

Cadastral and Mapping Support to the Land Reform Programme in Estonia

Ian Brook

**Department for Central and
Eastern Europe**

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**Sida Evaluation 96/24
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and Eastern Europe**

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Table of Contents

<i>The Mission</i>	<i>1</i>
<i>The Objectives of Support to the Cadastral and Mapping Sectors</i>	<i>1</i>
<i>The Development of a National Cadastre in Estonia</i>	<i>2</i>
<i>The Present Status of the Land Reform Programme</i>	<i>6</i>
<i>Inputs to the Cadastral Sector from Other Donors - On-going and Planned.....</i>	<i>11</i>
<i>Co-ordination of External Inputs</i>	<i>13</i>
<i>Comments on Swedish Aid to Base Mapping and Cadastral Sectors.....</i>	<i>14</i>
<i>An Evaluation of the Proposals Submitted to Sida by Swedesurvey</i>	<i>15</i>
<i>Recommendations</i>	<i>19</i>
<i>Acknowledgements and Conclusions</i>	<i>20</i>
<i>Persons met during the mission.....</i>	<i>21</i>
<i>References</i>	<i>22</i>

Appendices 1-4

The Mission

1. The mission was carried out in Estonia during the period February 19-March 1, 1996 in accordance with the Terms of Reference prepared by Sida's Division for Central and Eastern Europe. See Appendix 1. The central theme of this report is the role of the cadastre in the Land Reform programme, the impact of the Swedish support that has been provided since 1993 and an evaluation of proposals that have been made for continued support. It is based on interviews, informal discussions, documents, publications and reports.

2. With the exception of the first BITS-funded satellite base mapping project the input to date from Sida has been focused on the cadastral sector, with particular emphasis on mapping, with the purpose of assisting the government of Estonia with the task of restitution, providing compensation for and privatisation of land in both rural and urban areas.

The Objectives of Support to the Cadastral and Mapping Sectors

3 The broad objective of the support that has been provided, and that is planned, is to strengthen the resources and competence of the organisations that are responsible for cadastral and land registration activities in Estonia. Land registration is one key administrative tool that the Estonian government requires to efficiently implement the Land Reform programme.

4. In this report the term cadastre will be used for both the land cadastral register - the mapping and systematic description of land units - and the legal cadastre that contain the description and determination of rights to and restrictions on land. In Estonia there are two separate registers for these purposes: the Land Cadastral Register and the Title Book. The creation and maintenance of the Land Cadastral Register is the responsibility of the Estonian National Land Board (ENLB) through its central office in Tallinn and fifteen County Cadastral Offices. The ENLB is responsible to the Ministry of the Environment. The Title Book is maintained by twenty-one courts - fifteen county and six city courts- under the aegis of the Ministry of Justice.

5. A paper by Millgård (1) gives an overview of the legal systems in Estonia and contains a comparison of aspects of the cadastral systems in all three Baltic states.

6. In general terms a well-organised and smoothly functioning cadastral system will support or provide:

- the establishment of land units on the ground, including the re-structuring of properties by measures such as consolidation.
- the unique definition of land units that can only be changed by a legal process.
- the unique definition is a key to security of ownership which, in turn, facilitates dealings in land and the use of land as collateral to obtain loans.
- the development of a market in land and, on the longer term, the restructuring of land units to form more viable entities.
- the creation of new land units at reasonable prices.
- the reduction of litigation.
- the identification of overriding planning interests leading to better overall land management in the Public Sector.
- provide input for land policy decisions and local, regional and national physical planning activities.

A national cadastre is often the basis for parcel-related information systems.

The Development of a National Cadastre in Estonia

The Estonian National Land Board, State enterprises and the Private Sector

7. The Estonian National Land Board is a government organisation that currently has the responsibility to manage and coordinate the cadastral part of the Land Reform programme. This also involves the development of policies for and the supervision of activities of state enterprises working in the surveying and mapping sectors. For example, the activities of the Estonian Mapping Centre (EMC), which is a state surveying and mapping enterprise, are steered by ENLB. ENLB works at the county level through fifteen County Cadastral Offices.

8. At the present time the cadastral, surveying and mapping sectors are being re-organised with the object of shortening lines of communication, raising the level of decision making, and management and increasing efficiency by better utilising common

resources. This would appear to be a response to a continuous evaluation of the progress of the implementation of the Land Reform programme.

As a result of the re-organisation:

- ENLB will be responsible for the efficient management and co-ordination of Geodesy, the Land Cadastre and Mapping.
- The activities of ENLB will be co-ordinated with those of other organisations working in allied sectors.
- ENLB will not be involved in cadastral land surveying activities which will be carried out by licensed Private Sector companies.

9. Other important results of the re-organisation will be: the privatisation of EstSurvey which up to now has been engaged in cadastral field surveying, the transfer of the Cadastral Division of EstSurvey to ENLB and the merger of EMC with ENLB. It is interesting to note that a Swedesurvey consultancy report (2) recommended similar organisational changes.

10. A significant deviation from the Swedesurvey recommendation - and the type of organisation in Sweden - is the decision to privatise cadastral surveying activities. A recently executed World Bank Staff Appraisal Study, Estonia Agriculture Project (8), perhaps not unexpectedly, strongly advocates this step. In the report it is stated that "there are 125 licensed, private surveying companies and 48 individual surveyors in Estonia that are involved in land surveying. [and], in addition, to this 138 licences for geodetic and cartographic work have been given out. A study has shown that approximately 95% of the companies are now actively operating. There are still another 39 private companies and surveyors that have applied for a licence". The same report states that surveyors will also be licensed to carry out juridical work similar to chartered Swedish cadastral surveyors.

11. The expanded role of cadastral surveyors in the Private Sector is a change that should be carefully followed up and evaluated. The World Bank proposal includes a contribution of USD 4 000 000 of which USD 2 106 000 is earmarked for purchasing services for the demarcation and measurement of cadastral units from private sector companies through competitive bidding. It is proposed that each contract should amount to approximately USD 250 000. In all, it is estimated that approximately 7 800 rural units, with a total area of 151 000 hectares, will be surveyed.

12. If the Private Sector companies are to be able to work in a rational, and efficient manner it is imperative that unambiguous Survey Regulations are formulated and that they are rigorously applied. The results of the surveys must be carefully monitored to ensure uniformity and compatibility of the final results with government systems.

13. Without considerable investments by the Private Sector in modern equipment, privatisation of the cadastral field operations will not a priori clear the survey bottleneck. This equipment includes total stations, GPS equipment, computers, software and cartographic equipment. Depending on the level of technology that is used, investments of the order of USD 30 000-100 000 which are certainly far out of the reach of smaller survey companies, will be required. Investment costs will certainly affect fee levels. In the worst scenario the change will be from a state monopoly to a private monopolisation of the market by a few companies. This question will certainly require more attention. Privatisation is not always the universal panacea.

14. It must not be forgotten that the introduction of modern technology and working in new fields of activity also requires considerable investments in the development of human resources at all levels. Swedesurvey proposals, if financed by Sida will result in major training programmes at the ENLB and, to a lesser extent, in local municipalities. An important question is the extent to which similar support will be given to improving the level of competence in those Private Sector companies that are involved in the Land Reform. Against the background of the World Bank proposal, which is limited to support for purchasing service, the need for active measures for increasing competence and understanding of the new cadastral model in the Private Sector must not be forgotten. One such measure is the proposal to create the professional level of chartered surveyor.

Organisation and Procedures

15. Factors that have negatively affected the progress of the Land Reform Programme are diffuse organisational structures, lack of trained staff, weaknesses in lines of communication and inadequate co-ordination both between and within the central and local levels and between international donors working in Estonia. The problems within Estonia are understandable: the development and rooting of a new working culture is not done overnight. More stringent demands can, on the other hand, be placed on donors.

The national level

16. The Land Reform is a central political issue and as such it is subject to close and continuous scrutiny. The re-organisation described in paragraph 8 is certainly based on experience gained during the past years as well as being a reaction to external criticisms regarding the progress made in the implementation of the cadastral component of the reform and of weak co-ordination with other agencies that are engaged in the Land Reform programme. In a memorandum dated 1995-01-30 (3), Woldemar Kiviaed gives an example of the lack of organisational structure and co-ordination between the ENLB and local authorities such as the municipalities and local Land Boards of the old organisation

Appendix 2 illustrates the new model from application for restitution through to the issue of title which will be used in the recently launched organisation.

The process is as follows:

- a) The applicant applies for restitution to the Land Reform Board (LRB) where the claim is investigated.
- b) If approved in this instance the claim is passed to the municipal authority where a search of the records is made using old documents and maps that can provide evidence to validate the claim. In the Tapa municipality which was visited during the mission, the LRB is in the municipal building and the organisations work hand in hand.
- c) The municipality assists the claimant to engage a land surveyor. The impartiality of this process appears to be somewhat questionable.
- d) The applicant assists the surveyor with the field search for old boundaries and boundary markers and the survey work. This is similar to the Swedish way of working.
- e) The field survey is sent to the County Cadastral Office of the ENLB for technical checking and approval.
- f) The approved survey is sent to the municipality for final approval.
- g) The municipality is responsible for contact with the Titles Office from where the final title documents are issued.

The computerisation which is being carried out in the IPIS project has been designed to further coordinate and speed up the work flow.

The local level

17. The establishment of ENLB County Cadastral Offices should significantly improve co-operation between the ENLB and the local municipalities. The implementation of the IPIS project, after the running-in period, should also speed up the handling of documentation as well as increasing the security and integrity of the stored information.

18. When the IPIS project has been fully developed and implemented - see paragraph 41 - the next step in the computerisation process should be to open links between the County Cadastral Offices and to municipalities for exchange of data. Some

of the municipalities have already developed or purchased computer systems that use and manage the same type of data that will be stored in the ENLB system. In the municipalities there is a need for effective planning tools and it is likely that the LIS systems that are developed for this purpose will be parcel-based.

19. The local private land surveyors will be given a central role in the process of restitution. Routines and regulations must be developed to steer methods, quality and compatibility of the output data and to check that survey and other regulations are followed.

The Present Status of the Land Reform Programme

Statistics

20. The progress of Land Reform Program is affected by a range of disparate factors. These include: the attitudes of potential and existing land and property owners, political power structures - town versus countryside. - the implementation of government decisions, legislation, private, national and international economics, the organisation of the programme, the lack of trained staff, physical conditions on the ground and technology.

21. A large volume of statistics concerning the Land Reform is available but it is difficult to compare and, at times, to interpret them due to the fact that they are compiled by different bodies. A major source of misunderstanding is the difficulty in correctly translating the terminology to English. The Land Reform comprises the processes of restitution, replacement (exchange), compensation and privatisation together with combinations of these elements. The total area of Estonia is approximately 4 367 000 hectares and in 1940 approximately 3 000 000 hectares were in private ownership. Of the total of 4 367 000 hectares approximately 1 228 000 will be restituted, 142 000 will be replaced, 422 000 will be compensated and 434 000 will be partly restituted and partly compensated. The remaining 2 141 000 hectares will either be privatised, be retained by the State or be the property of the municipalities. There is a general consensus, as expressed in the World Bank Staff Appraisal report (4), that progress "has been slower than desirable". In the urban sector the situation is not fully clear but is said to be more on target. It has not been possible, during the mission, to obtain official statistics for the number of applications for the implementation of various measures concerning land units, but an unofficial figure of about 212 000 has been mentioned. The lack of accurate statistics is partly due to the fact that more than one person can apply for the same land unit. The unofficial figure for the total number of units varies between 400 000 and 500 000 and a realistic time frame for completing the programme is said to be of the order of least 20-25 years. The number of applications for privatisation or replacement is 69400.

22. In the World Bank report it is stated that only 13% of forest and potential farm land has so far been handed over to private owners. The 13% includes restituted land and land under the Farm Law Act of 1989. The Farm Act was enacted prior to Estonia's re-independence in 1991 and it was the start of the establishment of private farms and the beginning of the re-structuring of agriculture.

23. Appendix 3 contain statistics for registration in the Land Cadastre Registers maintained by ENLB for the years 1993-1996. These figures include private land, preemptive rights to private land, land in municipal ownership and land in state ownership.

In summary the statistics show that:

- a) In 1993 the number of units registered was 3 057 with an average size of 14 hectares and at an average rate of 255 units per month.
- b) In 1994 the equivalent figures were 6243, 11 hectares and 520 units per month.
- c) In 1995 16073 units were registered comprising 125 000 hectares. The average monthly production rate was 1340 units.
- d) ENLB plans a production rate of 1 500 units per month during 1996 and in January and February 2 000 units were registered.

24. The trend shown by these statistics is increasing productivity, but they should be interpreted with caution. For example, production will be higher if restitution is done for blocks of units rather than single units spread over a wide area. In other words, systematic administrative and practical implementation can increase productivity.

25. A limited amount of statistics was provided for title registration. Up to 96-02-01 approximately 13 950 titles had been issued. This figure should be compared with the number of registrations in the land Cadastre.

Identifiable bottlenecks

Legislation

26. The legislation contained in the Civil Law in Estonia - the Law on Real Rights, the Title Book Law, the Law on Ownership of Flats and the Law on the General Principles of the Civil Code were adopted by Parliament between 1993 and 1994. These laws are based on current German legislation; the Land Cadastre Law was passed in 1994. Millgård (1).

27. In general terms, legislation is not considered to be a serious bottleneck by ENLB. Neither Millgård (1) nor Jaffe, Turner and Victorin (6) have pointed to serious deficiencies. Amendments have been made: the Land Reform Law has 25 Amendments and Orders; the Law on Land Cadastre has 8. In (1) Millgård makes the following comments on the Civil Law: "Estonia {has} rapidly gained a well developed legislation using German civil law as a prototype modified to limited respects This has its obvious advantages. In this case there were also historical motives for such a solution, to some extent, and German law is for more than one reason a choice which is near at hand." Millgård does, however, recommend that an evaluation of the effects of current legislation should be carried out. A study by Kiviaed also confirmed that possible deficiencies in cadastral legislation do not create any serious constraints for the implementation of the Land Reform. The ENLB stated that there is a need to harmonise the legislation and to decrease its bureaucratic requirements. Examples cited were the planning and building law and the law regulating consolidation. The ENLB has formulated a request for an overview of and assistance with the possible revision of the current legislation in a request that has been submitted to the EU (PHARE project). See paragraph 46.

Economic factors

28. A series of reforms have been implemented in Estonia since re-independence and, naturally, they are not all in phase. For example, whereas the agricultural reform programme has almost been completed and collective farms have been abolished, and economic reforms have led to the adoption of world prices for many goods and equipment the Land Reform programme is still in its initial stages and is lagging behind.

29. Because the economic future for agriculture in Estonia is uncertain, because of the high costs of the machinery and equipment required to establish farms and because of uncertainties regarding the price of land in rural areas it is stated that there is a hesitancy on the part of land owners in deciding whether to claim restitution or compensation for their old land. This naturally slows down the Land Reform. By contrast, in urban Tallinn, restitution is applied for almost every second unit (5 and 8). However, even in urban areas the costs of repairing and modernising run-down properties can be a deterrent to full ownership.

30. In the case of privatisation, survey costs (based on free market prices) must be paid by the land owner. In the case of restitution, survey costs are paid by the State based on fixed prices but they are relatively low.

31. As many old land units are too small to be economically viable in present day Estonia there is a need for planning mechanisms and legislation to facilitate general land management and consolidation programmes.

Organisation and Training

32. The organisation of the cadastral sector has been described under the section, The Development of a National Cadastre. As yet it is too early to evaluate the effects of the changes. Hopefully they will contribute to the removal of the most critical bottlenecks by shortening lines of communication, by bringing groups closer together under common management and by improved co-ordination.

33. There is a lack of trained and experienced staff across a broad spectrum of activities. This is the case at both the central and local level. The establishment of the county organisation within ENLB will certainly further strain limited personnel resources.

34. Better practical organisation of the field work would improve productivity. There is no legislation which makes it possible to call together all claimants in a given area to identify their land and point out boundaries which would permit systematic and rational working. Instead, the work most often involves single units far from each other. Working in this way is both costly and time-consuming. When, in the future, bids are invited for survey jobs it is vital that they are based on careful planning both to keep down costs and to make the work attractive for the bidders. Inviting bids for blocks of land units will make the work more attractive to the bidders.

Physical Conditions and Technology

35. The most serious bottlenecks are the identification of pre-1940 boundaries and the methods for delimitation and demarcation. Many of the pre-1940 boundaries defined relatively small land units. As a result of collectivisation, which involved merging farms to form large units, the removal of hedges, ditches and trees and the use of heavy deep-ploughing farm machinery, many of the boundary markers were destroyed and natural features that could today have been used to relocate them were removed. This makes matching the present situation on the ground with old cadastral maps very difficult. Furthermore, many of the old cadastral maps that could have been used as reference documents no longer exist. Where maps exist, the quality varies widely and transformations between old and new coordinate systems can give rise to problems in fitting old maps to new surveys. The correct location of boundaries is a very sensitive issue for many of the old land owners. The time required to locate old boundary markers cannot be steered by legislation. Common sense must be applied.

36. One of the cornerstones of a cadastral system is maps on which boundaries and other relevant information can be shown. Maps can be produced by photogrammetric or terrestrial methods or a combination of both methods. Nowadays photogrammetric methods are increasingly used to produce both line and orthophoto maps based on aerial photography. Increasing use is being made of digital methods and this is the methodology that ENLB has rightly chosen. Digital methods have long-term benefits: flexibility in the products that can be created is greatly enhanced; data can be exchanged

between systems run by different organisations; and the spatial base is created for the development of information systems.

37. The way in which boundaries must be demarcated is regulated in the Law on the Cadastre. In 1995 an Order was enacted which made possible the re-establishment of boundaries based on old maps. In Sweden the Land Use map at a scale of 1:10 000 and 1:20 000 is used as a cadastral map in rural areas and in the United Kingdom the large scale Ordnance Survey maps also serve as cadastral maps. The way in which this order is implemented is not clear, but it is reasonable to assume that an attempt must be made to relate the map to the actual physical landscape in order to identify the old boundaries as closely as is reasonably possible. Careless identification will create problems for future land exchange, sale and consolidation. Boundary identification is time-consuming, even if no formal survey of the boundary marks is required since. it is highly unlikely that a landowner will accept boundaries that are patently uncertain.

38. Paragraph §17 of the current Law on Land Cadastre requires that plot boundary markers and the boundaries between them, shall be precisely co-ordinated and that the coordinates shall be in the national coordinate system. This is known as the fixed boundary method. In rural and forest areas the requirement that boundaries shall be "fixed" has slowed down the re-establishment of boundary markers and increased the cost. An alternative concept is that of general boundaries. A general boundary need not be precisely defined: It can be along either edge or in the middle of a ditch, without the location been precisely defined; similarly, a boundary can follow a hedge, a line of trees or a road. The boundaries are delimited relative to physical objects that can be identified in the terrain and on aerial photographs. It would appear that the 1995 Order broadens the concept of boundaries by giving legality to the general boundary. The relative merits of the different boundary concepts is a subject of discussion at ENLB. At least in some areas the use of the general boundaries could help to reduce the time required for delimitation and physical restitution. The boundaries could be identified and drawn on the up-to-date orthophoto maps that currently are being produced. Article 20 allows the use of the general boundary system although it is stipulated that a precise, coordinate survey must be carried out if a property with general boundaries is sold, sub-divided or consolidated.

39. In urban areas precise surveys will still be required.

40. Precise surveys cannot be rationally carried out without modern surveying equipment such as total stations and, preferably, also GPS receivers. The introduction of the latter will facilitate connections to the national coordinate system and can also be used for determining the coordinates of boundary points. At present this type of equipment is only available on a limited scale. Its acquisition will be necessary if field surveying is to be rationalised and cheapened. The location of the coordinated positions of old boundary markers can also be done with GPS.

Approval of Applications

41. The approval of applications for measures concerning the conversion of land to private ownership or for compensation is slow. For example statistics for applications for privatisation show that of 69 408 applications decisions have only been taken for 1 003, or 1,4%.

The Title Books

42. ENLB stated that the legislation regulating titling has been commended by foreign experts. At present registration of title takes approximately three months which in the current situation is not unacceptably long. Computerisation may lead to a speed up of routines.

Inputs to the Cadastral Sector from Other Donors - On-going and Planned

Earlier Inputs

43. Foreign companies and agencies as well as international organisations such as the European Union, the World Bank and agencies of the United Nations have been engaged in aid programmes, at different levels, within the cadastral, surveying and mapping sectors. Of the Scandinavian countries Denmark was engaged in the EU-PHARE programme, during the period 1993-95 with a focus on Land Information Management, and geodesy. Finnish specialists have also participated in the PHARE project and the Finnish Geodetic Institute and the National Land Board have contributed to the improvement of the national geodetic network. Assistance has also been given from Finland in the field of organisation and methods. The Federal Republic of Germany has provided training.

Current and Proposed Inputs

44. There is an on-going **Danish** project for the development of a digital cadastral mapping system which is part of the support to strategic planning at ENLB. This development is closely related to the IPIS project.

45. A project which began in 1994 and which will continue through 1996 is the **IPIS Siemens-Nixdorf** project which comprises the development and installation of computerised systems for the Land Cadastral Register and the Title Book. Advisory help and, initially, help with the system design was given by **Finnish** specialists. The project is fully paid by the Estonian Government and since the Autumn of 1995 even all the implementation has been done by Estonian company, Datel Ltd. The system is currently being installed at the fifteen County Cadastral Offices. The configuration of the system

and the hardware modules used are shown in Appendix 4. The central computer is located at the National Computer Centre and not at ENLB. This decision was taken on grounds of costs, competence, maintenance and co-ordination. The first version of the system met considerable criticism as it was better adapted to the Finnish municipality LIS than to the requirements of the Estonian cadastral system. A considerable volume of customisation and programming has been carried out by Estonian specialists who have worked closely with the consultants. It is difficult to obtain impartial comments on the system, but it would seem that there are good prospects of it being successful. A weakness in the current system is the lack of an interface with a mapping system, but the problem is well recognised and solutions are being studied. In Sweden the link between spatial and attribute data also took time to develop and implement. An interface with systems used in the municipalities and other government organisations is desirable. Computer systems of this scope and size are easier to criticise than to develop. More information on the Seimens-Nixdorf system would require a specialist study. Computerisation of the cadastral system is necessary.

Finland is also providing support to the development of land assessment methodology.

46. **Sweden**, through BITS, began to give aid to the national mapping sector in 1993 by financing the satellite-based base mapping of Estonia at a scale of 1:50 000. The project will be completed this year. It has been implemented by Satellitbild AB as the lead consultants together with the National Land Survey of Sweden. The Estonian Mapping Centre has been responsible for image interpretation, digitising, compilation based on old material and the field inventory and checking. Satellitbild AB supplied the satellite data, assisted with system development and hardware procurement and provided transfer of technology. The National Land Survey of Sweden carried out training in the use of specialised software, database structuring, principles of digital mapping, general cartography and map production and has produced the printing originals. Of the 112 sheets 70 have been completed and the remaining 42 will be completed by mid 1996. Due to shortage of funds no decision has been taken regarding printing the sheets. Only one sheet has so far been printed but printing originals for a further 30 sheets are being produced in Sweden. There are plans to put the map onto the Lambert projection and to produce a 1:100 000 version by generalisation

47. **Swedesurvey**, initially with financing provided by BITS, is providing support to the Land Reform programme by carrying out aerial photography, block triangulation and orthophoto mapping. The support was initiated in 1994 when 15 urban areas with a combined area of 429 km² were photographed at a negative scale of 1:11 000. Digital orthophotos for 14 of the urban areas, comprising a total of 403 sheets, were produced. The EMC provided basic information and carried out the signalisation and field work. In 1995 aerial photography of 100 km² at a scale of 1:11 000 and 6 000 km² at a scale of 1:30 000 was completed. Block triangulation, including computations, was done for the

1:30 000 photography. All field work was done by EMC. The orthophotos have also been used as manuscripts for producing other maps. The cartographic methods used are very simple, but they will be replaced by digital methods when the new production line is established. All of the base materials including films, diapositives and orthophoto negatives have been supplied to EMC. Technical training programmes and study tours have also been arranged for 11 persons.

48. **Switzerland** has expressed a willingness to assist EMC by providing photogrammetric and surveying equipment together with consultancy and training. To date there are no concrete results. However, during week 8 of this year a delegation from Switzerland was once again in Tallinn and now EMC are confident that the project, which has a budget of SFR 3 087 800, will be implemented during 1996. Implementation will greatly increase the capacity of EMC in an important part of the production line and give EMC the pre-requisites for carrying out a broad spectrum of mapping with modern equipment and methods with increasing self reliance.

49. Currently negotiations are in progress between the government of Estonia and the **World Bank** for a loan to the agricultural sector. Part of the loan would be channelled to the cadastral sector to assist the government with the implementation of the Land Reform. The focus would be on densifying the national geodetic network and financing cadastral field work carried out by private sector companies. The estimated total cost of the project is USD 6 700 000 of which the World Bank contribution will be USD 4 000 000. See also paragraph 10. The World Bank activities will complement the proposed Swedesurvey contributions. The current status of the loan is not clear.

50. A request has been made to the **European Union** for continued support to the Land Reform activities of the ENLB and Local Government authorities, through the PHARE Project, "to accelerate Land Reform and to consolidate and modernise the cadastral system.....". The components include assistance to the ENLB in strategic planning and the co-ordination of activities which also involve other government bodies and local governments. A second main component involves legislation including assistance in the drafting and revision of "cadastral, land consolidation, land registration and surveying" laws and orders. The project also includes support to municipal and County Cadastral Offices, principally regarding the use of new procedures. The present status of the proposal is not known. The proposed Swedesurvey activities should be co-ordinated and harmonised with this project to avoid sub-optimisation.

Co-ordination of External Inputs

51. Inadequate co-ordination of external inputs to the cadastral sector both by the Estonian authorities and by donors themselves is a cause of concern. This was clearly stated by the management of the ENLB without citing specific cases, and has been

identified by other persons engaged in aid programmes, notably by Widmark in a analysis of Swedish support to the land management sector in central and eastern Europe (7), as a potential cause of sub-optimisation and inefficient use of funds and resources. It is worthy of note that the proposed PHARE project includes assistance for "co-ordination and implementation of foreign assistance and programme management organisational changes". It was stated that the ENLB would welcome Swedish support in co-ordinating inputs to the ENLB (and EMC). It is understandable in the present stage of development that lines of communication between different Estonian government bodies are not as open as they could be: co-ordination appears most frequently to be the responsibility "of someone else, some other body or some other ministry". Changing deep-rooted personal attitudes and old-established official routines designed to meet the requirements of another political system takes time. As there are several foreign actors on the same scene there is a risk for collisions. In this situation the donors themselves could set precedents by an open exchange of ideas with the target of optimising the combined input. This is by no means an isolated Estonian problem: "competitive aid" is a well known phenomenon. And solutions should be sought. Commenting on the risk for overlap and conflicts in projects, as envisaged as a possibility in this report, a representative for the Danish company Kampsax Geoplan has stated that "it would welcome contacts with Swedish consultants". This is by no means an isolated Estonian problem: "competitive aid" is a well known phenomenon. Solutions should be sought.

Comments on Swedish Aid to Base Mapping and Cadastral Sectors

52. Gratitude for support can effectively muzzle constructive criticism. However, discussions in Tallinn were open and frank. The same applies to discussions with representatives for Swedesurvey and the National Land Survey of Sweden. As a general observation it was stated by ENLB (EMC) that, in comparison with some other donors, Swedish support has progressed beyond the discussion and conceptualisation stage and has been effectively provided as products and transfer of technology. It is considered to be well-organised and of good quality and that it meets the agreed specifications and has been of fundamental importance for the activities and development of the organisations.

53 The **1:50 000 base mapping project** is considered to be a successful one-off project that has effectively satisfied an immediate need for medium scale national mapping. See paragraph 42. Complete databases, and selected layers in them, will be sold through ENLB. A price policy related to user categories - and copyright restrictions - has been established. It was said that there is a considerable interest from official bodies for using the data for planning purposes. As some of these bodies will receive the databases free-of-charge the statement may not be a true indicator of the wider interest for the product. In the very active private mapping sector, which produces a wide range of tourist maps and other derived products, there seem to be, as yet, little interest for the databases. This can be the result of inadequate information and poor marketing. An

interesting development is the use of the bases together with other databases. An example of such an application is the use of the spatial data with census data. As a stop-gap project the mapping project has satisfied the expected goals and interesting future applications of the data are being studied. A well equipped unit with well trained and enthusiastic staff has been developed during the project. The knowledge in digital mapping acquired during this project can be used in many other parts of EMC.

54. The current co-operation with Swedesurvey is stated to be a cornerstone in the development of an efficient and rational mapping technology at EMC. Maps and mapping are fundamental elements of the land cadastre. The co-operation has been concentrated on aerial photography and photogrammetry for the production of orthophotos. Orthophotos will be increasingly used in the restitution process particularly in rural area. See paragraph 34.

55. Aerial photography is the starting point for all photogrammetric mapping. Some photography was carried out in 1993 and 1994 by Finnish and Danish companies. The quality was said not to be of the same standard as the Swedesurvey imagery.

56. The only "negative" comment was that needs far outstripped the support so far received from Sweden.

An Evaluation of the Proposals Submitted to Sida by Swedesurvey

Project 1

57. The support provided through Swedesurvey during 1994 and 1995 was initially financed by BITS and was, in accordance with the principles applied by BITS, project and product oriented: aerial photography and mapping with a smaller training component. The present proposal covers the period 1996-1999 and is, in principle, four separate, stand-alone projects. Map production has, on the other hand, had a relatively long lead time from aerial photography to the final product and requires long-term planning. A one year project makes planning difficult and production can easily be disrupted by changes in financial allocations at short notice.

58. There is a critical shortage of suitable, up-to-date maps in Estonia. As has been stated above, maps are a cornerstone in the cadastral part of the Land Reform programme. They are also needed for physical planning and other, land development, environmental monitoring and planning and other land management activities.

Aerial photography

59. Aerial photography is the base for all photogrammetric mapping. There will be a need for aerial photography in the foreseeable future as large areas of Estonia are not covered by modern imagery. This applies particularly to the islands in the western part of the country where there also is an urgent need. An aerial photograph is a snapshot that show the situation on the ground at a particular moment of time and photography must be used before it becomes outdated as a result of development on the ground. Careful forward planning is required. Currently there is no co-ordinated national planning of aerial photography. An overview plan for aerial photography is enclosed with this report. Due to changed priorities ENLB has now requested aerial photography in 1996 of an area in north-eastern Estonia. This is not included in the Swedesurvey proposal. The request involves a time change and not an increase in volume. The area for which photography is requested has rich natural resources - oil shales - and is an area in which ethnic problems, in connection with the Land Reform, need a rapid solution.

60. It is neither economically viable nor realistic to establish a government air photo facility in Estonia. Investment levels for aircraft, camera and ancillary equipment are high: of the order of USD 1 500 000 and the annual volumes of aerial photography are too small to warrant this type of investment. A private sector joint-venture may be conceivable. On the other hand, it is both conceivable and advisable to establish a small air photo unit at EMC together with a small laboratory. The unit would have the responsibility for the overview and detail planning of aerial photography, the co-ordination of air photo missions for other government agencies as well as for private sector organisations in Estonia, and for the creation and maintenance of a national air photo archive. Today no-one appears to have a clear picture of the photography that is ordered, the scale at which it is carried out and location of the final products.

61. The laboratory would develop the aerial film and produce derived products such as contact prints, enlargements and diapositives for photogrammetric mapping and other image-based applications. The unit would also be responsible for maintaining strip indexes showing all aerial photography that has been carried out in Estonia. There is a large market for image based products and the unit could also be engaged in marketing activities..

Swedesurvey has long experience of aerial photography and has provided consultancy and assistance with the development of similar facilities in several countries.

Photogrammetry and Mapping

62. The need for external assistance with map production will successively decreasing as equipment is installed. The major Swiss contribution will be complemented by the two instruments, and the SOS software, that are proposed to be

supplied from Sweden. By the end of 1996 ENLB will have an modern map production line with capabilities to produce both digital line maps and orthophotos. The old-fashioned and relatively inefficient production of the basic map will be replaced by new and more rational and effective methods.

Training and Transfer of Technology

63. Increasing focus must be placed on staff training including production planning, management, budget questions and follow-up. It is considered that the Swedesurvey proposal represents a minimum requirement. Equipment will be required for technical in-house training programmes and it should therefore be considered to use the two instruments supplied by Swedesurvey for staff raining when the new production line is fully operational.

Software

64. At present a basic link is missing in the production chain: this is a software package for block triangulation: PATM-PC-GPS. The software is used to prepare for the actual map production phase. Currently the block triangulation and computation work is done in Sweden. It is recommended that the software should be purchased as soon as possible during 1996. This will mean that some additional production can be transferred from Sweden to Estonia.

65. SOS-MAP software has previously been installed by Swedesurvey and training has been carried out. The system has been successfully interfaced with the Intergraph system. It is recommended that the additional sets of software should be purchased.

Project 2 and 3

66. The two projects complement each other: training in project 2 and a pilot project in Project 3. Both projects are given high priority by ENLB and it is recommended that they should be implemented.

Project 2

67. Due to the diffuse formulation of the proposal there is a risk for misinterpretation. I have understood the project to be a training programme, not a practical **technical application** project, and that it is not designed to **physically develop** systems but to provide information and insight into how development has been carried out in Sweden, with international comparisons, and how it can be adapted and used in Estonia. In parts, the project objectives (2) is not in harmony with the text of Appendix A. This appendix, for example, seems in part to describe the pilot project and, in fact,

the same wording is used as in Appendix A of that project. This reinforces the impression of an operative rather than a training project. I have understood that the pilot project will work with the practical applications. For example, ENLB is already developing a "land data bank" through the Seimens-Nixdorf project. What is interesting for ENLB is how to develop an interface with a mapping module and interfaces between other systems, and the use and development of ancillary systems such as LIS. This does not involve the development of a new Land Data Bank system. **My interpretation is that Project 2 is designed to develop competence through training, informing on different methods and principles and to provide a broad spectrum of comparative information?** Appendix B is a better description of the training components.

68. There is a great need for handbooks and application manuals. Work on them has started, but there is a need for expert advice and comments on what has been done so far. Similarly, strategic planning and questions related to co-ordination are important subjects for an exchange of ideas.

69. The target groups are correctly selected. Training and information at the local level is particularly important.

70. The budget contributes to the misunderstanding as there is one budget for Training and a second for Technical Assistance. The technical assistance is provided in Project 3. One budget would suffice.

Project 3

71. This project is a natural complement to Project 2. There is a great need for pilot projects of the type that is proposed to demonstrate and test different methods. There is a need for fresh ideas, particularly regarding co-ordination of functions, field methods and boundary concepts. Equally important is the development of links between the municipalities and the County Cadastral offices. The themes in this proposal are aptly selected. Tapa municipality is already using a CAD mapping system and has a rudimentary attribute data system.

72. The extent to which private surveyors are to be involved in the project should be discussed with ENLB. In the future cadastral surveying will be carried out by the private sector.

73. Saksi is a separate municipality and should, therefore, be included in the agreement.

74. There is a need for careful co-ordination regarding the production of the necessary maps for Tapa and Saksi. As yet no maps are available.

75. The budget should be revised. In the Consultants opinion some components such as the computer component are under-financed.

General Comments

76. As was stated in paragraph 53, the support has been provided on a project basis. Training and transfer of technology in the same way as mapping are long-term processes. A more effective way of working in the future, both for client and consultant, would be broaden the scope of the co-operation by working on an institutional co-operation basis - co-operation between two sister organisations - with the prime target of institution strengthening with an increasing focus on transfer of technology. Institutional cooperation facilitates both flexibility, within a given frame, at the same time as it facilitates longer term planning. Within the next two to three years ENLB (EMC) will be almost self-reliant as far as map production is concerned. What will be needed is training and exchange of ideas at all levels of the organisation from management to the technician level. Projects 2 and 3 focus on training and transfer of technology and Project 1 will shift the focus from production support to training and transfer of technology.

Recommendations

It is recommended:

1. That support from Sida to the Estonian National Land Board is continued by financing Project 1, 2 and 3.
2. That the support should be organised on an institutional cooperation basis with funding guaranteed for a three year period.
3. That the change of focus from product-orientation to transfer of technology and training is continued.
4. That the proposal for Project 1 is funded according to the request with the modifications that are proposed so as to include:
 - a) aerial photography in 1996.
 - b) the purchase of the block adjustment program.
 - c) training in the use of the program.

- d) the production of diapositives to enable map production to be carried out at ENLB.
 - e) a consultancy concerning the possible establishment of an air photo unit.
5. That Project 2 should be funded after re-formulation and clarification of the input. The budget should be modified.
 6. That Project 3 should be funded after the re-formulation of the budget, clarification of the participating municipalities and confirmation of the availability of the necessary orthophotos and maps.
 7. That ENLB should be requested to formulate a request for a longer term consultant one of whose tasks would be to assist as a general adviser and assist with the co-ordination of aid inputs.

Acknowledgements and Conclusions

The mission was timely and, and the support that has been provided and that is recommended will be important for future development and consolidation of the progress made so far. There has been a spirit of co-operation and pragmatism that has overcome obstacles during the relatively short period.

The mission was facilitated by the excellent support that was provided including documentation, statistics, translation and interpretation. Mr Sander Annus deserves a particular note of thanks.

Persons met during the mission

Estonian National Land Board

Kalev Kangur, Director ENLB

Raivo Vallner, Vice Director

Sander Annus

Avo Järv

Ain Kendra

Estonian Map Centre

Avo Sulger, Director

Tauno Saks

Avo Saue

Staff of the Base Mapping Unit

Tapa Municipality

Ravo Raid, Mayor

Jaan Viktor

Roy D. Ladewig

Einar Kivisalu, Surveyor

Sara Neidak, AS Reeper (Survey Company)

National Land Survey of Sweden

Mats Dahlberg, LMKartor, Kiruna

Daninge Danielson

Swedesurvey AB

Robert Brook

Lennart Bäckström

Åke Finnström

Swedish Municipalities

Lars Kronlund, surveyor and teacher in surveying at Tartu University

Other Consultants

Olle Millgård

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APPENDIX 1

Terms of reference

I. Background

The Estonian Ministry of Finance made a request to BITS on 25 February 1994 for support to aerial photography and orthophoto mapping activities. A decision was taken by BITS to support the project with 4 700 000 SEK. The project encompasses support to Estonian authorities in the field of aerial photography and orthophoto mapping with the formulation of a mapping programme for Estonia, the execution of orthophoto-mapping activities and practical training linked to delivered software and equipment. The support has mainly been directed towards the Estonian National Land Board (ENLB) and the Estonian Map Centre. The project also included an identification of relevant mapping areas as well as the establishment of a timetable for the execution of activities. Reference points for mapping were to be placed out and aerial photography in the scale of 1:11 000 to be undertaken. A series of maps in the scale of 1:2 000 were to be produced. The support given to ENLB for the planning and elaboration of digital mapping material constituted an important part of the project. The project has also included support for the specification, procurement and installation of equipment and software for the production of digital maps. In addition a study has been made of the structure and present functions of ENLB and the Estonian Map Centre and proposals given for the development of the structure and competence within these organisations. Until 31 December 1995 aerial photography and most of the orthophoto mapping activities had been executed, software had been delivered and different training programmes and advisory services had been carried through.

A request for an extension of the aerial photography activities was made to BITS by the Minister of Finance on 3 May 1995 and a decision for support was taken by BITS in the amount of 2 086 000 SEK. The photos constitutes the basis for the production of basic maps, digital orthophoto maps and digital line maps which are necessary for cadastral registration according to Estonian legislation. Up to 1 260 000 SEK has been used for aerial photography under this project until December 1995.

II. Purpose of evaluation

The consultant shall visit Estonia in order to undertake a general evaluation of the situation regarding the progress made for the development of a national cadastre and

the support given from other external donors, an evaluation of Sida (earlier BITS) financed activities in the field of aerial photography and orthophoto-mapping and an assessment of three new proposals in the field of landreform. The new proposals concern continued assistance in the field of aerial photography and ortophotomapping and a project aiming at institutional strenghtening, strategic planning and development of a land information system and a cadastral data bank, and linked to this a pilot project for the implementation of a cadastral and land registration system in Tapa. It is expected that the evaluation will provide background information for decisions on further support to this sector.

III. Assignment

The Consultant shall:

1. Carry out a general evaluation of the current situation regarding the progress made towards the development of a national cadastre including the impact of contributions from international donors which should include the following points:

- * general organisational issues including the relationship between central, regional and local levels regarding the introduction of common methods, systems and legislation and the exchange of information, including cadastral organisation and cadastral legal system (förrättningsväsende och fastighetsrättsligt system)
- * present status of land reform and assessment of government policies and action plans to accelerate the process
- * current inputs in the cadastral field from other donors
- * the results and current status of the LIMPE and Siemens-Nixdorf projects
- * the impact of the introduction of large scale orthophoto mapping and large scale digital mapping methods.
- * general assessment of needs of technical assistance.

2. Make an evaluation of the performance and results attained of the Sida (earlier BITS) supported projects in the field of aerial photography, mapping and transfer of technology, in particular of the transfer of know-how with regard to system- and institutional development. The evaluation should include an appraisal of the production potential and plans including the current and planned future situation regarding the acquisition of

hardware and software and projected training needs. It should also include an analysis regarding cost effectiveness of the map-production programme (input reasonable in relation to expected output) and assessment of financing/funding possibilities of existing map-production programme.

The consultant should appraise the interplay between mapping and cadastral organisations.

3. Make an assessment of the new project proposals concerning their contents, relevance, development effects, cost effectiveness and relation to other external support (World Bank, EU Phare).

Consider the possible integration of the Tapa-Saksi pilot project with the proposed training programme and how it is planned to utilize the results of the pilot project.

4. Make recommendations to Sida regarding the requested continued support and propose changes where necessary.

IV. Time table, reporting and working method

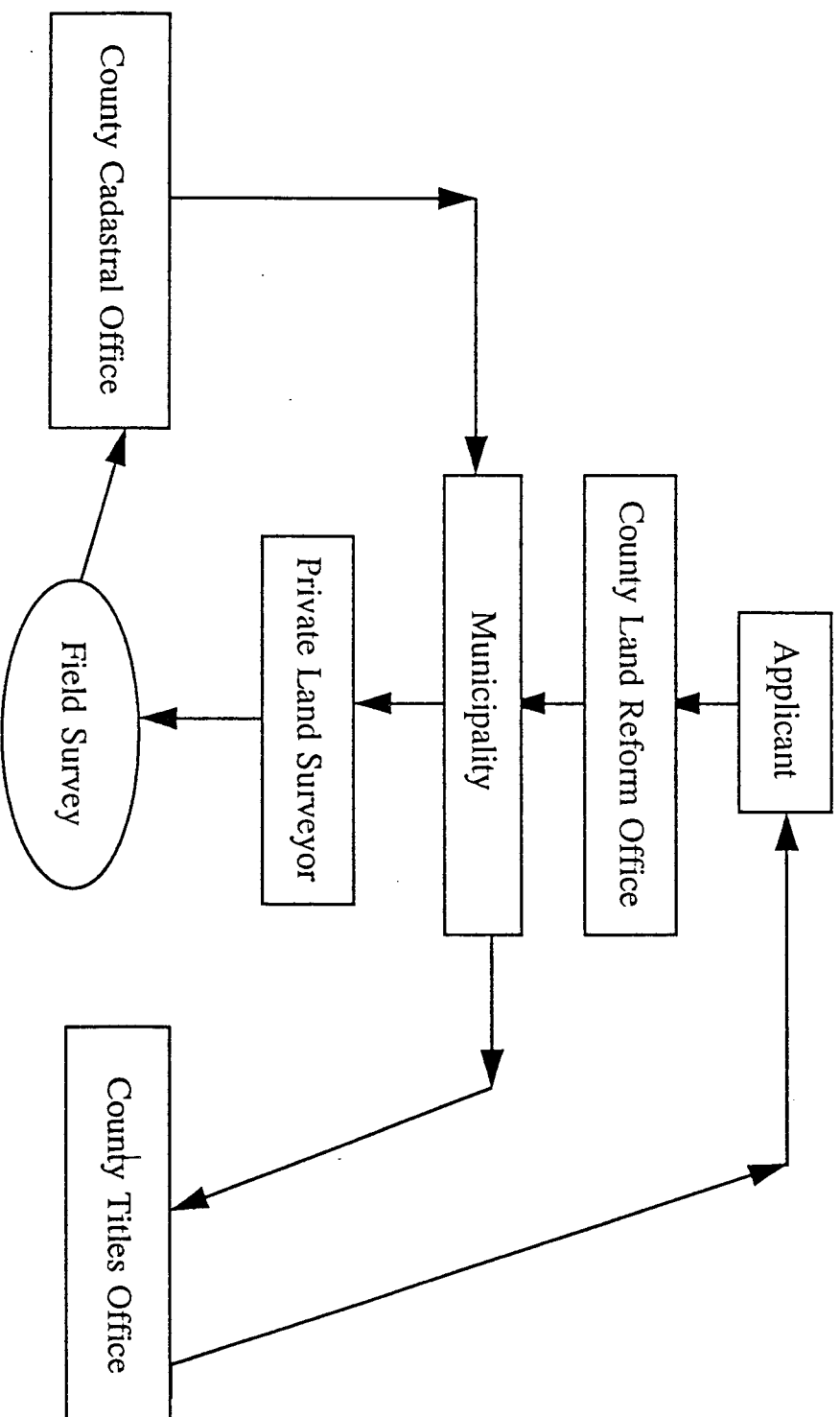
The assignment will begin in the month of February and a preliminary report (in written or oral form) should be presented to Sida as soon as the consultant has returned from Estonia. A written report in English should be presented to Sida at the latest on 6 March 1996 in which conclusions and recommendations are clearly stated. The report should contain an executive summary with a short description of the projects/proposals that have been evaluated, the purpose of the assignment, its focus and a summary of the results, conclusions and recommendations (Appendix A). The consultant shall hold discussions with Swedesurvey and other relevant parties on the Swedish side and study material produced by Swedesurvey that relates to the assignment. The consultant shall visit relevant institutions in Estonia for discussions with persons dealing with issues related to the on-going projects and the new proposals.

The following enclosures shall be attached to the final report:

- terms of reference
- list of persons interviewed
- list of documentation

APPENDIX 2

Restitution Flow Chart



APPENDIX 3

Registrations in the Land Cadastral Register up to 1996-02-01

Maakond	1993. a.		1994. a.		1995. a.		1996. a.		K o k k u	
	Arv	Pindala	Arv	Pindala	Arv	Pindala	Arv	Pindala	Arv	Pindala
Põlvamaa	154	2 630,2	533	8 116,0	2 354	16 129,2	155	1 266,2	3 196	28 141,6
s.h. eramaa	154	2 630,2	529	8 098,5	2 269	15 883,9	133	1 215,9	3 085	27 828,5
ostueesõigus			1	5,8	79	198,6	22	50,3	102	254,7
munits. maa					5	46,2			5	46,2
riigimaa			3	11,7	1	0,5			4	12,2
Raplamaa	106	2 245,3	174	2 391,6	555	4 756,6	32	355,4	867	9 748,9
s.h. eramaa	103	2 238,9	174	2 391,6	553	4 756,3	26	337,5	856	9 724,3
ostueesõigus					2	0,3	5	16,7	7	17,0
munits. maa										
riigimaa	3	6,4					1	1,2	4	7,6
Saaremaa	57	835,3	160	1 889,8	883	4 928,7	164	905,5	1 264	8 559,3
s.h. eramaa	53	833,0	155	1 884,9	851	4 886,9	151	898,1	1 210	8 502,9
ostueesõigus					27	32,6	12	6,2	39	38,8
munits. maa					1	8,6			1	8,6
riigimaa	4	2,3	5	4,9	4	0,6	1	1,2	14	9,0
Tartumaa	558	6 968,2	1 319	12 686,5	2 034	15 141,4	171	1 652,7	4 082	36 448,8
s.h. eramaa	552	6 723,8	1 310	12 651,2	1 904	14 957,1	163	1 645,1	3 929	35 977,2
ostueesõigus			1	30,4	104	132,1	8	7,6	113	170,1
munits. maa			1	0,7	24	50,9			25	51,6
riigimaa	6	244,4	7	4,2	2	1,3			15	249,9
Valgamaa	123	2 492,5	312	4 791,4	934	8 053,0	106	809,1	1 475	16 146,0
s.h. eramaa	123	2 492,5	305	4 788,6	887	8 000,7	98	788,6	1 413	16 070,4
ostueesõigus					47	52,3	8	20,5	55	72,8
munits. maa										
riigimaa			7	2,8					7	2,8
Viljandimaa	251	4 853,9	377	5 277,2	948	13 154,8	213	2 594,5	1 789	25 880,3
s.h. eramaa	249	4 852,2	377	5 277,2	871	13 087,3	189	2 576,9	1 686	25 793,5
ostueesõigus					26	58,5	24	17,6	50	76,1
munits. maa					47	8,0			47	8,0
riigimaa	2	1,7			4	1,0			6	2,7
Võrumaa	345	3 617,6	542	5 315,6	741	7 271,4	109	1 099,4	1 737	17 304,0
s.h. eramaa	345	3 617,6	538	5 312,3	728	7 262,2	105	1 097,7	1 716	17 289,8
ostueesõigus					3	2,8	4	1,7	7	4,5
munits. maa										
riigimaa			4	3,3	10	6,4			14	9,7
Total	3 057	42 394,1	6 243	67 554,1	16 073	124 999,7	1 932	21 597,7	27 305	256 545,5
s.h. eramaa	2 997	41 962,4	5 998	67 205,2	15 003	122 398,3	1 743	15 890,5	25 741	247 456,3
ostueesõigus			3	36,4	663	754,5	126	191,8	792	982,7
munits. maa	4	30,3	124	45,8	225	381,5	2	0,3	355	457,9
riigimaa	56	401,4	118	266,7	182	1 465,4	61	5 515,1	417	7 648,6

Applications submitted and decisions made regarding land privatisation and replacement (1.02.1996. seis)

County	Private land with pre-emptive rights			Private land with competitive bidding			Replacement of land		
	avald.	otsused	%	avald.	/ leping	%	avald./ valla korrald	%	
Harju	9340	40	0,4 %	171	3	1,75%	3933	9	2,3%
Hiiu	1065	11	1%	88	-	0%	414	2	0,5%
I-Viru	2256	-	0%	473	-	0%	1750	2	0,1%
Jõgeva	1529	36	2,4%	208	-	0%	1016	13	1,3%
Järva	920	40	4,3%	75	-	0%	1687	37	2,2%
Lääne	2143	76	3,5%	101	-	0%	1537	16	1%
L-Viru	2700	48	1,8%	6	-	0%	-	2	
Põlva	1324	61	4,6%	88	-	0%	965	42	2,5%
Pärnu linn	2037	2	0,1%	-	-		2068	8	0,4%
Pärnu mk.	5704	28	0,5%	251	-	0%	2889	17	0,6%
Rapla	1863	3	0,2%	207	-	0%	1826	175	9,6%
Saare	2093	39	1,9%	394	-	0%	1099	3	0,3%
Tartu linn	2914	65	2,2%	1	-	0%	1152	-	0%
Tartu mk.	2891	31	1,1%	137	-	0%	2700	22	0,8%
Valga	231	35	15%	9	-	0%	36	54	150%
Viljandi	163	29	17,8%	4	1	25%	11	10	91%
Võru	2738	6	0,2%	141	1	0,7%	2060	36	1,7%
Total	41911	550	1,3%	2354	5	0,2%	25143	448	1,8%
	Applications	Decisions							

Registrations in the Land Cadastral Register up to 1996-02-01

County	1993. a.		1994. a.		1995. a.		1996. a.		K o k k u	
	Units	Area	Arv	Pindala	Arv	Pindala	Arv	Pindala	Arv	Pindala
Harjumaa	145	1 083,0	608	2 566,3	1 267	6 679,2	214	1 005,3	2 234	11 333,8
s.h. eramaa	103	1 016,5	445	2 328,5	986	5 569,9	189	968,0	1 723	9 882,9
2. ostueesõigus					40	48,6	10	31,1	50	79,7
3. munits. maa	4	30,3	117	42,5	126	207,3	2	0,3	249	280,4
4. riigimaa	38	36,2	46	195,3	115	853,4	13	5,9	212	1 090,8
Hiiumaa	54	927,6	77	1 090,9	367	1 890,5	50	251,6	548	4 160,6
s.h. eramaa	54	927,6	76	1 090,3	355	1 887,7	45	247,6	530	4 153,2
ostueesõigus					12	2,8	4	3,9	16	6,7
munits. maa										
riigimaa			1	0,6			1	0,1	2	0,7
Ida-Virumaa	46	596,5	154	1 455,4	564	3 934,1	99	867,5	863	6 853,5
s.h. eramaa	46	596,5	134	1 447,6	562	3 933,5	96	866,7	838	6 844,3
ostueesõigus										
munits. maa										
riigimaa			20	7,8	2	0,6	3	0,8	25	9,2
Järvamaa	530	6 161,1	348	3 691,4	919	8 242,8	81	661,7	1 878	18 757,0
s.h. eramaa	530	6 161,1	346	3 690,6	868	8 177,6	81	661,7	1 825	18 691,0
ostueesõigus					45	21,7			45	21,7
munits. maa										
riigimaa			2	0,8	6	43,5			8	44,3
Jõgevamaa	270	2 904,2	582	5 398,8	801	7 610,7	110	1 015,4	1 763	16 929,1
s.h. eramaa	270	2 904,2	582	5 398,8	757	7 540,2	105	988,2	1 714	16 831,4
ostueesõigus					38	65,2	5	27,2	43	92,4
munits. maa					1	3,7			1	3,7
riigimaa					5	1,6			5	1,6
Lääne-Virumaa	119	2 328,7	451	6 132,5	1 829	12 213,1	145	6 364,2	2 544	27 038,5
s.h. eramaa	117	2 327,3	444	6 111,9	1 777	12 173,5	92	851,4	2 430	21 464,1
ostueesõigus			1	0,2	50	23,1	11	6,9	62	30,2
munits. maa										
riigimaa	2	1,4	6	20,4	2	16,5	42	5 505,9	52	5 544,2
Läänemaa	51	916,0	145	1 715,5	845	4 726,8	126	843,6	1 167	8 201,9
s.h. eramaa	51	916,0	137	1 708,1	698	4 614,1	117	842,7	1 003	8 080,9
ostueesõigus					123	97,6	9	0,9	132	98,5
munits. maa			1	0,6	1	0,5			2	1,1
riigimaa			7	6,8	23	14,6			30	21,4
Pärnumaa	248	3 834,0	461	5 035,2	1 032	10 267,4	157	1 905,6	1 898	21 042,2
s.h. eramaa	247	3 725,0	446	5 025,1	937	9 667,4	153	1 904,4	1 783	20 321,9
ostueesõigus					67	18,3	4	1,2	71	19,5
munits. maa			5	2,0	20	56,3			25	58,3
riigimaa	1	109,0	10	8,1	8	525,4			19	642,5

1. Private land

2. Pre-emptive rights

3. Municipal land

4. State land

Number of titles issued up to 1996-02-01

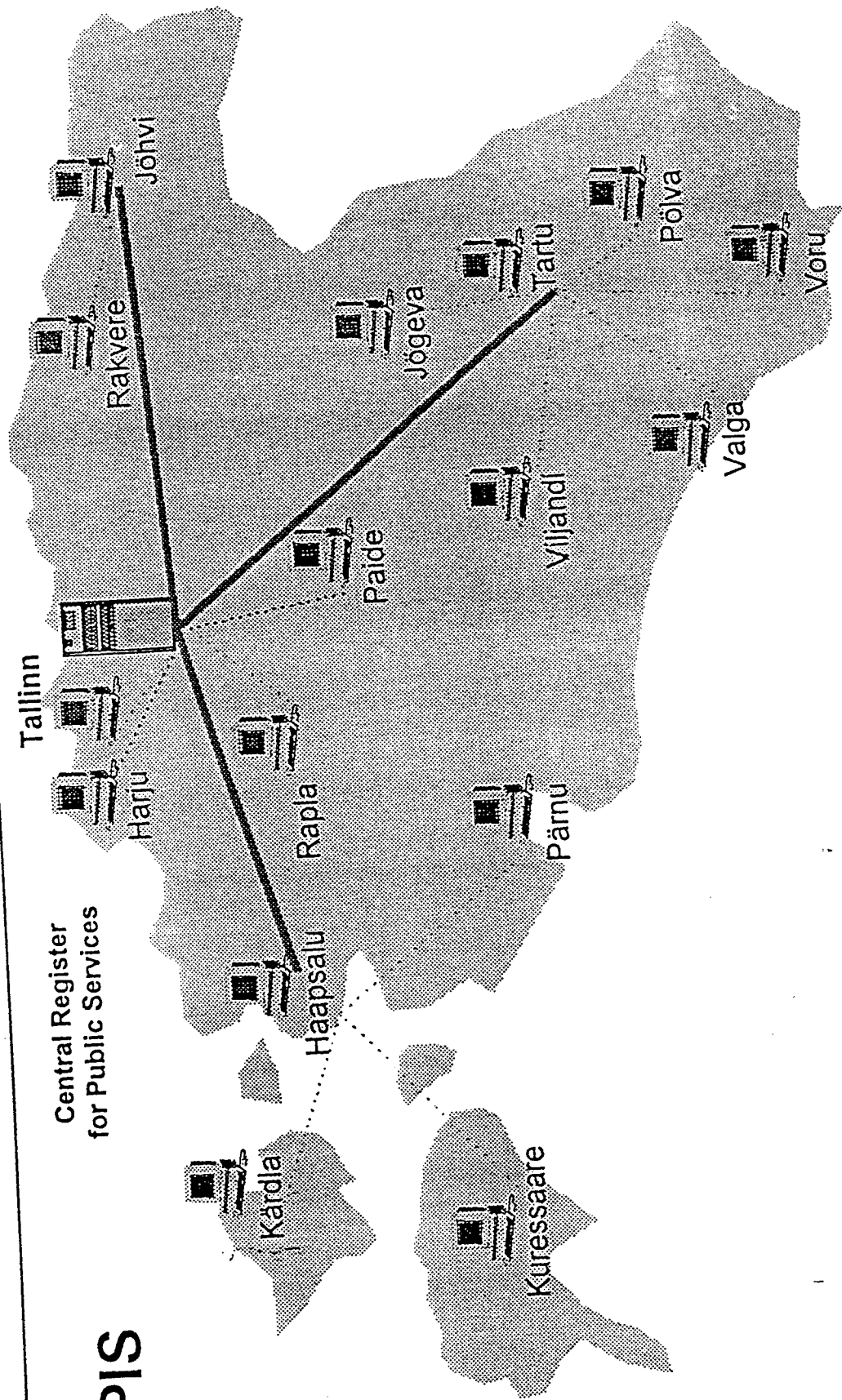
Title Office	First title										All titles		
	01.01.	01.02.	01.03.	01.04.	01.05.	01.06.	01.07.	01.08.	01.09.	01.10.	01.07.	01.08.	01.09. 01.10.
Tallinna	423	471	500	606	675	777	905	960	1039	1122	(s.h. linn 439)	1431	1527 1692 1832
Tartu	408	508	732	976	1047	1199	1309	1446	1537	1608	(s.h. linn 141)	1394	1550 1676 1771
Pärnu	268	287	310	390	409	504	538	617	697	738	(s.h. linn 151)	575	665 750 800
Ida-Viru	147	160	168	189	193	225	253	261	281	308	(s.h. K-Järve 37)	273	282 304 333
											Narva 9		
Hiiu	102	103	103	110	116	127	131	142	148	163	Sillamäe 8)	134	146 154 169
Jõgeva	254	332	332	367	371	447	509	584	630	643		534	613 661 676
Järva	408	434	451	481	482	525	576	642	652	700		609	681 693 752
Lääne	152	157	163	187	195	237	254	262	301	334		272	281 322 369
Lääne-Viru	345	396	396	468	468	564	700	817	885	941		740	864 944 1011
Põlva	527	579	579	633	657	750	876	1000	1066	1104		897	1024 1092 1145
Rapla	205	220	220	247	249	274	293	298	332	337		311	317 357 368
Saare	110	128	154	180	194	210	246	266	286	301		281	311 339 361
Valga	287	325	325	394	396	458	490	502	601	653		509	521 634 690
Viljandi	238	281	335	375	407	446	519	570	578	617		543	595 612 659
Võru	444	464	496	535	568	608	643	670	735	755		679	709 778 806
Total	4318	4845	5264	6138	6427	7351	8242	9037	9768	10324		9182	10086 11008 11742
Increase		+527	+419	+874	+289	+924	+891	+795	+731	+556		+1113	+904 +922 +734
Total up to 1996-02-01												13 951	16 141

APPENDIX 4

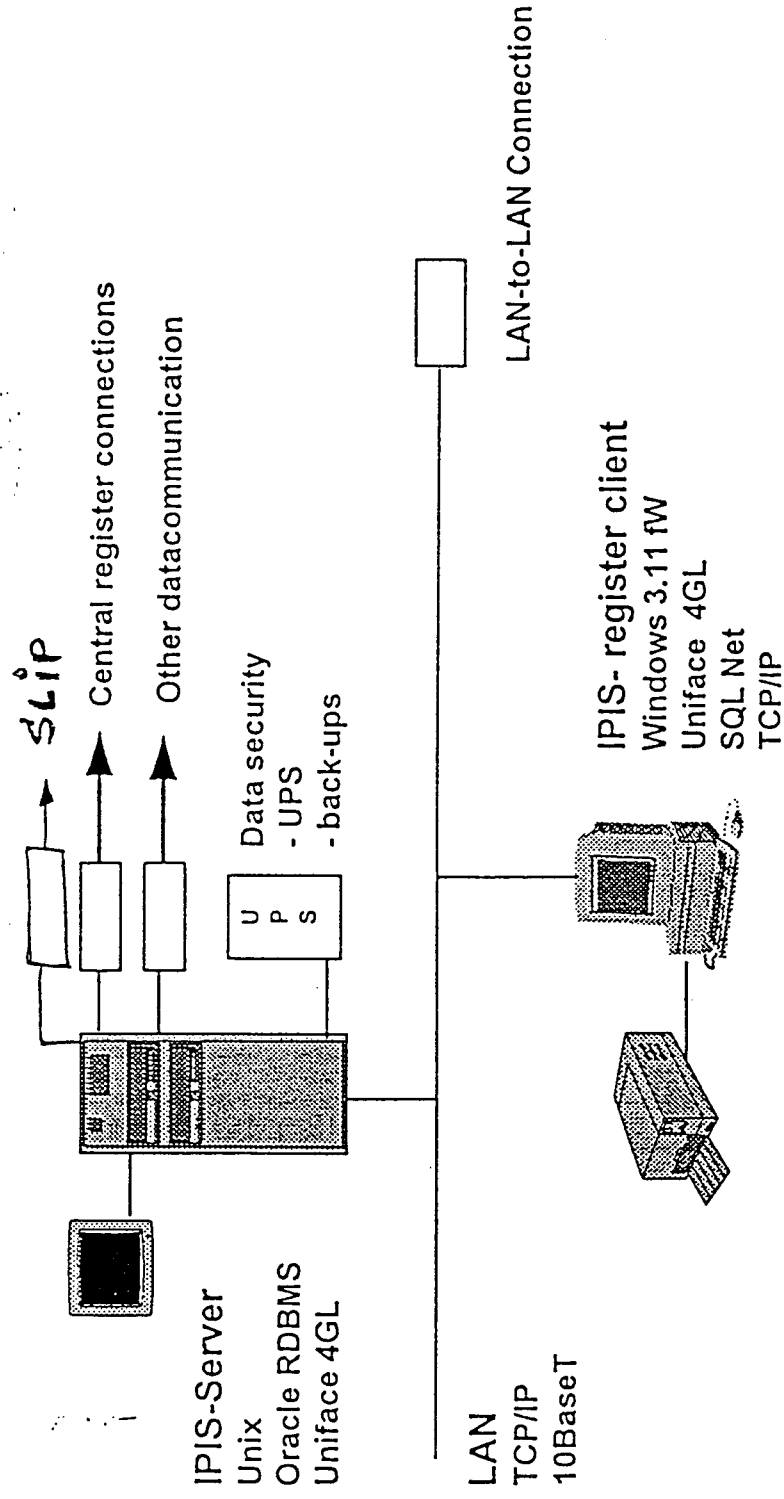
NATIONAL CONFIGURATION

IPIS

Central Register
for Public Services



IPIS General System Platform for Local Registration



LOCAL CONFIGURATION

Tallinna/Harju

County Cadastral Office PCD-5T/60
48/3000MB

Mustamäetee



14"VGA

MT1432BAI

modemi

-ETH

-Other data communication

SLIP

modemi

modemi

15"VGA

SCENIC
4H/66
8/420MB

IPIS-Server

SCO-Unix

Oracle RTS

Oracle DEV

Oracle SQL Net

Oracle Net TCP/IP

Uniface

900VA

UPS

keskitin

silta

modemi

modemi

silta

keskitin

Titles Office 1et Endla 10

14"VGA

SCENIC

4L

8/210MB

HP4

IPIS- Tööjaamad

V1.0 client

MS-DOS

Windows

Uniface

TCP/IP

Print Server

SQL Net

-Olemassaolevia työasemia

voidaan soveltuvalta osin

liittää järjestelmään

14"VGA

SCENIC

4L

8/210MB

HP4

LAN

TCP/IP

10BaseT

Included in Country
Operational Programme
for 1996.

• *Food Control and Monitoring System*

To date Estonia has a number of institutions involved with the food control. This programme component will aim at assisting the Food Board developing a consolidated control and monitoring system. The control and monitoring system will be developed to cover control and monitoring of animal diseases, including toxic residues and the improvement, through advice, of regulation and certification of production and processing, the general safety, hygiene and quality of animal based products.

• *Veterinary and Phyto-sanitary Inspection System*

This programme component will aim at strengthening the veterinary system (harmful residues and a disease control and monitoring system). The programme will assist in the definition of rules for official inspectors of food producing and processing companies. Definition of regulations for the central licensing system, concerning buildings, equipment, hygiene and cleansing and disinfection methods and additives etc. for the food industry. With regard to plant disease, the programme will assist in the institutional development of the Phyto-sanitary Inspection Unit and support to phyto-sanitary control and inspection system. Assistance will also cover the review of legislation with regard to EU approximation

Inputs

Technical assistance for the *veterinary services and food control* programme will cover:

- advisory support (short and long term),
- legal advice,
- development of databases,
- training of staff (VVD and Food Board) and inspectors.
- equipment.

Outputs

- rules for official inspectors have been established,
- regulation for the central licensing system have been implemented,
- established international contacts,
- laws and regulations have been approximated to the EU regulations and directives,
- phyto-sanitary laws and regulations have been approximated to the EU directives,
- improved food quality and safety,
- pilot laboratories have been established.

6.3.4 Land Reform

The overall objective of this programme will be to support the Estonian National Land Board and local governments in accelerating the land reform in Estonia. Though the institutional set-up is in place, the authorities in Estonia has encountered difficulties in implementing and carrying out the land reform in practice. In order to accelerate the process of land reform, the government has presented amendments to the present legislation, which should be adopted by the Parliament in the near future. The PHARE support for land reform will therefore concentrate on supporting the institutions (central and local government), restitution and privatising property.

Inputs

Technical assistance for the *land reform* programme will cover:

- advisory support (short and long term),
- legal support,
- training,
- information systems,
- training at local level (cadastral offices and local governments),
- equipment and software (local centres).

Outputs

- the land reform and cadastral system has been implemented,
- functional market for land and real estate is emerging,
- improved ability to use land as collateral and stimulate investments,
- Land Board has been institutionally strengthened,
- local governments and cadastral offices have been strengthened.

6.4 Priority Public Service Management

6.4.1 Education & Science (incl. TEMPUS)

Educational reform is one of the main priorities for the Estonian Government. The present educational programme is a continuation of the ongoing programme regarding higher education and science reform and TEMPUS, whereas the information technology component is a new activity to the PARE programme. The reform of higher education and science is a major undertaking for the Estonian Government, because this requires a substantial restructuring of existing institutions and the creation of new structures to address the needs of a market economy.

With regard to the introduction of information technology in secondary education this is increasingly becoming a priority for the reform of Estonian education system. The increased access to international information networks should improve the internationalisation of the Estonian education system.

Programme description

• Higher Education and Science Reform

The aim is to raise the international competitiveness of the Estonian higher education and technological development. This will be the second phase in a programme aimed at restructuring the higher education, research and technological development. Whereas the 1995 programme aims at creating a general framework for the restructuring, the 1996 programme assist with the implementation of the reform and the establishment of technological centres.

• Information Systems in Education

The general objective of the information education programme will be to raise the quality of general education and the education delivery systems by formulating and implementing a country-wide strategy for the development of human and material resources involved in

The programme will also assist with the development of land (planning) and the establishment of a functioning real estate market. The programme will include institutional development and human resources development of ENLB, county cadastral offices, county and local governments and land surveyors.

Programme description

• Institutional Development

Assistance is needed to the Estonian National Land Board and the Land Cadastral Centre in developing the capacity with regard to long-term strategic planning, organisational development and restructuring of administration and management systems. Assistance is needed with regard to co-ordination and implementation of foreign assistance and programme management. Specifically, the World Bank Loan to Agriculture which foresees a component to assist the land reform.

• Legislative Support

Assistance will be needed to the Estonian authorities, central and local, in drafting, revising and ensuring compliance of the legislation and regulations (cadastral and related information systems, land consolidation, land registration and surveying), to the implementation of the new legislation. Assistance will also be provided to support the restructuring of the administrative procedures and assessing the financial and economic consequences of the new legislation for the state budget.

• Local Governments and Regional Cadastral Offices

The objective of this programme component will be to assist local governments implementing the new procedures related to the land reform. The aim will be to assist six local governments (pilot demonstration projects) in the implementation of the new regulations and procedures. The assistance will include training of staff and advisory support, which will advise local government on specific problems and undertake on-the-job training. Connected to the World Bank loan project, a training programme for land surveyors could also be included.

Assistance to the county governments and municipalities in privatisation of state and municipal land in accordance with physical and environmental planning. The assistance will aim at assisting the EPA and local government in clarifying ownership of land in connection with privatisation of enterprises. This component will also include assistance to the development of a land policy, land adjustment and consolidation, land management, valuation of land, sales preparation and sales procedures.

• Land information systems management

Assistance will be needed to harmonise and connect existing land information systems and registers. The aim of the assistance both legal and technical will primarily be to assess the current systems and recommend changes to be implemented in order to create an adequate information system containing all relevant information.

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Tefera, Amsalu Negussie
Department for Natural Resources and the Environment



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