of the REIS project in Russia.

SECTION V

LESSONS LEARNED AND RECOMMENDATIONS



SECTION V

LESSONS LEARNED AND RECOMMENDATIONS

The REIS project laid a critical foundation of Russia's land privatization program. By demonstrating the information technologies necessary to support private ownership of real estate objects in an emerging democratic political system, the REIS pilot experience is a guide to the problems and opportunities Russia must address if its land resources are to be allocated efficiently. The unique features of the REIS illustrate important lessons that can be learned for further rationalization of the land market. Those lessons and relevant recommendations are discussed in this section of the report.

A. Lessons Learned

The lessons learned in implementing the REIS are divided into the following areas: legal and legislative; training and public awareness; institutional structure; and hardware and software development.

A1. Legal and Legislative

Russian laws affecting real estate and associated rights are maladapted and are the fundamental obstacle to creation of a robust real estate market. Existing laws on ownership and other real estate rights are limited. In particular, the teams discovered that registration procedures that were to be automated into a unified system were highly fragmented. Initially, it was thought that adopting a market-oriented registration law would make procedures more uniform so that system design could proceed rapidly. As stated earlier, the USAID strategy was to take advantage of what might be a limited opportunity to induce rapid change. In reality, the Russian legislative process is slow, particularly in a politically charged environment such as real estate. Consequently, a method had to be developed to work with existing laws and legislative frameworks while achieving the goals of the task order.

Information flow. Accurate, up-to-date information is critical. However, achieving the task order goals was complicated by an apparent interruption in information flow among USAID, the government, and the Chemonics team. For example, the shift in project focus from registration to an information system and its gradual return to registration apparently was not communicated to the local administrations with whom the teams worked. Compounding this problem was the apparent failure of the government counterparts in Russia to inform either USAID or the contractor that the cities had no inherent power to enact laws in general, and registration laws in particular, without federal authorization.

The lesson from this experience is that timely information-sharing among all involved parties is critical. The Chemonics team was able to deal effectively with the problems once they were clearly identified. Through intensive communication efforts between the contractor and the city administration, a method was found to enact administrative acts that did not rise to the level of a law and that did not require federal authorization. The result was the establishment of new administrative units, the REIS offices, and the cooperation agreements among the relevant agencies so information could be shared. This solution allowed laws already in place to be adapted to new organizations and regulations governing purely administrative acts.

Access. Public access to REIS became an issue beyond the control of the city teams. The legal problems with granting public access to the REIS database were discussed in Section II. While members of the Russian real estate community, like real estate professionals in the United States, were eager to have public access to real estates records, that desire was not uniformly shared by agency officials, agency staff members, and some members of the public. This resistance could be explained by the strong residual influence of Soviet attitudes against transparency in managing public records. However, the attitudes were also supported by restrictive federal laws (as noted in the discussion of the Russian legal setting in Section II B1a), which severely constrained the project's efforts.

To overcome the problems arising from resistance to public access and restrictive federal laws, the teams emphasized that REIS data must be made available to those who need it for the market to function. The city teams also reviewed with the city administrations ways to protect sensitive information and maintain privacy. Ultimately, the only way to address the problem of restricted access is through an education campaign emphasizing the economic benefits of open access.

A2. Training and Public Awareness

Training was limited by the six-month time period originally scheduled for the project. While the training program was useful and effective, the need to begin training before system development and delivery of equipment restricted its scope to basic computer skills and GIS training. On the other hand, personnel in Barnaul were able to receive hands-on training on the system because both equipment and software were available early in the project. In contrast, in the original four cities and using local institutions, training was begun early but not on completed and installed software.

In the future, software should be delivered in time to allow for proper training on the system before the project concludes. A combination of early basic computer training and supplemental hands-on training at the end of the project would also solve the problem so long as the software is available in time.

Finally, public awareness of the concepts and underlying benefits of real estate reform and registration proved to be a significant factor in REIS gaining acceptance in the cities. The REIS teams presented demonstrations and held roundtable discussions for city officials and the public combined with a complementary communications project. The open forum atmosphere that characterized the roundtables permitted real estate professionals, bankers, and the public to interact with and question city officials on the benefits of REIS and private real estate markets.

A3. Institutional Structure

Perhaps the most important lesson learned in the implementation of the REIS was that without proper political support from the city administration head, the project cannot succeed. Implementation of the REIS involves reallocation of roles and responsibilities within the agencies that currently collect and manage real estate information. Decisions will have to be made on personnel changes, and on new rules and procedures. Such institutional reorganization can only be managed by firm decision-making at the highest levels of the city administration with the cooperation of the surrounding oblast administration. The REIS teams were well into implementation when issues arose over federal involvement through the oblast administration. Originally, it was felt that oblast participation was unnecessary. However, as the project

progressed, the teams learned that oblast involvement could be critical in supplementing the political will in the cities. Both in Barnaul and in Nizhny Novgorod, the surrounding krai and oblast supported and put political pressure on the city administration and participating agencies.

Finally, agencies dealing with real estate should be involved from the beginning in a discussion of the REIS purpose and scope. The cities must form "working groups" of agency representatives at the start of the project.

A4. System Development Process

Each team learned that it took much longer than expected to collect information and analyze a city's readiness to implement a REIS. The time for analysis was extended by the additional time needed to determine requirements. Lack of early agreement on requirements delayed the system development process. Concurrently, procurement rules and the length of the approval process measured against the time frame of the task order resulted in acquisition of far more equipment than was actually required for the REIS. More important, the extra equipment costs used project funds that could have been spent more effectively on system development.

To avoid this situation in future projects, the lessons learned from REIS implementation in Barnaul bear repeating. In the case of Barnaul, the system developed for information gathering was proven, and analysis was able to proceed quickly and efficiently. Furthermore, the development process was measurably accelerated because the knowledge already existed of what was needed for a basic system, and the local administration firmly grasped what the project intended to achieve.

In addition, development of the generic "enhanced" REIS avoided having to design in features unique to cities. At the same time, this generic design could be modified quickly to reflect the unique requirements of each city.

B. Recommendations

The lessons learned in implementing the REIS project have important implications for Russia's future actions to maximize land resource productivity, and how donors make best use of their limited resources to help that process. Recommendations from the REIS project experience fall into two broad categories: actions to improve the private real estate market, and actions to sustain the REIS pilot program.

B1. Improving the Private Sector Real Estate Market

The REIS is a partnership between private, profit-motivated interests, and public fiscal and judicial interests. On the private sector side, the REIS is the foundation for establishing standardized ways of describing real estate that reduce the information component of private real estate transactions costs. With such a large stake in the success of the REIS, the private sector real estate industry, if proactively involved, will help generate benefits for all participants in the real estate market.

Aggressively promote REIS to private real estate firms. There is a growing private real estate market in Russia. Indeed, one of the largest supporters of the Barnaul project is a private real estate company. Located in the heart of Siberia, this company has a complete staff of real estate sales agents and appraisers and offers an extensive range of transaction services to buyers

and sellers of apartments and other real estate objects. The company is a model of entrepreneurial activity and works closely with city and land committee officials to improve Barnaul's real estate market. In the other Russian cities where Chemonics has worked, similar private real estate companies appreciate the REIS and understand how the REIS will strengthen their respective real estate markets.

Encourage standardized real estate market procedures. Perhaps the best way the REIS project or other similar projects can help to improve the private real estate market is to develop the procedures and systems that eliminate the problems accompanying current real estate transfers in Russia. An example from the Nizhny Novgorod roundtable illustrates the point. This meeting was perhaps the first time that real estate representatives met with city officials to discuss problems in private real estate sales. During this session, the real estate professionals emphasized that their clients required a procedure that allowed the transfer of title to real estate objects in less than one day. When asked the reason for this requirement, they explained that many of their clients did not live in Nizhny Novgorod, but came to the city from other places to transact their business. Their schedules were such that they would come to Nizhny Novgorod in the morning and leave the same night. They simply did not have the time or other resources to spend several days in the city waiting for the paperwork to be processed. The city officials at the roundtable were not aware of this requirement. Existing procedures did not take into account the needs of the real estate investor, who did not live in the city and came only briefly to complete a transaction. Yet members of the real estate community dealt with these city officials on a regular basis, and bore the difficulties of working with clients under severe time constraints.

Promote transparency of public real estate records. During the roundtables, public officials and the real estate community discussed common problems and began to identify practical solutions. Such meetings were an achievement in themselves. While interactions between government officials, attorneys, and real estate professionals is commonplace in the United States, it was unheard of in Russia before the REIS project. Fostering such dialogue and helping to develop institutions and procedures to streamline real estate conveyance procedures promote transparency and accountability in managing public real estate records. As such, it is perhaps the best way to help improve the real estate market.

Use REIS to track real estate market trends. One of the main constraints to an efficient real estate market is the lack of timely, accurate information on trends in property values. The REIS is well suited to record these data, and public access interests should argue for transparency in freely sharing these data among all real estate market actors, including property buyers and sellers, real estate financing institutions, and local government property tax agencies.

B2. Ensuring REIS Sustainability

For a city administration, the development and implementation of the REIS is the beginning of a large effort to streamline and enhance one portion of its overall real estate management program. Critical to long-term success is the sustainability of the system. Sustainability includes the fiscal, legal, training, and political support that a city administration can provide. Failure of any one of these components will limit the effectiveness of the system.

Maintain a REIS center in each city. A starting point for developing a sustainable system is the REIS center. Normally established by mayoral directive, it is followed by a city ordinance specifying operational rules plus a law establishing the office. In the REIS cities, the development

time under the USAID contract failed to realistically consider this aspect of the project. Even so, appropriate legislation must be developed if the project is to have long-term viability.

Develop a strategic plan for each REIS center. Each city team was required to work with the city administration to develop an implementation plan to guide REIS development. Although the implementation plan was to be a task to be completed at the latter stages of REIS, the time needed to address complex issues during the project was considerably greater than originally assumed in the work plan. Finalized toward the end of the project, the implementation plan was a joint effort by Chemonics and each city to develop a sustainable action plan once Chemonics' project assistance ended. Consequently, fiscal and political support were reflected in the plan to obtain the city administration's agreement on the necessary future actions.

Secure recurrent budget support. An important part of the implementation plan is a budget and staffing section whereby the city commits to funding the operation of the REIS center. Functioning as a small business plan, the budget and staffing component of the plan is designed to show that sufficient staff will be dedicated to the REIS center, and that the center will be adequately funded for at least the first fiscal year after completion of USAID assistance. It is also necessary to include adequate and rational time frames for implementation, as well as a schedule of fees that will be assessed to users of the system.

Preserve flexibility to maintain appropriate data. Sustainability from a fiscal standpoint also involves the quality and quantity of data, the amount of equipment, and ease with which the system can be modified to reflect changing conditions. Too massive a database will preclude effective sustainability and will require increased capacity, both in equipment and personnel. This occurred in Novgorod, where the city developed a large and unwieldy system that now must be simplified to become an effective registration support system. A flexible system permits gradual, modular development consistent with a city's ability to staff and fund the REIS operation.

Strengthen political support for REIS. Political will is also reflected in the implementation plan as important for sustaining the REIS. That the city administration is willing to establish written guidelines for future development is a major commitment toward sustaining the system. Promulgation of laws that explicitly detail center operation and its relations with the public creates a strong incentive to succeed. Establishing the legal basis and signing the implementation plan with future commitments are a foundation for sustaining REIS. A signed implementation plan submitted to RPC is a quasi-legal document, which while not enforceable, is a reasonably strong moral commitment to continue the REIS program independently.

Institutionalize continuing education and training for REIS staff. Adequate training in the actual system must occur to ensure a sustainable base of REIS staff, both now and in the future. Minimal training should include intensive instruction in the designated system and thus must occur in the second half of the project. Additional training in real estate concepts and conveyance procedures should be undertaken to create a thorough understanding of the REIS and should be provided in conjunction with technical training on REIS data management operations.

ANNEX A

CITY FINAL REPORTS INTRODUCTION





ANNEX A
CITY FINAL REPORTS
INTRODUCTION

Chemonics prepared individual final reports describing the REIS project in the cities of Yaroslavl, Nizhny Novgorod, Vladimir, and Krasnodar. The reports detail the strategy used in each city, describing the project goals, methodology, and specific inputs and outputs. The final section of each report summarizes the lessons learned and suggests alternative methods for future projects.

The reports are intended as summaries and are thus brief. Nevertheless, the information they provide is important to understanding the scope of the problems and the solutions developed by members of the city teams.

ANNEX B

**CITY OF YAROSLAVL REAL ESTATE INFORMATION SYSTEM
FINAL REPORT**



ANNEX B
CITY OF YAROSLAVL REAL ESTATE INFORMATION SYSTEM
FINAL REPORT

A. INTRODUCTION

In May of 1994 Chemonics International signed task order number 3-0059 under contract number CCN-0006-C-00- S116-00 with the U.S. Agency for International Development (USAID) to assist the government of Russia with its effort to privatize land and other real property. The scope of work for the task order focused on the development of a registration system for real estate and on systems to issue certificates of owner and user rights. In September of 1994, the scope of work was amended to change the focus from registration and certificates to the development of integrated Real Estate Information Systems (REIS).

Four cities selected for the initial effort by Chemonics were: Nizhny Novgorod, Yaroslavl, Vladimir, and Krasnodar. Chemonics recruited specialists in project management, titling and registration, and automation in the United States and Russia and formed teams to work in the four cities. Orientation was completed in Moscow in mid-October and the teams were then sent to the selected cities to conduct "city assessments" at the end of October. The assessment for Yaroslavl was completed on November 5 by a five-person team consisting of the following people:

- Charles F. Dean, City Team Leader
- Vyachslav Solovyov, Co-Team Leader
- Lee Brennan, Titling and Registration Specialist
- Sheldon Bluestein, Automation Specialist
- Igor Birukov, Automation Specialist—GIS
- Alexander Sokolov, Automation Specialist

Immediately following completion of the assessment report, Chemonics established its office in Yaroslavl and the team started work with the city government and the agencies whose responsibilities included real estate. On November 22, 1994, a protocol of intent was signed among the city, the Russian Privatization Center (RPC), and Chemonics confirming the goal of the REIS in Yaroslavl and outlining the responsibilities of all parties.

For the purpose of this report, the term "Yaroslavl REIS" is used to describe the system designed by Chemonics in Yaroslavl, which consists of two main components: the administrative component and the automated database component.

The administrative component includes the "REIS center" and the "participating agencies." The REIS center is a new entity established on November 27, 1995 by an ordinance of the Mayor of Yaroslavl. The participating agencies include agencies in the city which share responsibilities for gathering, processing, maintaining, and disseminating information on real property and those which have existing authority for registration of ownership and user rights. (see section C below for listing of agencies).

"YarREIS" is used to refer to the automated database designed by Chemonics to integrate the data from the participating agencies into one system shared by the REIS center and the

participating agencies. The data will be made available to the public and other users. The automated database includes two sub-components: one for the attribute (text) data and one for the graphic (maps and plans) data. The graphic data is made available through the use of a Geographical Information System (GIS).

The term "enhanced REIS" is used to describe the database developed by Chemonics for use in many Russian cities.

B. Goal and Objectives of the Yaroslavl Reis

The task order indicates the project should: "spur the creation and development of real estate markets by making available integrated and reliable information on real property title and encumbrances." Specific objectives include:

- Assist local city administrations to establish unified land and real estate information systems which contain all information necessary in a registry and which would promote efficient, cost effective procedures of land and real estate registration and property management.
- Make available to individuals, as well as real estate professionals (brokers, mortgage bankers, developers) record files on real property with sufficient information to verify title, encumbrances and other property interests, and record sales transactions, sufficient to spur the growth of real estate activity and real estate professions.
- To develop a cadre of Russians to roll out the program nationwide.

C. Approach to Task and Methodology

Chemonics assembled a joint Russian-American team of highly skilled specialist in project management, titling and registration, and database automation.

Following a two-week orientation in Moscow, the team conducted a city assessment to confirm that the city was interested in the development of a REIS and that they shared the goals and objectives of the task order. The next step was to sign an agreement (protocol of intent), which was done on November 22, 1994. Chemonics established an office in space provided by the city and started discussions with a "working group" consisting of:

- Analytical and Information Center (AIC)
- City Bureau for Technical Inventory (BTI)
- Committee for Management of Municipal Property (KUMI)
- Land Committee
- Chief Architect's Office
- Housing Department
- Housing Privatization Agency
- License and Registration Chamber.

A draft work plan for phase one was prepared by Chemonics and presented to the working group in mid-December, reflecting several weeks of discussions and information gathering. The work plan was revised to incorporate comments and criticism from the working group, the Russian Privatization Agency, and USAID. The phase one work plan was an important tool for

the coordination of the efforts and kept USAID and the RPC informed of the progress of the project. The plan was revised from time to time as the project developed to reflect minor changes in the methodology and structure.

The main tasks listed in the work plan were included in a project management system using "Microsoft Project" which allowed the main tasks to be broken down into 119 subtasks and to assign resources (people and institutions) for each subtask. The project implementation schedule was printed as a wall (Gantt) chart in both English and Russian and copies were distributed to the city, the participating agencies, and the RPC.

D. Main Tasks and Project Timeframe

Implementation of the REIS in Yaroslavl occurred in four phases.

Phase one (Nov. 1994 to July 31, 1995). The main tasks in the phase one work plan were:

- Conduct a user analysis to determine the best method to achieve the stated goal and objectives of the REIS in Yaroslavl.
- Design and develop an appropriate "application" (computer software program) for the Yaroslavl REIS database.
- Prepare specifications and purchase computer hardware and software.
- Select a small geographic area of the city to carry out a "pilot-demonstration" of the Yaroslavl REIS design.
- Demonstrate the results of the pilot project to city officials, technicians, and potential users of the REIS.
- Adjust and modify REIS design to reflect comments on demonstration.
- Conduct training for future staff of REIS and for staff of agencies participating in the REIS.
- Deliver, test, and install computer hardware, software, and related equipment.
- Assist the city in providing information to the public and other users of the REIS.
- Assist the city in preparing an implementation plan for further development of the REIS after the departure of Chemonics at the end of phase one.

The phase one work described above was essentially complete by July 31, 1995. The main tasks which were not completed on schedule were the delivery, installation, and testing of the computers and on the job training.

Phase two (Sept. 1, 1995 to Nov. 30, 1995). Phase two included the following main tasks:

- Provide assistance to establish the legal basis for the REIS
- Deliver, install, and test hardware and software

- Assist in setting up the REIS center
- Conduct intensive on -the-job” training
- Disseminate public information regarding the REIS

Chemonics completed its work in Yaroslavl at the end of phase two. Further development of the REIS will be done by the city.

Phase three (Dec. 1, 1995 to Feb. 28, 1996). Work in phase three could not start until after the city had legally established the REIS, hired staff, and made funding available. The REIS was established on November 27, 1995 and the director was named on November 28. Phase three work will include the hiring of staff for the REIS center, hiring additional staff in each of the agencies participating in the REIS, and training them to provide information services to the public and other users. This should be done by the end of February 1996 with the REIS opening for limited service on March 1.

Phase four (March 1, 1996 to March 1, 1999 ?). There are approximately 270,000 real properties in Yaroslavl. Most of the documents describing the properties are in paper format in the BTI. Other data is already in electronic format (computer systems) in the other agencies and conversion programs will need to be written to transfer this data to the YarREIS. Chemonics has estimated that it will take three to five years to enter the minimum required data on these properties into the REIS. At the same time, the REIS center will need to enter data on new transactions and new properties created through new construction, subdivisions, and changes in ownership and user rights. Phase four will be an on-going process involving upgrading and expansion of the computer hardware and software, staff training, and adjusting procedures to the evolving legal basis for real estate development in Yaroslavl.

E. Review of Project Inputs

Inputs by the Russian Privatization Center (RPC). The Yaroslavl office of the RPC has assisted the project through liaison with the RPC in Moscow, introductions to the city agencies, and by providing policy guidance.

Inputs by USAID. USAID provided the grant funding for the Chemonics contract, including the funds for the computer software, hardware, and Chemonics’ technical assistance. They also provided advice and guidance during periodic reviews of the project.

Inputs by the city and the participating agencies. The city and the agencies participating in REIS have provided the information on the present systems. In addition, the city made a commitment to accomplish the following items when they signed the protocol of intent on November 22, 1994 and the agreements of August 11, 1995 and October 31, 1995 (Transfer of Computers):

Main items to be accomplished by city during phase one.

- Designate an official to assume the primary responsibility for development of the REIS.
- Designate a working group of agencies participating in the REIS.

- Implement “official acts” to ensure cooperation from and among the participating agencies for the collection, storage of documents and maps needed for the design and development of the REIS.
- Ensure “reasonable access” to the information in the REIS by public and private sector interested parties.
- Create and maintain conditions to ensure sustainable operation of the REIS.
- Assist in establishing favorable conditions for implementation of the REIS among the public and private sector bodies.

Main items to be accomplished by city during phase two.

- Provide access to the information needed in the development of the REIS.
- Develop, with Chemonics, an implementation plan for the future development of the REIS after the departure of Chemonics (Phases Three and Four).
- Issue a regulation on the REIS specifying its status and operating procedures and providing for a timely input of data into the REIS.
- Provide for access to the REIS by users, compliant with Russian legislation.

Items by city in phases three and four. During phase three, the city will need to enact additional ordinances to guarantee that the agencies contribute the required data to the REIS and make it available to the public and other users. There will also be a need to hire staff, make alterations in the office space for the REIS center, and develop detailed policies and procedures. It is hoped that the city will also be able to issue an ordinance to provide for a centralized registration system, pending approval of federal legislation on the centralization of the registration of real estate.

Main inputs by Chemonics. The main inputs of Chemonics were technical assistance, training, and computer hardware and software as required to accomplish the tasks listed under phase one and phase two.

F. Review of Project Outputs

F1. User Analysis

The first main task was to conduct a user analysis, which was completed on February 17, 1995. The purposes included:

- Confirming the goals and objectives of the city and the participating agencies.
- Understanding and recording the current situation within each of the participating agencies.
- Identifying the problems with existing real estate information and registration and making recommendations for an improved system.

During the analysis, Chemonics confirmed that the current system is fragmented with information on real property scattered among eight different agencies and with the registration of owner and user rights divided among five agencies. The city confirmed that their main goal was to develop a real estate information system that would be capable of assembling the most critical data from these different sources at a central point. They also confirmed that a second goal was to develop a central registration system that could be used in the future when appropriate legislation was enacted. The city also determined that the system should be capable of assembling the data automatically and electronically (by use of computers). Chemonics' recommendations included a preliminary design of a integrated database as part of a real estate information system (REIS). The REIS was designed to provide reliable information to the public and to other users as a first step, to be followed by conversion to a central registration system when new legislation was passed. The user analysis included specific recommendations for the procurement of the appropriate hardware, software, and related equipment.

F2. Design and Development of the Yaroslavl REIS Database

Following the completion of the user analysis, Chemonics designed a database to meet the requirements as stated by the city and to comply with USAID's directive to establish a unified real estate information system. The YarREIS was designed to automatically assemble electronic data into one central location, the Yaroslavl REIS center, thus solving the existing problem of data fragmentation among the eight agencies. A second major objective was to provide a link between the land parcels and the buildings and other improvements resting on the land parcels. Under the existing system, the information for land parcels is maintained by two agencies (the Land Committee and the Chief Architects office) and the information on buildings and improvements is maintained by the BTI and other agencies. The information on the land is not linked to the buildings on the land.

The initial design work was done by Chemonics, combining the efforts of specialists in overall management and administration, automation, and titling and registration. In March 1995, Chemonics hired an American firm, "Prosoft" of Fairfax Virginia, to assist with the further development of the Yaroslavl REIS database. It was to be modified as a "prototype" database for use in the three other Russian cities participating in the project.

The basic software selected for the YarREIS database was Foxpro 2.6-B, running on DOS for the attribute (text) data and ArcInfo 2.0-Avenue - ArcView for the GIS. The first version (version 1.0) of YarREIS was demonstrated to the city and the agencies participating in the REIS in early June 1995. During the period from June to November 30, the YarREIS database was improved and version 1.5 was delivered to the city and the participating agencies at the end of November, just prior to the completion of phase two by Chemonics. The YarREIS database is primarily concerned with providing information on the estimated 270,000 real properties currently existing in the city and with recording new transactions as they occur; it does not provide an automated registration system. However, the main output of the YarREIS is the "Clear Title Form," which contains all of the data required for a centralized registration system. As soon as the necessary legislation is enacted, the YarREIS clear title form can be used for a document based (paper) registration system. (Note: almost all real property registration systems in the United States rely upon paper documents to provide evidence of ownership rights and use).

When using YarREIS 1.5, the Property Identification number (PIN) must be entered by all agencies contributing data for the merging of data at the REIS center. The city has not yet established a PIN for all areas of the city. Until this is done, data should be entered one city

section at a time, taking care that the BTI numbers and letters are made available to each agency for the properties in that section, before the data is entered. This will ensure that the real property (buildings) are linked to the land parcel on which they rest.

In June of 1995, a decision was made to develop an enhanced Chemonics REIS database that could be adapted for use in many cities. The enhanced REIS is focused more on the registration process; however, it also has the capability to include type A and type B data in a central database at the REIS center. In its present form, data can only be entered electronically at the REIS center. Each of the participating agencies must extract the required data from their files, and manually enter them on a paper form. The paper forms must then be transmitted to the REIS center where they can be entered into the central database. The system does not have the capability to merge (assemble) data from a number of sources electronically. The basic software selected for the enhanced REIS is Foxpro 3.0, which is designed to work with Microsoft Windows 95, Foxpro 3.0 is a much improved version of Foxpro 2.6.

During phase three, the city of Yaroslavl will need to evaluate the two applications and decide which one best fits its needs. In the meantime, Chemonics has installed both versions at the REIS center and have provided documentation for both versions. The YarREIS version 1.5 has been installed at each of the participating agencies. Chemonics has also installed the software for the GIS, ArcView, at all agencies and the REIS center. In addition, Chemonics installed ArcInfo and Avenue at the Chief Architects Office and at the REIS center, along with the GIS application developed by Chemonics for the pilot area and the Kirovsky raion.

F3. Design of the REIS Administrative System

The ordinance to establish the Yaroslavl REIS center was signed on November 27, 1995 along with temporary regulations for its operation. The director of the REIS was named on November 28. The working group will continue to function as an advisory committee to the REIS center.

Chemonics recommendations for the administration and management of the Yaroslavl REIS are included in the phase two work plan including: recommendations for the organizational structure, staffing, physical office space of the REIS center and budgets. During phase three, the Director of the REIS center will hire the initial staff. Staff training will include entering data into the REIS and testing the assembling (merging) of data from the participating agencies. The YarREIS database requires human intervention and human decision making to function properly. The experience of Chemonics in the pilot demonstration project provides a base to build upon during phase three, when more detailed procedures must be developed.

F4. Procurement of Hardware and Software

Chemonics prepared specifications and bid documents for competitive procurement of hardware and software according to USAID regulations. The specifications were completed in March 1995, based upon the findings of the user analysis. The computers, related equipment, and software were purchased and delivered to Yaroslavl in July 1995. Chemonics, USAID, and the RPC collectively entered into an agreement under which the equipment was transferred the city. The following equipment was distributed to the city agencies: computers (23), printers (12), scanners (4), plotters (1), digitizers (1), CD writer (1), modems (8), UPS (8), and copy machines (2).

F5. Pilot Demonstration Area

In March of 1995, Chemonics and the working group selected a 200 hectare section in the Frunzensky raion of Yaroslavl to test the design of the YarREIS database. The pilot demonstration area includes 249 real properties (real estate objects) including residential apartment buildings, small wooden houses, industrial buildings, and commercial and institutional buildings. Each participating agency was given a map of the area along with the data elements required. The data were entered into separate computers at the Chemonics office, with one computer representing each agency. The data were then merged into one central database. After the data had been merged, the attribute data were linked to the GIS data including the following five items for each of the 249 properties: location of adjacent property, boundaries of each parcel, location of buildings within the parcel, floorplans, and easements.

The database was then demonstrated to several small groups of officials and technicians and adjustments were made. Testing included selection of owners names or property address at random, and then printing two types of reports: the clear title form, and the property information report. The results of the pilot demonstration area were presented to a large formal group of about 70 people in city hall on June 7, 1995.

F6. Training

The Chemonics Moscow training team arranged for a series of entry-level training courses in Yaroslavl in cooperation with the Yaroslavl team and the working group. A total of 92 people from the participating agencies received training. Of this number, 30 received training in "Windows," 58 in "Introduction to PC's," 23 in "Data Entry" and 18 received training in "GIS Introduction." This training took place over a period of several months through the spring and summer of 1995. In October and November 1995, Chemonics provided additional intensive training to 14 people, designated by their agencies as those who would work on the REIS.

Additional training will be required for the staff of the REIS center when they are hired during phase three. This will need to be done by those already trained or by local Russian computer specialist working for private firms under contract with the city.

F7. Delivery, Installation and Testing of Computer Hardware and Software

There was a delay in working out the agreements among the city, the RPC, Chemonics, and USAID for the transfer of the computers and equipment from Chemonics to the city. Final approval was given on October 31, 1995, and delivery and testing started on that day. As of November 30, 1995, the installation of all computer software and hardware had been completed with some minor exceptions.

F8. Implementation Plan

Phase two implementation plan was approved by the RPC on October 31, 1995. It served an important purpose in focusing discussions of the working group during the period from August to November 1995. It also provided an outline of the work in phases three and four. There is general agreement on the plan. However, it will need to be revised again soon now that the REIS center has been legally established and a director has been named.

F9. Assistance for Legal Basis of REIS

In August 1995, the city asked Chemonics to provide assistance in drafting the legal documents needed to establish the REIS as a legal entity. Chemonics retained a Yaroslavl attorney to review the existing legislation related to real estate information and registration and then worked with attorneys assigned by the city to prepare a draft ordinance and related regulations. Three alternatives were considered by the city in establishing the REIS: a municipal enterprise, as a department of the mayor's office under the Analytical and Information Center, or a department of the mayors office, under the KUMI. The final decision was made in late November to establish the REIS as a department of the mayor's office under the day to day guidance of KUMI. However, the director of the REIS center will work under the direction of the head of the Analytical and Information Center. The working group will continue to function as an advisory committee. The initial function of the REIS will be information. The question of establishing a centralized system for registration of property ownership and user rights will be resolved at some future date.

F10. Public Information about the Yaroslavl REIS

The city and Chemonics sponsored a REIS round table on November 22, 1995 to describe the REIS to private sector people involved in real estate and to get their comments and recommendations. Participants included real estate developers, notaries, appraisers, attorneys as well as government officials. The overall reaction was positive and more events of this type will be arranged by the city during phase three.

G. Lessons Learned

The major tasks in the work plan were completed and the Yaroslavl REIS has been legally established. This success is the result of hard work and extraordinary cooperation among the organizations and people who were part of the effort. The work in Yaroslavl was one of the first efforts by Chemonics to develop a REIS in Russia and the experience should be reviewed to see what lessons have been learned as the REIS system is expanded to other cities in Russia. Some of the lessons learned are listed below.

Project time frame. The project was developed over a 13-month period, with phase two ending on November 30, 1995. A great deal was accomplished during this time. However, the work in phase three will be critical as the staff of the REIS center is hired. They will need training and orientation and detailed procedures will need to be worked out on a trail and error basis. Additional technical assistance over a longer period of time would increase the chances for a truly successful REIS.

Delivery of computer hardware and software. The delivery of most of the computer hardware and software did not take place until the last month of the phase two time period. This caused difficulties in installation and testing and adversely affected the amount of intensive training that could be given to the staff assigned to the REIS in each of the participating agencies.

Establish the REIS center as a legal entity. The REIS center was established on November 27, 1995 just before the departure of Chemonics from Yaroslavl. If it could have been established sooner, Chemonics could have provided more assistance and training for its staff.

H. Conclusions and Recommendations

The major tasks in the work plan have been completed and the REIS has been established as a legal entity in Yaroslavl. This is a significant accomplishment and all of those agencies and individuals who contributed should take pride in the success of this work. In the future, the following recommendations should be considered:

Time frame. Consideration should be given to extending the time frame so that technical assistance can be made available over a longer period of time. Perhaps the technical assistance could be broken into phases with "gaps" between the phases. During the gaps, the city would have time to work out the arrangements for legally establishing the REIS, hiring staff, and providing funding. Another option might be to reduce the level of effort, while at the same time extending the time for a smaller number of people within the same budget limitations.

Procurement and delivery of computer hardware and software. It is important to have the computer hardware and software available early in the project development process. Basic decisions on hardware and software should be made during the first few weeks of the project. If all of the information is not available, the procurement might be divided into two stages, with the purchase of some basic equipment at the start of the project. The agreements for transfer of the equipment should be agreed upon among the city, Chemonics, the RPC, and USAID at the beginning of the project.

Establishment of the REIS center. In future projects, it should be possible to sign agreements committing the city to enacting the necessary legislation prior to starting technical assistance. The city should also commit to providing funding and staff for the REIS center during the same period of the technical assistance and training.

APPENDIXES TO ANNEX B

- A List of Participants
- B Maps
- C Database Structure, Content and PIN
- D Sources of Data
- E Data Input Form
- F "Clear Title" Form (output)
- G "Property Information Report" (output)
- H GIS (output)
- I Estimate of Real Property in Yaroslavl
- J REIS Center Organization Chart
- K REIS Center Floorplan
- L List of Hardware and Software

LIST OF PARTICIPANTS

1. RPC

Grigoryeva O.
Roumyantsev I. - Leader of the project, Moscow
Zavodchikov Y.F. - Director of RPC, Yaroslavl Oblast

2. City & Participating Agencies

Volonchounas V.V. - Mayor of the City of Yaroslavl
Kovalyov V.A. - Deputy Mayor
Samusev A.S. - Deputy Mayor
Yeregin V.D. - Deputy Mayor
Knyazikov A.S. - Director of AIC
Zavodchikov Y.F. - Head of LPC
Bouryanovaty A.G. - Real estate lawyer, AIC
Doushin L.A. - Head of ICC of the Mayor's Office
Panchenko A.A. - Head of Land Committee
Falshina G.G. - Director of BTI
Bobovich A.R. - Chief Architect
Gousakov V.I. - Deputy Chief Architect
Lyubashin V.N. - Chief Specialist of the Chief Architect's Office
Dokuchaeva N.V. - Head of the Housing Department
Ershova N.L. - Director of the Housing Privatisation Agency
Tarasov A.N. - KUMI, Head of department
Khoreva N.A. - Chief Specialist, AIC
Douz B.K. - Deputy Director of L & R Chamber

3. People Working for REIS in the Agencies

Housing Department

Alexander Styazhkin
Natalya Yemelyanova

BTI

George Sedov
Sergei Kondakov
Irina Poletina
Svetlana Kirsanova
Helen Malyanova

KUMI

Sergei Bogdevich
Nicolai Krechman

Land Committee

Andrei Alexeyev
Natalya Bouzina

License and Registration Chamber

Galina Ibatullina

Chief Architect's Office

Nina Yerpylyova
Clavdia Rosenman

Housing Privatisation Agency

Larissa Samouseva
Olga Veterkova
Julia Krylova

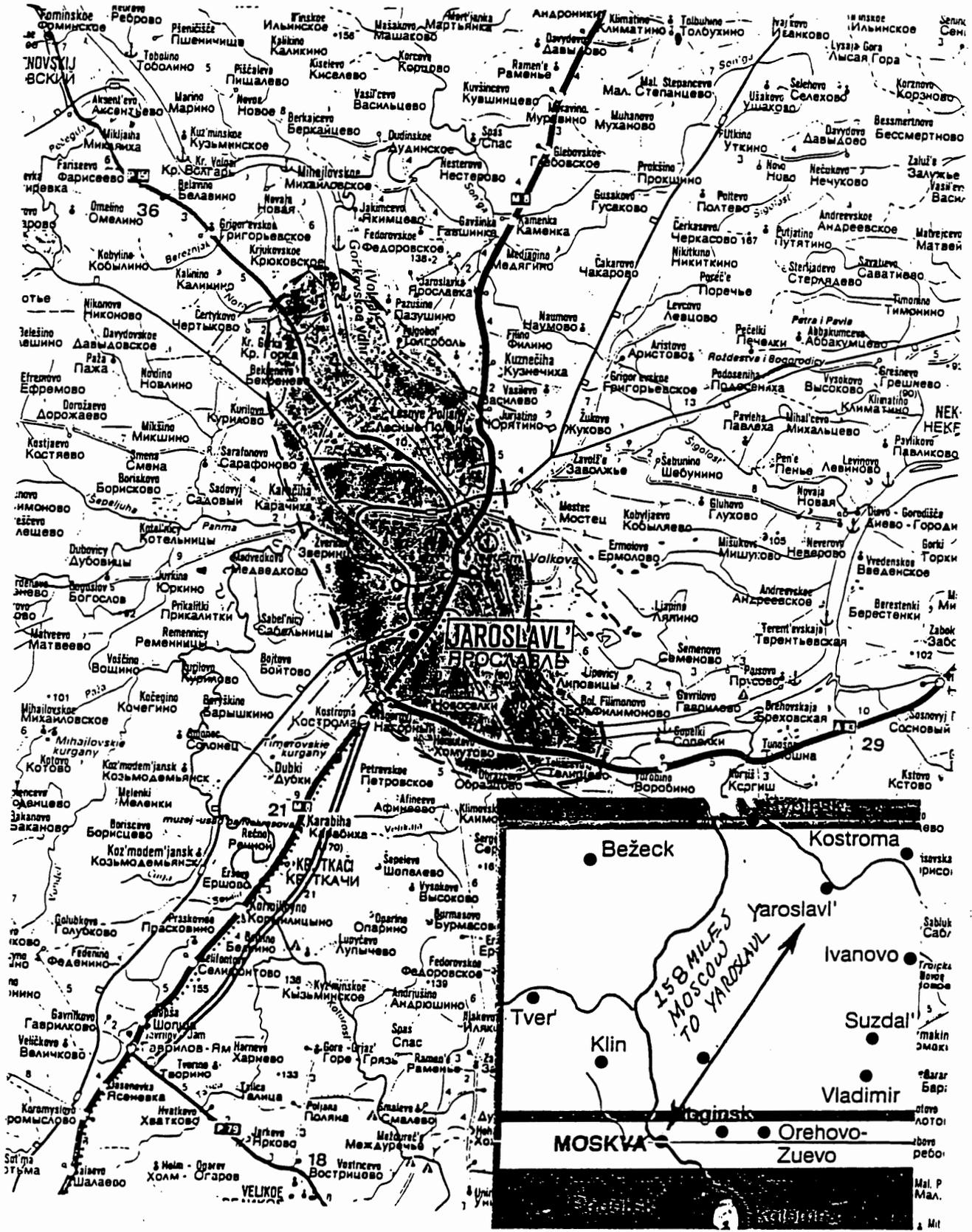
4. Chemonics Moscow

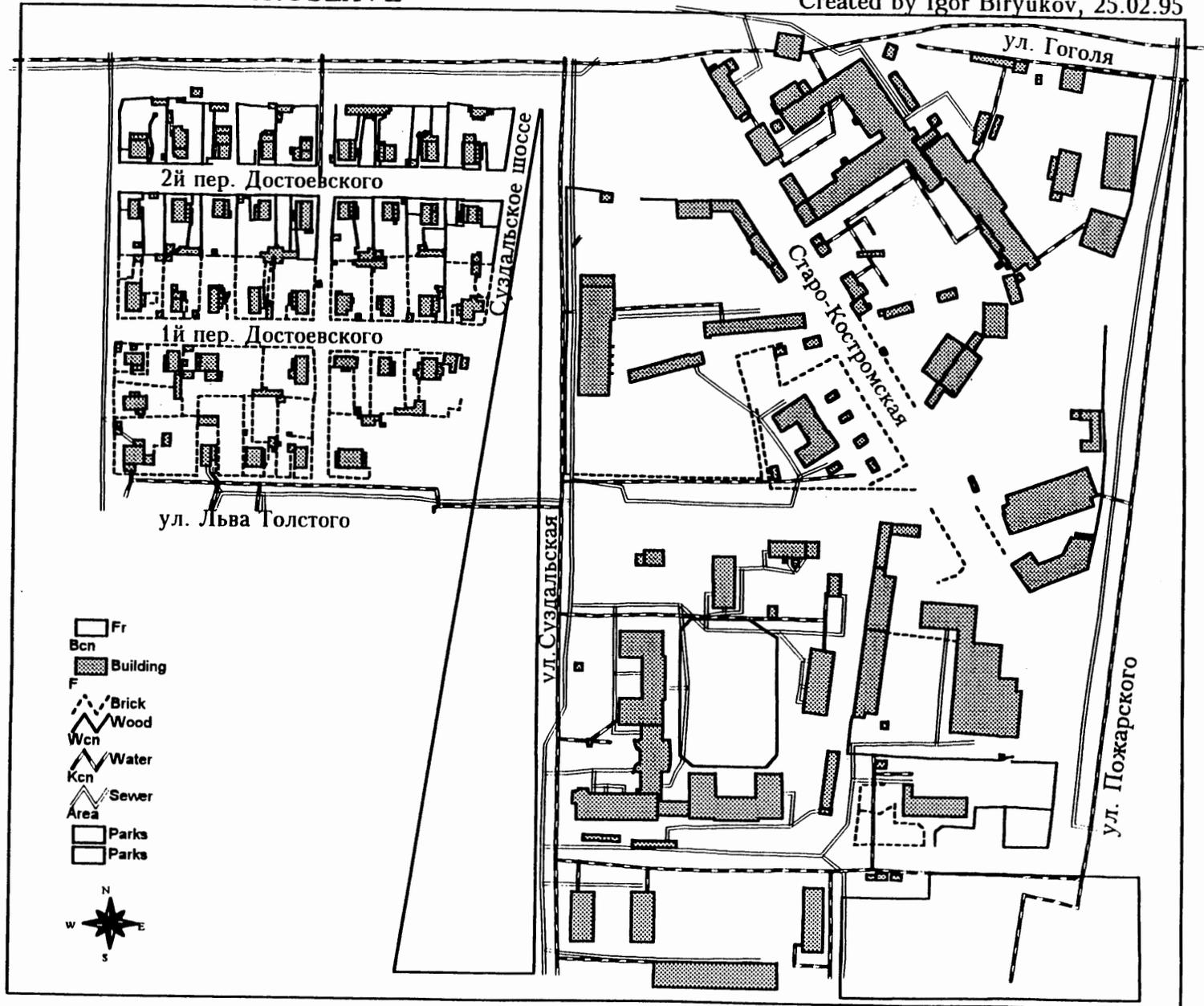
Richard Shepard - REIS Chief of Party
John Hardies - Administrative Coordinator
John Abrams - Training Specialist
JOHN

5. Chemonics Yaroslavl

Dean Charles - City Team Leader
Solovyov V.V. - City Co-team Leader
Brennan Lee - Data Registration Specialist
Bluestein Sheldon - Systems Specialist
Ned Otter - Systems Specialist
Khokhobaya T.G. - Systems Specialist
Birukov I.V. - Systems Specialist
Golovlyova I.A. - Systems Specialist
Glyak S.D. - Systems Specialist
Shevchenko J.V. - Translator
Klopyshkin V.V. - Office Manager
Veselov E.I. - Assistant Office Manager
Stepovaya S.N. - Translator
Sharygin A.V. - Translator
Manuta S. - Driver/Facilitator
Ptitsyna N.K. - Secretary

B. Maps

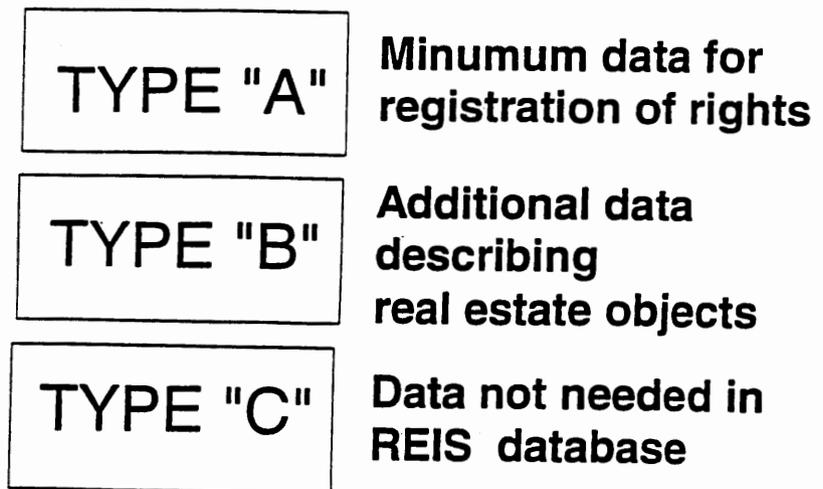




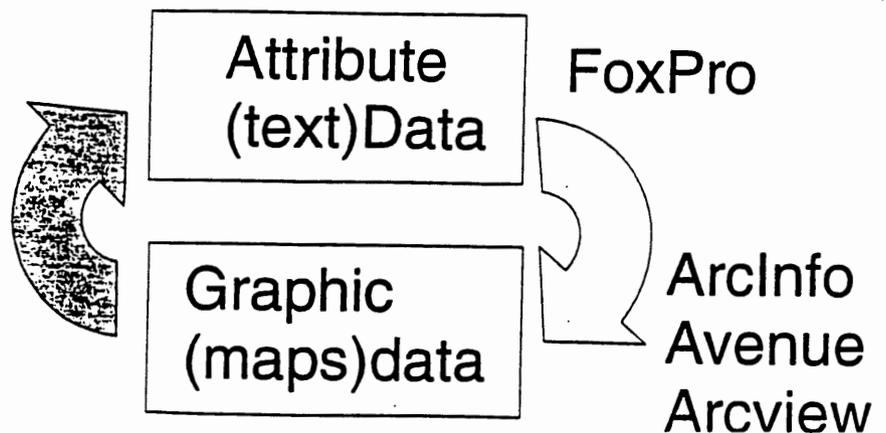
Масштаб ~ 1:3000

C. Database Structure, Content and PIN

REIS DATA CONTENT

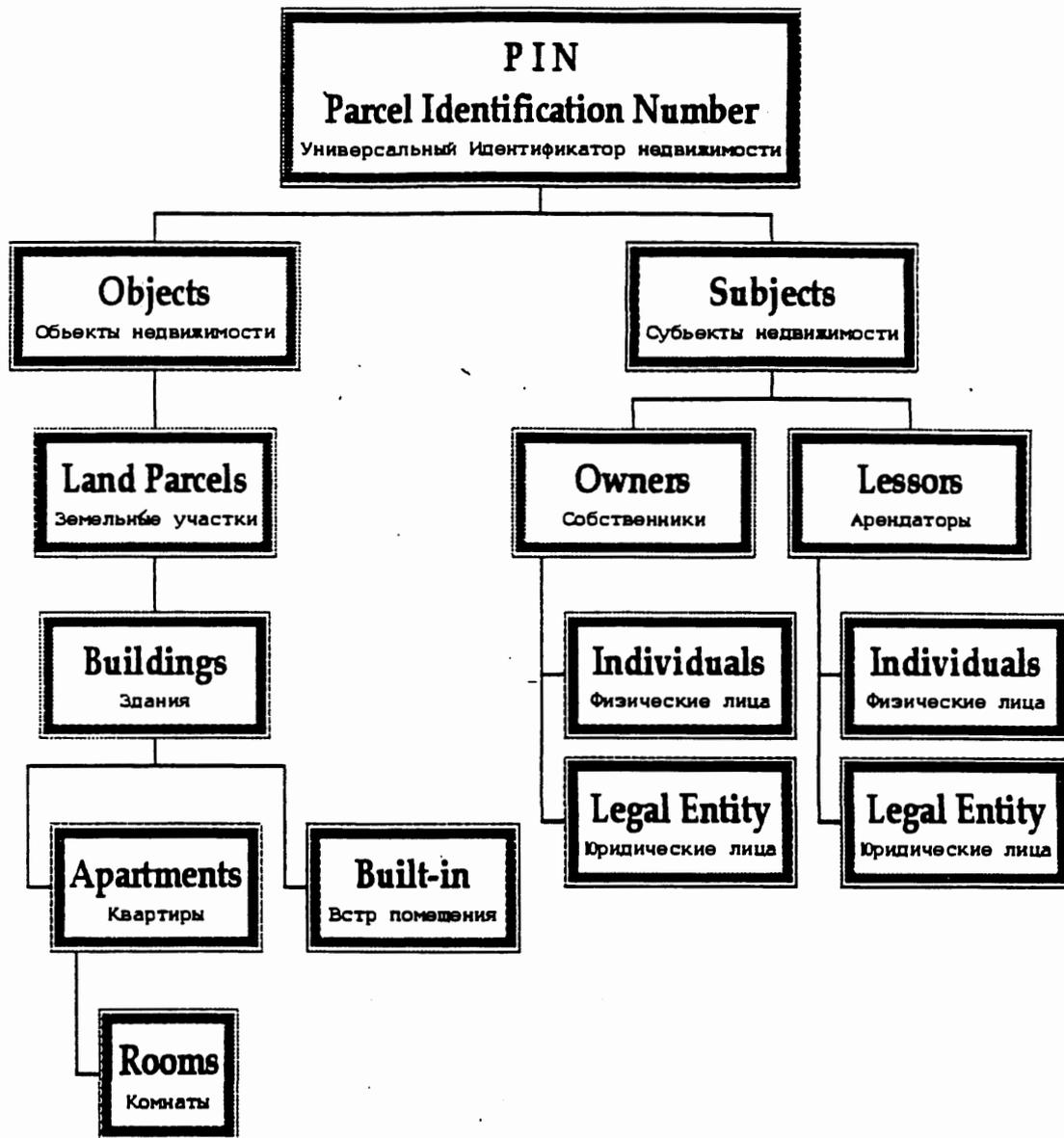


REIS DATA TYPES



YAROSLAVL Central DataBase Structure

Структура центральной базы данных



Total View

REIS DataBase
Link Owners/Users to Property Objects

Objects of Property

PIN = Cadaster # + BTI # + BTI Letter + Apartment # + Room#

Parcels
Buildings
Apartments
Builtins
Rooms

Own/BalanceHolder

Ownership Internal ID
Property Internal ID
Owner Internal ID

Use/Lease

User Internal ID
Property Internal ID
Lessor Internal ID
Lessee Internal ID

Attributes:

Ownership Type
Property Share
Document Name
Doc. Reference Number
Date Of document
Agency Issuing document

Attributes:

Start Date
End Date
Rent
Discount
Lease Doc. Name
Doc. Reference Number
Date Of document
Agency Issuing document

Subjects of Property

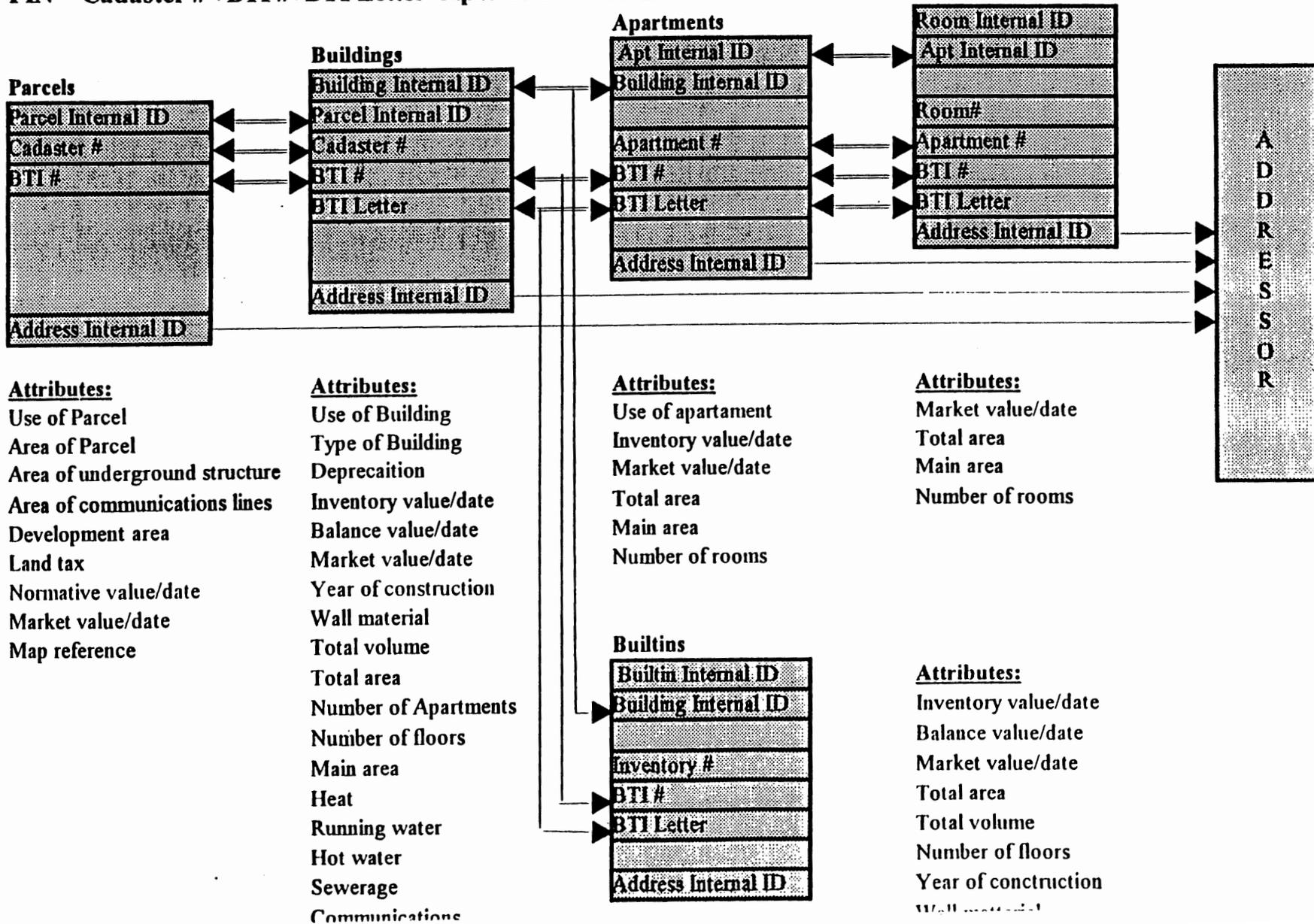
Individuals
Legal Entitys

Objects of Property

REIS DataBase

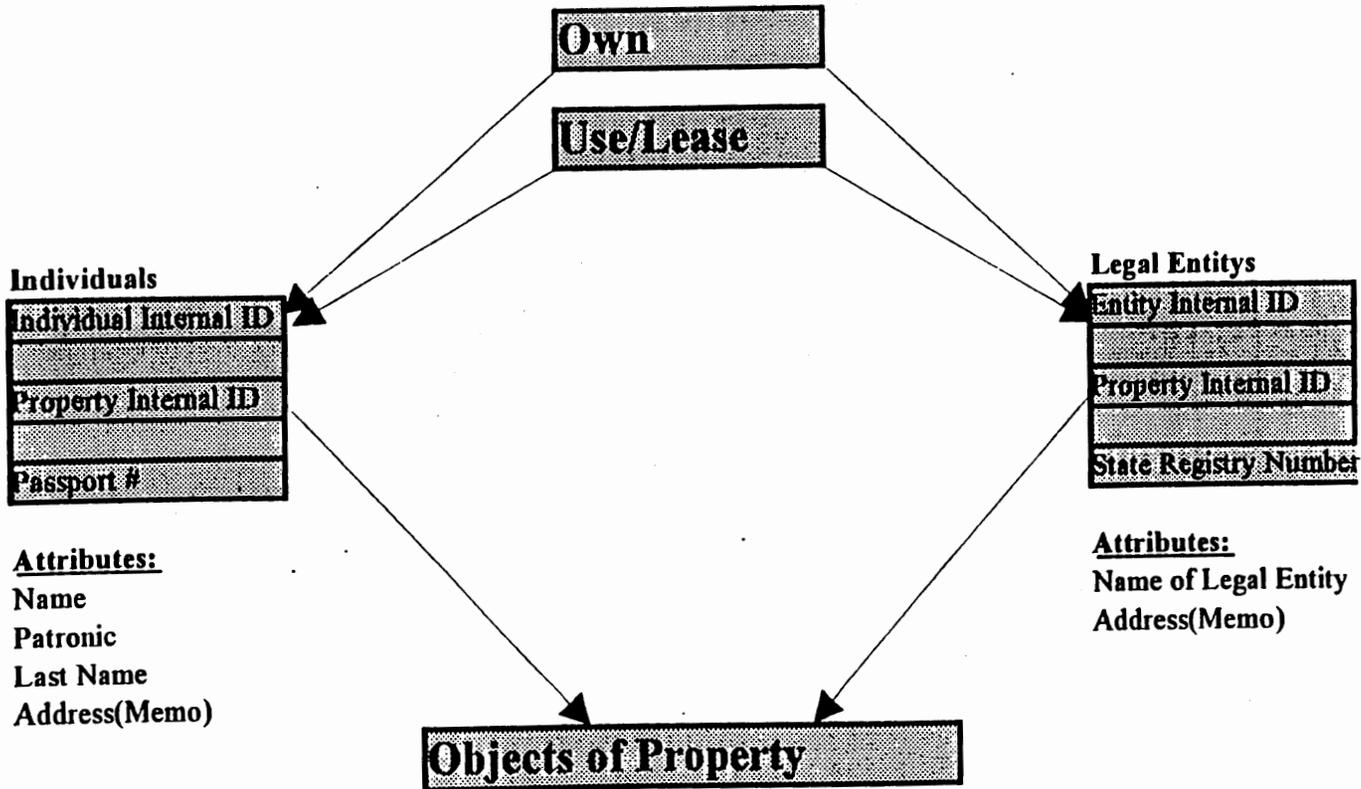
Property Object Links and Attributes

PIN = Cadaster # +BTI #+BTI Letter+Apartment #+Room#



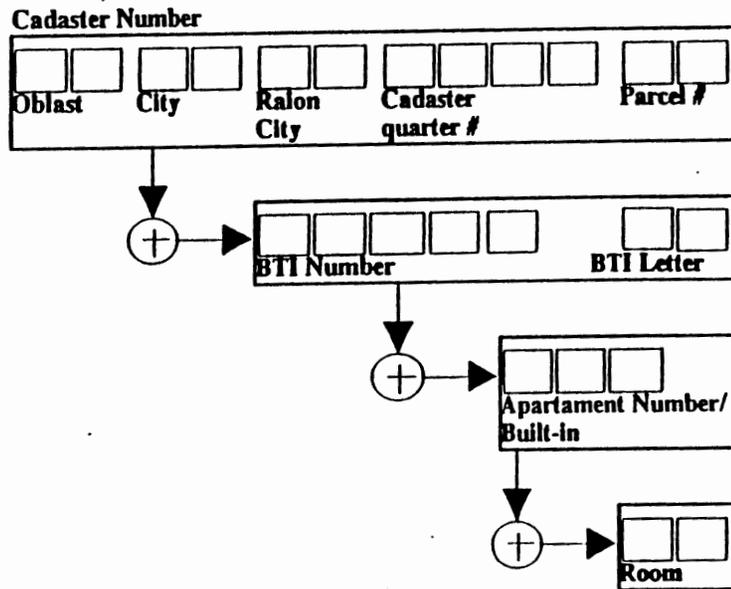
Subjects of Property

REIS DataBase Property Subject Links and Attributes



PIN

Property Identification Number configuration



**CHEMONICS YAROSLAVL
DATA SOURCE – REIS DATABASE
AUGUST 22, 1995**

TYPE "A" DATA (CLEAR TITLE DATA)	SOURCE
1. PIN:	LAND COMMITTEE/ BTI/KUMI/GKI
2. ADDRESS:	CHIEF ARCHITECT
3. CADASTER NUMBER:	LAND COMMITTEE
4. PARCEL USE:	LAND COMMITTEE
5. TOTAL AREA(ha) OF LAND, BTI:	BTI
6. TOTAL AREA(ha) OF LAND, LAND COMM:	LAND COMMITTEE
7. TOTAL AREA(M2) OF LAND, BTI:	BTI
8. TOTAL AREA(M2) OF LAND, LAND COMMITTEE:	LAND COMMITTEE
9. LAND TAX	LAND COMMITTEE
10. NORMATIVE LAND VALUE:	LAND COMMITTEE
11. DATE OF VALUE:	LAND COMMITTEE
12. MAP REFERENCE NUMBER:	CHIEF ARCHITECT
13. BTI INVENTORY NUMBER:	BTI
14. BTI LETTER:	BTI
15. REFERENCE NUMBER:	KUMI / BTI / GKI
16. USE OF BUILDING	BTI / KUMI / GKI
17. INVENTORY VALUE:	BTI
18. DATE OF VALUE:	BTI
19. TOTAL AREA OF BUILDING:	BTI
20. MAIN AREA	BTI
21. USE OF BUILT-IN:	BTI
22. INVENTORY VALUE, BUILT-IN:	BTI
23. DATE OF VALUE, BUILT-IN:	BTI
24. TOTAL AREA, BUILT-IN:	BTI / KUMI / GKI
25. MAIN AREA (USABLE), BUILT-IN	BTI / KUMI / GKI
26. TOTAL NUMBER OF FLOORS, BUILT-IN:	BTI / KUMI / GKI
27. ENTRY FLOOR, BUILT-IN:	BTI / KUMI / GKI
28. APARTMENT NUMBER:	BTI
29. APARTMENT USE:	BTI
30. INVENTORY VALUE, APARTMENT:	BTI
31. DATE OF VALUE, (PRIV.) APARTMENT:	BTI
32. TOTAL AREA OF APARTMENT:	BTI
33. TOTAL NUMBER OF ROOMS, APARTMENT:	BTI
34. ENTRY FLOOR OF APARTMENT:	BTI
35. ROOM NUMBER:	BTI
36. TOTAL AREA OF ROOM:	BTI
37. INVENTORY VALUE, ROOM:	BTI
38. DATE OF VALUE, ROOM:	BTI
39. NAME (S):	CITY, RAYON ADMINISTRATION – INDIVIDUAL
40. PASSPORT NUMBER:	CITY, RAYON ADMIN./ CITY HOUSING DEPT./
41. SERIAL NUMBER:	CITY, RAYON ADMIN. / CITY HOUSING DEPT.
42. STATE REGISTRY NUMBER:	LICENSE AND REG. BUREAU

43. PROPERTY SHARE (PART):	BTI / GKI / LAND COMMITTEE
44. PROPERTY SHARE (WHOLE):	BTI/GKI/LAND COMM/HOUS.PR.AG.
45. OWNERSHIP FORM:	BTI/GKI/KUMI/LAND COMM/HOUS.PRIV.AG./ LICENSE & REG.B
46. NAME OF DOCUMENT SHOWING OWNERSHIP:	BTI/GKI/KUMI/LAND COMM HOUS.PRIV.AG./ LICENSE & REG.B
47. DOCUMENT REFERENCE NUMBER:	BTI/GKI/LAND COMM/HOUS.PR.AG.
48. DATE OF DOCUMENT:	BTI/GKI/LAND COMM/HOUS.PR.AG.
49. AGENCY ISSUING DOCUMENT:	BTI/GKI/LAND COMM/HOUS.PR.AG.
50. LESSOR:	KUMI / CITY HOUSING DEPT./GKI/LC
51. LESSEE:	KUMI / CITY HOUSING DEPT. GKI/LC
52. DATE FOR START OF LEASE:	KUMI / CITY HOUSING DEPT. GKI/LC
53. END DATE OF LEASE:	KUMI / CITY HOUSING DEPT. GKI/LC
54. RENT:	LAND COMMITTEE / CHIEF ARCHITECT
55. LAND RESTRICTIONS:	LAND COM. / CHIEF ARCH.
56. EASEMENTS:	BTI / CHIEF ARCHITECT
57. BUILDING RESTRICTIONS:	BTI / CHIEF ARCHITECT

TYPE "B" DATA (ADDITIONAL DATA)

SOURCE

1. AREA OF UNDERGROUND STRUCTURE:	LAND COMMITTEE
2. AREA OF COMMUNICATIONS LINES:	LAND COMMITTEE
3. DEVELOPMENT AREA:	BTI/LAND COMMITTEE
4. MARKET VALUE OF LAND:	SOC.OF APPRAISERS
5. DATE OF VALUE:	GKI / KUMI / LAND COMM
6. TYPE OF BUILDING:	BTI
7. DEPRECIATION:	BTI
8. BALANCE VALUE:	BTI/GKI/KUMI
9. DATE OF VALUE:	BTI /GKI/KUMI
10.MARKET VALUE:	SOC.OF APPRAISERS/ KUMI/GKI
11.DATE OF TRANSACTION:	BTI
12.YEAR OF CONSTRUCTION:	BTI
13.WALL MATERIAL:	BTI
14.TOTAL VOLUME OF BUILDING:	BTI
15.NUMBER OF APARTMENTS:	BTI
16.NUMBER OF FLOORS:	BTI
17.TOTAL NUMBER OF ROOMS	BTI
18.HEAT:	BTI
19.RUNNING WATER:	BTI
20.HOT WATER SUPPLY:	BTI

21.SEWERAGE:	BTI
22.POWER SUPPLY:	BTI
23.COMMUNICATIONS:	BTI
24.BALANCE VALUE, BUILT-IN:	BTI / KUMI / GKI
25.DATE OF VALUE, BUILT-IN:	BTI/ KUMI/ GKI
26.MARKET VALUE, BUILT-IN:	KUMI/ GKI
27.DATE OF TRANSACTION, BUILT-IN:	KUMI/ GKI
28.WALL MATERIAL, BUILT-IN:	BTI / KUMI / GKI
29.TOTAL VOLUME, BUILT-IN:	BTI / KUMI / GKI
30.TO MUNICIPAL PROPERTY DOCUMENT:	KUMI
31.DOCUMENT REFERENCE NUMBER, BUILT-IN:	KUMI
32.DATE OF DOCUMENT, BUILT-IN:	KUMI
33.MARKET VALUE OF APARTMENT:	AG. HOUSING PRIVATIZATION
34.DATE OF TRANSACTION, APARTMENT (PRIV.)	AG. HOUSING PRIVATIZATION
35.MARKET VALUE OF ROOM:	AG. HOUSING PRIVATIZATION
36.DATE OF TRANSACTION, ROOM:	AG. HOUSING PRIVATIZATION
37.TOTAL NUMBER OF ROOMS:	B.
38.POINT NUMBER:	LC
39.COORDINATE X:	LC
40.COORDINATE Y:	LC
41.DATE OF BIRTH:	CITY/RAION ADMINISTR.
42.SOURCE OF OWNERSHIP DATA:	BTI / GKI / KUMI / LC/AG.HOUSING PRIV.
43.DISCOUNT:	KUMI / CITY HOUSING DEPT./GKI/LC
44.DOCUMENT ISSUING DISCOUNT:	KUMI / CITY HOUSING DEPT./GKI/LC
45.DOCUMENT REFERENCE NUMBER:	KUMI / CITY HOUSING DEPT./GKI/LC
46.DATE OF DOCUMENT:	KUMI / CITY HOUSING DEPT./GKI/LC

YAROSLAVL REIS DATA INPUT FORM
MAY 24, 1995

BUILDINGS

- | | | | |
|-------------------------|-------------------------|----------------------|---------------------|
| 1. BTI INVENTORY # | 8. WALL MATERIAL | 15. POWER SUPPLY | 22. DATE OF VALUE |
| 2. BTI LETTER | 9. NUMBER OF APARTMENTS | 16. COMMUNICATIONS | 23. INVENTORY VALUE |
| 3. CADASTER # | 10. NUMBER OF FLOORS | 17. SEWERAGE | 24. DATE OF VALUE |
| 4. REGISTRY # | 11. DEPRECIATION | 18. NUMBER OF FLOORS | 25. TOTAL VOLUME |
| 5. USE | 12. HEAT | 19. MARKET VALUE | 26. TOTAL AREA |
| 6. TYPE OF BUILDING | 13. RUNNING WATER | 20. DATE OF VALUE | 27. MAIN AREA |
| 7. YEAR OF CONSTRUCTION | 14. HOT WATER SUPPLY | 21. BALANCE VALUE | |

RESTRICTIONS

- | | |
|------------------------------|----------------------------|
| 1. DOCUMENT REFERENCE NUMBER | 3. DOCUMENT NAME |
| 2. DATE OF DOCUMENT | 4. AGENCY ISSUING DOCUMENT |

OWNERSHIP (1)

- | | | | |
|--|--|---------------------------|-------------------------|
| 1. NAME: PATRONIMIC; LAST NAME | | | |
| 2. DATE OF BIRTH | 5. REGISTRY # (ENTITY)
PASSPORT #(INDIVIDUAL) | 8. PROPERTY SHARE (PART) | 11. DOCUMENT REF. # |
| 3. DATA SOURCE | 6. SERIAL # | 9. PROPERTY SHARE (WHOLE) | 12. DATE OF DOCUMENT |
| 4. MAIL ADDRESS IF NOT
SAME AS LOCATION ADDRESS | 7. OWNERSHIP FORM | 10. DOCUMENT NAME | 13. AGENCY ISSUING DOC. |

OWNERSHIP (2)

- | | | | |
|--|--|---------------------------|-------------------------|
| 1. NAME: PATRONIMIC; LAST NAME | | | |
| 2. DATE OF BIRTH | 5. REGISTRY # (ENTITY)
PASSPORT #(INDIVIDUAL) | 8. PROPERTY SHARE (PART) | 11. DOCUMENT REF. # |
| 3. DATA SOURCE | 6. SERIAL # | 9. PROPERTY SHARE (WHOLE) | 12. DATE OF DOCUMENT |
| 4. MAIL ADDRESS IF NOT
SAME AS LOCATION ADDRESS | 7. OWNERSHIP FORM | 10. DOCUMENT NAME | 13. AGENCY ISSUING DOC. |

LOCATION ADDRESS

YAROSLAVL REIS DATA INPUT FORM

APARTMENTS

- | | | | |
|---------------------|------------------------|--------------------|---------------------|
| 1. BTI NUMBER | 4. REGISTRY # | 8. INVENTORY VALUE | 11. NUMBER OF ROOMS |
| 2. BTI LETTER | 5. USE | 9. DATE OF VALUE | 12. FLOOR |
| 3. APARTMENT NUMBER | 6. MARKET VALUE | 10. TOTAL AREA | 13. MAIN AREA |
| | 7. DATE OF TRANSACTION | | |

RESTRICTIONS

- | | |
|------------------------------|----------------------------|
| 1. DOCUMENT REFERENCE NUMBER | 3. DOCUMENT NAME |
| 2. DATE OF DOCUMENT | 4. AGENCY ISSUING DOCUMENT |

OWNERSHIP (1)

- | | | | |
|--|--|---------------------------|-----------------------------|
| 1. NAME; PATRONIMIC; LAST NAME | | | |
| 2. DATE OF BIRTH | 5. REGISTRY # (ENTITY)
PASSPORT #(INDIVIDUAL) | 8. PROPERTY SHARE (PART) | 11. DOCUMENT REF. # |
| 3. DATA SOURCE | 6. SERIAL # | 9. PROPERTY SHARE (WHOLE) | 12. DATE OF DOCUMENT |
| 4. MAIL ADDRESS IF NOT
SAME AS LOCATION ADDRESS | 7. OWNERSHIP FORM | 10. DOCUMENT NAME | 13. AGENCY ISSUING DOCUMENT |

OWNERSHIP (2)

- | | | | |
|--|--|---------------------------|-----------------------------|
| 1. NAME; PATRONIMIC; LAST NAME | | | |
| 2. DATE OF BIRTH | 5. REGISTRY # (ENTITY)
PASSPORT #(INDIVIDUAL) | 8. PROPERTY SHARE (PART) | 11. DOCUMENT REF. # |
| 3. DATA SOURCE | 6. SERIAL # | 9. PROPERTY SHARE (WHOLE) | 12. DATE OF DOCUMENT |
| 4. MAIL ADDRESS IF NOT
SAME AS LOCATION ADDRESS | 7. OWNERSHIP FORM | 10. DOCUMENT NAME | 13. AGENCY ISSUING DOCUMENT |

OWNERSHIP (3)

- | | | | |
|--|--|---------------------------|-----------------------------|
| 1. NAME; PATRONIMIC; LAST NAME | | | |
| 2. DATE OF BIRTH | 5. REGISTRY # (ENTITY)
PASSPORT #(INDIVIDUAL) | 8. PROPERTY SHARE (PART) | 11. DOCUMENT REF. # |
| 3. DATA SOURCE | 6. SERIAL # | 9. PROPERTY SHARE (WHOLE) | 12. DATE OF DOCUMENT |
| 4. MAIL ADDRESS IF NOT
SAME AS LOCATION ADDRESS | 7. OWNERSHIP FORM | 10. DOCUMENT NAME | 13. AGENCY ISSUING DOCUMENT |

LOCATION ADDRESS

YAROSLAVL REIS DATA INPUT FORM

BUILT - INS / BUILT - ON

- | | | |
|-------------------------|----------------------|----------------------------|
| 1. BTI NUMBER | 8. TOTAL AREA | 15. DATE OF VALUE |
| 2. BTI LETTER | 9. MAIN AREA | 16. MARKET VALUE |
| 3. REGISTRY NUMBER | 10. NUMBER OF FLOORS | 17. DATE OF VALUE |
| 4. USE | 11. ENTRY FLOOR | 18. INITIATING DOC. NUMBER |
| 5. YEAR OF CONSTRUCTION | 12. INVENTORY VALUE | 19. DATE OF DOCUMENT |
| 6. WALL MATERIAL | 13. DATE OF VALUE | 20. EXCLUSION DOC. NUMBER |
| 7. TOTAL VOLUME | 14. BALANCE VALUE | 21. DATE OF DOC. |
-
-

RESTRICTIONS

- | | |
|------------------------------|----------------------------|
| 1. DOCUMENT REFERENCE NUMBER | 3. DOCUMENT NAME |
| 2. DATE OF DOCUMENT | 4. AGENCY ISSUING DOCUMENT |
-
-

OWNERSHIP (1)

- | | | | |
|--|--|---------------------------|-------------------------|
| 1. NAME: PATRONIMIC; LAST NAME | | | |
| 2. DATE OF BIRTH | 5. REGISTRY # (ENTITY)
PASSPORT #(INDIVIDUAL) | 8. PROPERTY SHARE (PART) | 11. DOCUMENT REF. # |
| 3. DATA SOURCE | 6. SERIAL # | 9. PROPERTY SHARE (WHOLE) | 12. DATE OF DOCUMENT |
| 4. MAIL ADDRESS IF NOT
SAME AS LOCATION ADDRESS | 7. OWNERSHIP FORM | 10. DOCUMENT NAME | 13. AGENCY ISSUING DOC. |
-
-

OWNERSHIP (2)

- | | | | |
|--|--|---------------------------|-------------------------|
| 1. NAME: PATRONIMIC; LAST NAME | | | |
| 2. DATE OF BIRTH | 5. REGISTRY # (ENTITY)
PASSPORT #(INDIVIDUAL) | 8. PROPERTY SHARE (PART) | 11. DOCUMENT REF. # |
| 3. DATA SOURCE | 6. SERIAL # | 9. PROPERTY SHARE (WHOLE) | 12. DATE OF DOCUMENT |
| 4. MAIL ADDRESS IF NOT
SAME AS LOCATION ADDRESS | 7. OWNERSHIP FORM | 10. DOCUMENT NAME | 13. AGENCY ISSUING DOC. |
-
-

LOCATION ADDRESS

YAROSLAVL REIS DATA INPUT FORM**ROOMS**

- | | | |
|---------------------|------------------------|---------------------|
| 1. BTI NUMBER | 5. ROOM NUMBER | 9. TOTAL ROOMS |
| 2. BTI LETTER | 6. MARKET VALUE | 10. INVENTORY VALUE |
| 3. APARTMENT NUMBER | 7. DATE OF TRANSACTION | 11. DATE OF VALUE |
| 4. FLOOR NUMBER | 8. TOTAL AREA | |

RESTRICTIONS

- | | |
|------------------------------|----------------------------|
| 1. DOCUMENT REFERENCE NUMBER | 3. DOCUMENT NAME |
| 2. DATE OF DOCUMENT | 4. AGENCY ISSUING DOCUMENT |

OWNERSHIP (1)

- | | | | |
|--|--|---------------------------|-----------------------------|
| 1. NAME: PATRONIMIC; LAST NAME | | | |
| 2. DATE OF BIRTH | 5. REGISTRY # (ENTITY)
PASSPORT #(INDIVIDUAL) | 8. PROPERTY SHARE (PART) | 11. DOCUMENT REF. # |
| 3. DATA SOURCE | 6. SERIAL # | 9. PROPERTY SHARE (WHOLE) | 12. DATE OF DOCUMENT |
| 4. MAIL ADDRESS IF NOT
SAME AS LOCATION ADDRESS | 7. OWNERSHIP FORM | 10. DOCUMENT NAME | 13. AGENCY ISSUING DOCUMENT |

OWNERSHIP (2)

- | | | | |
|--|--|---------------------------|-----------------------------|
| 1. NAME: PATRONIMIC; LAST NAME | | | |
| 2. DATE OF BIRTH | 5. REGISTRY # (ENTITY)
PASSPORT #(INDIVIDUAL) | 8. PROPERTY SHARE (PART) | 11. DOCUMENT REF. # |
| 3. DATA SOURCE | 6. SERIAL # | 9. PROPERTY SHARE (WHOLE) | 12. DATE OF DOCUMENT |
| 4. MAIL ADDRESS IF NOT
SAME AS LOCATION ADDRESS | 7. OWNERSHIP FORM | 10. DOCUMENT NAME | 13. AGENCY ISSUING DOCUMENT |

LOCATION ADDRESS

YAROSLAVL REIS DATA INPUT FORM

LAND

- | | | |
|-------------------------------------|----------------------------------|--------------------------|
| 1. BTI NUMBER | 6. AREA OF UNDERGROUND STRUCTURE | 11. DATE OF VALUE |
| 2. CADASTER NUMBER | 7. AREA OF COMMUNICATIONS LINES | 12. MARKET VALUE |
| 3. USE | 8. DEVELOPMENT AREA | 13. DATE OF VALUE |
| 4. AREA ACCORDING TO LAND COMMITTEE | 9. LAND TAX | 14. MAP REFERENCE NUMBER |
| 5. AREA ACCORDING TO BTI | 10. NORMATIVE LAND VALUE | |

EASEMENTS NAME

COORDINATES

POINT NUMBER X Y

RESTRICTIONS

- | | |
|------------------------------|----------------------------|
| 1. DOCUMENT REFERENCE NUMBER | 3. DOCUMENT NAME |
| 2. DATE OF DOCUMENT | 4. AGENCY ISSUING DOCUMENT |

OWNERSHIP (1)

- | | | | |
|--|--|---------------------------|-------------------------|
| 1. NAME: PATRONIMIC; LAST NAME | | | |
| 2. DATE OF BIRTH | 5. REGISTRY # (ENTITY)
PASSPORT #(INDIVIDUAL) | 8. PROPERTY SHARE (PART) | 11. DOCUMENT REF. # |
| 3. DATA SOURCE | 6. SERIAL # | 9. PROPERTY SHARE (WHOLE) | 12. DATE OF DOCUMENT |
| 4. MAIL ADDRESS IF NOT
SAME AS LOCATION ADDRESS | 7. OWNERSHIP FORM | 10. DOCUMENT NAME | 13. AGENCY ISSUING DOC. |

OWNERSHIP (2)

- | | | | |
|--|--|---------------------------|-------------------------|
| 1. NAME: PATRONIMIC; LAST NAME | | | |
| 2. DATE OF BIRTH | 5. REGISTRY # (ENTITY)
PASSPORT #(INDIVIDUAL) | 8. PROPERTY SHARE (PART) | 11. DOCUMENT REF. # |
| 3. DATA SOURCE | 6. SERIAL # | 9. PROPERTY SHARE (WHOLE) | 12. DATE OF DOCUMENT |
| 4. MAIL ADDRESS IF NOT
SAME AS LOCATION ADDRESS | 7. OWNERSHIP FORM | 10. DOCUMENT NAME | 13. AGENCY ISSUING DOC. |

LOCATION ADDRESS

YAROSLAVL REIS DATA INPUT FORM

BTI NUMBER

BTI LETTER

APARTMENT #

ROOM #

LEASE/ USE

1. NAME TO

6. DISCOUNT

11. AGENCY ISSUING DOCUMENT

2. NAME FROM

7. OWNERSHIP FORM

12. DATE OF DOCUMENT

3. START DATE OF LEASE

8. LEASE DOCUMENT NAME

13. DATA SOURCE

4. END DATE OF LEASE

9. DATE OF DOCUMENT

14. MAIL ADDRESS
IF NOT SAME AS LOCATION

5. RENT

10. DOCUMENT REFERENCE #

15. REGISTRY NUMBER (ENTITY)
PASSPORT # (INDIVIDUAL)

LEASE/ USE

1. NAME TO

6. DISCOUNT

11. AGENCY ISSUING DOCUMENT

2. NAME FROM

7. OWNERSHIP FORM

12. DATE OF DOCUMENT

3. START DATE OF LEASE

8. LEASE DOCUMENT NAME

13. DATA SOURCE

4. END DATE OF LEASE

9. DATE OF DOCUMENT

14. MAIL ADDRESS
IF NOT SAME AS LOCATION

5. RENT

10. DOCUMENT REFERENCE #

15. REGISTRY NUMBER (ENTITY)
PASSPORT # (INDIVIDUAL)

LEASE/ USE

Last Changes:

Current Date:

REAL ESTATE INFORMATION SYSTEM

CLEAR TITLE FORM

Property Identification Number (PIN)

Location Address

Mail Address

INFORMATION ON LAND

Cadaster Number

Map Reference Number

Land Parcel Area (M2):

According to Land Committee Data

According to BTI Data

Property Use

INFORMATION ON BUILDING

BTI Number

BTI Letter

Inventory Value and Date

Market Value and Date

Property Use

Total Area of Building

Living Area

Type of Building

INFORMATION ON BUILT-INS

Inventory Value and Date

Total Area

Number of Floors

Entrance Floor

Property Use

Last Changes:

Current Date:

REAL ESTATE INFORMATION SYSTEM

CLEAR TITLE FORM

Property Identification Number (PIN)

INFORMATION ON APARTMENTS

Apartment Number

Inventory Value and Date

Total Area

Floor Number

Property Use

Number of Rooms

INFORMATION ON ROOMS

Room Number

Inventory Value and Date

Total Area

INFORMATION ON LEASE / USE

Name of Lessor

Name of Lessee

Term of Lease to

Rent

Name of Agency

Page

Last Changes:

Current Date:

REAL ESTATE INFORMATION SYSTEM

CLEAR TITLE FORM

Property Identification Number (PIN)

INFORMATION ON OWNERS

Ownership Form

Name of Owner

Property Share

Passport Number or State Registry Number

Name of Document Certifying Ownership

Agency Issuing Document

Document Number

Date of Document

Page Owner of

Last Changes:

Current Date:

REAL ESTATE INFORMATION SYSTEM

CLEAR TITLE FORM

Property Identification Number (PIN)

RESTRICTIONS . EASEMENTS . COORDINATES

Date

Agency

Type

PARCEL

BUILDING

APARTMENT

BUILT-IN

ROOM

G. "Property Information Report" (output)

Last Changes:

Current Date:

REAL ESTATE INFORMATION SYSTEM PROPERTY INFORMATION FORM

INFORMATION ON OWNERS

PIN:

Type of Real Estate:

Name (Legal Entity or Individual)

Passport Number:

Property Serial Number:

Property Share:

State Registry Number:

Property Address:

Mail Address:

Date of Birth:

Property Data Source:

Ownership Document Name:

Agency Issuing Document:

Date of Ownership Document:

Document Number:

Ownership Form:

Page

Owner of

ast Changes:

Current Date:

REAL ESTATE INFORMATION SYSTEM
PROPERTY INFORMATION FORM

INFORMATION ON LAND

PIN:

Reference Number:

Cadaster Number:

Map Reference Number:

Property Use:

Land Parcel Area:

According to BTI (m2):

According to Land Committee (m2):

According to BTI (ha):

According to Land Committee (ha):

Area of Underground Structures:

Area of Communication Lines:

Development Area:

Normative Land Value:

Date of Value:

Land Tax:

Date of Evaluation:

Last Changes:

Current Date:

REAL ESTATE INFORMATION SYSTEM
PROPERTY INFORMATION FORM

LEASE / USE INFORMATION

PIN:

Lessor:

Lessee:

Lease Document Name:

Lease Document Number:

Lease Document Date:

Agency Issuing Document:

Number of Years of Lease:

Beginning and Ending Date of Lease:

Rent:

Discounts:

Date of Transfer to Municipal Property:

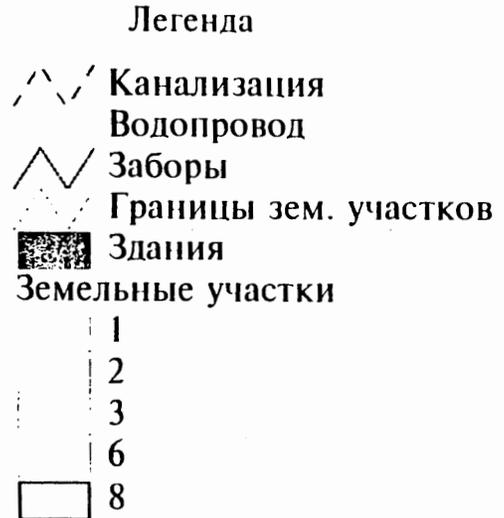
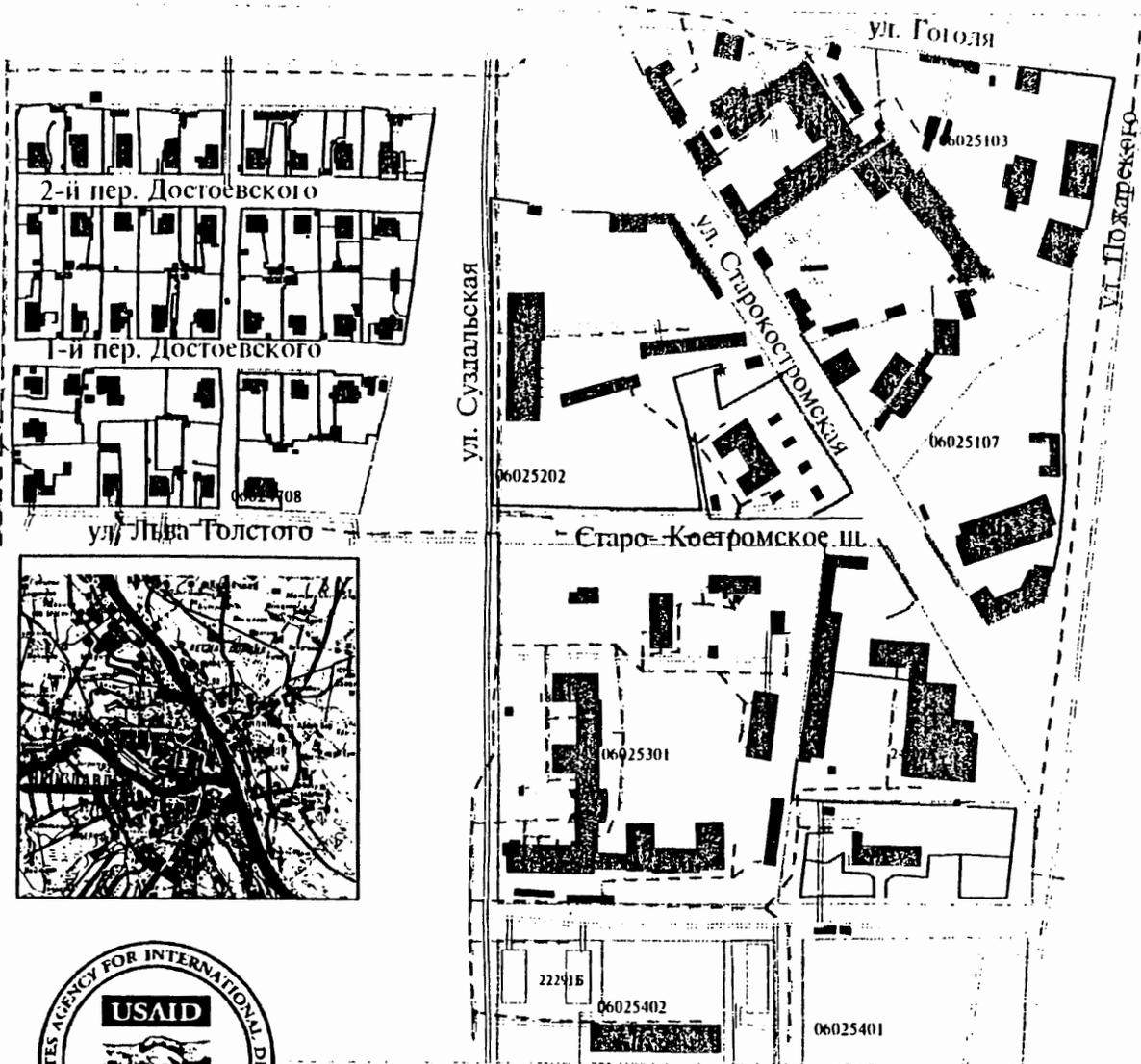
Transfer Document Number:

Date of Exclusion from Municipal Property:

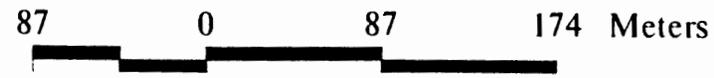
Transfer Document Number:

ИСН Ярославль

ПО - ArcInfo 3.4.2, ArcView 2.0 d
 Выполнено : Бирюков И.В.

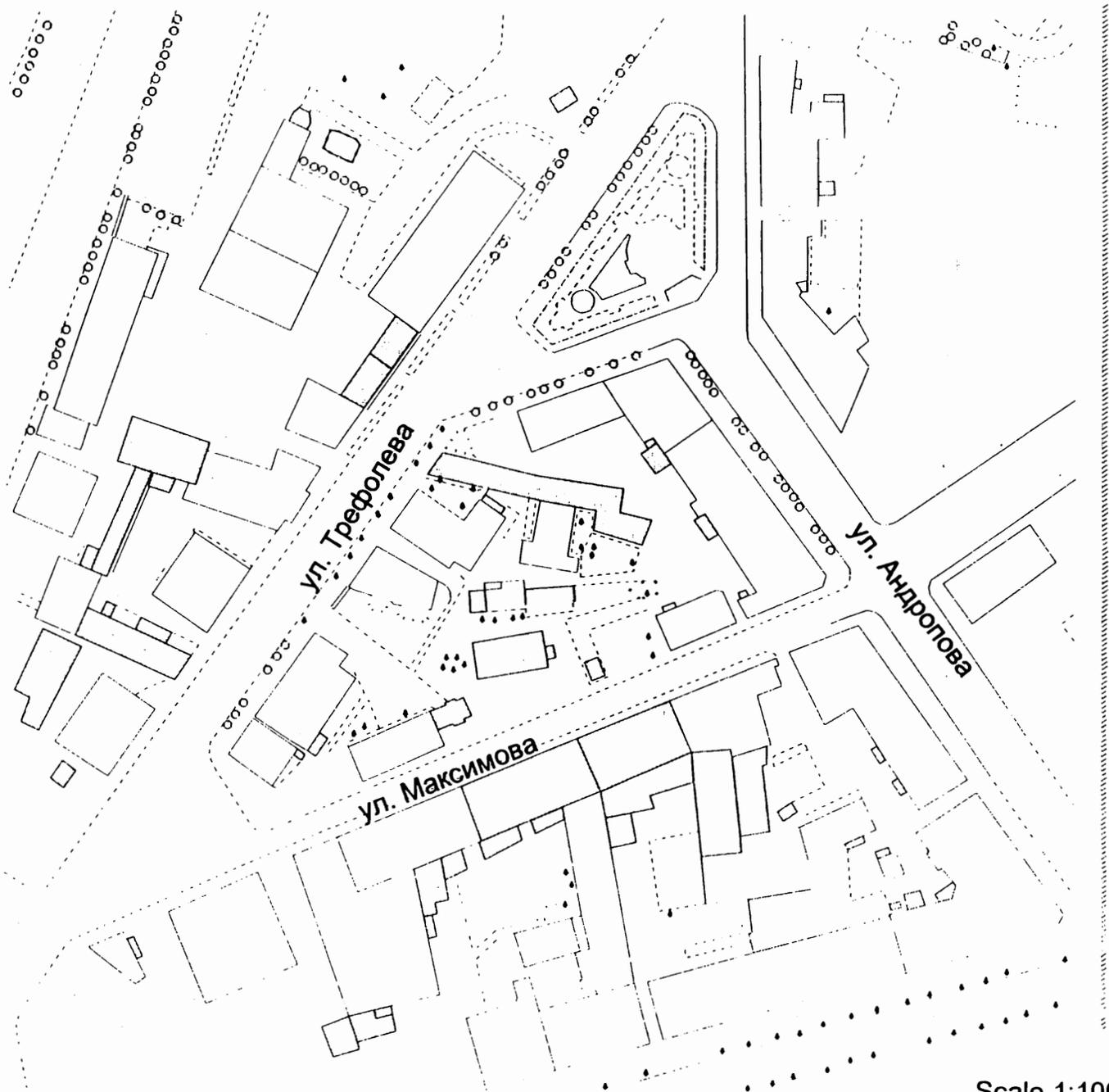


addr	Blt_num	Street	Const_year	Apart_cnt	F_build_id
Ж	24703	ул. Старая Костромская	1981	0	10000000068
А	18131	ул. Суздальская	59	0	10000000166
А	19577	2-й пер. Достоевского	1961	0	10000000058
А1	18131	ул. Суздальская	1993	0	10000000167
А2	18131	ул. Суздальская	0	0	10000000168
А	24318	пер. Минин	1989	18	10000000178
Б	22281	ул. Суздальская	1961	12	10000000211
А	22281	ул. Суздальская	1961	12	10000000089
А	25211	ул. Старокостромская	81	80	10000000102



Chemonics Yaroslavl July 17, 1995

H. GIS - (output)



LEGEND

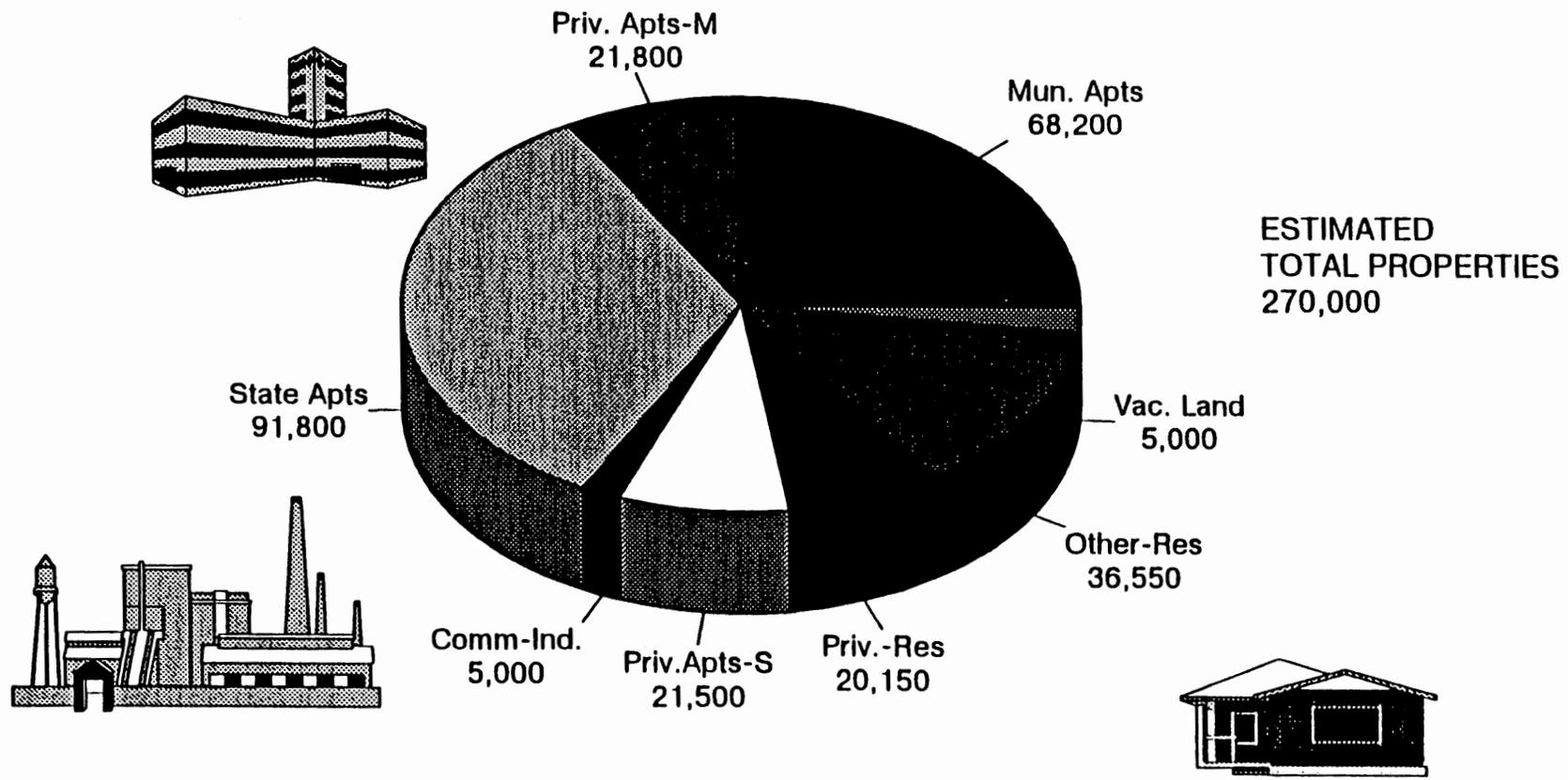
- Zab 100
- 101
- 102
- 103
- 104
- 105
- Tr 200
- 201
- Ro 189.01
- 189.02
- Gr 300
- 301
- Bu1 0
- 1
- 2
- 3
- 4
- 5



Scale 1:1000

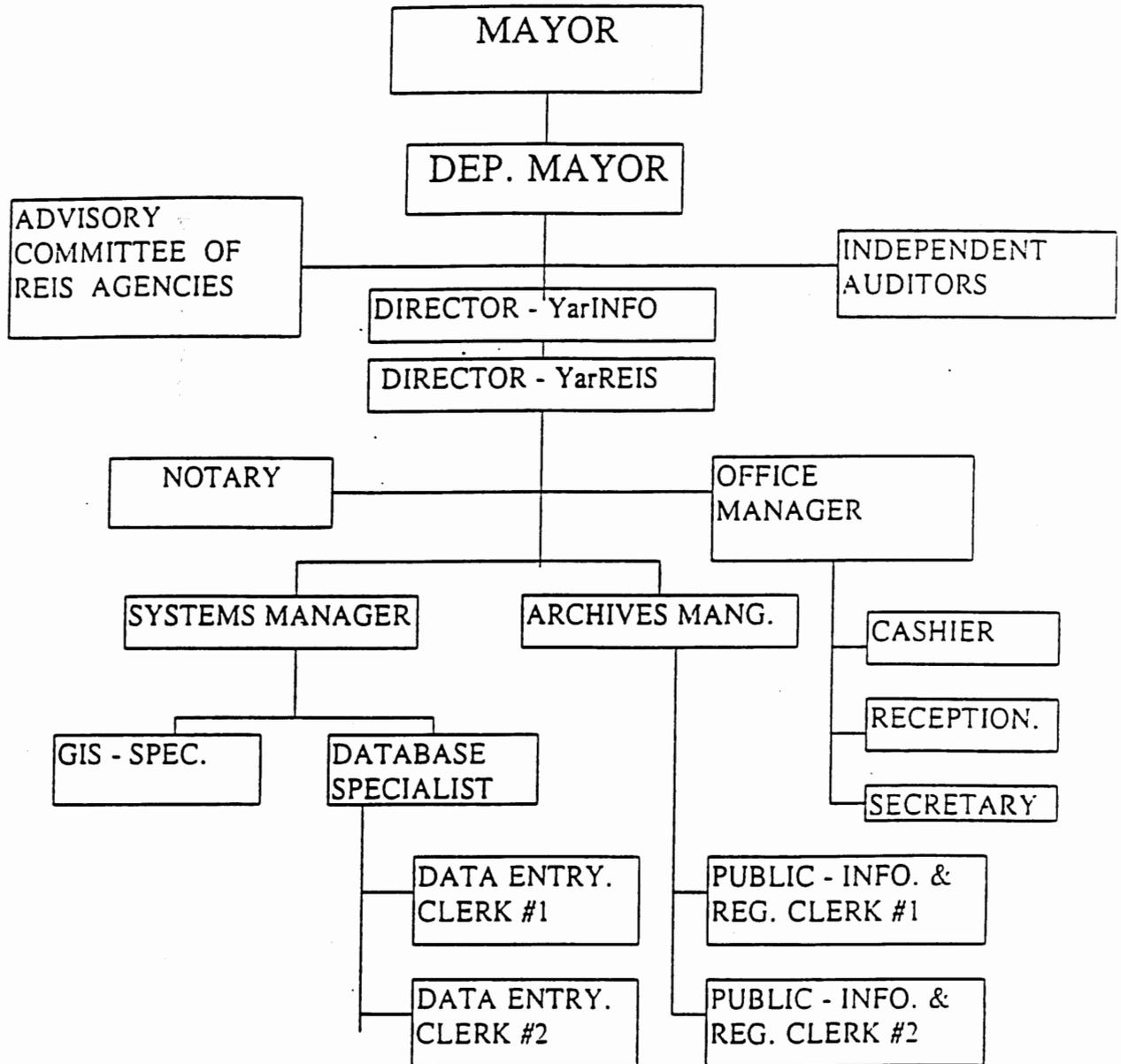
ESTIMATE OF REAL PROPERTY - YAROSLAVL

Chemonics International - Real Estate Information System



Type and Number of Real Estate "Objects"

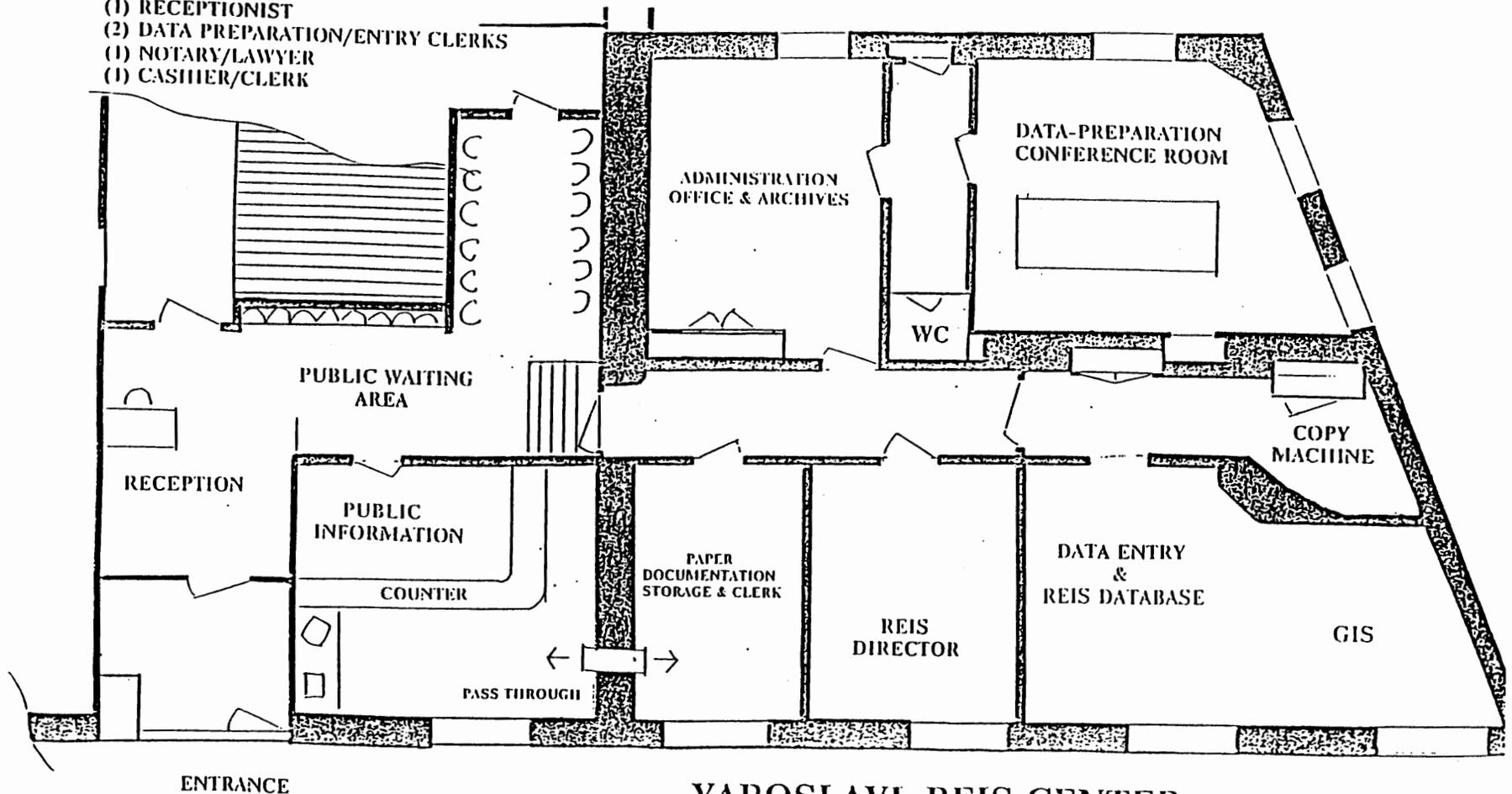
J. REIS Center Organization Chart



REIS CENTER STAFF

- (1) DIRECTOR
- (1) SECRETARY
- (1) OFFICE MANAGER
- (1) GIS SPECIALIST
- (2) DATA BASE SPECIALIST
- (2) PUBLIC INFO CLERKS
- (1) RECEPTIONIST
- (2) DATA PREPARATION/ENTRY CLERKS
- (1) NOTARY/LAWYER
- (1) CASHIER/CLERK

DRAFT



K. REIS Center Floorplan

YAROSLAVL REIS CENTER

PRELIMINARY PLAN

ANNEX C

**CITY OF NIZHNY NOVGOROD REAL ESTATE INFORMATION SYSTEM
FINAL REPORT**

ANNEX C
CITY OF NIZHNY NOVGOROD REAL ESTATE INFORMATION SYSTEM
FINAL REPORT

A. Introduction

The City of Nizhny Novgorod, the third largest city in the Russian Federation, participated in the Real Estate Information System (REIS) project, funded by the U.S. Agency for International Development (USAID). The goal of the REIS project was to create a “unified real estate information system which contain[s] all the information necessary in a registry.” This information system, and the legislation required to support it, are components of an overall system of land titling and registration needed for the city to qualify as a World Bank housing project participant. The REIS project began in Nizhny Novgorod in July 1994 and the original team consisted of the following individuals:

- Igor Rummyantsev, Ph.D., Co-city Team Leader
- Christopher Shove, Ph.D., Automation Specialist
- Jonathan Freston, Titling and Registration Specialist
- Andrei Gavrilov, Automation Specialist
- Andrei Shikolin, Automation Specialist
- Yvgeny Kubanin, Automation Specialist
- Alexander Sokolov, GIS Specialist
- John Lindskold, Legal Specialist—also accompanied the team for two weeks

The initial team in Nizhny Novgorod was disbanded when the teams for the other cities were fielded in October 1994. Several members of the original team were assigned to other cities. In November, Herbert Koudry, Ph.D., was sent to Nizhny Novgorod as City Team Leader, with Sandra Furukawa as Titling and Automation Specialist. Igor Rummyantsev, Ph.D., stayed on as Co-city Team Leader, with Andrei Gavrilov as Automation Specialist. Later in the month, R. Jerome Anderson from the Krasnodar team and Sheldon Bluestein of the Yaroslavl team came to support the systems and geographic information systems (GIS) work in the city. On December 8, Mr. Koudry left the city and returned to the United States. On December 12, R. Jerome Anderson was appointed City Team Leader. In January 1995, Mohamed A. Mohamed, who was recruited from the Land Tenure Center at the University of Wisconsin joined the team as a GIS Specialist.

The team worked in the city until December 15, 1995; however, most of the staff left the city by July 1995. Data abstraction clerks, Elena Shashkina and Natalia Meetyagina, remained in the city until December 15, 1995 to initiate data entry work with the enhanced REIS software.

B. Goals of the Task Order in Nizhny Novgorod

The task order indicates the project should “spur the creation and development of real estate markets by making available integrated and reliable information on real property title and encumbrances.” Specific objectives include:

- Assist local city administrations to establish unified land and real estate information systems which contain all information necessary in a registry and which would promote

efficient, cost effective land and real estate registration procedures and property management

- Make available to individuals, as well as real estate professionals (brokers, mortgage bankers, developers) record files on real property with sufficient information to verify title, encumbrances, and other property interests, and record sale transactions sufficient to spur the growth of real estate activity and real estate professions
- Develop a cadre of Russians to roll-out the program nationwide

C. Methodology

The first item of work was preparation of the user analysis. This document was to define the real estate data needs of various offices in the city in support of the registration process. The report was to also serve as the basis for the design of the REIS.

The initial team in Nizhny Novgorod conducted interviews with various agencies in the city including:

- City Bureau of Technical Inventory (BTI)
- Nizhegorodsky Raion BTI
- Sormova Raion BTI
- Land Committee
- Chief Architect
- City Property Committee
- Apartment Privatization Committee
- Information Systems Department
- Office of the Deputy Mayor for Economic Development

Following these interviews, a user analysis report was completed in late September 1994. The REIS team was deployed in Nizhny Novgorod in early November and familiarizing themselves with the earlier team's work.

A demonstration was performed of the initial software which was developed based on the information gathered in the user analysis report. While preparations were made for the demonstration, the geographic information system (GIS) software was selected and the hardware for an initial small procurement ordered. Specifications for a large procurement of hardware were also developed.

Following the demonstration, the team in Nizhny Novgorod spent much of its time evaluating the prototype REIS developed by the American firm Prosoft and the Chemonics team in Yaroslavl. In addition to critiquing that software, the team assisted the city in developing an ordinance to legalize the registration process. The team also collected data on real estate objects in two pilot areas, one in Sormovo Raion and the other in Nizhegorodsky Raion, and entered that data into the database created by the prototype software. The Nizhny Novgorod team also provided training on the Intergraph software selected for the GIS component of the REIS—and installed some of the computer hardware received as part of the large procurement. The final work completed by the REIS team was the preparation of an implementation plan for the REIS and development of a land book which will be used in the registration process.

D. Main Tasks and Time Frame

There are essentially four main tasks that the city must perform in order to fully implement the REIS and the corresponding registration system. Those tasks are:

- Definition/Organization/Preparation
- Prototype System Installation
- REIS System Training
- System Operation

Definition/organization/preparation included creating a working group to define how registration will be accomplished. Physical facilities must also be found to house the personnel required to perform the registration function. Except for completion of the remodeling of the building which will house the registration office, this task has been completed.

The prototype system installation is not yet complete. Data must be entered for a pilot area or areas to test the operational efficiency of the system, and equipment must be installed in the registration office and in each of the raion BTI offices. This task will be complete following the remodeling of the raion BTI offices and when the registration building is ready for installation of the equipment.

REIS system training occurred on the "enhanced" version of the REIS.

System operation will be performed upon entering the current and historical data.

At the time the implementation plan was originally drafted, it was assumed that the tasks listed above would follow each other in sequence. As it has developed, however, this was not the case. For example, the registration process, which was to begin officially in August, 1995, will not actually begin until sometime in early 1996 because the physical facilities required for that process will not be completely refurbished until then. This will also mean that equipment and software installation cannot be completed until after the registration building has been made ready. System operation will thus be postponed until after the building has been renovated and the system installed. Instead of the final phase beginning in December 1995 as originally anticipated, system operation will not begin until sometime in March 1996.

E. Review of Project Inputs

Inputs by the Russian Privatization Center (RPC). The Volgo-Vyatsky Privatization center, located in Nizhny Novgorod, provided support and assistance to the REIS project team. The director of the center, Evgeny Ivanovich Bystrov, supported the team and provided encouragement and assistance when necessary. Deputy Director, Alexei L'vovich Rakhmanov, also provided advice and assistance to the project, both while he was deputy director and after he left the Volgo-Vyatsky office to assume new duties with the RPC in Moscow.

Inputs by the United States Agency for International Development (USAID). USAID provided the grant funding for the Chemonics contract, including the funds to support consultants, acquire the hardware, and prepare the software. USAID personnel also provided guidance and supervision of the project.

Inputs by the city of Nizhny Novgorod and other participating agencies. The city of Nizhny Novgorod provided significant support and assistance to the project. Personnel who played a key role included Ivan Petrovich Sklyarov city administration director; Vice-mayor Sergei Kimovich Makov; Deputy Mayor Yuri Victorovich Rumyantsev; the deputy director of the legal department, Irina Victorovna Berdnikova; the then-head of the City Property Committee, Mr. Stanislav Vasil'evich Antyugonov; the First Deputy Chairman, Valerie Ivanovich Rybakov; the head of the Registration and Technical Inventory Department, Evgeny Nicholaeovich Shatalin; and the Deputy Chairman of the City Land Committee, Alexander Vladimirovich Bodrievski. Chief of the city Information Department, Galina Georgievna Sysoeva, also provided help and assistance. Computer specialists in Ms. Sysoeva's department, as well as computer specialists in the Registration and Technical Inventory Department, also provided technical assistance over the course of the project.

In addition to providing human resources to support the project, the city provided office space for the Chemonics team, first in the city administration building, and later in the building housing the city BTI office and the Registration and Technical Inventory office. Furthermore, the City Property Committee, as a result of this project and the anticipated housing assistance from the World Bank, created the Registration and Technical Inventory Department, consisting of twenty-eight persons, and is in the process of completely renovating a two-story building with 460 square meters of usable space on each floor. The State Property Committee has also purchased approximately \$100,000 worth of computer equipment, including two large servers, for use in the registration process. Thus, the City has made a significant investment to ensure that the registration process will perform well once it is implemented.

Inputs by Chemonics International Inc. The primary input supplied by Chemonics was technical assistance provided by its consultants assigned to Nizhny Novgorod. This technical assistance included advice on the legal basis for registration, establishment of operational procedures, configuration of hardware, development of registration software, assistance in selection of GIS software, and general guidance and assistance in the management and development of the project. This support was provided on a constant basis from November 1994 through December 15, 1995.

F. Review of Project Outputs

F1. User Analysis

Because Chemonics worked in Nizhny Novgorod prior to working in any other city, the user analysis report for the city was completed first. That document became the model for the other cities to follow. The user analysis report described the various information providers and data flows in the real estate registration process, as well as providing estimates of the system capacity and the personnel and financial support necessary to operate the system.

F2. Hardware and Software Procurement

With Chemonics' assistance, of the city selected Intergraph geographic information system software. Chemonics also provided three versions of database software to support titling and registration. The first version was developed by Chemonics personnel in Nizhny Novgorod in Visual Object for Windows and Clipper for DOS. This design contained the basic data required to produce the "Clear Title Form" required by the World Bank in anticipation of its loan of funds to provide housing in the City. This version of the software was presented at the demonstration

given at the end of February 1995. While this software did have some design defects,¹ with some modifications, it could have met the requirements of the task order.

The second version of the software was known as the "prototype" version, and was developed by the Chemonics team in Yaroslavl, assisted by the American company Prosoft. This version was principally designed to operate in an environment in which the various data providers, such as BTI and the Land Committee had their own operational data systems and could supply electronic data on real estate objects to a central REIS center. Because three of the four project cities did not have such agencies, it was necessary to redesign the REIS so that it would function in those cities.

The redesigned REIS, called the "enhanced REIS", was designed and programmed over a five-month period beginning in June 1995. That effort was managed by a FoxPro development specialist hired by Chemonics. The coding was performed by a team of five system specialists from the four Chemonics city teams. The enhanced REIS software was delivered to Nizhny Novgorod during the last week of November 1995.

Chemonics, using funds provided by USAID, assisted the city in obtaining a substantial quantity of hardware, including:

- 4 TD-3 Intergraph Pentium workstations with 20" monitors
- 24 Dell 486 DX2/66 personal computers with 15" monitors
- 9 Hewlett-Packard laser jet printers
- 9 Hewlett-Packard grayscale desktop scanners
- 1 Hewlett-Packard color desktop scanner
- 1 large-format scanner
- 9 reducing photocopy machines
- 1 CD-ROM writer
- 1 36" by 48" digitizer, with stand
- 1 plotter

This equipment will be utilized in the Registration Office, the raion BTI offices, the Land Committee, and the Chief Architect's office.

The specifications developed by the team in Nizhny Novgorod were used by the other three city teams as the basis for their specifications.

F3. System Demonstration

A presentation of the REIS software occurred on February 22, 1995. This demonstration included initial version of the REIS database software, as well as the Intergraph GIS software. Presentations of both the database software and the GIS software were made by personnel from Nizhegorodsky and Sormovo Raions. A large number of city and oblast personnel attended the demonstration, as well as representatives of USAID, RPC, and Chemonics International Inc. The demonstration was well received and was reported favorably in the local press.

¹ This database structure was organized around real estate objects, not the documents used in the registration process. It also made no provision for storing historical data, and simply overwrote existing data when a new transaction was posted.

F4. Critique of the Prototype System

As noted above, Chemonics prepared three versions of REIS software. As it was being developed, successive versions of the prototype software were distributed to the Chemonics teams in all the cities. The Nizhny Novgorod team tested the software and prepared detailed written analyses of the results of the testing, which was used to help develop the enhanced version of the software.

F5. Pilot Area Data Entry

Chemonics entered data in the REIS database for a pilot area of the city. Because officials in both Sormovo Raion and Nizhegorodsky Raion expressed interest in participating in the project, data from both those raions was used. For this task, the prototype version of the REIS was used because the data had to be entered before the enhanced REIS was completed. Data on more than 2,000 real estate objects were entered, including data on parcels, large apartment buildings, smaller private homes divided into apartments, and the apartments themselves.

F6. Training

Chemonics provided training in two categories: (1) computer, data entry, and geographic information systems training; and (2) enhanced REIS software training. More than twenty city and raion employees enrolled in the basic computer, data entry, and GIS courses. Five employees of the Automation Section of the Registration and Technical Inventory Department received training in the use of the enhanced REIS. Six persons received training in the use of the Intergraph GIS software under the direction of Intergraph in Moscow, with three of those individuals receiving additional training from the Chemonics REIS team in Nizhny Novgorod.

F7. Delivery, Installation, and Testing of Hardware and Software

When the hardware arrived, a number of the computers were installed and tested. REIS software was also loaded on these computers and that software was tested as well. Various other components were also installed and tested to the extent possible; however, complete installation and testing was not possible because the remodeling of the registration office was not completed before the team left the city.

F8. Design of the Enhanced System

Chemonics' personnel from Nizhny Novgorod played a significant role in the design of the enhanced REIS FoxPro database software. Many of the design criteria incorporated in the enhanced REIS were first suggested by Nizhny Novgorod personnel. The titling and registration specialist from Nizhny Novgorod spent one week in Moscow helping to finalize the data dictionary. The city team leader spent the entire month of September and part of the month of October 1995 working on design of abstraction forms, output forms, and revisions to the database design and data dictionary. He also spent some time in November conducting acceptance testing and assisting in the redesign of output forms. Elena Shashkina, one of the data entry clerks on the Nizhny Novgorod team, spent several weeks in Moscow testing the system, entering test data, and revising the output forms.

F9. Implementation Plan

Chemonics personnel drafted the implementation plan for the REIS, and reviewed the draft with representative of the city and the Registration and Technical Inventory Unit. After review by the RPC, Chemonics personnel made the final revisions and produced the final version of the implementation plan, both in Russian and in English.

F10. Assistance in the Development of the Legal Basis for Registration in Nizhny Novgorod

Chemonics provided assistance in the development of the legal basis for the registration system in several ways. First, Chemonics' personnel in Nizhny Novgorod spent substantial time discussing the basic tenets of the American law of property with attorneys from the city and the State Property Committee. These discussions were essentially for the attorneys' benefit in understanding the basic concepts of registration.

Second, Chemonics' legal and development specialist prepared several draft ordinances for consideration by the city. While the final ordinance prepared by the city attorney did not follow these drafts exactly, the suggested ordinances were extremely valuable as a starting point for discussion. Chemonics' personnel in both Nizhny Novgorod and Moscow reviewed the documents prepared by the attorneys in Nizhny Novgorod and made extensive comments and suggestions.

Finally, Chemonics' staff provided significant assistance in drafting the Land Book which will be used to record ownership rights in real estate objects.

F11. Public Information Regarding Registration and REIS

The Registration and Technical Inventory Unit, with assistance from other city officials and Chemonics, held a public roundtable on November 17, 1995. Three representatives of the real estate community were present at the Roundtable and contributed to a lively discussion. This was the first time that real estate professionals had the opportunity to present their needs to registration officials in a frank, open manner. This exchange of ideas and information was extremely beneficial to the project and such discussions are likely to continue in the future.

G. Lessons Learned

This project has the potential to significantly impact the development of a market economy in real estate, with resulting ripple effects in other segments of the economy. This can lead to greater economic activity and ultimately to greater financial security and perhaps even prosperity for at least some of the Russian people.

G1. Project Scheduling

From a management perspective, the project suffered from a time frame which was unrealistically short. The original project schedule called for completion of the project within six months. Given the inexperience of Russian city governments with the principles of real estate ownership and conveyancing, and the lack of legal basis to support the sharing and consolidation of data, the institutional problems encountered in the development of the REIS were much more significant than the technological problems. In Nizhny Novgorod, for example, it took the City

Property Committee at least four months to locate a suitable building to house the registration office. Once the building was found, it had to be vacated by its then-current tenants and completely renovated. The entire process of finding and renovating the building and otherwise preparing it to house the registration function took approximately nine months. While other cities may have been able to find suitable space more quickly, the experience of Nizhny Novgorod is illustrative of the institutional problems faced during projects of this type.

A related problem is the sustainability issue. The amended task order under which Chemonics worked seemed to assume that once the system was in place it would operate independently, gathering support and momentum as operations continued. While this may be true to some extent, far more assistance in post-installation operation is needed if the system is to be a permanent part of city government and the real estate ownership and conveyancing process. Training, debugging, and modifications to support unique situations in each of the cities are all part of the implementation support process. Sufficient time should have been built into the schedule so that those activities could have taken place. That would have led to far greater acceptance of the software by the cities and a greater likelihood that they would in fact use the software after it was installed.

G2. Systems Development

As originally conceived, the project was to have teams in each of four cities. The city teams were, at the outset, composed of essentially identical staffs. Each one had an American and a Russian team leader, with an American systems specialist and a titling and registration specialist, together with one or more Russian systems specialists. Each team performed its own user analysis, but before each team could begin systems design, the decision was made to design and implement a system that all the cities could use. However, the final system design reflected a situation which only pertained to Yaroslavl and did not fit any of the other four cities.

Nevertheless, the idea of one system for all four cities was not inappropriate. In fact, had that been posited as a goal at the beginning of the project, a far more efficient and cost-effective deployment of resources could have been made. A small team, consisting of specialists, both Russian and American, could have made one to two week analyses of user needs in each of the four cities. Comparing the situations in each of the four cities, they could then have designed a system which could have met the basic needs in each of those cities, while retaining the flexibility in the system to allow customized modifications for each city. Once the basic design was complete, additional systems persons could have been hired for the coding, and once implementation began, larger teams could have been fielded in each city to assist with the implementation. In addition, the legal specialist could have visited each city on a periodic basis to assist in the development of the ordinances and procedures necessary to implement the REIS. If necessary, one or two persons could have been posted in each of the cities in order to develop a good working relationship during the system design and development stage. This strategy would have left the bulk of the project funds available for system implementation when they were most needed, and would have helped to insure greater system acceptability in the cities.

G3. Public Information

At the conclusion of the project, Chemonics held round table discussions in each of the cities, inviting members of the private real estate community. These round tables gave both public officials and those actively participating in the real estate market an opportunity to speak

with each other, voice concerns, and build the foundation for future dialog. These round tables were very successful.

H. Summary and Conclusion

The REIS project, as noted above, has the potential to be a very positive influence in the development of the private real estate market in the Russian Federation. If implementation continues as anticipated, Nizhny Novgorod will have an established and functioning registration office, with a growing database containing data on real estate objects in the city. These data can be used to not only support the registration process, but can also be used as the basis of a geographic information system and thus analysis and management of the city's real estate resources. Chemonics' work in Nizhny Novgorod has provided the city with a firm base on which to build the private real estate market and better management of the city's resources.

ANNEX D

**CITY OF VLADIMIR REAL ESTATE INFORMATION SYSTEM
FINAL REPORT**

ANNEX D
CITY OF VLADIMIR REAL ESTATE INFORMATION SYSTEM
FINAL REPORT

A. Introduction

In May 1994, Chemonics International signed task order number 3-0059 under contract number CCN-0006-C-S116-00 with the U.S. Agency for International Development (USAID) to assist the government of Russia in its effort to privatize land and other property. The USAID task order was designed to demonstrate the United States' financial commitment to Russia's long-term privatization goals—specifically in the area of real estate. The task order was to reach its goal via an automated Real Estate Information System (REIS) to support land titling and registration.

The scope of work for the task order focused on the development of a registration system for real estate that would support the issuance of certificates of owner and user rights. In September 1994, the scope of work was amended to change the focus from registration to the development of an integrated real estate information system.

Four cities were selected for the initial effort: Nizhniy Novgorod, Yaroslavl, Vladimir, and Krasnodar. Chemonics recruited specialists in project management, titling and registration, automation, and real estate law. Following completion of orientation in Moscow during the latter half of October 1994, the teams were deployed in their respective cities.

The team in Vladimir completed a city assessment at the end of October. The members of the original city team performing the assessment was composed of:

- Frances Nowak, City Team Leader
- Alexei Efimov, City Co-Team Leader
- Jon B. Abrams, Titling and Registration Specialist
- Brenda Haskins, Automation Specialist—GIS
- Vladimir Zhuravlev, Automation Specialist
- Alexei Shikolin, Automation Specialist—GIS

As the project progressed Jon B. Abrams was appointed head of the training team in December 1994. Brenda Haskins was assigned to the Yaroslavl team in January 1995. Alexander Murzin joined the project in April 1995 as an Automation Specialist. Julie Bergh Penk, a Titling and Registration Specialist, joined the team in May 1995 and continued her work in the city through September 1995. In the spring of 1995, Alexei Shikolin was transferred to the training team based in Moscow where he assisted in the preparation of system documentation. The team worked in the city until November 30, 1995 when the project was completed.

B. Goal and Objectives of the Vladimir REIS

The task order indicates the project should “spur the creation and development of real estate property markets by making available integrated and reliable information on real property title and encumbrances.” Specific objectives include:

- Assist local city administrations to establish unified land and real estate information systems containing all the information in a full land and real estate registry.
- Make available to individuals, as well as real estate professionals (brokers, mortgage bankers, developers) record files on real property with sufficient information to verify title, encumbrances and other property interests, and record sale transactions sufficient to spur the growth of real estate activity and real estate professions.
- Develop a cadre of Russians to roll-out the program nationwide.

C. Approach to Task and Methodology

The overall strategy was determined early in the project and was presented during the orientation in Moscow. The work involved a team effort and cooperation between the city agencies and the Chemonics joint Russian and American team members. Daily contact between the team and city administration officials was given priority.

An initial step was the signing of a protocol of intent on November 23, 1994 among the city administration, the Russian Privatization Center (RPC), and Chemonics, outlining a general agreement on proceeding with the project. The protocol referenced the future agreement that would detail the obligations of the parties and contain a work plan containing target dates for completing objectives.

The team met with various offices of the city administration to conduct an initial assessment to confirm the level of interest in the development of a REIS. The following agencies were interviewed and ultimately became part of a "working group" for the development of the REIS:

- Mid-Russian Privatization Center in Vladimir
- Information Department Bureau of Technical Inventory (BTI)
- City Land Committee and Cadastre Bureau
- Chief Architect's Office
- City Property Committee
- Department for the Privatization of Apartments.

Following these interviews, a user analysis report was generated. This report was completed on February 17, 1995 and was used as the basis for the configuration of the REIS hardware and system components. A work plan was generated and approved by RPC, and Chemonics Moscow office helped coordinate the efforts of the working group formed by the above agencies and Chemonics. The work plan was amended from time to time to reflect changing conditions as the project progressed.

D. Main Tasks and Project Time Frame

The main project accomplishments from November 1994 to November 1995 include:

- Completed both a user needs analysis and, based on that analysis, a system design.

- Finalized the city agreement covering the development of a REIS and obtained work plan approval. The work plan was updated periodically to account for changes in scheduling and situational adjustment.
- Reported progress on the work plan on a biweekly basis to Moscow for incorporation into biweekly reports to USAID.
- Designed database structures and graphic elements for the geographic information system (GIS).
- Procured software and hardware and installed and tested these in the REIS center.
- Demonstrated and presented REIS prototype to the city administration, the RPC, and Vladimir Oblast representatives.
- Completed computer training program with over 100 REIS agency participants being trained.
- Supported the development and signing of an order establishing a REIS center in the city administration building where the general public will have open access to information about real estate.

E. Review of Project Inputs

Inputs by the Russian Privatization Center. The local office of the RPC provided support and assistance to the project in Vladimir and was the liaison with the Moscow RPC. The local representative offered policy guidance and interfaced with the city administration.

Inputs by USAID. USAID provided the funding for the project as well as advice and direction during periodic reviews of project progress.

Inputs by the city. The city provided office space for the Chemonics team, established the legal foundation for information transfer and exchange as needed for REIS database construction, provided guidance and assistance in implementation of the REIS in Vladimir, and facilitated cooperation among the agencies and institutions identified as critical to the success of the REIS project.

Inputs by Chemonics. Chemonics provided the technical assistance through its consultants fielded in Vladimir. Technical assistance included advice on the legal basis for the REIS, establishment of operational procedures, hardware configuration, development of registration software, selection of GIS software and general management guidance.

F. Review of Project Outputs (Results of Work on Main Tasks)

F1. User Analysis

The first task was to conduct and prepare a user analysis. The user analysis was completed on February 17, 1995 and describes the information providers and data flows in the current registration process. Based on the information gathered, the report provides estimates of the capacity that the system would require and the personnel and financial support necessary to create

a sustainable REIS. The evidence gathered to complete the report confirmed the highly fragmented nature of the current real estate information retention in the agencies. The user analysis concluded with specific recommendations regarding hardware and software.

F2. Design and Development of the REIS Database in Vladimir

Following the completion of the user analysis report, the Chemonics team designed a database to meet the city requirements and comply with the USAID task of establishing a unified real estate information system.

Designing the database was the most important task in creating the system. The REIS database was composed of two categories of data: type A data and type B data. The type A data was the basic data required to produce the "Clear Title Report," the basic document which the system was to produce. The "Clear Title Report" provides the basic data regarding ownership, liens, and other data regarding title to real estate objects. Of primary importance in type A data was data describing the documents which created the rights. The main characteristics of a document such as number, date, place of issue and registration, description of objects and subjects, value of an object, and so forth, are stored in the database.

The system also contained type B data. Type B data was data primarily relating to the inventory function, which many city officials felt should be stored in the REIS database along with the registration data.

The REIS database software was coded in FoxPro 2.6 B for DOS. (An enhanced version of the software was programmed in Visual FoxPro 3.0 and was delivered to the city at the conclusion of the project.) In addition to the database software, a GIS capability was included in the REIS. The city chose to use PC ArcInfo 2.0, ArcView, and Avenue as its GIS platform. The database software was loaded on computers using the Intel 486 chip, while the GIS was loaded on either 486 machines or Pentiums.

Once the system was coded and tested, the Chemonics REIS team loaded data on 561 real estate objects from a pilot area of the city. This test of the system in the pilot area allowed both Chemonics and city officials to determine how well the system worked and to ascertain how much effort would be required to enter data on all real estate transactions in the city. The results of this pilot test were demonstrated to city officials in November 1995.

F3. REIS Administrative System

The City of Vladimir has adopted legal documents to govern the organization and operation of the REIS. These documents created the REIS center, insured the free flow of data among agencies, guaranteed access to the data by the citizens of Vladimir, and gave the REIS the stability it needs in order for it to function successfully.

On August 24, 1995, the city administration issued an order directing the Department of Information to prepare an ordinance regarding the detailed operation of the REIS. Under the ordinance, the REIS center was to be established as a part of the city's Department of Information, with its physical location to be in the city administration building. On November 20, 1995 the city approved an ordinance on *Organization and Use of Data within the Framework of a Unified Real Estate Information System in the City of Vladimir*. The Information Department was

appointed the coordinator of the REIS and is responsible for implementation and development of the REIS among all participating agencies.

The center began operations on the basis of information possessed and used by the city administration. The center coordinates the activities of several city agencies and other holders of information to form databases about real estate objects, related rights and restrictions, tax assessment, and appraisal value. The center will design standard hard-copy report forms and is responsible for terminals for public access to REIS data. The REIS center closely cooperates with other agencies to build databases which together form the basis of a decision support system for real estate matters in the City.

At present the staff of the REIS center includes the database administrator and system specialist appointed by the city who will continue the development of the REIS center after the departure of the Chemonics' team. Experts in certain REIS-related areas from key city departments and subdivisions will also be assigned to the center. A clerk/secretary will be hired to operate the public access component of the REIS when full operation of the center begins.

Initially, the city has redeployed staff from existing departments for the two new positions in the REIS center. As of 1995, the REIS center will receive funding from the city budget. According to the current legislation, the center as a structural subdivision of the administration may not use the information that it possesses for commercial purposes; fees charged will only cover expenses necessary for the center's operation.

F4. Procurement/Installation of Hardware and Software

Chemonics prepared specifications and bid documents for competitive procurement of hardware and software. The specifications were completed by the end of March 1995 on the basis of the user analysis. The computers and related equipment were delivered in July 1995. Chemonics, USAID, and the RPC collectively entered into an agreement under which the equipment was transferred to the city. The city then distributed the equipment to the following agencies: computers (18); printers (10); scanners (4); plotters (2); digitizers (2); CD writer (1); GPS receivers (2); modems (8); UPS (8); streamers (5); copy machines (2).

The REIS prototype database designed in phase one to demonstrate the system over a targeted pilot area was upgraded and improved. Visual FoxPro, a more powerful and flexible developer's tool, was used to design the final version of the system previously mentioned. The upgraded version concentrates on the registration of documents and offers reduced error and increased data protection. System architecture will be more open and malleable.

The following software will be distributed among the agency participants of the REIS and the REIS center:

Software	Number of Copies
Visual FoxPro 3.0	1
REIS Database	18
PC ArcInfo version 3.4	2
ArcView 2	8

Warranty documents and registration forms for the software and hardware will be given to the REIS center and Chemonics consultants will instruct system employees in availability of technical maintenance and vendor support.

F5. Training

A lengthy process of interviewing agencies and city officials to determine who would best be suited for formal training for eventual work with the REIS resulted in over 100 employees receiving Chemonics training. Among them were several department heads and senior level decision makers within city agencies. Training was received in Windows, Introduction to PCs, Data Entry, and GIS. This training took place over a period of several months during 1995.

G. Lessons Learned

The REIS database, the formal and informal training and instruction in the REIS provided by Chemonics and the public education or awareness programs are all components of the REIS but the most vital component to the task order goal is the system's legal or normative foundation. Transferring American and European title and registration experience to the developing Russian real estate market is a complex task and rules and regulations directing the REIS establishment and operation require very careful drafting to reach the consensus necessary for the system to be successfully implemented.

The project took place over a 13 month period ending on November 30, 1995. The amount of time necessary to accomplish a complete analysis of the needs of the city, difficulties in achieving the political consensus necessary to implement legislation, and delays in the delivery of the computer hardware all point to the necessity of a longer time frame. The original task order contemplated a six month period.

H. Recommendations

Each deliverable under the task order was achieved. This is a significant accomplishment and could not have been achieved without enormous dedication on the part of those taking part in the project and the city administration and its agencies. Nevertheless, the following recommendations are based on the problems associated with the project that had not been foreseen by the authors of the task order.

Time frame. The time frame for a project of this sort should be extended. The establishment of a legal basis is not realistic in a six month period. No one would expect the U.S. Congress to establish a new set of laws within a six month period. It is certainly more difficult when the proposed laws are aimed at changing more than 70 years of distinctly different behavior.

System development. Although it is necessary to include a non-Russian expert to provide supervision and guidance, it is clear that the Russian System Specialists are completely capable of developing the software. Consideration should be given to reducing the number of non-Russian system specialists.

Legal basis. This represented one of the most difficult aspects of the project. Future projects should consider the necessity of requiring legislation to be in place prior to fielding full teams.

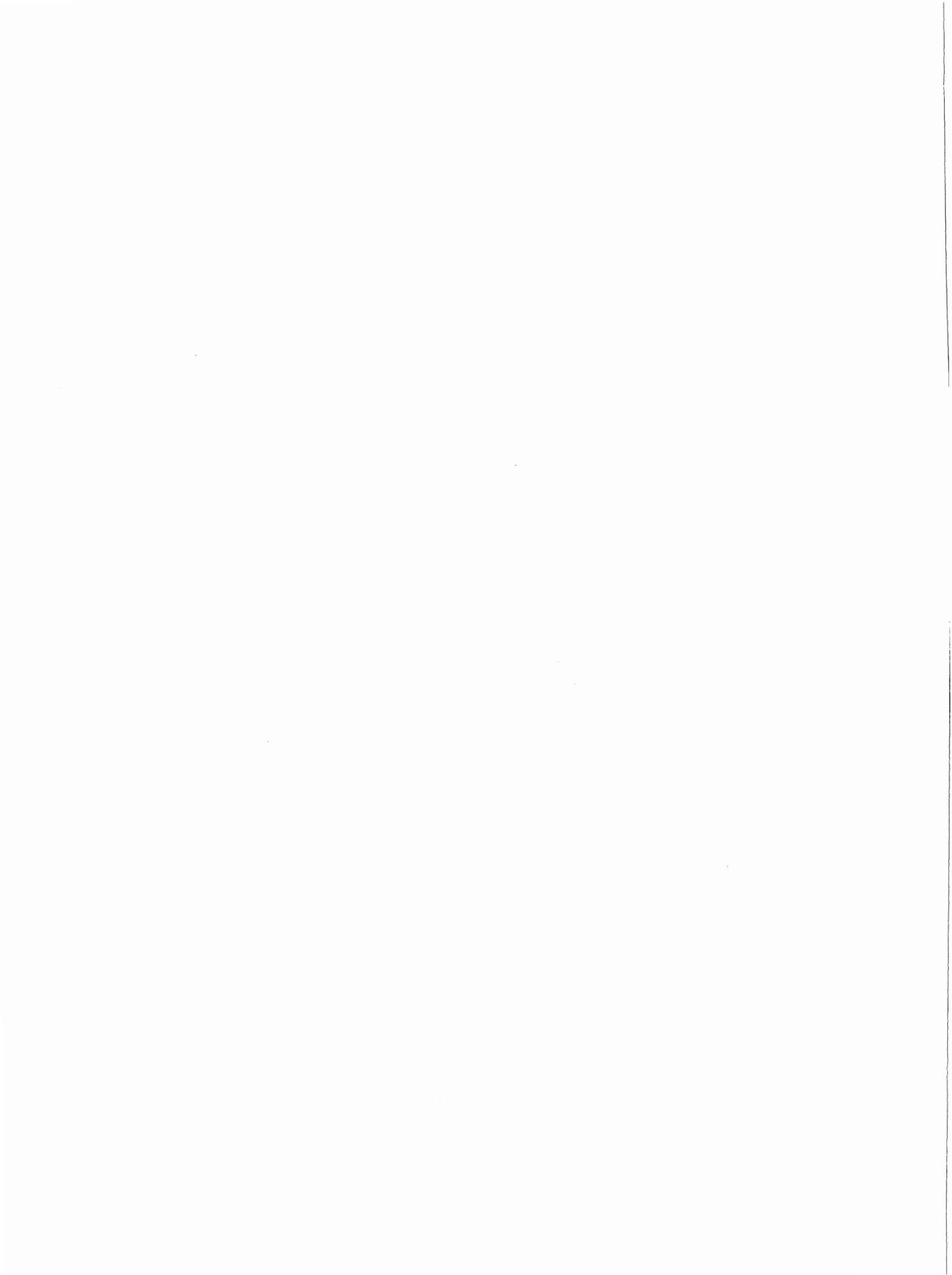
Public information. A more concerted effort at the beginning of the project to explain the benefits of REIS and registration to the city administrations and the public is key. The roundtable concept, including private enterprises, worked well and would have had more impact if it had taken place earlier in the program.

I. Summary and Conclusion

The REIS project represents a firm basis for future development of an integrated real estate information and registration system. The system can create increased activity in the real estate market and has the capacity to integrate with other types of uses, such as a fiscal cadastre, which will bring revenue to the city, and overall land management to control zoning and land use. If implementation takes place as anticipated, the city of Vladimir will be able to increase the private real estate market and better manage an important resource.

ANNEX E

**CITY OF KRASNODAR REAL ESTATE INFORMATION SYSTEM
FINAL REPORT**



ANNEX E
CITY OF KRASNODAR REAL ESTATE INFORMATION SYSTEM
FINAL REPORT

A. Introduction

In May 1994, Chemonics International signed a contract with the U.S. Agency for International Development (USAID) to provide assistance in establishing a unified real estate information system in several Russian cities.

The project's scope of work focused on the development of a registration system for real estate in order to issue certificates of owner and user rights. In September 1994, the scope of work was amended to change the focus from registration and certificates to the development of an integrated Real Estate Information System (REIS).

Four cities were selected for the initial effort: Nizhny Novgorod, Yaroslavl, Krasnodar, and Vladimir. Chemonics recruited specialists in project management, titling and registration, automation and real estate law. Following completion of orientation in Moscow during the latter half of October 1994, the teams were deployed to their respective cities.

The program was implemented through municipal governments in the selected cities and in close cooperation with the Russian Privatization Center (RPC). Krasnodar was selected as one of the initial cities based upon a detailed assessment done by Chemonics in early November 1994. A protocol of intent was signed among the city, the RPC, and Chemonics on November 24, 1994. A joint Russian-American team of Chemonics specialists started work in Krasnodar and continued until February 28, 1996 when the project officially ended.

B. Goal and Objectives of the Krasnodar REIS

The goal of the REIS in Krasnodar has been to promote the development of the real estate market by making reliable information about property ownership, user rights (rental and other lease arrangements) claims, encumbrances, and easements available to the public and real estate professionals. An active real estate market should stimulate construction of new housing, and commercial and industrial projects that, in turn, provide new sources of employment and encourage local economic growth.

Specific objectives of the project were to:

- Assist the city and key agencies to establish a unified information system that is easily accessible to the public and to government agencies and will facilitate broad participation in the real estate market. The existence of the REIS should reduce the cost, time, and effort required to complete real estate transactions and reduce the legal risks involved.
- Make available to individuals and real estate professionals (brokers, mortgage bankers, developers) record files on real property with sufficient information to verify title, encumbrances, and other property interests; and record sale transactions sufficient to spur the growth of real estate activity and real estate professions.

- Develop a cadre of Russians to roll-out the program nationwide.

C. Approach to Task and Methodology

The overall project strategy was developed in late October 1994 during an orientation in Moscow. The work involved a team effort and cooperation between the city agencies and the Chemonics joint Russian and American team members. Daily contact between the team and city administration officials was an important priority.

An initial step was the signing of the protocol of intent among the city administration, the RPC, and Chemonics, outlining a general agreement on proceeding with the project. The protocol contemplated a future agreement that would detail the obligations of the parties and lead to a work plan containing target dates for completing objectives.

The team met with various offices of the city administration to conduct an initial assessment to confirm the level of interest in the development of a REIS. The following agencies were interviewed and ultimately became part of a "working group" for the development of the REIS:

- Municipal Property Fund
- City Bureau for Technical Inventory (BTI)
- Land Committee
- Chief Architect's Office
- Committee for Management of Municipal Property (KUMI)
- City Housing Department
- Agency for Housing Privatization

The Local Privatization Committee (LPC) was also kept informed and was regularly consulted.

Following these interviews, a user analysis report was completed on February 17, 1995 and used as the basis for the configuration of the REIS hardware and system components. A work plan was generated and approved by RPC. Chemonics' Moscow staff helped coordinate the efforts of the working group formed by the above agencies.

D. Main Tasks and Project Time Frame

The project tasks were performed from November 1994 through November 1995. These included:

- Completing a user needs analysis, a system design, and determining the best method to achieve the goal and objectives of the REIS.
- Finalizing the city agreement covering the development of REIS and having the work plan approved.
- Designing database structures and GIS; procuring software and hardware and installing and testing them in the REIS center.

- Demonstrating a REIS prototype to the city administration, the RPC, and Krasnodar Krai representatives.
- Completing the computer training program with over 100 REIS agency participants.
- Supporting the development and signing of an order establishing a REIS center in the city administration building where the general public will have open access to information about real estate.

These main tasks were incorporated into a project work plan approved jointly with the city and RPC. The work plan was updated periodically to account for changes in scheduling and situational adjustment. Progress on the work plan was reported to Moscow for incorporation into biweekly reports to USAID.

E. Review of Project Inputs

Inputs by the Russian Privatization Center. The RPC and the LPC provided guidance and assistance in resolving policy issues and in providing information on the general framework for the REIS program.

Inputs by USAID. USAID provided the funding for the project as well as advice and direction during periodic reviews of project progress.

Inputs by the city. The city provided assistance and guidance at the local level for implementation of the REIS in Krasnodar. The city also provided office space for Chemonics and facilitated cooperation among the members of the working group. The city also provided the space and operating budget for their initial establishment of the REIS center.

Inputs by Chemonics. Chemonics provided the technical assistance through consultants fielded in Krasnodar. Technical assistance included advice on the legal basis for the REIS, establishment of operational procedures, hardware configuration, development of registration software, selection of GIS software, and general management guidance.

F. Review of Project Outputs

The unified REIS development work provided the basis for legally sanctioned organizational structures and inter-institutional relationships to stimulate real estate development in Krasnodar. The REIS provides the database, information management system, and organizational structures required to allow broadly based access to market-accepted evidence of ownership claims and encumbrances on real property units.

Specific outputs included:

- Completion of prototype-demonstration project
- Improved information processing activities for the agencies which are included in the working group
- Provision of more complete, up-to-date, and easily accessible integrated real estate information

- Assistance in the establishment of the REIS center where the general public can easily access real estate information and process real estate transactions
- Installation and testing of computer hardware and software
- Assistance to the city in the installation of an operating GIS system showing the land, buildings, public rights of ways, and utilities easements in the prototype area
- Preparation of text files with data related to building and apartment ownership, land ownership, current claims and encumbrances affecting the title to real property units, land use, building passport information, values of building and land, taxes, and other liens; this information will be tied to the GIS system by a parcel identification number
- Completion of training

F1. User Analysis

The first task was to conduct a user needs analysis, which was completed on February 17, 1995. This report described the information providers and data flows in the current registration process and provided estimates of the capacity that the system would require and the personnel and financial support necessary to create a sustainable REIS. The user needs analysis concluded with specific recommendations regarding hardware and software.

F2. Design and Development of the REIS Database in Krasnodar

Following the completion of the user needs analysis, the Chemonics team designed a database to meet the city requirements and comply with the USAID task of establishing a unified REIS. In the current situation, discussed below, data on individual properties originates in various city agencies associated with the existing real estate system. The database is designed to centrally aggregate this data and make it accessible to the relevant needs of the agencies and bodies involved.

A demonstration/prototype area of the city was selected. Live data from actual properties from within this area were aggregated and entered into the REIS database. The prototype area included a mix of land uses (housing, commercial, institutional and vacant land) all encompassing approximately 130 pieces of real estate within the prototype area. The data was gathered from the agencies listed above in the working group. Some of the data may be imported from existing automated databases. However, much of the data entered from paper forms from the BTI and other agencies.

The data is linked to digitized maps of the land parcels in the prototype area using geographic information software (GIS) installed on Pentium computers. When this was done, a demonstration was conducted.

Data was entered into the REIS database using FoxPro 2.6 - B, running on DOS for the attribute data and 486 DX2 computers and ArcInfo 2.0 - Avenue - ArcView for the GIS installed on Pentium level computers. These databases were used to store information about technical characteristics of 561 real estate objects and their value.

Fields were added to include more detail (i.e., the ability to make reference to the text, to graphic or text documents, and the ability to track history of real estate objects and subjects). Basic types of documents used in secondary transactions in the text form still have the document template and, in the database fields, contain the main characteristics of a document: number, date, place of issue and registration, description of objects and subjects, value of an object, and so forth.

Linkage between databases about real estate objects and documents confirming rights and restrictions are made by using internal identifiers and a linkage table.

The REIS attribute and GIS components are linked so as to use the attributive information and graphic support.

The data that is collected and processed by the agencies and departments mentioned above is divided into categories A and B. Category A includes the minimum amount of data needed to produce the *Real Estate Information Form* (prepared by Chemonics) and category B includes additional items considered critical to these same information providers. These two categories of information comprise the input data required for the REIS. During actual development of the REIS, input data may be revised, new data added, or some B items eliminated. Other data, known as category C, is not required for the REIS since its inclusion is non-essential and would substantially increase the volume of data, clog the system, and would be counterproductive to the goals of the REIS.

In July 1995, a demonstration of the system was presented to the city administration utilizing all the data inputted from the pilot area.

The main output of the system is the *Real Estate Information Form*, which contains all the data required for a centralized registration system.

In June 1995, a determination was made to enhance the database with FoxPro 3.0, designed to work with Microsoft Windows 95. This enhanced software streamlined the data into a format suitable for real estate registration and the use of FoxPro 3.0 provided a software which was far superior to FoxPro 2.6. The improved software was delivered to the city in November 1995.

F3. REIS Administrative System

The City of Krasnodar agreed to create a REIS structure, as suggested by Chemonics. This included:

- Establishing a REIS center
- Establishing REIS subdivisions in each contributing city agency
- Determining the source of financing
- Determining the necessary forms of inter-agency cooperation
- Enacting several real estate-related ordinances to ensure the data exchange and access necessary for the stability of REIS operation

On July 18, 1995 the Head of the Administration for the City of Krasnodar issued an order entitled *On Procedures of Putting REIS into Operation and its Functioning*. The decree directs that the Information Agency shall have the authority over the Property Management Committee,

which will initially function as a REIS center. The center is located in the city administration building.

By an order issued by the chairman of the property management committee, the Information Agency structure was approved and its staffing outlined, including a REIS center director, chief administrator, a system specialist, secretary, two program operators, and an archivist.

The city administration estimated that it will take approximately two to three years to install all the data from real estate objects in the city into the REIS. As of September 15, 1995, the REIS center will be funded from the city budget.

F4. Procurement/Installation of Hardware and Software

Chemonics prepared specification and bid documents for competitive procurement of hardware and software according to USAID regulations. The specifications were completed by the end of March 1995 on the basis of the user needs analysis. The computers and related equipment were delivered in July 1995. Beginning in August, the following hardware was distributed among the agency/participants of the REIS project and the REIS center, following the approval of the act governing transfer and use by USAID, the RPC, the City of Krasnodar, and Chemonics: computers (18); printers (10); scanners (4); plotters (2); digitizers (2); CD writer (1); GPS receivers (2); modems (8); UPS (8); streamers (5); copy machines (2).

The prototype was upgraded and improved. FoxPro 3.0, a more powerful and flexible developer's tool was used for the design of the ultimate version of the system previously mentioned. The upgraded version concentrates on the registration of documents and offers reduced error and increased data protection. System architecture will be more open and malleable.

F5. Training

Over 100 employees received training in Windows, introduction to PCs, data entry, and GIS. This training took place over a period of several months during 1995.

G. Lessons Learned

The database, the formal and informal training and instruction, and the public education or awareness programs are all components of the REIS. The most vital project goal is the legal foundation. The necessary rules and regulations required very careful drafting to reach the consensus necessary for the system to be successfully implemented. Overcoming each agency's tendency toward guarding its database required more effort than was anticipated.

The project took place over a 13 month period ending on November 30, 1995. The initial estimates of the amount of time necessary to accomplish a complete analysis of the needs of the city, difficulties in achieving the political consensus necessary to implement legislation, and delays in the delivery of the computer hardware all point to the necessity of a longer time frame.

H. Conclusions and Recommendations

Cooperation among team members, the city administration, and the agencies was critical to the success of the project. Also vital was the dedication on the part of those taking part in the project and the city administration and its agencies. However, several areas of improvement are necessary. The following recommendations are based on the problems associated with the project that had not been foreseen by the authors of the task order.

Time frame. The time frame for the project should have been longer. To enact legislation and alter perceptions regarding real estate in a country with little history of private property in six months is unreasonable.

Legal basis. This represented one of the most difficult aspects of the project. Future projects should consider the necessity of requiring legislation to be in place prior to fielding full teams. The legal and political commitment to the project is a prerequisite.

Public information. A concerted effort at the beginning of the project to describe and explain the benefits of the REIS and registration in general to the city administrations and the public is key. The concept of holding roundtable discussions worked well and would have had more impact if it had taken place earlier in the program.

I. Summary and Conclusion

The REIS project represents a step toward establishing an integrated real estate information and registration system in Krasnodar. As a building block, the city administrations must utilize and modify the system as required so as to accelerate activity in the real estate market. Furthermore, the modular utility of the software permits it to integrate with other uses of municipal land use management, such as a fiscal cadastre to establish a modern real estate taxation system that will bring revenue to the city, and zoning and land use management. If implementation takes place as anticipated, Krasnodar will be able to increase the private real estate market and better manage an important resource.

