

The Swedish National Audit Office

Waiting for Database-Nature: a Strategic IT Project in the field of Environmental Protection

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Background

The RRV has made an audit of the work done by the Swedish Environmental Protection Agency (SNV) to develop a geographical information system (GIS) for environmental information. The system has been called Database-Nature (DBN). It is intended primarily for the environmental protection activities of the *county administrative boards*. The audit is part of the efforts made by the RRV's Performance Audit department to draw attention to, and if possible prevent problems in central government IT projects¹.

It is intended that the DBN shall be a database in which almost all types of data for environmental protection can be processed, and in which the quality of the data stored is managed.

The work of developing a new environmental system for the county administrative boards started to take form in 1989. At that time GIS technology had come on to the market and had attracted a great deal of attention for its capacity to present and analyse different types of geographical data in an orderly and well-arranged manner. It was partly the capacity to do this that was lacking in the older environmental data systems, MI-01 and KRUT.

In its letter of appropriations in 1990, the Swedish Environmental Protection Agency was commissioned by the Government to develop a GIS for environmental protection purposes in close co-operation with the county administrative boards.

Responsibility

The division of responsibilities has not been precisely defined in all respects and has been modified during the course of the process. It is mainly the responsibility of the county administrative boards which has been extended.

The SNV has been commissioned by the government to develop programs and to design the database and is consequently responsible for the programs' functions and the structure of the database.

Furthermore the SNV is also responsible for organising effective co-operation in the field of environmental protection.

The county administrative boards are responsible for the IT infrastructure including servers, networks and PCs. The county administrative boards are also responsible for solving their own needs where the extraction of information and the operation and back-up of the system are concerned.

Observations and conclusions

An easy-to-use DBN *could well have been reality 2-3 years ago*. In the judgement of the RRV it would have been a greatly needed and much requested tool in the work of the administrators, not just at the county administrative boards but also at other government agencies which are obliged to take environmental protection into consideration in their work. But this has not been the case. Instead the DBN has tended to stay in the development phase and the necessary step to enable it to become an efficient tool in the work of environmental protection has been continually put off into the future.

The work has come to a standstill. Although the project will have soon been in progress for 10 years, and although experimental activities in respect of DBN have been taking place for three

¹ IT stands for information technology and by IT projects we mean here systems development projects.

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years, there is still no product which is useful for the county administrative boards. During the period several county administrative boards have started to develop their own forms of systems for the processing of environmental data.

DBN is unstable, difficult to use and lacks key functions. The result of the DBN project is therefore not an efficient and easy to use operative tool for the county administrative boards or other agencies active in the field of environmental protection.

Moreover the latter have *hardly been involved at all*, or had any real opportunities to express their requirements. Whether or not the system can be used by these parties is still unclear.

All in all, in the opinion of the RRV this is an expression of considerable *shortcomings in the management of the project*. The RRV considers that the point of departure for success in the DBN project is that DBN is regarded by the county administrative boards as a joint effort on the part of the boards to build and introduce common IT support for the storage and retrieval of environmental data.

In order to have an effect on efficiency, and on the total cost of data processing, in environmental protection work, the DBN must also be *used extensively by other parts of the environmental protection organisation*. Its prospects of achieving this are still unclear.

The problems connected with DBN to which the RRV has drawn attention have led to a situation in which *the SNV and the county administrative boards are at a cross-roads*: shall they allocate sufficient resources to make DBN usable or shall they cancel tests and experimental activities and consider other ways of managing environmental data.

The RRV does not advocate one alternative or the other. The RRV's proposals assume that interested parties behind DBN, mainly the county administrative boards, decide to continue their work of introducing DBN. But, as can be seen from the proposals, *much remains to be done* before DBN becomes an efficient and accepted tool in environmental work.

Proposals - provided the project continues

A credible platform is needed to enable DBN to be distributed and used in an efficient way.

Create a specific organisation for the introduction of the system and for system administration, including further development of DBN products.

Important components of the platform are agreements on financing, implementation and user support, maintenance and further development.

The RRV proposes that the Government considers giving the county administrative boards the responsibility for organising this platform.

Within the framework of this type of organisation, in the opinion of the RRV the following measures should be given priority.

Give priority to and concentrate efforts on the implementation of the most urgent changes in the existing DNB.

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Implement without delay the agreed review of the specification of requirements for DBN. Be particularly critical of requirements that lead to greater complexity for users. Requirements in respect of ease of use must be given highest priority.

Concentrate efforts therefore on the completion of DBN, i.e. avoid running other parallel development activities.

Draw up a strategy and plan for the further distribution of DNB products.

During the strategy work various ways of spreading DBN should be considered:

- Distribute DBN 98 version to the county administrative boards
- Wait until a package solution, with easy-to-use data extraction, is available
- Delay distribution until an efficient GIS can be linked to DBN
- Do not distribute DBN until DBN-MÖ² has been completed.

Produce a package solution that facilitates the acceptance and use of DBN by the county administrative boards.

This should include loading the database with data from the major central inventories, support for user training and installation, and estimates of costs and benefits.

Make efforts to provide the county administrative boards with information on the product and the requirements - resources, professional skills - which must be available at the county administrative boards.

Clarify what the DBN is, how it works, and what effects can be achieved, at the county administrative boards.

Define and make good use of the experience gained

It should have been possible to anticipate many of the problems which the DBN project has suffered from since they have been encountered in earlier IT projects in the field of environmental protection. It is important therefore that the county administrative boards and the SNV systematically take care of the experience gained in connection with the distribution and use of DBN.

The follow-up of the government assignment on systems development should be improved.

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It is essential that the SNV reviews its internal management and controls of these types of assignments and reaches agreement with the Government on the feedback it requires.

Finally the RRV points out that experience gained from this audit and other audits of major IT projects shows that it is seldom possible to secure the commitment of government agencies in major projects with many participants when agencies are merely formally represented in the project. If the representatives of the agencies do not have the opportunity to make detailed analyses of their agencies' own needs, and communicate on these needs in their agencies, there is a great risk that there will be a lack of commitment. If there is no parallel ongoing work on operations analysis and development linked to the systems development project in the participating agencies, the points of view conveyed to the project will, in all essentials, mainly be based on the representatives' knowledge of current work procedures in their own agencies.

In the opinion of the RRV it is important therefore that the directives for the assignments which concern the development of common information systems contain demands that members of steering committees and reference bodies are fully conversant with concurrent ongoing local operations analysis and redesign.

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² DBN-MÖ is a database for use in environmental monitoring and is built up on the same lines.