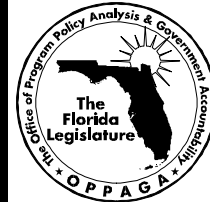




Office of Program Policy Analysis And Government Accountability



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Follow-Up Report on the Department of Environmental Protection's Information Systems Development

Report Abstract

While the Department of Environmental Protection (DEP) has spent approximately \$63 million from 1988-89 through 1994-95 on information technology resources (of this total \$11.3 million was for information system development), its information systems cannot be consistently used as management tools to produce data addressing the effectiveness of key agency activities and programs. The Department's inability to correct past deficiencies and complete development of key information systems will significantly impede its efforts to prepare a performance-based budget.

(1995) states that managers should maintain indicators in order to measure management effectiveness. Many Department goals and objectives reflect the importance of information systems. According to DEP's 1995 draft Agency Strategic Plan, science, technology, and information provide the basis for DEP accomplishing its mission.

The Department also needs program specific information in order to meet the requirements for performance-based budgeting. Each state agency's mission, goals, and objectives should be clearly defined with performance measures for evaluating performance and assessing progress in achieving those goals and objectives. These performance measures will be dependent on quality data and should be integrated into the planning and budgeting process. DEP is scheduled to submit a performance-based program budget by September 1, 1997, for the 1998-99 fiscal year.

Purpose of Review

Section 11.45(7)(f), F.S., requires agencies to inform us of actions they have taken in response to our recommendations with 18 months of the release of our reports. This follow-up report presents our assessment of the status of recommendations we made to the Department of Environmental Protection in Report No. 12300, dated May 17, 1994.

DEP Has Made Significant Expenditures in Information Technology. From fiscal year 1988-89 through fiscal year 1994-95, DEP spent approximately \$63 million for information technology resources (personnel, hardware and software, networking, Geographic Information System (GIS) development, contractual services and system support, and administration) to provide access to statewide information to identify changes in the quality of environmental and natural resources. DEP estimates that of this total, 18% or \$11.3 million was spent on information systems development. One of DEP's top strategic priorities during the late 1980s and early 1990s was to provide staff with needed access to computer information systems. During this time DEP began significant improvements to its internal electronic communications capabilities. Also, due to the merger

Background

DEP's key planning documents have identified the importance of information in meeting its mission to protect, conserve, and manage Florida's environment and natural resources. The Department's Ecosystem Management Implementation Strategy Action Plan

of the Department of Environmental Regulation and the Department of Natural Resources in 1993, the Bureau of Information Systems (BIS) was instructed to merge the two agencies' dissimilar computer systems, integrate e-mail and continue its statewide networking efforts. The Department has largely accomplished this effort.

Significant funding for DEP information resource management continues. BIS expenditures for fiscal year 1995-96 are estimated at \$7.3 million. The 1996-97 appropriations for the Bureau amounts to \$7.8 million, for 73.5 full-time equivalent (FTEs) positions.

Prior Findings

Historical Pattern of Problems. Our Office released reports in 1993 and 1994 which identified the inability of information systems to track the status and outcome of program regulatory efforts.¹ In 1994, we also conducted a review of DEP's information systems development process. DEP's information systems have historically experienced problems related to inadequate systems development, such as an inability to identify sources and trends of pollution and the inability to track compliance and enforcement activities. In addition, accuracy and reliability of data within the systems has been problematic due to a lack of data entry controls.

As a result of these limitations, few systems were meeting the needs of the agency, even though a number of systems had gone through modifications and redesign.

Current Status

Information Systems Development Weaknesses Continue. Despite DEP's expenditures over the years and its response to our reports that systems development and redesign will address our concerns, information systems deficiencies identified in our previous reports have not been corrected.

For example, the Department's May 10, 1994, response to our Information Systems Development report indicated that within a year it should have several major new systems available. Over two years later, little progress has occurred. The Department's primary

¹ Office of the Auditor General, Report No. 12199, Performance Audit of the Wastewater Facilities Program (December 1993); and Report No. 12241, Performance Audit of the State's Hazardous Waste Cleanup Activities (February 1994).

regulatory information systems relating to permitting, compliance and enforcement continue to have negligible impact on agency operations due to delays in systems development. (See Exhibit 1.)

Weaknesses in Agency Management

Current systems deficiencies result from agency management's inability to ensure that: priorities were established for systems development; program operations changed to reflect management directives; and agencywide standards and protocols were established to ensure data systems accuracy.

Priorities Not Established. While the Department embarked on an ambitious program of information systems development it did not establish priorities among its systems. This is demonstrated by the number of DEP systems in development. There are approximately 44 different information applications which are being developed, enhanced or maintained by the Department's Bureau of Information Systems. Since key systems central to DEP's functions are still not complete, placing priority on primary regulatory systems (permitting, compliance, and enforcement) would focus resources and better expedite completion of these important systems.

Lack of Internal Response. Management directives requesting that program staff uniformly and consistently use information systems to track information have had little impact. For example, in 1994, the Director of the Division of Waste Management issued a memorandum to all waste program administrators requesting that all waste program managers use the Compliance and Enforcement Tracking System (COMET). The Director requested that staff track information about new permits, existing permits, complaints, inspections, and enforcement actions. In October and November 1995, the Deputy Secretary of DEP requested that program managers ensure staff used COMET for tracking compliance, enforcement, and cleanup activities. As of November 1996 the Department had not set a completion date for COMET data collections. According to Department staff, key data identified in the 1994 memorandum is not systematically collected statewide.

Also, except for the Air Resources Program, other programs have not completed all of their specific permitting, compliance and enforcement components that make the Permit Application and COMET systems fully functional. While a number of programs are developing their own customized template views for these systems, these are not believed to be ready for implementation until the year 2000.

No Standards for Ensuring Data Accuracy. DEP has yet to establish agencywide rules for programs to follow

for ensuring the accuracy of data entered into systems. While the Department has established some systems controls to indicate more obvious data entry errors, these controls are insufficient in themselves to assure data accuracy and reliability. DEP indicates that all new applications implemented by the agency contain data validation procedures (default value settings which do not allow for the entry of some obvious wrong data). However, the users' manuals we reviewed contained no procedures or protocol for data entry testing to ensure its reliability.

One of the Department's most well developed systems, the Legal Case Tracking (LCT) system contains important case information that is inaccurate. Bureau of Information Services staff indicate that LCT has high user satisfaction. We compared case status

information for 59 cases listed in LCT to district case file information and found the LCT system overstated the average time a case was open by more than one year. The system also overstated the number of active cases. Twenty-seven of these cases had been closed by district staff but not closed on the LCT system. Inaccurate case status information can significantly overstate enforcement staff workload.

A Case Study

Results of Not Having Good Information

The Department's Solid Waste Program illustrates the impact that current information systems limitations have on measuring program effectiveness. (See OPPAGA Report No. 96-04.)

Exhibit 1 DEP's Inability to Complete Primary Regulatory Information Systems

Groundwater Management System (GMS)			
GMS contains data associated with DEP permitted facilities which are potential sources of ground and surface water contamination.			
1980 , GMS development began.	1991 , budget request language indicates numerous problems with GMS and a need to develop replacement systems.	1993 , GMS components being rewritten on Oracle software.	1996 , the system is still in production. The system is not generally reliable or complete, yet continues to be a major source (20% of requests) of information for the public.
Compliance and Enforcement Tracking System (COMET)			
This application handles common components of compliance and enforcement activity. Specific program components are required.			
Late 1980s , Compliance Assurance tracking System (CATS) a predecessor of COMET was created for the Wastewater Facilities program. CATS became insufficient for program needs.	1991 , CATS was replaced by the Compliance and Enforcement Tracking System (CETS). CETS has numerous problems and is replaced by COMET.	1993 , COMET goes into production, yet information from CETS not transported into COMET due to unreliability.	1996 , AIR and Hazardous Waste are the only programs which are functional through COMET. All other major programs (with the exception of Environmental Resource Permitting) have not defined their specific program components. Estimated integration of most programs into COMET is the year 2000 .
Permit Application (PA)			
Tracks the status of permits being processed by DEP.			
1987 consultant study estimates new system should take 21 months to complete.	1989 , redesign efforts begin.	April 1994 , scheduled for production. PA system actually goes into production September 1995 .	1996 , AIR and Water Facilities are the only programs which currently have specified their permitting components; all other major programs are not integrated. Estimated integration of most programs into PA is the year 2000 .
Wastewater Facility Regulation (WAFR)			
WAFR implements the requirements for National Pollution Discharge Elimination System delegation while also serving the compliance and enforcement tracking needs of Industrial and Domestic Waste.			
WAFR preceded by CATS and CETS in late 1980s and early 1990s , both are out of production.	1993 , design begins with early 1995 implementation schedule.	1994 , agency indicates WAFR progressing toward the scheduled production date of early 1995 .	In 1996 , only one of four modules have been completed. The remaining modules are not scheduled to go into production until December 1996 .

The Solid Waste Program is responsible for establishing landfill regulations and ensuring that these standards are met. The Program is also responsible for grant administration, waste tires, compost, ash, waste-to-energy plants, construction and demolition landfills, and cost accounting. Program compliance and enforcement information, such as permit compliance rates, ground water contamination rates, and the types and severity of violations, is essential for determining whether these regulatory responsibilities are met.

Difficulties in Collecting Needed Data. Solid Waste Program managers do not aggregate or report on the statewide conditions and trends among regulated solid waste facilities. Compensating for the lack of aggregate data requires extensive and time consuming contact with district offices. Basic information on ground water contamination, enforcement activities, and severity of violations must be obtained from district staff. For example, the Office of General Counsel provided OPPAGA with a list of all solid waste enforcement cases (462), but could not identify which cases involved landfill violations. To obtain landfill violation information, central office staff contacted the district offices to identify landfill cases. To obtain enforcement information on the 59 cases in our sample, we had to rely on information provided by district staff. This was a time-consuming process that involved contacting each district several times. This type of labor intensive data collection is exactly what a computerized information system is designed to avoid.

The difficulties that result from lack of aggregate, reliable data affect more than the data gathering efficiency. Staff are not systematically informed of the extent and severity of important conditions relating to landfill operations. This type of information is collected only as a result of specific problems or inquiries. For example, central office staff were unaware of the number of landfills with groundwater contamination. While the information can be gathered through inquiries at the district level, the districts do not as a practice aggregate this information. District staff collect such data by reviewing individual cases. Consequently, neither central office nor district staff focus on overall effects.

Conclusions and Recommendations

Considering DEP's past expenditures and legislative mandates concerning performance-based budgeting, the Department's information systems should be able to assess program effectiveness and address questions concerning whether it is meeting its mission. The Department cannot afford continued delays in its key information systems implementation.

We recommend that the Department focus funding on priority information systems which include the permitting, compliance, and enforcement systems. It is important that DEP successfully complete systems development and demonstrate that these information systems effectively accomplish their purpose of providing needed management information.

We also recommend that the Department develop an implementation schedule that establishes the order of priority for information systems completion. The implementation schedule should include:

- Provisions for division, bureau and district management and staff accountability that tie employee evaluations to their responsibilities and performance;
- Agency and programwide data entry accuracy standards and controls;
- Specifications for the historical data that should be integrated from older systems into newer systems; and
- Costs and performance measures for systems development and program performance.

Agency Response

The Department acknowledges the information systems limitations identified in this report and has identified steps it is taking to address them. A copy of the Department's response is on file and can be obtained by contacting OPPAGA.

This project was conducted in accordance with applicable evaluation standards. Copies of this report may be obtained by telephone (904/488-1023 or 800/531-2477), by FAX (904/487-3804), in person (Claude Pepper Building, Room 312, 111 W. Madison St.), or by mail (OPPAGA Report Production, P.O. Box 1735, Tallahassee, FL 32302).

Web site: <http://www.state.fl.us/oppaga/>

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