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Problems In Developing The Corps Of Engineers' Automated Management Information System B-163074

Department of the Army 306

UNITED STATES
GENERAL ACCOUNTING OFFICE

APRIL 21, 1971

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UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

DEFENSE DIVISION

B-163074

Dear Mr. Secretary:

This is our report on problems in developing the Corps of Engineers' automated management information system.

We believe that our review revealed the need for emphasis on factors governing the responsiveness of a proposed system to the needs of the organization for a reasonably long period of time. Such emphasis could be achieved by requiring that this matter be included in the formal studies prescribed for completion before substantial investments in equipment for the system are authorized.

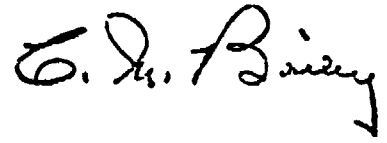
We recommend, therefore, that the existing directives be revised to include guidance to the proponents of major new automatic data processing systems concerning the need for documented studies of the factors affecting the long-range usefulness of the system.

We are encouraged by the attention being given by the Department to resolving the problems involved in giving appropriate consideration to the residual values of dissimilar equipment proposed for automatic data processing systems. We recommend that the Department, in connection with its study of the use of residual values--or a comparable alternative--obtain and consider the views of the computer industry with the objective of developing guidance in this complex area.

Your attention is invited to section 236 of the Legislative Reorganization Act of 1970 which requires that you submit written statements of the action taken with respect to the above recommendations. The statements are to be sent to the House and Senate Committees on Government Operations not later than 60 days after the date of this report and to the House and Senate Committees on Appropriations in connection with the first request for appropriations submitted by your agency more than 60 days after the date of this report.

Copies of this report are being sent to the Director, Office of Management and Budget; the Secretary of the Army; and the Administrator, General Services Administration.

Sincerely yours,



Director, Defense Division

The Honorable
The Secretary of Defense

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APPENDIX

ABBREVIATIONS

ADP	automatic data processing
DOD	Department of Defense
EIDS	Engineer Information and Data System
GAO	General Accounting Office
P-BAMS	Programming, budgeting, accounting, and management system

GENERAL ACCOUNTING OFFICE
REPORT TO THE SECRETARY OF DEFENSE

PROBLEMS IN DEVELOPING THE CORPS OF ENGINEERS' AUTOMATED MANAGEMENT INFORMATION SYSTEM
Department of the Army B-163074

D I G E S T

WHY THE REVIEW WAS MADE

Prior work by the General Accounting Office (GAO) showed that the Corps of Engineers was planning to create a Corps-wide computerized data system covering technical and business applications. GAO wanted to know whether the methods used in developing the system and the guidance furnished by the Army and the Office of the Secretary of Defense would result in a system that would be initially responsive to the needs of the organization and that would remain so for the foreseeable future.

FINDINGS AND CONCLUSIONS

Before 1965, Corps divisions and districts could individually develop their own automatic data processing (ADP) systems and applications. Those individual efforts were then supplanted by a long-range plan covering the development of a Corps-wide system during the period November 1965 through June 1970. During GAO's review the Corps estimated that work under the long-range plan would be substantially completed by June 1974, about 4 years later than originally estimated. (See p. 10.)

The Corps' efforts were started before it completed research into the factors affecting the long-range usefulness of the system. The Corps did not start the research studies until 1968, about 2 years after it had started system development. The studies disclosed problems in organization, operating procedures, and policies that could affect system needs. Directives by the Office of Management and Budget and by the Army require evaluation of such factors; however, Department of Defense guidelines are silent on the matter.

The Corps decided not to continue the systematic research envisioned by the studies. GAO found that the data needed to make informed judgments about the specific problems or changes needed to overcome them was not obtained on a systematic basis. At the time of the GAO review, the system impact of the identified problems had not been assessed.

GAO believed that the project needed to be reevaluated to reduce the risk of implementing a system that would have to be continually modified. (See pp. 12 to 22.)

The Army purchased ADP equipment and services valued at about $3 million and in a later procurement obtained an option to buy additional, similar equipment costing about $7.6 million. The mathematical formula used by the Army in the later procurement to make a comparative rating of vendors' equipment had been superseded about 3 months earlier by a revised formula in the agency's standard operating procedures. Use of the new formula might have resulted in another vendor's receiving a higher rating than that of the one selected. (See p. 28.)

Further, GAO noted that existing Government regulations did not require Government agencies, in determining which vendor had offered the best buy, to give weight to residual value--a quantitative measure of the continued usefulness of equipment for other applications when it is no longer needed for its original purpose. In this case some of the equipment offered by the low bidder had been previously used, had been out of production for several years, and currently is considered obsolete by some consultants. The losing bidders proposed to furnish new equipment. (See pp. 30 to 33.)

RECOMMENDATIONS OR SUGGESTIONS

Considering the lack of a demonstration that the system would serve its purpose adequately for an extended period and considering the failure to follow certain prescribed policies in acquiring equipment for a prototype installation, GAO suggested that the Department of Defense reappraise the project before further equipment was purchased.

AGENCY ACTIONS AND UNRESOLVED ISSUES

In response the Department of Defense advised GAO that:

--Its review of the long-range plan of the Corps of Engineers had confirmed the need for documented studies.

--The Assistant Secretary of the Army (Financial Management) had been advised that the studies would have to be completed before extension of the prototype system.

--A task group had been established to develop and recommend an economically sound and relatively simple technique for evaluating differences in residual values when dissimilar ADP equipment is offered.

--The Army had amended its procedures to require that in the future all deviations from prescribed procedures would be documented, reviewed by appropriate offices, and entered into the official record. (See app. I, p. 39.)

The General Services Administration (GSA) which has certain responsibilities for the acquisition and management of computers in the Federal Government advised GAO that it agreed that long-range system studies, rather than short-range expediency, should form the basis for the acquisition of ADP equipment. (See app. III, p. 44.)

The Office of Management and Budget which has responsibility for establishing Government-wide ADP policy stated that residual values should be a factor in future management decisions relating to the acquisition of ADP equipment and offered a number of reasons why current regulations did not require consideration of residual values in the procurement of dissimilar equipment. The Office further stated that it was hopeful that the special studies being made on residual values would prove to be useful. (See pp. 41 to 43.)

GAO is recommending that the Secretary of Defense

--revise existing directives to include guidance to the proponents of major new ADP systems concerning the need for documented studies of the factors affecting the long-range usefulness of the system and

--obtain and consider the views of the computer industry and coordinate the Department's efforts with the Office of Management and Budget before concluding the study of residual values or a comparable alternative.

CHAPTER 1

DELAY IN DEVELOPING PLANNED SYSTEM

The Committee on Appropriations, House of Representatives, in its report on the Department of Defense (DOD) appropriation for 1969, expressed concern over the DOD plans to spend substantial amounts on new computerized management systems. As part of its continuing interest in the development of such systems by Federal agencies, the General Accounting Office (GAO) initiated a review of the activities of the Army Corps of Engineers in developing a Corps-wide integrated automatic data processing (ADP) system. During our review we were concerned primarily with basic management policies and procedures which are generally applicable to the development of major ADP systems. The scope of our review is detailed on page 35.

FUNCTIONS AND ORGANIZATION

The Corps, in discharging its extensive responsibilities, spends about $2.3 billion annually, uses 1,500 military personnel, and employs 46,500 civilians. Its funds are obtained from 22 different sources, each of which has specific requirements for the manner in which the Corps should account for and report on its expenditures. The Office of the Chief of Engineers is responsible for overall direction of the Corps' activities and is assisted by 18 commissions, boards, advisory groups, and various administrative offices. The Corps is organized into four directorates, 13 divisions, and 10 operating activities. Since the Corps operates under decentralized management concepts, the divisions and operating activities have considerable latitude in making decisions in their area of responsibility.

The four directorates are responsible for policy, planning, and technical liaison activities, as follows:

Civil Works Directorate--Carries out projects directly authorized by the Congress for rivers, harbors, canals, and waterways; coordinates activities with State and local Governments.

Military Construction Directorate-- Carries out projects for DOD requiring services in the areas of designing, contracting, supervising, and inspecting construction. These activities are conducted with funds provided by the appropriations of sponsoring agencies.

Real Estate Directorate--Acquires, manages, and disposes of all Army real estate and provides similar services to the Air Force and other agencies.

Military Engineering Directorate--Performs training, mobilization logistics, and operational planning and development for engineer elements of Army forces.

The Civil Works Directorate is responsible to the Congress through the Secretary of the Army. The other directorates are responsible to the Secretary of Defense through the various Army command levels.

The actual work of the Corps is performed by the 13 divisions and the 10 operating activities. The efforts of each of the 10 operating activities are basically oriented toward a specific function, such as topographic services and ballistic missile site construction; but within these functional areas the activities have semiautonomous responsibilities. The 13 divisions, including three which are outside the continental United States, are semiautonomous supervisory offices that have broad responsibilities within a specified geographical area. They direct the work of 40 subordinate district offices which are primarily responsible for the design and construction of civil and military facilities.[1]

Specifically, the districts prepare engineering studies; develop the design for facilities; construct military-civil works and other facilities; operate and maintain flood control, river and harbor facilities, and related installations;

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[1]Military construction is assigned to most, but not all, continental United States engineer divisions and districts.

acquire, manage, and dispose of real estate; award and administer contracts for construction activities; and perform other functions as assigned.

The organizational pattern of the divisions or districts provides groups of technical personnel for civil works, military construction, real estate, or military engineering, as appropriate, and an advisory and administrative staff consisting of such support service groups as legal counsel, personnel, data processing, accounting, and others.

NATURE OF SYSTEM DEVELOPMENT PROBLEMS

Prior to 1965 the divisions and districts developed their own ADP systems and acquired equipment when they could attribute significant monetary savings to its use. The equipment was used primarily by engineering personnel to solve technical and scientific problems. The use of ADP equipment became widespread in the engineering area, but at that time the Corps did not centrally develop computer applications for Corps-wide use because of the wide variation in equipment among the various districts and of their differing missions, sizes, workloads, and types of projects being designed and constructed.

Over the years the use of ADP for nontechnical applications increased materially. The principal nontechnical ADP applications are found in the areas of civil works, military construction, real estate, personnel, civilian payroll, procurement, finance, cost accounting, property management, and planning and budgeting. The Corps estimates that technical applications now account for about half of its total ADP requirements.

By 1965 the divisions and districts had dissimilar experiences in designing and installing ADP equipment and systems. Some installations were preparing to install very sophisticated equipment and systems; some were oriented toward solving technical problems and had not acquired much experience in nonengineering applications; and some had not acquired any ADP equipment. All the early ADP applications were developed independently to meet the requirements of the individual divisions and districts and were not

standardized either Corps-wide or divisionwide. Consequently, a conglomerate of methods or systems was created or adopted, which varied in detail, structure, scope, degree of computerization, and methods used to accumulate and record data.

Studies completed in 1965 indicated that the districts, rather than the Office of the Chief of Engineers, had taken the lead in planning, acquiring, and implementing systems because the Corps did not have a long-range plan for systems development. The independent approach to systems development fostered a number of problems, such as:

--Computers were used by divisions for individual business reports, and integrated applications had not been developed.

--Project reports were furnished to all organizational levels and generally provided each level with the same amount of detail. The reports were not designed for use on a management-by-exception basis.

Further, the studies indicated that the design of the systems was such that technical personnel at the district level could not obtain adequate and timely data and therefore were maintaining their own cost records independent of the formally authorized accounting records.

The Corps' problems with its cost and financial systems were described by one of its officials, as follows:

"These cost and finance accounting systems generate data for numerous recurring and one-time reports. The total volume of data contained in those reports each year is huge. In FY 64 a single Engineer District *** produced 3,774 pages of required reports, and OCE [Office of the Chief of Engineers] compiled from field feeder reports some 7,264 pages of summary reports. Despite this large volume of data, much of which has not been useful to management, there is indication that management is not being furnished with the information it does need to insure proper direction and supervision of the several programs assigned.

> Therefore, there is a need at this time of utmost importance to revise these systems so that they will produce the data management needs and to eliminate, insofar as it is within the authority of the Chief of Engineers to do so, all data that is not now, or likely to be in the future, of value to Management levels in the Corps."

To solve these ADP problems, the Office of the Chief of Engineers decided in late 1965 to develop an Engineer Information and Data System (EIDS). This system was to encompass the data requirements of the Office of the Chief of Engineers and of the divisions and districts for all technical, business, and management applications. This workload was to be processed by nine regional data processing centers,[1] each consisting of a large central processing unit located in the division office and of smaller computers located in each of the district offices. The regional centers were to be interlinked to a central hub in the Washington, D.C., area which also would serve the needs of the Office of the Chief of Engineers.

LONG-RANGE PLAN FOR SYSTEMS DEVELOPMENT

During November 1965 the Office of the Chief of Engineers prepared a long-range plan to serve as the basic guide through June 1970 for all actions necessary to develop EIDS. The long-range plan was conceptual in nature and did not include dates for all the detailed actions necessary for EIDS development. The long-range plan consisted of five parts which are summarized below.

> Part I--Create at each district the capability to develop computerized systems to replace and streamline existing manual and semiautomated systems and to operate in-house computers where economically justified.

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[1]The regional centers will serve 10 divisions located within the continental United States. One division, however, does not have any districts; therefore it will be served by a central processor located in an adjacent division.

Part II--Select a pilot division where a standardized system for programming, budgeting, accounting, and management (P-BAMS) will be designed, programmed on a regionally centralized computer, and debugged by June 30, 1967. This will then be standardized Corps-wide and installed in all other divisions on an incremental basis. Concurrently with the design and installation of P-BAMS, determine requirements for a personnel management data system and for the Engineer Command and Control System and develop a centrally designed standardized system for each and implement them at the division.

Part III--Standardize technical engineering applications and program these applications into a centralized computer with on-line communications from each district. Standardize in a pilot division and upon completion initiate in other divisions insofar as practicable. Develop on an individual-division basis additional technical engineering and operations systems peculiar to the specialized workload of the divisions concerned.

Part IV--Purchase computer components needed by each division. Utilize the pilot division's experience with the fully standardized system specifications which can be made applicable Corps-wide. Upon completion of part III in the pilot division, install identical equipment on an incremental basis in each division.

Part V--Beginning in March 1968, release leased equipment at division and district level upon conclusion of systems testing and paralleled operation of the old and new system. This part also encompasses the communications tie-in between each division and the central hub of EIDS in the Greater Washington area.

COMPARISON OF ACTUAL PROGRESS WITH FORECAST

Since the Corps original long-range plan did not list or include completion dates for all the steps necessary to develop EIDS, we could not make a direct comparison between

actual system progress and forecast progress by individual development steps. Enough information is available, however, to show that the project is significantly behind schedule. For example, the Corps' original long-range plan stated that P-BAMS would be installed and debugged by June 30, 1967, and that the entire project would be completed by June 1970. The Corps established the prototype regional computer center on March 1, 1970, or about 3 years later than originally estimated. The center began operations with existing local systems since Corps-wide standardized systems had not been developed.

Some of the significant development steps and their scheduled completion dates as of the time of our review follow.

Development steps	Completion date
Formulate system goals	Mar. 1970
Determine management information requirements	Oct. 1970
Design functional systems using existing designs as bases	Mar. 1971
Develop data bases	May 1971
Develop coding structures for inputting data	Oct. 1971
Implement management information system	Apr. 1972
Refine forecasting and simulation techniques	June 1973
Install all equipment	June 1974

The Corps estimated that the project would be completed by the end of fiscal year 1974, about 4 years later than originally scheduled.

Subsequent to the completion of our fieldwork, the Corps developed a revised plan for completing this undertaking. Under this plan, which was approved by the Army in October 1970, an information system will be developed within each of the major functional areas constituting the primary operations of the Corps. The six areas covered by this plan are comptroller, personnel, real estate, civil works, engineering, and military construction. The Corps

has completed development of a prototype finance and accounting subsystem for the comptroller area and expects to start implementing this module of the overall system by February 1971. Modules for other areas will be developed, tested, and implemented on a phased basis with the expectation that the overall system will be completed by December 1975.

CHAPTER 2

SYSTEM DEVELOPMENT STARTED BEFORE RESEARCH COMPLETED

One of the basic factors governing whether systems remain responsive to the needs of an organization for a reasonable period of time is the organization's stability in missions, goals, objectives, policies, organizational patterns, operating procedures, problem mixes, and workloads. Because these elements determine the nature and timing of management's information needs, it is desirable for organizations to study these elements and to institute any desired changes in advance of development of large-scale information systems. Defense agencies are required to do this by a number of Government regulations.

We found that the Corps had not conducted such studies before initiating EIDS development but instead had relied on studies made for other purposes; e.g., for obtaining ADP equipment for one of the divisions and for revising some of the Corps' accounting practices. After the EIDS project was begun, the Corps initiated the first phase of a broad management study and this disclosed widespread dissatisfaction with the existing mission statements, goals, objectives, policies, organizational patterns, and operating procedures. The Corps has since decided not to continue this effort, but action may be taken from time to time on the individual problems identified in the study.

We concluded that, if the Corps continued EIDS development in this environment, the Corps would risk either the continuation of these problems or the implementation of an information system that would have to be continually modified to accommodate changes in the nature and timing of management's information needs.

GOVERNMENT POLICY REQUIRES STUDIES

The Bureau of the Budget (now the Office of Management and Budget) issued instructions in 1960, 1961, and 1963, regarding the nature and scope of studies to be performed by agencies before initiating system development projects.

Guidelines issued on March 18, 1960, concerning the planning for and conduct of studies provided that:

1. Surveys be made from the point of view of determining the best method to accomplish the mission and to expedite the workload and not be mere computerizations of manual systems.

2. Surveys define the extent of the ADP problem, the expected economies and benefits, and the overall effect on personnel, procedures, and organization.

3. Surveys be authorized by officials with sufficient authority to effect organizational and procedural adjustments.

In transmitting these guidelines to executive agencies, the Director, Bureau of the Budget, stated that a thorough analytical study should be conducted before decisions were made on the economic and operational feasibility of any ADP application.

Bureau of the Budget Circular No. A-54, issued on October 14, 1961, states that decisions to use ADP equipment must be preceded by and based upon the results of well-documented studies which provide an adequate factual basis for concluding that (1) functions or processes for which the ADP equipment can be used are essential to perform and (2) the systems, procedures, and methods to be employed in performing these functions or processes have been designed to achieve the highest practical degree of effectiveness with optimum efficiency and operational economy.

The Bureau of the Budget provided further guidance in August 1963 when it issued Circular No. A-61 describing how agencies could effectively review their ADP programs. This circular stated that decisions to use ADP equipment should be based upon a documented system study in which functions were critically examined to establish that they were responsive to current or projected needs. The circular stated also that the study should compare the benefits and costs of the proposed system with the advantages and costs of the existing system and should explain how the proposed system

would contribute to the more effective accomplishment of program objectives.

DOD Instruction 7041.3, "Economic Analysis of DOD Investments," covers the latter requirement, but DOD directives do not specifically cover the requirement that systems be responsive to projected needs. The Department of the Army, however, has issued regulations incorporating the essence of the guidelines issued by the Bureau of the Budget and prescribing the procedures to be followed in obtaining approval from Headquarters, Department of the Army, for developing automated information and data systems. These procedures provide that analyses be made of the missions of the activity. The Army regulation states that:

> "Analysis should be made from the point of view of determining the best method to accomplish the mission and to expedite processing of the workload, and not of merely substituting an electronic computer for current methods. In examining these methods, it must not be assumed that every operation being performed is essential to the overall mission of the organization, to a segment of the organization, or that the operation is authorized. *** Conversely, consideration should also be given to the addition of a process not now being performed but which should be performed, and the establishment of essential records and reports not heretofore maintained."

DEVELOPMENT STARTED WITHOUT ADEQUATE RESEARCH

The development plan for the EIDS project was based primarily on two studies completed by the Corps' contractors in 1965. The first study was performed by Arthur D. Little, Inc., for one of the Corps' divisions and was limited in scope to the activities of that division. A second study, performed by Arthur Young & Company for the Office of the Chief of Engineers, was directed primarily toward an evaluation of the financial management system. These contractors recommended that the Corps establish regional computer centers and an integrated P-BAMS.

The scope of the work performed by these contractors under the Corps' study contracts did not include an overall reassessment of the Corps' missions, goals, objectives, policies, or organizational patterns. Furthermore, the studies did not cover other aspects of EIDS, including the personnel management system and the Corps' command and control system.

The Corps did not supplement these studies by researching other specific planning elements. For example, the Corps' plan was assembled without prior determinations of (1) whether management information requirements were consistent with future organizational objectives, (2) how quickly various personnel needed to be furnished with various kinds of information, or (3) which organizations should be responsible for developing each major subsystem (P-BAMS, command and control, engineering and technical, and personnel). In addition, the Corps did not identify and describe all the major development tasks or their sequence, timing, or interrelationships.

RESEARCH DISCLOSED NUMEROUS PROBLEMS

Our review showed that in April 1968 the Chief of Engineers authorized the Engineer Strategic Studies Group to perform a management analysis of the Corps of Engineers. The purpose of this undertaking, known as the MACE study, was to identify, analyze, and solve problems in current operations and management systems in the Office of the Chief of Engineers and in the division and district offices. Project justification documents state that previous Corps studies have been limited in breadth either to single major organizational areas, such as civil works, or to specific resources and functions that affect all organizational elements and that the current project would be the first comprehensive analysis of the Corps on a total-entity basis.

The first phase of this study, completed in November 1968, was an overview of operations throughout the Corps to identify, for further investigation, specific problems that were impeding resource use and mission accomplishment. In the course of this work, 110 separate dissatisfactions and problems were compiled.

The following examples show dissatisfactions which could have a significant impact on the EIDS project.

1. Civil works

   a. The basic civil works and field organization structures need evaluation in terms of (1) today's communications and transportation, (2) necessity for present levels of organization and assignments of functions, and (3) delegation of authority.

   b. The research and development program in civil works lacks the necessary cohesive, coordinated, and responsive structure to relate the program to the Corps' needs.

2. Military construction

   a. The Corps lacks a formal Corps-wide policy to enable all its relevant experience to be brought to

bear in improving the design process. This lack causes individual districts to experience every pitfall for themselves.

b. A new architect-engineer design system should be developed because the present rigid method of design of standard construction makes no use of such creative concepts as functional multiuse buildings, design for maintainability, and reliability, or future technology.

c. Existing reporting systems do not permit management to forecast technological needs, to establish research strategy, or to evaluate research productivity.

We were told that the Corps had considered performing a second phase of this study either by Corps personnel or by contracting with management consulting firms. We were informed that the Corps' discussions with these firms centered around questions of the appropriateness of the Corps' organizational structure, procedures, and systems as they related to its anticipated future environment. We were advised that the Corps had decided not to continue the studies in detail, not to make decisions on proposed changes, and not to prepare implementation plans because the cost and personnel requirements were higher than the Corps was willing to devote to the project. Action may be taken from time to time, however, on the individual problems identified. At the time of our review, the Corps had not formally assessed the individual impact of these problems on EIDS.

Our review also revealed that the Chief of Engineers later restated the goals of the organization and directed, in April 1969, that plans be developed for attaining these new goals. The following examples illustrate some of the new goals established for Corps organizations.

1. Engineer Comptroller

Improving the evaluation of mission performance--Develop improved methods for informing the Chief of Engineers of the adequacy of the Corps' mission performance, including the selection of key

indicators and control factors for major activities that influence the effective accomplishment of the Corps' mission.

2. Military Engineering

Establish system for monitoring engineer requirements--Establish and operate a "closed loop" system for obtaining engineer requirements through technical channels from the field, for evaluating and forwarding these to the appropriate agency for action, for monitoring progress, and for reporting back to the field. This system would include engineer staff sections.

CONCLUSIONS

The success of a long-term undertaking--such as the EIDS project--depends upon the willingness and ability of an agency to apply, to project development, management criteria which are compatible with the long-term character of the project. Thus long-range solutions should be sought for all aspects of a project and the quick solution offered by expediency should be avoided.

We believe that the Corps and the Army should have put greater emphasis, at the start of this effort, on long-range solutions for the EIDS project. The Corps did not perform sufficient research, in our opinion, to adequately plan development of EIDS. Subsequent research indicates that a number of aspects of the Corps' activities may be in need of internal readjustment. The Corps must now decide whether it should define and incorporate needed readjustments into its overall management system before proceeding further or should risk continuation of potential problems for an indefinite future period. The latter is the vexatious condition that system research seeks to avoid.

In our opinion a function of system research is to permit managers to make timely and appropriate decisions on what changes should be incorporated into the new system under development and on what changes can reasonably be deferred to a later date. The alternative seems to be the investment of substantial funds to mechanize functions and procedures to serve goals and missions whose effectiveness has not been currently assessed.

Thus without systems research the agency has little assurance that the system under development corresponds to the needs of the organization or that it will be acceptable in the foreseeable future. In addition, large portions of the development effort may be wasted and completion of the project may be delayed significantly. In this case the lack of a demonstration of system durability, or long-range usefulness, and the agency's failure to follow prescribed policies in acquiring the equipment (see ch. 3) raise a reasonable doubt about expanding the EIDS prototype to other installations.

We believe that this case demonstrates a need for guidance concerning the durability of ADP systems. The development of new systems is too important and expensive to leave unanswered the question of whether the system proponent has conducted sufficient research into the factors affecting the long-range usefulness of the system. Existing DOD guidelines are silent on this aspect of research precedent to ADP systems design.

The Office of the Assistant Secretary of Defense (Comptroller) has responsibility for the review and approval of major new systems. It would seem appropriate for this Office to obtain from the system proponent, before authorizing a development project, a statement describing the scope and nature of the research performed, the problems existing, and the probable effect of these problems on the long-range usefulness of the system.

AGENCY COMMENTS AND ACTION TAKEN

A draft of this report was furnished to DOD. Drafts were also furnished to the Bureau of the Budget and the General Services Administration because these agencies are primarily responsible for ADP policy and procurement matters. The General Services Administration advised us that it concurred with our views that long-range system studies, rather than short-range expediency, should form the basis for the acquisition of ADP equipment (see app. III). We were advised informally that the Office of Management and Budget did not specifically comment on this matter because we were citing an illustration of noncompliance with an existing policy and were not recommending a change in policy.

The Office of the Assistant Secretary of Defense (Comptroller) advised us that, as a result of a number of changes that had occurred, it planned to review the Corps' entire long-range plan and that, at the conclusion of this review, DOD would be in a better position to comment on the Corps' future plans (see app. I).

That Office reviewed the Corps' long-range plan in June 1970 in accordance with the guidelines in its

instructions recently adopted to provide for better control over authorizations for new system development projects.[1] Under these guidelines, system proponents are required to demonstrate technical, operational, and economic feasibility at early stages of the project. The review disclosed that the Corps needed to improve and complete the documentation of the EIDS project in several significant areas, including economic analysis, justification of requirements, a plan for completion of all system modules, a study depicting system durability, and the approach being used to standardize engineering applications between and among engineer divisions.

The Assistant Secretary of Defense (Comptroller) informed the Assistant Secretary of the Army (Financial Management) that these actions were to be completed prior to any request for the extension of the EIDS prototype.

Although this action seems to provide assurance that the Corps' system will have to be responsive to the agency's future needs before additional equipment is acquired, we believe that consistent guidance should be furnished to all DOD agencies to prevent similar occurrences.

RECOMMENDATION

We recommend that the Secretary of Defense revise existing directives to include guidance to the proponents of major new ADP systems concerning the need for documented studies of the factors affecting the long-range usefulness of the system.

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[1] DOD Instruction 5010.27, "Management of Automated Data Systems Development," dated July 8, 1970.

CHAPTER 3

FACTORS NOT CONSIDERED IN ACQUIRING ADP EQUIPMENT

The long-term cost of owning general-purpose ADP equipment is influenced by the design of the system for which the equipment is acquired and by the capacity of the equipment to execute the functions prescribed by the system design. Both should be considered carefully before decisions are made on which equipment should be acquired to perform a particular task.

Defense policy since 1966 has required that new or replacement computers be obtained only after systems have been redesigned to make full use of the improved capabilities of later model equipment. The Corps, however, awarded a contract for EIDS equipment while the EIDS system was in the process of being designed and developed. The equipment was purchased under workload specifications prepared from obsolete local systems rather than under workload specifications for the standardized EIDS which was then under development. (See p. 25.)

In selecting the successful vendor, the Army used a mathematical formula for evaluating elements of the various proposals, such as price and performance. The formula used was in the Army's standard operating procedures in the early procurement stages but had since been replaced by an improved formula. Had the Army used the improved formula, a different vendor might have been assigned the highest overall score, which might have resulted in award of the contract to a different vendor. (See p. 28.)

Government regulations in effect from the time of this procurement to the present have not required, in the selection process, that consideration be given to differences in residual values--usefulness for other purposes when no longer needed for its original purpose--of dissimilar ADP equipment when determining which vendor has offered the best buy. The need for a Government policy on residual values for use in future procurements of computers is indicated by factors in this case; i.e., that some of the equipment offered by the low bidder had been previously used,

that it had been out of production for several years, that the equipment selected has since been classified as obsolete by consultants to the Blue Ribbon Defense Panel, and that there is a probability that large quantities of used equipment will be offered to the Government when the new equipment series recently announced by equipment manufacturers becomes generally available. (See pp. 30 to 33.)

STATUS OF EQUIPMENT CONTRACT

In June 1968 the Corps awarded a contract to the General Electric Company to purchase 11 GE 225 computers that the Corps had been leasing and to provide for other ADP services having a total value of about $3 million. Also, in May 1969 the General Electric Company was awarded a contract to provide the ADP equipment for EIDS. The equipment to be furnished included GE 425 computers for use by eight Corps divisions and GE 225 computers for use by 33 districts and one division. The equipment would be provided during fiscal years 1971-75 under options of the contract which, if exercised, permit the Corps to purchase or lease the ADP equipment. If the Corps elects to purchase all the equipment, the cost to the Government will be about $7.6 million. Maintenance and communication costs are estimated to total about $600,000 annually.

We were informed by the Corps that the ADP equipment for EIDS was installed in March 1970 at a prototype installation and that it would be leased by the Corps for about 1 year. The purpose of this prototype installation is to permit the Corps to test, study, and evaluate (1) the regional computer center concept, (2) P-BAMS when development work is finished on this portion of EIDS, and (3) standardization of technical applications. Upon successful completion of the prototype test, the Corps will extend P-BAMS to other divisions and districts and provide each with the same equipment.

The contract for EIDS equipment was awarded to the General Electric Company under negotiated contracting procedures after proposals had been obtained from four potential suppliers. In evaluating the prices quoted by the

four bidders, the Army calculated that the cost to the Government to acquire the equipment from the General Electric Company was about $1.4 million, or about 15 percent less than the cost to acquire equipment offered by any of the other vendors. This was primarily because some of the ADP equipment offered by the General Electric Company had been used previously whereas the other vendors offered new and more sophisticated machines belonging to a later equipment series. The GE 225 computer was manufactured during the period 1960-67. Under the request for proposals issued by the Army, used ADP equipment was acceptable and any of the vendors could have offered such equipment.

EQUIPMENT CONTRACTED FOR BEFORE SYSTEMS WERE DEVELOPED

On July 29, 1966, the Secretary of Defense issued a memorandum to the heads of all Defense components, stating that:

1. Defense agencies must insist on systems which satisfy the total management and operating requirements and which exploit the unique capabilities of the computer.

2. Defense agencies, prior to computer selection, must develop and issue system specifications which adequately describe the work to be performed and which will result in the selection of computers which can satisfy the requirements of that specification.

3. Defense agencies should not be forced to acquire additional units at later dates or to replace computers prematurely because the equipment was selected on the basis of inadequate system specifications.

4. Defense agencies must select and acquire new or replacement computers only after systems have been redesigned to make full use of the improved capabilities of later model hardware and then only when there are proven cost benefits. In these cases, systems redesign and programming should be accomplished prior to delivery of any equipment.

The Corps developed its equipment specification and contracted for the equipment on the basis of the engineering and business workloads experienced by the installation selected to serve as the prototype for the regional computer center and used the installation's local systems and nonstandardized procedures. The systems mentioned in the EIDS long-range plan had not been developed at the conclusion of our fieldwork, so their impact on the specification could not reasonably be estimated. Further, the computer programs for EIDS had not been prepared as of February 1970.

Contracting for equipment under these circumstances seems to preclude an optimum match of equipment to systems and workload and, in our opinion, is not consistent with the above-mentioned Defense policy.

Agency comments and our evaluation

The Assistant Secretary of Defense (Comptroller) furnished us with the reasons submitted by the Army for deviating from DOD's current prescribed procedures for selecting equipment. (See app. I.) The Army stated, in essence, that:

> The design of P-BAMS was being hampered by the fact that the equipment configuration could not be specified. Therefore the selection of hardware was begun in November 1967 on the basis of the old system modified by the P-BAMS concepts. This decision was concurred in by the responsible parties since the system described in the hardware specification equaled the computer workload that would be required by the new system.

We recognize that a necessary condition to system design is the determination in generic terms of an appropriate equipment configuration including the selection of input and output methods and such devices as punched cards, tapes, or visual displays. After the system proponent has reached a final decision on equipment configuration, the design of the system can be completed. The fact that the agency was required to determine the equipment configuration for design purposes does not, however, constitute justification for the agency to procure specific makes and models of equipment before it has complied with the policy guidance furnished by the Secretary of Defense.

We do not agree that the system described in the procurement specification was an accurate projection of future workload requirements. Prior to the issuance of the procurement specification, the Corps (1) had not completed system research and resolved basic questions concerning its future goals, policies, and procedures, (2) had not standardized and reevaluated engineering requirements, and (3) had not stated requirements for other portions of EIDS, including command, control, and personnel. There is a strong

probability that equipment acquired under such conditions will not provide an optimum match between the equipment and the workload.

PRESCRIBED FORMULA NOT USED IN EQUIPMENT SELECTION

The ADP equipment specification indicated that the Army's Computer Systems Support and Evaluation Command would develop an overall score for each of the proposed equipment configurations and would use this score in selecting the equipment. Personnel of the command have advised us that the vendor with the highest overall score ordinarily is selected.

The scoring procedure gave consideration to the different weights for such factors as cost, efficiency, and other considerations. The mathematical formula used in calculating the number of points given to vendors for the efficiency factor differed from the formula contained in the command's standard operating procedures manual in effect at that time, according to responsible personnel. The records that we examined did not reveal why the prescribed formula had not been used. We believe that, when agencies deviate from prescribed practices, a record should be prepared explaining why the prescribed procedure was not followed and indicating that the deviation occurred with the knowledge and approval of the managers of the agency.

In this case the formula actually used had been replaced about 3 months earlier by a new improved formula. Under the old formula a vendor could propose a longer workload processing time than the maximum allowed and still receive a larger number of points or could take less time than the maximum but not receive any additional points for proposing faster processing time. Thus the formula used did not measure efficiency in terms of a relationship between the maximum and minimum times required by various vendors' equipment to individually process the workload described in the specification.

Our calculations showed that, if the newly prescribed formula had been used, one or more of the other vendors might have received a sufficiently higher rating for the efficiency factor to have given it a higher overall score than that of the General Electric Company.

Agency comments and action taken

The Assistant Secretary of Defense (Comptroller) advised us that the Army had amended the standard operating procedures used by its computer selection office to require that all future deviations from prescribed procedures be documented, reviewed by appropriate functional offices prior to submission for approval, and entered into the official record of the solicitation and award.

The Assistant Secretary of Defense (Comptroller) advised us also that the Army had furnished the following explanation of why the prescribed formula had not been used in this case.

> "The currently prescribed formula for scoring ADPE efficiency was not used at the time of selection because this scoring procedure was developed after the Request For Proposal (RFP) in question had been issued to industry. This new procedure established a requirement for including certain parameters in RFPs for proper application of the scoring formula. The formula that was used in the evaluation of the Corps project was in accordance with prescribed procedures used at the time the RFP was issued to industry." (See app. I.)

According to Army records, the proposal request was issued to industry in January 1968 and the four competing vendors were resolicited by the Army on December 20, 1968, or 3 months after the date that the new scoring procedure was established. Thus, although the Assistant Secretary's explanation is technically correct, we believe that there was nothing to preclude use of the new procedure.

RESIDUAL VALUE OF ADP EQUIPMENT NOT RECOGNIZED

We noted during our review that the residual value of the respective equipment was not recognized or used during the selection process. Residual value, as used herein, is a quantitative measure of the continued usefulness of equipment for other applications when it is no longer needed for its original purpose.

As in the case of other durable goods, ADP equipment generally has a useful life that extends over a number of years. Frequently, this useful life is longer than the period that the equipment is needed for the purpose for which initially acquired. At the time of its replacement, the equipment may be transferred to another use within the Government, traded in for new equipment, or sold.

Since the residual value may be quite large, it seems reasonable that it should be given some recognition at the time that the equipment is purchased. It seems particularly relevant to take residual value into account when the cost of competing equipment is being evaluated and when certain of the equipment offered has a much greater usefulness for other applications--residual value--than that of competing equipment.

This circumstance applied in the case of the equipment acquired for EIDS. As mentioned above, the General Electric Company offered used equipment whereas the other bidders offered new and more sophisticated machines belonging to a later series. Government regulations do not require that consideration be given to residual value in evaluating the competing bids. Thus, in making the award to the General Electric Company without considering residual value, the Army was following its normal practice and existing policy directives of DOD and the Bureau of the Budget.

Subsequent to the completion of our fieldwork, on July 1, 1970, the Blue Ribbon Defense Panel issued its report to the President and the Secretary of Defense. During its consideration of ADP within DOD, the Blue Ribbon Defense Panel received an independent analysis prepared by

consultants and published portions of the consultant's report as appendix I to the Panel's report. According to this document, the consultants found that DOD had in its ADP inventory several machines which would be considered obsolete by most computer personnel. The General Electric Company GE 225 computer that the Corps contracted for was included in this category. In the judgment of the consultants, these machines were no longer capable of performing work efficiently. It should be noted that, in publishing the findings of these consultants, the Panel stated that it did not necessarily endorse each of the consultant's findings and recommendations.

Our studies indicate that ADP equipment does have a substantial residual value after 5 years and, in some cases, after 10 years or more. Further, the probable residual values differ greatly by type of machine, degree of sophistication, and manufacturer.

Although to date DOD generally has not sold equipment no longer needed for its original application, residual value should not necessarily be ignored indefinitely. When a DOD agency decides that it no longer needs a particular piece of ADP equipment, alternative uses can be sought if the equipment is not obsolete. The equipment may be put to another use within DOD or transferred through the General Services Administration to another agency. In the latter case the General Services Administration may lease the equipment, the lease charges being based on the fair market value of the equipment at the time that the lease is negotiated. This seems to confirm the existance of a residual value and its relevancy to ADP equipment selection. Further, even when alternative uses for equipment are found within DOD, it seems prudent that, in selecting the best alternative application, cost-versus-benefit studies should be made. If such studies are to be realistic, a residual value should be assigned to the equipment.

Also, it should be noted that DOD and Office of Management and Budget policy directives provide for considering residual value in cost-benefit studies to be used in determining the relative economy of purchasing or leasing ADP equipment.

Thus existing policy provides for considering the valu of ADP equipment in deciding whether to buy or lease the equipment and in the interagency transfer of ADP equipment. Computer manufacturers have recently announced new equipmen series, and, as this equipment becomes generally available, substantial quantities of used equipment will be available for reuse and resale. Consideration of residual values in future procurements could provide the Government with a sound basis for distinguishing between the economically bes buy and the low-price obsolete machine. In addition, the degree of assurance of continued spare parts and software support for the used equipment merits special consideration in this respect.

It therefore would seem desirable to consider residual value--or a comparably weighted alternative--in selecting from the equipment offered by competing suppliers that which would be the most advantageous to the Government.

Agency comments and our evaluation

The Assistant Secretary of Defense (Comptroller) advised us that DOD had established a task group with the objective of developing and recommending an economically sound and relatively simple technique for future use in evaluating differences in residual value when dissimilar ADP equipment is offered by manufacturers. The Assistant Secretary stated that the final report of the task group had not been completed but that we would be able to obtain a copy of the report upon its completion. (See app. I.)

The Office of Management and Budget advised us that residual values should be a factor to consider in future acquisition of ADP equipment. The Office stated that it had arranged to obtain data from special studies and other sources and was hopeful that this would prove to be useful. It offered a number of reasons why current regulations did not require the consideration of residual values. The Office stated, in essence that:

--Residual values were subject to change because of numerous factors, such as age, popularity, market conditions, and suppliers' status.

--Residual values could not be projected 4 to 6 years into the future with any degree of confidence since there was no broad base of industry experience to use in assessing these factors.

--Procurement decisions based on subjective judgment of the probable residual value of each offeror's equipment could result in protests by the losing vendor.

--Residual values may tend to establish a built-in competitive advantage in favor of the most popular manufacturer (see app. II).

The General Services Administration generally concurred with these views. (See app. III.)

The concerns expressed by these agencies center around two things. First, there is a difficulty in obtaining a relatively sound set of values corresponding to the amount to be realized at some distant time from the sale of a piece of used ADP equipment. Since the equipment is not generally resold by the Government, we believe that this problem is secondary to estimating the value of the equipment to a second user at the end of the period or at the conclusion of the function for which the equipment was originally acquired. We have been advised that the approach being followed by the DOD task group is in the direction of a sound technique to satisfy the latter purpose.

Second, equipment manufacturers could be expected to protest if the residual-value technique implemented by the Government provided a built-in unfair advantage to a particular equipment vendor. We recognize that this possibility exists and believe that due care should be exercised in designing and implementing any technique for Government use. We believe that, prior to the implementation of any technique developed by the Government, industry members should be requested to present their views on the technique under consideration.

Recommendation

We recommend that DOD obtain and consider the views of the computer industry and coordinate the Department's

efforts with the Office of Management and Budget before concluding the study of residual values or a comparable alternative.

CHAPTER 4

SCOPE OF REVIEW

We reviewed efforts by the Office of the Chief of Engineers to develop EIDS in relation to system development concepts, policies, principles, and procedures contained in DOD directives and memoranda, Department of the Army regulations, and Bureau of the Budget circulars and bulletins.

Specifically, we reviewed study reports prepared by Arthur D. Little, Inc., Arthur Young & Company, and other study groups; the documents used in obtaining Department of the Army approval of the EIDS project; the Corps' long-range plan; equipment specifications, proposals, and contracts; and related memoranda and correspondence. Also, we discussed the development of EIDS with management officials of DOD, the Department of the Army, the Office of the Chief of Engineers, divisions of the Corps, and various ADP equipment suppliers. We did not make a detailed review of the subsystems being designed for EIDS.

During our review, which was performed during the period May 1968 through February 1970, we visited the following locations.

Department of the Army:
- Management Information Systems Directorate, Washington, D.C.
- U.S. Army Computer Systems Support and Evaluation Command, Washington, D.C.

Corps of Engineers:
- Office of the Chief of Engineers, Washington, D.C.
- Division offices located in Dallas, Texas; New York, N.Y.; Cincinnati, Ohio; and San Francisco, California

APPENDIXES

ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

COMPTROLLER

10 JUN 1970

Mr. C. M. Bailey
Director, Defense Division
U. S. General Accounting Office

Dear Mr. Bailey:

This letter responds to your request for comments on the draft report reviewing the efforts of the Army Corps of Engineers to develop an integrated information and data system (OSD Case #3101). This office appreciates both the extensive review made by your office and the recommendations made as a result of that review.

Currently, a number of changes have occurred which may have altered the situation described within the report. As a result of these changes, my office plans to review the entire Corps of Engineers Long Range Plan in mid-June. At the conclusion of this review we should be in a position to comment more fully on the status and future computing plans for the Corps of Engineers.

The enclosure provides the reasons submitted by the Army for deviating from the currently prescribed procedures for selecting Automatic Data Processing Equipment (ADPE). The Army has advised this office that the selection office amended its standard operating procedures to require that all future deviations from prescribed procedures are documented, reviewed by the appropriate functional offices prior to submission for approval, and entered into the official record.

This office agrees with your recommendation that the ADPE selection procedures be expanded to include a technique for evaluating differences in residual value where dissimilar ADPE is offered by manufacturers. To this end, a task group was established on February 13, 1970, under the guidance of the Department of Defense ADP Policy Committee. While the final report of the task group has not been completed, its objectives are to develop and recommend a technique which is both economically sound and relatively simple to apply. Members of your office have been contacted to discuss this issue. Should you desire, a copy of the final report can be made available at completion.

Sincerely,

Enclosure

Dan K. Brazier
Deputy
For and in the absence of
Assistant Secretary of Defense (Comptroller)

Enclosure

In an effort to save approximately 2 years' time and stay on schedule with the Corps of Engineers Long Range Plan, the Army selected equipment for a prototype installation prior to completion of redesign of the ADP system. A contract with Arthur Young and Company to redesign the existing Corps of Engineers Accounting System into a Program-Budget Accounting Management System (P-BAMS) was let in July 1966 and was expected to produce a completely redesigned system by March 1968. By mid-1967 slippage in this contract effort made it obvious that redesign of the system would not be completed on schedule. At this time a situation existed whereby design of P-BAMS was being hampered by the fact that the ADPE configuration could not be specified, and computer procurement was being delayed by lack of a redesigned ADP system. Therefore, selection of hardware was begun in November 1967 based on existing accounting systems modified by the PBAMS concepts which had been developed up to that time. The Department of Army Management Information Systems Directorate, the Corps of Engineers and the systems contractor concurred in the decision to proceed with hardware selection on the basis that the system described in the ADPE specifications equaled the computer workload that would be required by the redesigned system.

The currently prescribed formula for scoring ADPE efficiency was not used at the time of selection because this scoring procedure was developed after the Request For Proposal (RFP) in question had been issued to industry. This new procedure established a requirement for including certain parameters in RFPs for proper application of the scoring formula. The formula that was used in the evaluation of the Corps project was in accordance with prescribed procedures used at the time the RFP was issued to industry.

EXECUTIVE OFFICE OF THE PRESIDENT

BUREAU OF THE BUDGET
WASHINGTON, D.C. 20503

MAY 28 1970

Mr. A. T. Samuelson
Director, Civil Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Samuelson:

On March 26 you invited comments on a draft report entitled "Review of efforts by the Corps of Engineers to develop an integrated information and data system." Included in the draft report is a recommendation that policies on the selection of computers should be modified to provide for the consideration of residual values.

The objective of your recommendation is to assure the selection of the lowest cost alternative by considering the estimated value of the equipment at the end of the period of use as well as the initial procurement cost. This is consistent with the general policy in Bureau of the Budget Circular No. A-54 which states that selections will be based on equipment capability and lowest overall cost. However, we have not, in this policy, specifically identified residual values as one of the factors to be considered in determining the lowest overall cost. We foresee a number of perplexing problems if we were to do so.

As pointed out in your report, residual values can differ greatly among equipment models. They are affected by age, popularity, actual and potential technological obsolescence, market conditions, and even by the competitive and financial status of the supplier. For these reasons, we have resisted the use of an arbitrary formula as a uniform mechanism for computing residual values on different models. Further, there is no broad base of industry experience or generally accepted guidelines which enable us to assess all of these factors and project an estimated residual value for a given model four to six years into the future with any degree of confidence that the estimate would hold up. Without such experience and industry guidelines to support our estimates, procurement decisions that reflected an independent, subjective judgment on the probable residual value of each offeror's equipment could become the target of continuing protests by the losing vendors that would be difficult to resolve.

Also, in forecasting such residual values, it is probable that relatively higher values would be assigned to computers with the greatest degree of popularity, in the same vein that the more popular automobiles usually command higher trade-in allowances. This would tend to establish a built-in competitive advantage in favor of the most popular manufacturer in each instance, and would perpetuate his predominance to the detriment of others. Under existing circumstances we do not believe this to be in the best longer-range interests of the Government or the computer industry.

Your report notes that the Government has already recognized the relevancy of residual values to proper management of computer equipment in (a) the General Service Administration's practice of placing a fair market value on excess equipment that is transferred from one agency to another, and (b) purchase versus lease decisions under Circular A-54. With regard to fair market values, these are, of course, determined by the General Services Administration on the basis of current conditions and a known market, and do not involve the more difficult judgment of estimating future values. With regard to purchase versus lease decisions, you are aware that, for the reasons stated above, we have not yet found it feasible to establish definitive guidelines for estimating residual values and implementing the policy on a uniform and consistent basis.

We are hopeful that it will become possible to establish acceptable means for projecting residual values because, as you point out, they should be a factor in management decisions. The experiences of leasing companies, who have thus far generally limited their activities to relatively low-risk situations, the emergence of a used equipment marketing industry, the experiences in the excess redistribution program, and the results of special studies being made on this problem may prove useful in this regard. Further, current efforts to move toward competitive procurement based on a supplier's offer of a firm price over the anticipated life of the system may provide the opportunity for including consideration of the supplier's own assessment of a residual value in that price.

We appreciate th opportunity to comment upon this matter.

Sincerely,

James R. Schlesinger

James R. Schlesinger
Acting Director

UNITED STATES OF AMERICA
GENERAL SERVICES ADMINISTRATION
WASHINGTON, D.C. 20405

JUN 9 1970

Honorable Elmer B. Staats
Comptroller General of the
United States
General Accounting Office
Washington, DC 20548

Dear Mr. Staats:

This is in reply to your letter of March 27, 1970, which asks us for comments on your draft report relating to the efforts of the Army Corps of Engineers to develop an integrated information and data system.

We have read your draft report with great interest. We are, of course, in no position to comment on the factual findings. However, we have set forth in the enclosure to this letter our observations which relate to the policies against which your factual findings have been measured.

We hope that our comments will be of assistance to you. If you have any questions in respect to our comments, please do not hesitate to contact us.

Sincerely,

Robert L. Kunzig
Administrator

Enclosure

Comments Relating to the General Accounting Office's Draft Report on the Efforts of the Army Corps of Engineers to Develop an Integrated Information and Data System

1. We concur that under normal conditions a thorough and, to the extent possible, long range systems study rather than short range expediency should be the basis for the acquisition of automatic data processing equipment (ADPE). This policy guidance has existed in Bureau of the Budget Circular A-54 and Bureau of the Budget Bulletin 60-6 for many years. In our opinion, this guidance remains valid.

2. The determination and use of residual value in respect to ADPE, although also provided for in BOB Circular A-54, is quite complex. No reasonably broad base of historical data is available at present which would permit us to draw valid conclusions. We hesitate, therefore, to concur with your recommendation that under all conditions "in situations where dissimilar ADP equipment is offered by manufacturers, the procuring agency will evaluate the differences in residual values so as to assure that the equipment selected is the most economical for long term use." We have been and are continuing to explore the many facets of this area with the Bureau of the Budget.

3. While evaluation and/or selection criteria may, and indeed should vary from time to time, the application of the basic principles expressed in Bureau of the Budget Circular A-54 (i.e., capability to meet the systems specifications and least overall cost) should be the guidelines followed in the selection of ADPE. We believe that this principle also is well founded.