
MINISTRY OF NATURAL RESOURCES

Science and Information Resources Division

The mandate of the Ministry of Natural Resources is to achieve the sustainable development of the province's natural resources, including the development of the economies and communities that depend on these resources. The Science and Information Resources Division of the Ministry provides leadership in the development and application of scientific knowledge, information management and information technology, primarily in the two program areas of fish and wildlife, and forest management.

The Division comprises three branches: the Science Development and Transfer Branch, the Information Management and Systems Branch, and the Information Technology Services Branch. These branches provide scientific and information resources to external users as well as other divisions and maintain the Ministry's computer and telecommunications infrastructure.

For the 1997/98 fiscal year, the Science and Information Resources Division employed approximately 500 staff, and its expenditures totalled \$63.5 million.

OBJECTIVES AND SCOPE

The objectives of our audit of the Science and Information Resources Division were to assess whether:

- program resources were properly managed with due regard for economy and efficiency; and
- satisfactory procedures were in place to measure and report on the effectiveness of the Division's activities.

The criteria used to assess the Division's activities were discussed with, and agreed to, by ministry management and included standardized research and information life cycle methodologies. These methods included identifying research and information needs, prioritizing and selecting from competing alternatives, monitoring performance and reporting on the progress toward achieving the intended results.

Our audit was performed in accordance with the standards for assurance engagements, encompassing value-for-money and compliance, established by the Canadian Institute of Chartered Accountants, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

The scope of our audit, which was substantially completed in March 1998, included a review and analysis of documentation and discussions with ministry staff at the head office as well as regional and district offices. We also reviewed a sample of files for scientific and research activities and information management and technology projects.

Our audit also included a review of the audit plans and relevant reports issued by the Ministry's Audit and Evaluation Section. As a result of this review, we did not reduce the scope of our audit work because, other than a review in 1997, the Section had not issued any recent audit reports on the Ministry's administration of the Science and Information Resources Division. However, many of the issues raised in this report had previously been brought to management's attention through internal audits and reviews.

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OVERALL AUDIT CONCLUSIONS

The Science and Information Resources Division did not ensure that certain program resources were adequately managed with due regard for economy and efficiency, and satisfactory procedures were not in place to measure and report on the effectiveness of the Division's activities. Specifically, the Ministry needed to implement standardized scientific research and development life cycle processes. With regard to information resources and technology, we found that the Ministry's administrative procedures required significant improvement to ensure compliance with mandatory government policies and the Ministry's own procedures. Some of our major concerns were as follows:

- The Ministry's overall science needs were not prioritized, and researchers were not required to support their proposals for new projects with objective analysis and input from the Ministry's other divisions.
- Scientific research plans did not include milestones or other meaningful indicators against which the scientific efforts could be measured and evaluated. As well, post-project evaluations to assess the usefulness of science activities were neither required nor provided.
- Information technology project plans did not include proper business cases to justify the costs of the projects, and systems were not in place to reliably monitor project costs.
- Contrary to mandatory government policy, consultants were frequently engaged without competition. As well, our review of a number of competitions for a major project revealed that the process favoured consultants who had previously worked on the project. Competition was also avoided and Management Board of Cabinet's Directives were circumvented by splitting work into a number of smaller, successive assignments.
- In December 1996, the Ministry entered into a computer lease agreement for \$21 million before determining specifically what computer equipment it required. This resulted in numerous adjustments to the initial contract and an increase in costs totalling \$7 million.
- The Ministry did not obtain the required approval from Management Board Secretariat for the information technology leases entered into since June 1996, which are valued at approximately \$66 million.

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- The Ministry could not provide details of exactly what computer equipment it had leased or how the lease costs were determined and paid the supplier without evidence that all the equipment ordered had been received.
 - The Ministry did not have an accurate listing of its leased and owned computer equipment. We found a substantial number of assets that were either observed but not recorded on the Ministry's asset listing, or recorded but not found at the location listed.

Many of the information technology concerns raised in this report had previously been brought to management's attention through work performed by the Ministry's Audit and Evaluation Section. However, management had not put the necessary controls in place to ensure that proper practices were followed. We were informed that the Division had committed to institute the recommendations presented in the latest internal audit report, a review of procurement practices.

DETAILED AUDIT OBSERVATIONS

SCIENCE DEVELOPMENT ACTIVITIES

The Science Development and Transfer Branch is responsible for the administration of the Ministry's science program to support decisions about the management and sustainability of the province's natural resources. During the 1997/98 fiscal year, the Ministry spent approximately \$27 million on over 350 science projects primarily for the benefit of the Fish and Wildlife program, and the Forest Management program. These projects included efforts to control rabies, fish and wildlife demographic assessments and research to improve forest growth and yield.

The overall objective of the Ministry's science program is to lead in the development of strategic plans and priorities, and to develop science projects to acquire the information and knowledge necessary for resource management decisions. The Branch provides science information to program managers through workshops, working teams and publications.

Branch staff are also responsible for evaluating the efficiency and effectiveness of the projects and for developing partnerships and alternative delivery mechanisms to increase the overall provincial investment in science projects that address the Ministry's needs and priorities.

SETTING DIRECTION AND SCIENCE PRIORITIES

Strategic directions encompassing a clear set of goals, priorities and expected results should guide scientific decisions and, ultimately, the selection of specific projects. In October 1996, the Ministry issued the Strategic Plan for Science and Technology which set broad long-term directions and defined processes for establishing science priorities and managing resources. This document outlined good processes for scientific research, such as a quality assurance and reporting process, to ensure the provision of quality services. The Plan also outlined a strategic framework of operational principles which included requirements for a needs analysis, contracts with program areas and standardized reporting. However, we found that most of the processes defined in the Plan had not been implemented and that the Plan did not have a timeframe for implementation.

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We noted that adequate procedures were not in place to ensure that the broader science needs of the Ministry were included in the science work done by the Science Development and Transfer Branch. Although some individual work units within the Branch had prepared strategic plans to ensure that the overall ministry direction was considered, most units of the Branch had not addressed the Ministry's overall strategic direction. We also noted that the broader ministry science goals and objectives were not translated into more specific or concrete goals at the branch level.

In addition to overall directions for scientific research, there should be a clear set of priorities based on a full understanding of the Ministry's program needs. Although there was a process in place to identify program needs, the Ministry did not have a clear set of priorities established for its science activities or a formal process in place for establishing priorities. An October 1997 internal review of two of the Ministry's largest science programs also concluded that a clear and more rigorous process for priority setting was required. Several of the Ministry's own science units clearly documented the need to identify end points for projects and have priorities in place for the reallocation of funds to the next priority. We were informed by branch staff that several science projects and activities had been funded for many years without either a demonstrated need for the data collected or a clear idea of how the data were being used.

Besides a lack of science priorities, we found that inadequate mechanisms were in place to hold the Branch accountable to its users. The program area business plans had an implicit expectation that the right type of research would be done to support the programs. While the Ministry had recently established branch/program committees to improve input, neither the Fish and Wildlife nor the Forest Management business plans contained a clear statement of needs and priorities to provide direction to the Branch and to hold the Branch accountable. Without clear program area requirements, it is difficult for the Branch to set proper priorities to carry out the right research to meet program needs.

Recommendation

To ensure that scientific research contributes to the effective management and sustainable development of the province's natural resources, the Ministry should:

- **implement the processes outlined in the October 1996 Strategic Plan for Science and Technology;**
- **develop clear research priorities in consultation with the program areas; and**
- **establish clear relationships with program areas that hold the Science Development and Transfer Branch accountable for the delivery of research results that meet their users' needs.**

Ministry Response

The Ministry will implement these recommendations.

As a result of business planning in 1996, the Ministry has developed an annual priority list of science needs and program areas for 1997/98 and 1998/99. The Ministry has established a science team, consisting of program area and science managers, which ensures that client input and approval are received for science priorities. Because of the rapidly changing nature of the Ministry's policy agenda in recent years, there has been a requirement for flexibility in the process of setting science priorities.

In response to these recommendations, the Ministry will continue to strengthen consultation efforts to improve the list of science priorities to meet the needs of the Ministry and program areas. The Ministry will improve the process for establishing broad science priorities.

PROJECT SELECTION

The Science Development and Transfer Branch has experienced significant funding and staffing reductions over the past three years. Consequently, the Branch's large number of scientific projects increasingly compete for limited financial resources. The Ministry had not developed project selection criteria and did not have a formal process in place to compare and select the most critical projects for funding. Project selection was often informal and based on the uninterrupted continuation of the previous year's activities. Over 90% of the projects funded in the 1996/97 fiscal year were carried forward from the previous year. The Ministry also did not have a formal rationalization process in place to determine periodically if each project should be continued, modified or terminated.

Researchers are not required to support their project proposals with objective analyses of opportunities, challenges, risks and alternatives based on consultations with the program areas. The majority of the projects we reviewed included varying types of information which would make it difficult for management to compare and evaluate competing proposals objectively. For example, one forest science project proposal included the results of a survey as well as other analyses to justify the need for the research. Another project in the same area of study did not include any support or justification for its research proposal. Both projects were funded despite the lack of information to justify the latter proposal.

The lack of a complete and objective evaluation of project proposals based on predetermined criteria limited the ability of management to select projects that would provide the greatest possible benefit to the programs. Standards indicating the form and content of science proposals would assist branch management in assessing competing proposals. Documentation of the rationale and criteria used for selecting one project over another would assist branch staff in developing better justified proposals in the future.

Recommendation

To ensure the selection of those science projects that best achieve the Ministry's objective of the sustainable development of the province's natural resources, the Science Development and Transfer Branch should:

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- implement standard project proposal requirements which include program area input, the expected time to complete the project with critical interim milestones, the estimates of the full cost of the project, the anticipated results and the likelihood of success;
- develop clear criteria for the selection and approval of projects for funding;
- annually evaluate each project to determine if funding should be continued, modified or terminated; and
- document the rationale for selecting new proposals and the decisions regarding ongoing projects.

Ministry Response

The Ministry will implement these recommendations.

The Ministry was aware of these issues following business planning in 1996 and was implementing plans to deal with them.

In response to these recommendations, the Ministry will accelerate implementation efforts. The Ministry is implementing science working groups which are accountable for planning, management and evaluation of science projects. The Ministry will ensure that the working groups address the recommendations with respect to requirements, criteria, evaluation and documentation. The Ministry will review the skills of science managers in project management and the technology on hand for efficient project tracking, and will improve them where necessary.

RESEARCH MONITORING AND REPORTING

The Ministry's monitoring process requires researchers to prepare a summary of each project for the annual work planning process. The work plan summary provides a brief description of the project, objectives, duration and funding required for the upcoming year. However, we noted that work plans did not include time-phased budgets, were not focused on results, and often did not contain milestones or other meaningful indicators against which performance could be measured. In those cases where deliverables were included, these were often general statements of activities and did not provide sufficient detail for managers to evaluate the project's expected outcomes.

Project monitoring, in addition to the annual work planning process, is generally informal, with minimal tracking and consolidation of performance data. Having good information on the ongoing results achieved can assist management in determining if projects are progressing toward their expected results and continue to be relevant to program objectives. Performance information is needed to determine whether to modify the project, terminate some activities or launch new science initiatives. In addition, results information is needed if science managers are to be held accountable for the resources they manage.

Once a science project is completed, the results are transferred to the program areas through reports, workshops, working teams or publications. None of the completed projects we

reviewed had carried out post-project evaluations to determine if the research results transferred had benefited the program areas. Our interviews with research staff also confirmed that the Ministry did not perform this type of evaluation. Post-project evaluation procedures, such as program area follow-ups or surveys, could be used to determine if research was implemented, beneficial and cost effective. Post-project evaluations could also assist in setting future directions and enhance communications with the program areas.

Recommendation

To ensure that all projects are progressing as expected and continue to be relevant to the program needs, the Ministry should:

- **develop standardized monitoring procedures which include the tracking of critical reassessment milestones;**
- **ensure that the annual science project summaries contain sufficient detail to assess progress to date and the likelihood of achieving the expected results; and**
- **implement post-project evaluation procedures to determine if completed science projects benefited the program areas.**

Ministry Response

The Ministry will implement these recommendations.

The Ministry was aware of these issues following business planning in 1996 and was implementing plans to deal with them.

In response to these recommendations, the Ministry will accelerate implementation efforts. The Ministry will ensure that the science working groups address this recommendation with respect to monitoring procedures, annual science project summaries and evaluation. The Ministry will review the skills of science managers in project management and the technology available for efficient project tracking, and will make improvements where necessary.

RESEARCH FUNDING

The Science Development and Transfer Branch receives funding from the two main program areas: the Fish and Wildlife program, and the Forest Management program. Funds are provided to the Branch with a broad expectation that the right projects would be done to meet program needs. Specific expectations were generally not provided by the program areas and their needs were not well defined. The funding mechanism was designed to hold the Branch accountable to the program area. However, the Branch invariably decided what research was appropriate for the program areas.

After a project receives initial funding, allocations in subsequent years are usually based on historical levels and not demonstrated need. By funding science projects on a historical basis, the Ministry fails to identify and rationalize its science funding needs within and across its

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science focus areas. For example, one forest research unit documented its decision to fund only existing projects at 80% of the previous year's level, without consideration of variable funding requirements or new and possibly higher priority projects.

Research typically has a long-term focus with high uncertainty. Therefore, there is a need to match funding to the life cycle of individual projects. We were informed that the life cycle of many scientific research projects can be as long as 10 years. From our interviews with science managers, we noted that the existing funding methods do not encourage work on long-term projects. Typically, there is a large infusion of funds in the early stages of a project, but subsequent funding declines. We were informed that, since it can often take two years to design a project and prove the concept is workable, by the time the project reaches the research phase, there may not be sufficient funding to complete the project. Research managers indicated that in order to get good research results, there was a need to look at both long-term and short-term priorities.

Funds are allocated to projects annually without mechanisms to ensure the long-term commitment to research projects. This has led some managers to try to ensure future funding for their projects. For example, we noted that, from 1990 to 1993, funds totalling \$3 million were transferred to a government agency rather than returned to the Consolidated Revenue Fund, to ensure that funding for projects would be available in future years. However, if subsequently such projects became low priority or were not progressing as planned, funds could not easily be retrieved and transferred to other projects within the Ministry.

Recommendation

To ensure a balance between annual or short-term funding and the requirements of long-term research projects, the Ministry should consider a funding model that includes the full life cycle of projects and addresses fluctuations in funding requirements.

Ministry Response

The Ministry will implement this recommendation.

The Ministry will increase efforts with senior management and program areas to emphasize the requirement for multi-year funding commitments where required. The Ministry will ensure that the science working groups prepare more accurate estimates for the life cycle of projects.

INFORMATION SYSTEMS MANAGEMENT

The Information Management and Systems Branch develops, implements and maintains all computer applications including the design and administration of the Ministry's database structures, data architecture and data repositories. The Branch's responsibilities also include georeferencing, developing information policies, performing business analyses and assisting with information planning.

The Branch's expenditures for the 1997/98 fiscal year were \$18.5 million.

IDENTIFICATION OF INFORMATION NEEDS

The Branch encouraged program areas within the Ministry to undertake an evaluation of their information needs and develop information management and systems plans. During the 1997/98 fiscal year, one program area evaluated its information needs and completed an information management strategy. This evaluation noted that:

- The computerized information requirements of the program were not being met as less than half of the information required was being produced.
- Some of the data sets were highly fragmented, and difficult to access and integrate. Most data sets were not well documented and were lacking corporate standards for data content and structure.
- Small corporate systems were being developed without a full understanding of the information requirements of the business processes, corporate data architecture, corporate data standards, and long-term maintenance, training and support.
- There was a lack of project management and a failure to deliver the required products.

The Branch and program area had initiated a plan of action to address the weaknesses found. Overall, management indicated that the Ministry would attempt to correct these problems as existing applications were scheduled for enhancement, rewrites or re-engineering.

Not all program areas had determined whether existing information systems met their needs. Therefore, for the 1998/99 fiscal year, all program areas will be required to incorporate information-management-related data requirements in their business plans. This would include information management requirements, an estimate of resources needed to meet these requirements, and the expected impact on the Ministry's ability to provide products and services to external customers, partners or other stakeholders. These requirements help to identify the needs of the program areas, and should then form part of the strategic direction of the Information Management and Systems Branch.

Recommendation

Where the 1998/99 business plans indicate that systems are lacking or deficient, the Branch should work with the program areas to formulate a strategy to meet their information requirements.

Ministry Response

The Ministry will implement this recommendation.

The Ministry developed its first five-year information strategic plan in 1990 which identified priority information systems for development. Commencing in 1996, the Ministry underwent significant downsizing and core business re-engineering. The process of identifying information needs was conducted as an integrated part of these activities.

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During the period 1996 to 1997, all but one of the Ministry's major business areas had assessed and acted upon their information needs. The remaining business area has recently evaluated its information needs consistent with the other business areas and is implementing an action plan.

In addition, the Ministry has resumed medium- and long-term information planning as part of its overall business planning activities. The Ministry has appointed business area information coordinators to undertake strategic planning in their respective business areas, to develop information planning standards and guidelines across the business areas, and to assist in the implementation of the plans.

PROJECT PLANNING AND SELECTION

The Ministry's 1997/98 Program Direction for Work Planning indicates that each corporate information system application is to be considered by a priority setting committee within each program area during the annual work planning process. Although projects were prioritized at a high level, the Ministry did not have standards for project submissions or clearly documented selection criteria to be used when choosing among competing projects.

We reviewed three major system development projects as well as the development of a minor corporate system. These projects accounted for over half the Branch's total activity funding. We found that all the major projects were identified by the program areas as a high priority for the 1997/98 fiscal year and were a continuation of the previous year's activities. The following are our concerns regarding the selection and management of systems development projects:

- To allow the Ministry to make fair comparisons among projects competing for funding dollars, all potential system development projects should be supported by a business case that establishes initial feasibility for the entire project, expected timeframes, and a reasonable estimate of both tangible and intangible costs and benefits. Without this type of information it is difficult for the Ministry to properly manage the projects to ensure the economical and successful completion of the project. For the projects we reviewed, a proper feasibility study had not been done and the documentation that did exist to justify the projects was insufficient.
- The Ministry did not maintain centralized system development project files. Such files normally contain the planning documents, budgets, project approvals and periodic status reports.
- Part of the project planning phase includes a list of the key activities necessary to carry out the project. These are to be organized into a work flow plan which is used to determine the completion date for the project. We noted that key activities and work flow were detailed for the projects we reviewed. However, these plans were not updated regularly to provide information on whether milestones were being achieved according to schedule. Although ministry staff received project status reports, in some cases it was not clear from the progress reports which milestones had been achieved.

Recommendation

To properly manage information technology projects, the Ministry should ensure that project plans include a business case, the approach for doing the project, activities to be completed, resources necessary, periodic reporting and target completion dates. In addition, all relevant documentation should be kept in a project file.

Ministry Response

The Ministry will implement the recommendation.

The projects reviewed for this audit were initiated as a result of the significant downsizing and core business re-engineering during the period 1996/1997. These projects were essential for implementing required business changes within the appropriate timeframe.

Accordingly, the business cases for new core business models that were submitted to and approved by ministry executive committees and Management Board provided the business rationale and approvals for systems projects.

Now that the Ministry is emerging from this crucial transition period and its business is stabilizing, standard business cases and feasibility studies are again an appropriate part of the information and information technology planning cycle. Furthermore, in order to facilitate information planning, project selection and project management within the Ministry's new business structure and accountability framework, the following actions have been taken:

- business area information coordinators have been established;*
- a senior management level steering committee has been established;*
- a framework for roles, responsibilities and accountability for information-related planning, project selection and management has been developed; and*
- detailed procedures for the above are under development, including the requirements for a centralized project documentation repository and standards for updating information in this repository.*

PROJECT MONITORING

Proper project planning, budgets and milestones are not only important at the inception of a project but are also essential for effective ongoing project management. Reviews of these aspects of the project are important for marking progress and should be done at various phases of the project to determine its continued technical and financial soundness.

In the one case where a cost/benefit analysis was done, we found that the Ministry did not update the information regarding future costs, expected benefits and risks as the project life cycle became better known. In addition, the Ministry did not routinely monitor any information

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technology project costs. Only one project manager informed us that cost data were collected on a regular basis and compared to a budget. There was confusion over who was responsible for monitoring costs.

We also found that the system in place to track such information was not reliable. For example, for one project, the manager's records indicated that the project had incurred costs of \$438,000 by December 31, 1997, while the Ministry's Integrated Financial and Administrative System indicated total expenditures to be \$157,000. No reconciliation was performed to determine which was the correct amount. Without accurate cost information, it would be difficult to properly manage a project and determine if planned budgets and expected benefits were being achieved.

With respect to periodic reporting on the progress of the project, the Ministry did not have a standard reporting process in place. Some project managers reported verbally, while others provided a brief written status report each quarter. However, where status reports were submitted, we found that these did not address all the milestones noted in the plan, making it difficult to determine if activities were adhering to plans to ensure successful project completion.

Recommendation

To ensure the successful completion of information technology projects on time and on budget, the Ministry should develop a formal monitoring process to track project costs and require status reports that include progress toward the milestones, related deliverables and benefits stated in the project plan.

Ministry Response

The Ministry will implement the recommendation.

To ensure adequate project monitoring and accountability to the funding business area, each project was governed by a technical manager, business area project manager and business area steering committee. Detailed documentation regarding project progress and financial status was maintained by the project managers and reported directly to the steering committees and business area management on a regular basis. This model of interaction between the business sponsors and the systems projects (including direct and ongoing access to project documentation regarding progress and financial status) replaces the need for quarterly or semi-annual status reports. Accordingly, business areas are able to monitor costs and progress as a regular part of their business management activities. Although this model has proven quite effective, the Ministry agrees with the observation that formal standards, guidelines and procedures would ensure consistency, accuracy and completeness. Action is being taken to put these in place.

The Ministry also agrees that a centralized repository of project documentation should be maintained, including standard progress reports referring to planned milestones. The Ministry has acted to develop such a repository complete with on-line access for all ministry staff. Furthermore, project managers will be required to update the corporate financial system as to their expenditures in addition to maintaining detailed project budgets. This will ensure that corporate records and project records are routinely reconciled and clearly assigns fiscal accountability to the project managers.

CONSULTING SERVICES

Over \$15 million was spent throughout the Ministry to acquire the services of information technology consultants during the 1997/98 fiscal year. To acquire such services, ministries must comply with Management Board of Cabinet Directives which state the key principles for the decisions made in the planning, acquisition and management of consulting services. These principles are designed to ensure that suppliers are treated in a fair, equitable and responsible manner and that the best value is received for the funds expended. Ministry policies elaborate on the government-wide requirements.

We examined a sample of information technology consulting assignments to determine whether the Ministry was following its own policies and Management Board of Cabinet Directives and Guidelines. We noted that the Ministry did not have adequate procedures in place to ensure that the requirements regarding the acquisition of consulting services were adhered to, as the following examples illustrate:

- To ensure the best value for the funds expended, ministries are required to procure all consulting services competitively. For services estimated to cost \$25,000 or more, a competitive tendering process is required, while the Ministry must develop policies to ensure the receipt of the best value when costs are expected to be less than this amount. However, the required competitive tendering process was not used for 30% of the consulting assignments we reviewed. Documented waivers were not on file to justify or approve the departure from the required competitive process.
- Competition must not be avoided by awarding the same consultant successive agreements, each less than the \$25,000 limit but totalling more than this amount. We noted three instances in our sample where consultants were awarded successive agreements where each agreement was less than \$25,000 but the cumulative total was more than this limit. These follow-on assignments were not unique or different and the terms of reference for the new assignments had not changed substantially.
- Management Board Directives state that the process for selecting a supplier must be open and fair, and that ministries must not permit a supplier to gain a monopoly for a particular kind of work and must not continuously rely on a particular outside organization. To evaluate bids submitted, the Ministry often used predetermined criteria which included both mandatory and desirable skills and experience. We reviewed the selection process for ten contracts that were part of a major information technology project. The desirable criteria used to evaluate bids included such items as knowledge of the architecture for and experience in developing the project, and knowledge of the Ministry's strategic data

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requirements and direction. While many of the bidders met the Ministry's mandatory criteria, only those that had previously worked on the project were awarded contracts. We found that the Ministry's competitive process gave an advantage to consultants who had previously worked on the project.

- Management Board Directives emphasize that agreements with former employees must bear the closest public scrutiny and must not be entered into when an unfair advantage in securing the assignment exists. However, three months after an employee left the Ministry, the Ministry entered into an agreement for the services of the former employee, without a competitive process. From January to September 1997, this individual was issued nine separate purchase orders totalling \$198,000. The work undertaken was to support, implement and test various information technology projects, which was essentially the same work the consultant had performed as an employee. The daily charge rate for this consultant was \$550, whereas the same individual was paid \$225 a day, including benefits, as a ministry employee.
- Management Board Directives require formal written agreements for all assignments between the Ministry and consultants, outlining their respective roles and responsibilities. Agreements are required in the event that disagreements arise or performance is so poor that the assignment will likely be terminated. However, signed contracts were not on file for 32% of the assignments we reviewed. These assignments ranged from \$6,000 to as much as \$443,000.
- Management Board Directives state that the ceiling price of an agreement must not be exceeded if the terms and conditions of the agreement remain unchanged. In our sample of consulting assignments, 27% were paid more than the ceiling price of the contract, with individual agreements exceeding the contracted amount by, in one case, as much as \$57,000. In all cases the terms and conditions of the original agreements had remained the same and the Ministry had not documented why the original ceiling price had been exceeded.
- Ministry policy requires that, upon completion of each consulting assignment, a formal evaluation be prepared to ensure that the Ministry has received the best value for the money expended and that the original scope of the project has been met. No such formal evaluations were prepared by ministry staff for any of the assignments we reviewed.

Recommendation

To ensure the receipt of the best value for the funds expended, the Ministry should comply with the mandatory requirements regarding the acquisition of consulting services, as specified in Management Board of Cabinet Directives and ministry policies, including the requirements that:

- **all contracts expected to equal or exceed \$25,000 be acquired through a competitive process and deviations from this process be adequately justified and approved;**
- **fair competition not be avoided by awarding the same consultant successive agreements which cumulatively exceed \$25,000 but individually are less than this amount;**

- **consultants be selected based upon an open and fair process, and suppliers not be permitted to gain a monopoly for a particular kind of work;**
- **arrangements with former employees bear the closest scrutiny, including fair and open competitions;**
- **written agreements be prepared for all consulting assignments;**
- **the ceiling price of assignments not be exceeded unless the change is justified and formally agreed to; and**
- **all consulting projects be formally evaluated upon completion.**

Ministry Response

The Ministry will implement these recommendations and has initiated revised directions to ensure mandatory procurement policies for consultants are followed across the Ministry. We have already initiated additional staff training and will ensure more adequate documentation of evidence of compliance with policies.

INFORMATION TECHNOLOGY MANAGEMENT

The Information Technology Services Branch is responsible for providing the Ministry with reliable and secure information technology systems and services. The Branch's functions include providing overall direction and management of an integrated operating environment for the Ministry's information technology infrastructure, and developing information technology security policy and planning. The Branch is also responsible for the acquisition, maintenance and support of information technology systems and services. Expenditures for the Branch were \$18 million for the 1997/98 fiscal year.

The Ministry acquires substantially all of its information technology equipment through leases with one supplier. Leasing generally enables management to better plan for and manage its annual expenditures. Under the Ministry's previous leasing strategy, each program area acquired computer equipment independently. This resulted in several different types of computer system designs in use, making it difficult for the Ministry to properly support and manage its information technology infrastructure. In 1996, the Ministry set standards for the configuration of hardware and software and undertook the Technology Infrastructure and Workstation Rollout Project to reduce the different types of desktop hardware and software products in use throughout the Ministry.

Since June 1996, the Ministry has entered into leases for information technology equipment totalling approximately \$66 million. Of this amount, \$28 million pertains to workstations (desktop and laptop computers) and \$38 million pertains to servers and other computer equipment. Leasing arrangements were specified in a series of 13 active leases and 7 amendments with varying terms and conditions. Most of the assets had been leased for five years.

COMPUTER NEEDS ANALYSIS

Information technology plans which encompass a clear direction should guide the procurement of computer equipment. In this regard, a needs analysis is required to determine the computer needs of the various users. We did not find a complete documented needs analysis of the Ministry's technology requirements. Instead, we found incomplete information kept at various locations of the Ministry, with little or no rationalization of needs. In addition, management informed us that the user needs analysis was not completed prior to negotiating the first workstation lease for \$21 million in December 1996. This resulted in a number of adjustments to the initial contract which increased the cost by approximately \$7 million.

We question the prudence of signing a contract for computer equipment when the needs analysis had not been completed. The Ministry informed us that one adjustment for a \$3.9 million increase was due to a change in the types of computers initially ordered with no corresponding increase in the number of computers leased. However, the Ministry could not provide documentation to justify this change. The remaining \$3.1 million was for additional hardware and software acquired after December 1996, because users either received equipment that did not meet their needs or did not receive any equipment during the initial rollout, or additional equipment was required for newly initiated projects.

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Recommendation

To avoid costly adjustments, before signing contracts the Ministry should ensure that the needs of users are identified, including the type and number of computers required.

Ministry Response

The Ministry will implement the recommendations in this audit.

During the 1996 technology rollout, the Ministry was undergoing significant change as a result of downsizing, realignment and office consolidations. Accordingly, it was difficult to conduct a stable needs analysis. In order to facilitate the rollout, ministry management estimated the total number and configurations of computers required. This original estimate was used to frame the lease and project costs and is reflected in the initial lease agreement.

During the rollout, projected needs were modified on a site-by-site basis. This resulted in the deployment of more computing capacity than was originally estimated and corresponding amendments to the initial lease agreement.

The Ministry has initiated a review of its technology needs assessment processes and has undertaken to implement recommended enhancements in a timely fashion.

LEASE AGREEMENTS

The Ministry carried out a tender to establish a vendor of record, and signed an agreement with the successful bidder in December 1993 to supply leased workstations, including desktop computers, laptops, printers and software. The agreement was for one year with a one-year renewal option bringing the maximum term of the agreement to December 1995. However, the Ministry extended the agreement to December 1997 without determining if the vendor's current prices were still competitive. As of March 1998, the Ministry further extended the agreement to June 30, 1998. The stated purpose of the renewal was to give the Ministry time to thoroughly evaluate its current leasing agreements and to acquire additional equipment. We question whether a 1993 tender could give the Ministry any assurance that the vendor was still offering competitive prices.

The Ministry's vendor of record was the same company used by Management Board Secretariat from July 1995 to January 1997 as the general vendor of record for the government. However, when the Ministry was negotiating a December 1996 workstation lease agreement, Management Board was in the process of retendering for the government vendor of record. This competition by Management Board resulted in the replacement of the vendor of record because the vendor no longer offered the best value. Therefore, it was questionable whether the Ministry continued to received the best value.

In addition, the same vendor was used to acquire all servers and other computer equipment. The Ministry indicated that the lease agreements related to these acquisitions resulted from a 1995 consolidation of several previously arranged leases which originated from an agreement initially signed in February 1990. However, the Ministry could not demonstrate that a competitive process was used to select the vendor in 1990 or that competitive prices were subsequently obtained. At the time of our audit, based on this 1990 agreement, the Ministry had entered into 50 separate lease amendments to purchase additional servers and computer equipment. The Ministry could not provide us with evidence that any of the 50 acquisitions were acquired competitively. Also, given the extraordinary changes in information technology in recent years, we question the Ministry's reliance on an eight-year-old contract to provide competitive pricing.

Recommendation

To ensure the receipt of the best value for its information technology expenditures, the Ministry should regularly tender for its computer equipment leases or use Management Board Secretariat's vendor of record for all future acquisitions.

Ministry Response

The Ministry will implement the recommendation.

The Ministry has completed an external review of its current lease agreement and is comfortable that it has a competitive agreement. This has been confirmed by the fact that several other ministries have recently entered into or renewed lease arrangements with the same vendor based on similar reviews.

The Ministry is also currently working with Management Board to be included in the upcoming corporate request for proposal and standing agreement relating to the acquisition and leasing of information technology. This will position the Ministry to benefit if the resulting terms, conditions and rates are more competitive.

The current lease agreement was recently extended for a short period of time. This was to allow the Ministry to undertake the above activities and ensure subsequent actions continue to be in the best interest of the Ministry.

3.10

MANAGEMENT BOARD SECRETARIAT APPROVAL

When the planned contract value of the procurement of information technology is more than \$1 million, ministries are required to obtain Management Board Secretariat's review and approval of the requirements prior to purchasing. Such approvals help to ensure that purchases are not only economical but consistent with the overall government information technology strategy. However, the Ministry did not obtain Management Board approval for the information technology leases entered into since June 1996 which are valued at approximately \$66 million. As well, exemptions from this mandatory requirement were not obtained.

The last time the Ministry received approval for the acquisition of information technology equipment was December 1990, when Management Board approved the five-year Information Technology Strategic Plan which included infrastructure costs of approximately \$46 million for hardware and software. This approval did not cover any of the active leases since the Strategic Plan expired March 31, 1995, and the amount approved had already been spent. As of March 1998, including the \$66 million for active leases, the Ministry had either spent or had outstanding lease commitments of approximately \$130 million. These expenditures are \$84 million above the amount approved by Management Board in the 1990 Strategic Plan.

In addition to lacking proper Management Board approval, the employee who signed four contracts valued at more than \$60 million resigned his position at the Ministry shortly thereafter. We were informed that he accepted a job with a supplier of the computer equipment under those contracts.

Recommendation

To ensure that information technology purchases are consistent with overall government strategies and that the government derives maximum benefit from information technology, the Ministry should obtain the required Management Board Secretariat approvals for all future leases over \$1 million.

Ministry Response

The Ministry will implement this recommendation.

The Ministry received Management Board approval and funding based on its original Five-year Information Technology Strategic Plan submitted in 1990. This plan established an annualized base funding level at maturity of approximately \$12 million dollars per annum. At the time of the lease re-negotiation, the Ministry's annualized lease payments were unchanged. As no significant changes in information technology infrastructure capacity or funding were being made and no additional funding was being requested, the Ministry proceeded on the basis that approvals received as part of the business planning and allocations process were adequate.

The Ministry will ensure it has appropriate approvals for its future information technology expenditures. Under the new Ontario Public Service Information and Information Technology Strategy, Management Board Secretariat has developed new guidelines and a new accountability framework for information technology. The Ministry has initiated revised directions to ensure compliance with this new corporate strategy. To this end, the Purchasing Section of the Ministry and the Science and Information Resources Division have issued new delegation of authority guidelines and procedures. Staff will be trained in the application of these guidelines and will be required to follow them.

MANAGEMENT OF INFORMATION TECHNOLOGY LEASES

From 1990 to March 1998, the Ministry had either spent or had outstanding commitments for computer equipment leases totalling approximately \$130 million. With lease commitments and costs of this magnitude, it is important to have an effective monitoring system in place to ensure that the Ministry is paying the proper amount for items that it receives. Also, when entering into any lease, it is prudent business practice for the Ministry to involve its legal department to ensure that the terms and conditions are such that the government is legally protected and is committing to what was determined through the tender process. In this regard, we noted the following:

- The leases are complicated because, as of February 1998, there were 13 active leases and 7 amendments with varying terms and conditions. These leases had not been reviewed by the Ministry's legal department. After we asked questions regarding the agreements, the Ministry requested the legal department to review the current terms and conditions of the leases, almost a year after the first of the active leases were signed.
- The majority of computer equipment is leased for a term of five years whereas the Ministry indicated that the useful life of the equipment is only three years. The Ministry advised us that after two years it intends to upgrade some of its computers. To upgrade, the Ministry would have to pay an amount equal to the unpaid portion of the original cost of the equipment less fair market value of the equipment at the time of the upgrade, plus an interest charge. When upgrades are made, the Ministry enters into a new lease agreement for the new equipment. This will result in a continuous reliance on this supplier for computer equipment without the Ministry assuring itself that prices are still competitive.

3.10

- The Ministry does not have an adequate system in place to control existing lease arrangements. This becomes especially important when staff change during the term of the lease. Information on the leases was kept in various managers' offices, even when they were no longer with the Branch. Our discussions with staff indicated that they could only provide us with information on leasing agreements with which they were involved and not those arranged by previous managers.
- The Ministry did not have any information indicating how the lease costs were determined. In addition to the new equipment, the Ministry was already leasing equipment from the supplier which was rolled into the new leases dated June and December 1996. The value of the equipment already on hand was included in the new leases at \$22 million for servers and other computer equipment and \$14 million for workstations. The Ministry was unable to demonstrate that the blended lease costs were reasonable and relied on the supplier to determine these costs.
- The Ministry made payments to the supplier without evidence that all the computer equipment leased had been delivered. The Ministry did not reconcile the receipt of information technology equipment to the lease agreement to ensure that the lease payments were appropriate.

Recommendation

To provide the Ministry with legal protection and ensure that the terms and conditions of contracts are appropriate, the Ministry's legal department should be consulted on all contracts.

To ensure that payments are made only for computer equipment received, the Ministry should set up a proper lease management system.

Ministry Response

The Ministry will implement these recommendations. Procedures have already been established whereby the Ministry's legal services must be consulted before entering into any new contracts. The Ministry will enhance its control of lease agreements so that the impact of staff departures on lease management will be minimized in the future.

The procedures to reconcile received goods against ministry purchase orders and vendor shipping documents will be strengthened to better support the signing of Certificates of Acceptance.

MANAGEMENT OF INFORMATION TECHNOLOGY ASSETS

Management Board of Cabinet Directives require that appropriate systems be established and maintained to ensure the effective management and security of government assets, including the periodic physical verification of these assets. The majority of the Ministry's computer hardware is leased for a five-year term beginning January 1997 for a total cost of \$28 million. Under the terms of the lease, the Ministry is responsible for any lost or stolen equipment.

We reviewed the Ministry's management of information technology assets and concluded that the controls were not in place to account for and safeguard these assets. The following are some of our observations:

- The Ministry provided us with an itemized listing of leased and owned information technology assets, and we physically verified a sample of assets at a number of locations. We found a substantial number of assets that were either observed at the location but not recorded on the listing, or recorded on the listing but could not be located. We also noted that the listing was usually not updated to reflect equipment reassigned.
- There were approximately 2,400 computer processors and laptops recorded on the Ministry's inventory listing. However, although the Ministry did not know how many computers had been leased, management estimated that the correct number should be around 3,500.
- The Ministry had delegated to local managers the responsibility for maintaining an inventory of their assets including computer equipment. However, we found that the asset control function was a low priority for most managers even though they were responsible for asset management. The Ministry also did not have procedures in place to ensure that local managers performed a periodic physical verification of assets.

Recommendation

To properly control and safeguard computer equipment, the Ministry should:

- **complete and maintain a current inventory list that includes all leased equipment;**
- **establish controls to track the movement of computer equipment; and**
- **implement mandatory periodic asset inventory counts and follow up any discrepancies to ensure the accuracy of the asset inventory listing.**

Ministry Response

The Ministry will implement the recommendations in this audit. We are finalizing a province-wide inventory of information technology assets and will reconcile this inventory with local work plans. The Ministry will also develop policies and guidelines to strengthen local management accountability for information technology assets. This will include periodic reviews to ensure the currency and accuracy of the inventory.