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DEVELOPMENT INFORMATION PRODUCTS AND SERVICES FOR USAID CLIENTS AND USERS

A Report to the Center for Development Information and Evaluation, Bureau
for Program and Policy Coordination, Agency for International Development

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Executive Summary

This Report examines development information needs of CDIE's USAID mission clients and individual users working on USAID staffs. "Development information" for purposes of this Report means statistics; narrative information on development knowledge, theory, and experience including evaluations and advisory materials; analytical and observational methods and techniques, and other substantive information on development conditions and activities.

Based on consideration of development information needs and CDIE capabilities, the Report recommends that CDIE develop a series of "Development Application Support Systems" (DAS) to help missions manage information acquisition, manipulation, analysis, and reporting involved in common USAID activities.

The nature of client and user needs are discussed in Sections II and III. The primary development information need of CDIE's USAID mission clients is considered to be not more information or different information but rather for systems to help manage information for carrying out primary mission activities such as project development and implementation. Similarly, it is concluded that the primary development information need of individual users is help in efficient management of the information handling dimensions of their jobs rather than more, or different, or less information as such.

The DAS systems recommended in the Report combine microcomputer programs and information in both hardcopy and "machine readable" (ie diskette, hard disk, or other electronic) form. These microcomputer based information systems would integrate for specific USAID operational activities substantive information, analytical routines, data storage and retrieval, and other operationally useful sub-programs and functions. Examples of USAID operational activities which would be the subject of the DAS concept would be development of a particular type of project, implementation of a particular type of project, strategic planning in one of various sectors, the annual program description and justification process, and similar common mission operations requiring the acquisition, storage, manipulation, and reporting of development information.

The most important characteristics of the DAS concept are:

1. A DAS is designed to support a USAID mission task as the mission sees the task. Thus, a DAS to support the development of a rural road project would provide not only information about rural roads projects and related analytical sub-programs but also an information system which the USAID can use as a tool to help to manage all aspects of the project development process including scheduling, production of standard Project Paper analyses and data presentations, and other incidents of the project design process.

2. The typical DAS package would incorporate the following information resources:

- a. Basic guidance on the type of project including agency policy, syntheses of experience, and comments of experts in the field and AID officers who have operational experience with the type of project.

b. A data base management system for project design including specification of data required for project appraisal and justification as well as the program to store, retrieve, format, and report data.

c. Data from CDIE sources relevant to the country and type of project preloaded in the software (and updated as appropriate) such as economic and social data and comparative costs of production.

d. A sub-program to identify and format additional data which must be acquired locally for inclusion in the DAS data base along with advice on how to obtain the data in question and what data surrogates may be acceptable.

e. Analytical programs which take data (which originated from both CDIE and local sources and is stored in the DAS data base) from the DAS data base, format the data for analysis, and perform a number of analyses required for project design (such as estimation of engineering costs, production costs analysis, and cost-benefit and internal rate of return calculations).

f. Scheduling programs which lay out activities to be performed in the activity (eg., project development). The user inserts target dates and completion information. The scheduling sub-program can be set up with PERT and PERT-COST routines where appropriate.

g. Administrative support materials such as scopes of work for various types of technical assistance, standard costs for vehicles, travel, and training, prototype waiver justifications, and other requirements common to the type of project.

h. "Templates" for important forms required in documentation including, in the case of project development for example, the log frame, project budget data, summary and detailed financial plans, implementation plans, and so forth.

i. Reference materials including sources of technical assistance, citations to selected books and articles, evaluations, PIDs, PPs, and other documentation available in the AID Development Information system. (Citations would be included in the computer program where relevant. Reference material would be provided in part in hardcopy form as part of the DAS and in part would be maintained as at present in AID/W to be sent to the mission upon request.)

j. Management and review subprograms to facilitate mission management monitoring and supervision and AID/W review procedures.

i. Data transfer subprograms to transfer appropriate data to other DAS programs such as project implementation, program description and justification, evaluation, host government support of AID project, public information programs, and the like.

3. The sub-programs of the DAS would be integrated so as to permit single entry of data into the data base. Reformatting and analysis of data would be performed electronically within the DAS program based on menu selection of desired procedures. Intermediate data reports would be electronically recalculated when changes are made in data and assumptions as in common commercial spreadsheet computer programs. This would facilitate not only rapid recalculation of many complex data interrelationships and sensitivity analyses but would also permit deeper mission management involvement in project design.

4. DAS programs could be developed for a number of activities including:

- a. Project development for various types of AID projects
- b. Project implementation
- c. Strategic planning
- d. USAID program description and justification
- e. Host government support and responsibilities under AID projects
- f. Project and program evaluation and long-term follow-up
- g. Contractor/TDY/Visitor Orientation and Support
- h. Public information and publication support (with USIS)
- i. Country data acquisition and update
- j. Special function training and application packages for new concept and technique orientation, familiarization, and application (eg rapid rural appraisal, "social marketing", new policy initiatives, etc.)

5. Equipment requirements would vary according to particular DAS applications. However, all the possibilities enumerated can be implemented on micro-computers. Some applications will require substantial memory and preferably hard-disk storage for full implementation. In countries where support of hard-disk equipment may be questionable, the programs can be implemented with multiple disk-drive arrangements, albeit with a loss of execution speed.

6. The DAS concept should be tested with a few experimental efforts carried out with close coordination with interested technical offices, regional bureaus, and missions. If the concept proves to be viable, consideration may be given to commitment of substantial resources to broader implementation.

7. Implementation of the experimental effort should be carried out within a self-contained project with assured CDIE staff, financial, and technical assistance resources to do the job promptly and well.

I Introduction

This Report makes recommendations on how CDIE can develop information products and services which will help USAID missions and their staffs do more and better work within their existing time and resource constraints. This can be accomplished through application of currently available information technology to improve management of the development information which AID acquires, produces, distributes, uses, and stores in its operations.

Much of AID's substantive work involves the use of "development information" - that is, substantive data and accumulated knowledge and experience of conditions, projects, programs, policies, and problems in development and developing countries. For purposes of this discussion, "development information" is distinguished from "financial" or "administrative" information which is the subject matter of very elaborate information systems which the agency has developed over many years of operation. By comparison, the systems developed for management of development information are far less elaborated and sophisticated and far more dependent on the happenstance of the skill or luck of the individual user.

The current state of development information management in AID is primarily a reflection of the difficulty and complexity of meeting the information needs required to perform the agency's tasks; a decentralized organizational structure which is a consequence of the judgment that information, decision, and implementation are best managed as close to the operational action as possible; and a technology which, until recently, did not offer more suitable means to support information requirements of a decentralized mission system.

Development information is not, generally speaking, managed as such in AID. It is produced and consumed by most of the units of the organization. It is warehoused in various locations. It is distributed liberally sometimes in response to request but more often as a consequence of the producer's judgment of possible utility to potential users. More development information can be acquired rapidly from storage and production mechanisms ranging from electronic data bases to consultants. Indeed, additional development information must be acquired in connection with each one of the vast majority of AID's activities - often slowly and at great expense. But while development information is an asset in some respects as important as financial resources, and entails costs of substantial magnitude, it is not viewed generally as a suitable subject of administration.

While the agency needs more and better information to do its ever more complex tasks effectively, the USAID staff people who are the operational "users" of development information are being overwhelmed by too much information at the same time that they suffer from the lack of information appropriate to particular tasks. They are asked, in effect, to select, store, recall, transform, manipulate, analyze, and report information from the agency's vast store of data, to generate additional data locally, and to produce therefrom new information - in short, to integrate information from diverse sources for agency documentation. This burden can be reduced and quality of professional performance improved by using available technology to help manage and integrate the information which is the raw material of USAID staff work.

Most of the information integration task will always be done at the field level - that is the essential advantage of the mission system. But the process of integrating information in the field is quite inefficient. The process is characterized by serial and repetitive production of documentation and indeed serial and repetitive production of information inputs to such documentation. If people had the tools to manage development information more efficiently, they would have more time to operate in the local environment and to exercise well informed professional judgment which are the quintessential benefits of the mission system.

Improvements in the acquisition and use of development information offer great opportunities for more effective agency performance. Not only does better information contribute to better decisions, but better information management reduces the time spent on manipulating information and thereby increases time available to understand problems and help create solutions. The technology for better information management at all levels exists and is relatively inexpensive (although the development of appropriate programs and informations systems will not be a financially trivial enterprise).

The very core of the development information problem is facilitating the acquisition and use of development information in USAID missions and offices overseas.

This study has examined development information needs of USAID missions and individual users with a view to recommending specific information products and services which CDIE can develop and offer.

The organizing principles of this Report are as follows:

1. The development information problem in AID is multifaceted and very complex. Rather than attempting to articulate the totality of the problem, this Report looks at one dimension and emphasizes action proposals rather than rationale. If the recommendations are intuitively attractive, rationale and fine tuning will follow.
2. The Report takes the viewpoint of USAID clients of CDIE and that of the individuals working on USAID staffs. A distinction is drawn between CDIE "clients", which are organizational units within AID, and "users" who are the individuals performing the work of the agency.
3. The Report's orientation is operational in the sense that it addresses development information as a subset, and not necessarily the most important subset, of broader responsibilities of USAIDs and USAID staff people such as project development and implementation and program planning.
4. It follows that development information and the methodologies used to acquire and analyze development information are treated as tools to accomplish the operational tasks of AID. For purposes of this report, contributions to research, the repository function, and other benefits of development information outside AID's primary operational responsibilities are ignored.
5. The Report ignores internal jurisdictional considerations, including those within CDIE relating to distinctions between statistics, various types of narrative information, analytical methodologies, and their sources in current practice.

In the following sections, the Report briefly addresses the nature

of USAID client and user needs (Sections II and III). Section IV describes a set of products which would respond to USAID client and user needs. Section V considers CDIE capabilities to respond to USAID needs generally and to develop the proposed products in particular.

II USAID User Needs for Development Information

The information environment of most AID employees is unsatisfactory. Most people in USAIDs (and in AID/W as well) are faced with a set of information conditions and problems the critical dimensions of which, for purposes of this discussion, can be characterized as follows:

1. Severe time pressure making it extremely difficult to carry out all job responsibilities in a manner satisfactory to the agency and to the professional standards to which AID officers typically aspire.

2. Information discontinuities which are experienced as:

a. information "overload" (the volume of information routinely made available to officers exceeds the capacity to read, absorb, and use it when needed);

b. information shortage (the lack of information available in appropriate detail, format, and accessibility in a timely fashion to accomplish specific tasks);

c. lack of information support and manipulation capability (both in sense of information about information - what information is needed; how to get it; and how to process it - and in the sense of the hardware and software systems to access and process information);

3. Difficulty in getting uninterrupted time to focus on complicated problems and especially problems involving the need for learning new information, techniques, and skills;

4. Difficulty in specifying intermediate operating objectives necessary for efficient accomplishment of complex tasks, especially those involving information gathering and processing;

5. Difficulty in controlling activity toward accomplishing intermediate objectives, especially where information functions are involved.

All the foregoing problems are commonly and properly characterized as "management" problems. But they also can be properly characterized as "information" problems. CDIE can contribute significantly to meeting these problems by helping USAID personnel use development information better. (For purposes of this discussion, "development information" includes statistics; operational data; analytical methods made available through computer software as well as through traditional person-to-person technical assistance methods; and narrative information on development knowledge, theory, and experience including evaluations and advisory materials).

Specifically, CDIE can help USAID staff users by providing operationally useful microcomputer software and related hardcopy materials to help:

1. to manage "development information" better (thus saving much time now spent trying to read, manipulate, and apply such information); and,

2. to integrate "development information" more efficiently with operational activities (both in the sense of drawing on development information as a source of guidance for action and in the sense of

securing substantive information to explain and justify action).

The volume and form of "development information" as currently made available to users commonly contributes to the user's operational problems. More or different "development information" provided without improvement in the means by which development information can be used in operations entails the risk of adding to the operational problems USAID users already have. Thus the probability of the effective use of more or different "development information" in the absence of improved systems to manage it better is limited.

Conversely, if "development information" (including lessons of experience, narrative guidance, statistics, and data analysis methodologies) is provided in a context of information systems which reduce the information problems which beset USAID users, the probability of effective use of new information, new ideas, lessons of experience, and other intellectual contributions of CDIE is greatly enhanced. Further, such information systems would facilitate the better use of "development information" which is already available to USAIDs from host country sources.

This Report recommends developing information systems responding to the foregoing description. Such information systems would be designed to help users identify information requirements, organize information required for various tasks, acquire available data from central sources, store additional information obtained, manipulate and analyze data for various purposes, organize and track work done and to be done on various tasks, and generate reports needed for various requirements in the process of program and project design, justification, implementation, and evaluation. Data interchange routines would facilitate multiple uses of common data requirements.

These information systems will be referred to as "development application support systems" or DAS systems. The words "development application" are used to emphasize the operational orientation of the concept. "Support" is used to emphasize that the system is intended to assist through information management, not to manage through information assistance. The distinction is considered essential. The user must continue to control the process, exercise judgment, and otherwise use the system to heighten the professionalism of his or her work. AID professionals must not be turned into information clerks supporting a computerized decision system.

A description of several such "development application support systems" are set out in section IV to illustrate the concept. In particular, two applications go into some detail to illustrate the incorporation in a single DAS of capability to provide support in statistics, narrative guidance including "lessons of experience", and analytical methodologies all incorporated on commercially available integrated software implementable on microcomputers. These more detailed illustrations involve a DAS to support program development and support for export promotion in a private enterprise development program and a project development DAS for rural roads projects. The substantive activities covered by the DASs described are not necessarily the appropriate ones for initial experimentation. Other types of DAS systems are described in less detail in Section IV including project implementation, evaluation, program description and justification, and host government support systems. Suggested subject matters areas for early DAS development are discussed in Section V.

III Client Needs

USAIDs carry out a well-defined set of procedures in extraordinarily varied circumstances world-wide. While these procedures change from time to time, and may change again soon, the underlying functions which those procedures address are consistent over time. They are the things which USAIDs do. The subset of basic functions which this Report addresses are:

1. Strategic planning (including macro-economic and sector analysis; development problem identification and specification; and selection of subject matter for project development);
2. Project development (including support of the FID and FP process or their equivalents);
3. Program description and justification (including support of the CDSS, ABS, Congressional Presentation, and related documentation);
4. Project and program implementation (including documentation, logistics, procurement, scheduling, monitoring, and related financial information but excluding for purposes of this discussion Controller functions);
5. Project and program evaluation.

The foregoing functions are heavily dependent on development information but they are by no means exclusively development information functions. It is more useful to USAIDs to provide information assistance in the context of these functions as they are performed by the USAIDs than it is to provide assistance in the form of data packaged in a manner convenient to the sender. Books of statistics, printouts summarizing past AID experience in projects of a particular type, lengthy evaluation reports, or recommendations for techniques for gathering and analyzing data, while valuable, place a burden of selection, extraction, and manipulation on AID officers which may not necessarily be perceived by them as worth the effort. However, if guidance, data, and analytical apparatus is provided in a package designed to help do a task - such as design a project - the likelihood that the guidance, data, and analytical apparatus will be used and used well will be far higher.

But can such packages be designed which both are and are perceived to be suitable to USAID needs? In many respects "are suitable" is easier to achieve than "are perceived to be suitable". The organizational need, and therefore the criteria for "are suitable" for purposes of this draft include tools which help managers:

1. Reduce staff time utilization associated with tasks involving production of information products in general;
2. Increase information processing efficiency with respect to routine and repetitive operations in particular;
3. Organize and understand information concerning what is going on in the country;
4. Make decisions in substantive areas in which the USAID must seek additional information and outside technical assistance rather than relying on staff expertise;

5. Monitor and supervise implementation of operational decisions;

6. Avoid waste of resources, especially staff time, "reinventing the wheel" - ie redoing the development of data, analysis and documentation which is otherwise available at lower cost elsewhere, or worse, within the mission or the host country itself.

USAIDs are struggling with these problems every day and often develop significant improvements through the use of microcomputer technology. But many of these improvements could be more efficiently designed centrally with the additional benefit of incorporation of development information assets not available at the mission level. Section IV sets out a number of examples of possible contributions to meet these USAID needs.

But will an effort to design such systems "be perceived to be suitable"? Notwithstanding the commonalities of agency process, CDIE's USAID client development information needs are highly varied because of the unique environment of individual countries, the scope and resource mix of programs, the skills and experience of USAID staff, the sophistication of host country counterparts, the nature and availability of AID/W and contractor support, the availability of development information in country, and, of course, the specific projects and other activities undertaken.

This variability of client needs contributes to a tendency of USAID personnel to view their host country situation and their operational requirements as unique - and indeed they are in fact often unique. The fact and perception of unique requirements places a special burden on CDIE which must, in light of its own institutional imperatives, move toward development of generalized products and services and eschew individualized client services except where those services can contribute to the development of a generalized service or product of interest to numerous AID clients.

The resolution of the tension between the client's perception of unique requirements and CDIE's need to generalize its services to the agency ("wholesale versus retail") presents one of the core managerial problems faced by CDIE. A fully successful resolution of this tension will be extremely difficult if not impossible to achieve if CDIE views its resources as separable activities: statistics, data analysis, historical information, evaluations, and development experience syntheses (in the sense of a series of studies in various areas). However, if these resources can be integrated in systems designed to meet USAID client needs as they are perceived and experienced in the field, CDIE can make a truly crucial contribution to the efficiency and quality of USAID performance.

This Report suggests that significant assistance in all these areas can be provided by means of various development information systems easily within the technological reach of commercially available equipment and software. Operationally, there is not a compelling need to address all these needs simultaneously and comprehensively. To the contrary, approaching the problem in "doable" but significant pieces is essential to assure acceptance at the field level. But it is essential for AID and for CDIE in particular to have an overall conceptual framework which takes expansion possibilities for the future into account in assisting missions to meet current requirements.

IV Some Proposals for Development Application Support System Products and Services Which CDIE Can Develop To Help Meet Current USAID User/Client Needs

This section provides summary descriptions of a number of "development information system" products and services which would respond to needs of CDIE's client organizations and individual users in missions. All can be implemented on microcomputers although some of the proposed applications would require substantial memory and hard disk storage for full implementation. No effort has been made as yet to define hardware requirements and support capabilities for such hardware configurations in all AID countries.

There are a wide range of development information needs in USAIDs. There are, as well, a wide range of other microcomputer implementable "management information" requirements which do not, strictly speaking, fall within CDIE's mandate. There is a considerable area of overlap between the clearly "development information" requirements and clearly "non-development information" requirements. In giving consideration to recommendations of the Report, the reader is encouraged at least temporarily to suspend judgment on AID/W jurisdictional considerations.

Information tends to be organized in ways which reflect the organizational structure of its source. USAID mission information requirements often fail to conform optimally to AID/W organizational structure. Field operational problems tend to mix elements with no respect whatever for crucial distinctions on which Washington responsibilities are so firmly grounded. For example, a problem might emerge in a project which would mix purely "development information" needs, such as crop cycle and other technical agricultural characteristics, with essentially administrative information needs, such as inventories of fertilizer, with financial concerns, such as on what date in the next few weeks disbursements must cease because of a failure of the host government to make debt payments to the U.S. Government within the acceptable late payment grace period. A system which integrates information relating to such apparently disparate concerns can help managers anticipate problems, assess the feasibility of alternative solutions to problems, and specify priorities for action. Integrating information to respond to multiple needs is not a difficult task - at least technically. The operational payoff could be substantial.

USAIDs need better information management support. Providing more information in the absence of better information systems or providing information systems which are constrained by AID/W structural characteristics run the risk of compounding rather than relieving information management problems in USAIDs. Developing mission oriented information support systems is both "doable" and highly desirable.

This section will discuss at varying levels of detail the following possibilities for Development Application Support Systems:

- A. Project Development Packages (PDP)
- B. Strategic Planning Packages (SPP)
- C. Program Description and Justification (CPB)
- D. Project Implementation Packages (PIP)
- E. Host Country DAS to Support AID Operations (HDAS)
- F. Project Evaluation and Long-Term Follow-Up DAS (EVL)
- G. Contractor/TDY/Visitor Orientation and Support Package (VOS)

- H. Public Information and Publication Support DAS (IPS)
- I. Key Paragraph Data Base Package (KP)
- J. Country Data and Analysis DAS (CDA)
- K. Concept and Function DAS (CAF)

Not all the foregoing systems are necessary in any one much less all situations. Some DAS can be conveniently combined such as project development with implementation and evaluation. The purpose here is not to present a fine-tuned set of product descriptions but rather to suggest some of the possible benefits of innovative applications of CDIE capabilities through the use of micro-computer based information management systems.

A Project Development Packages (PDF)

While every AID project is to a significant extent unique, many projects fall in categories within which data and analysis requirements are substantially similar. Thus rural road construction projects as a group require similar data, analytical procedures, implementation and control systems. All rural road construction projects may benefit from experience in such projects world-wide. AID/W review of proposed rural road projects and mid-term and final evaluations of such projects should take a number of common factors into account.

A Development Application Support System (DAS) for project design, "PDF", (and a related DAS for implementation, "PIP") would capture common dimensions of such projects in a micro-computer environment for operational use in USAIDs. The PDF would provide a tool for substantive guidance, data-base management, data analysis, and implementation planning to support the project development process. It would offer the project design officer and project design team a self-contained set of analytical and data handling tools for use on a microcomputer, based on an agency-authorized core analytical requirement, for specific types of projects.

PDFs could be developed for a number of standard project types such as rural roads construction, agricultural research, and primary health care as well as new project types which reflect new directions in AID policy such as rural savings mobilization. While in theory PDFs could be developed for virtually any kind of project AID supports, the most significant payoffs will probably flow from PDFs for the most common projects for which considerable experience has developed over the years.

The PDF would incorporate a number of features including:

1. A list and schedule of project design activities which inexperienced officers could use as a guide and experienced officers use as a check list and supervision mechanism.
2. General substantive and policy guidance on the type of project including limited narrative discussion and references to more detailed information in hard copy sources. CDIE would develop guidance from its information resources. The program would offer some of the relevant material in electronic form along with references to more extensive hardcopy sources, both those incorporated in the PDF package itself, and those available on request from AID/W or other sources.
3. A "one-entry" data management system for the project through which key data requirements for the project would be identified; required characteristics specified (eg. length of time series and data quality considerations); and data entered into an integrated data base. The program would incorporate software templates for using the data base in various project applications. Automatic formatting from the data base for various information requirements would be provided.

For example, in a rural roads project, data such as the following would be prompted by the program and entered by the user:

- current rural roads milage believed to exist
- road condition estimates
- rate of road deterioration in various areas
- unit costs of construction, rehabilitation, and maintenance

- type and value of agriculture in relevant (proposed road) areas
- population and characteristics
- social services in potentially affected area

Each class of data would be useful in several aspects of project design and implementation. The existence of a unified data base would assure consistency of data in various analytical applications, rapid recalculation as data is refined, and the opportunity to extend sensitivity analysis from a few speculations on gross economic dimensions of the project to the entire implementation process.

(To illustrate the latter point, under current practice sensitivity analysis is applied to overall costs and benefits or to first order economic dimensions such as commodity prices. For example, the sensitivity analysis may assume an upward shift in overall project costs ~~to~~ to determine the effect on calculations of the internal rate of return of the project. But the implementation implications of that shift are rarely explored. Typically, the sensitivity of project feasibility to implementation problems caused by such cost shifts are a far greater managerial problem than are implied by a sensitivity analysis which only addresses single function alternatives. Thus a 20% increase in equipment costs, while on paper not driving the IRR below an acceptable level, may well deprive the project of adequate resources needed for other project commitments. The linear assumptions of most sensitivity analyses typically do not square with the lumpiness of investment and acceleration of cost curves. A DAS system such as that proposed would permit examination of system interactions in sensitivity analysis and help to capture second and third generation implementation effects of the assumptions now so often imperfectly examined.)

Much of the data gathered for project development purposes would be transferrable to a related project implementation program (PIP), described below. The program would include a sub-routine to facilitate data transfer to other programs.

4. Various project design considerations would be presented along with prompts for locally required data to be entered such as:

- alternative construction/maintenance methods (eg. varying levels of labor and capital intensity with cost and employment effects)
- alternative implementation methods (regionalization, centralization, contract, force account, international bidding etc) and implications (cost, time, local currency vs. dollar expenditures, etc.)
- current and projected costs of equipment, engineering practice considerations (such as typical equipment sets and maintenance and support assumptions associated therewith, assumed utilization rates under various circumstances, useful life of equipment, and similar technical engineering data)

Capturing these dimensions of planning in a permanent form would be of considerable help in anticipating and dealing with implementation issues. It would make project evaluations far more instructive as it would facilitate determining more accurately how and why implementation plans go awry. Thus it offers the possibility of greater fairness in assessment of good and poor performance by contractors and AID officials.

5. The program would incorporate standard analytical routines such as cost benefit analysis, internal rate of return, spread sheet analyses to distribute costs and benefits over appropriate time frames and to break down costs into project relevant categories such as dollar and local costs, grant, loan, and local contribution funding, commodity and technical assistance costs and so forth.

Such a DAS program would give designers an effective tool to guide and manage project development. It would simplify and control development of a unified project data base and facilitate update not only of the data itself but of all the implications of data refinement and update. It would simplify analysis of the effects of alternative approaches. "Learning from experience" would be built into the system along with references to detailed hard copy material. Managers could use the system to track progress and explore alternatives on the basis of the best information currently available. Implications of goals, objectives, schedules, and constraints could be explored without imposing heavy burdens on staff time. Thus the system provides a rough model with which a manager or designer can explore "what if" possibilities, project designers can collect and refine information, and team members can relate their knowledge and expertise directly to the project data base while providing their contributions to the effort.

The DAS/PDF concept could also be used to facilitate AID/W review and policy control. Thus issues of concern to AID/W in terms of the quality of the design work and conformity with AID policy could be addressed through check lists and standards for data gathering and analysis at each stage of project development. For example, at the pre-PID stage a set of basic issues to be addressed with easily obtained data such as approximate rural road milage in the area in question, data on agriculture and social services and population in the area or areas in question could be identified. PDF could incorporate rough rule of thumb factors for cost/benefit and benefit incidence considerations.

The process of review at the PID and PP stages could be simplified by quantitative checks. A copy of the PDF data storage materials could be forwarded to AID/W along with the documentation to facilitate the review process. Should revisions be required as a consequence of the review process, those revisions could be entered and all relevant calculations rerun with a minimum of difficulty. (Thus reviewers in Washington might come to understand more easily apparent oversights of field analysis which superficial examination sometimes suggests.)

Finally, important data in the PDF data base could be easily transferred to the project implementation package (PIP) for the project. This would provide an initial data base and target objectives and schedules. As the inevitable changes in implementation take place, tracking implications and automatic identification of implications of changes would be provided.

(I believe this program can be implemented on currently available commercial microcomputer software although substantial memory would be required for some of the more elegant analytical routines suggested. In some countries, hard disk storage may be difficult to maintain. Most of the applications could be duplicated using multiple floppy disk drives although at a loss of convenience and execution speed.)

Strategic planning, that is the determination of the general nature of a mission's program and how the mission and its component divisions will operate in various sectors of interest, is one of the most difficult intellectual tasks that USAID and AID/W management faces. Among the factors involved are macro-economic and sectoral data gathering and analysis, development problem identification and specification, and sector and project activity pre-feasibility analysis and selection.

In many if not most cases, macro-economic analysis is fairly well in hand. CDIE already contributes significantly in this area. Further, data and analysis by other institutions such as IMF and World Bank are commonly available and well used by USAIDs and their regional bureaus. While the Strategic Planning Package (SPP) described below would certainly incorporate such materials and related analytical capability, the discussion in this interim report will focus on the less well developed "middle ground" which lies between macro-economic analysis on the one hand and project analysis on the other.

The "middle ground" of strategic planning is in many respects the most important decision area in which USAID management (along with related AID/W policy and analytical support) operate. Decisions concerning what sectors and subsectors a mission will address at what level of resources commitment and in what kinds of specific activities are crucial in determining the impact of AID programming in a host country. Commonly, operational realities dictate that the decision carefully to consider undertaking a project is in fact the decision to do the project. The effort committed to developing a FID, the expectations generated as a consequence of that effort, and the expenditure of time and staff resources involved typically constitute a decision unlikely to be reversed unless reasons not to go the project are compelling. Once resources are committed to a less attractive, albeit feasible and desirable choice, it is often not feasible to examine alternatives at adequate depth early enough to permit choosing a more attractive approach.

These "preliminary", but operationally crucial decisions often are taken without the benefit of decision support (information and analysis) or with only minimal analytical support. Such decisions are often a result of a combination of managerial and technical "feel", negotiation, and compromise of claims of interested parties: an art form as much as an analytical process. These considerations always will and should be the essence of the strategic planning process. However, that process can be illuminated and supported by better information and analytical support. The SSP is designed to provide that support.

An example of an DAS/SSP addressed to agricultural export promotion will illustrate the scope and utility of this concept. The example assumes that a mission is interested in developing agricultural exports and is considering how that interest will be expressed in project form. Among the many kinds of information which would be useful for a mission at this point would be:

- import patterns (products, volumes, prices, timing) of the host country's primary trading partners
- current sources of those imports
- characteristics of products from those sources (cost of production, transportation cost, quality information),

-technical data on production of various crops of interest (nature of the commodity system; optimal and acceptable soil conditions, rainfall, altitude, day length; crop cycles; local cost of production data)

-post-harvest technical data (drying and processing, storage, and transportation)

-marketing data (primary points of entry, brokers and buyers, marketing windows, shipping technical and cost data, packing procedures, shippers)

-regulatory information concerning target markets

-sources of technical assistance available for specific commodity systems and for various subject matters

-data on resource endowment of host country (location and characteristics of agricultural land suitable for crops of interest)

-infrastructure required for specific crops and where located

-cost and availability of labor

-sources of in-country and foreign technical assistance

-financing and technical assistance programs of other donors in related areas

This list could be extended considerably, but the foregoing suffices to suggest several points:

One, exploring a sector or subsector for suitable project opportunities can be a very complex and expensive task.

Two, a great deal of relevant and often dispositive information can be gathered centrally and made available to missions for local use early in the project identification process. The cost to missions in time and funds of thorough comparative analysis early in the project identification process often exceeds practical possibilities.

Three, such centrally gathered, generally applicable information can be supplemented with local data more readily and efficiently if the mission has information concerning what information it needs to get and how to get it.

Four, project analysis resources are limited. The mission can do a better job on the final product if it has not expended extensive resources in obtaining general information of the type that a centralized system could provide.

Five, cross-country information (such as comparative costs of production) are important and should be compiled, maintained, and updated centrally.

Six, the availability of such data would allow a mission to identify possibilities for commodities of interest rapidly and reduce sharply the technical assistance costs of project development as well avoid serious errors in commitments to crops which would present technical difficulties or which would be unprofitable because of production or other advantages of other sellers in markets of interest.

A system which gathers, stores, and manipulates information of the nature described here would appropriately be developed in conjunction with the S&T technical offices responsible for the area dealing with technical concerns. CDIE would deal with economic and statistical considerations, accessing outside data bases, and overall design of SFP to assure compatibility with other development information systems.

Strategic Planning Packages could, of course, be developed in many fields of AID policy interest. The basic idea is that mission management faced with developing programs in complex, and especially newly emerging areas of policy interest can be assisted with

information systems designed to place important information resources readily at hand. Such systems would not necessarily imply less reliance on traditional sources of assistance such as consultation with experts in relevant fields. But such systems would increase the utility of traditional information sources and provide assistance in their absence by making a substantial data base along with substantive guidance immediately available to assist learning, suggest overlooked avenues of inquiry, and otherwise strengthen the USAID manager's knowledge of the subject matter at hand. Perhaps most important, a SPP would give mission management and technical people a broad overview within which they could explore lines of inquiry before committing scarce resources to particular possibilities.

C Program Description and Justification (CPB)

USAID missions expend a significant amount of resources in the process of preparing documentation describing and justifying management decisions. In some cases this documentation is used in an interactive decision process such as in the CDSS and Annual Budget Submission process. At other times the extent of interaction once the documentation leaves the mission is limited as in the case of description of individual projects in the Congressional Presentation. The management of information in these processes is a major organizational burden which could be significantly lightened by the use of programs which integrate word processing, data base management, and relatively limited spread sheet functions with standard format templates for various documentation output requirements. Recent developments in commercial software permit the implementation of such programs in a microcomputer environment.

In addition to significant savings of time and staff resources at the mission level, the use of such DAS programming would reduce workloads in the AID/W review process and facilitate inputs to the agency institutional memory. The ability of USAIDs to draw directly on statistical resources in ESDB and related data bases would also be facilitated by such a product.

The primary utility of such a product would be saving staff time in preparation and revision of documentation. The process involved is well understood by responsible AID officers. Relevant information is normally available. Some qualitative benefits may accrue as a consequence of the availability of data manipulation routines in the program. But the benefits associated with simply making the documentation process faster and less burdensome on staff can be significant.

D Project Implementation Packages (PIP)

One of the most serious information management problems facing USAIDs is project implementation. While information management in project development can, in effect, be largely shifted to contractors, project implementation is inherently an internally controlled process with operational relationships to many USAID functions. Thus project implementation cannot be isolated and "contracted out" to the extent that project development can be.

Tracking and controlling implementation of projects individually and in the aggregate can be a daunting management problem. The problem can be addressed with information systems implemented in a microcomputer environment. Relatively simple systems have been developed by several units in AID/W and a few missions. A standardized system designed to facilitate data interchange with other DAS programs would constitute a significant service to many hard pressed agency staffs.

While the concept of a DAS for project implementation is not explored in any detail in this draft, it is worth emphasizing that this area may well be one which will attract the most immediate and enthusiastic support of USAID missions for early development.

Often overlooked in consideration of USAID operations is the management burden placed on developing country governments in supporting AID financed operations. The entire range of USAID implementation problems is mirrored within host government agencies. All of these concerns would be suitable subjects of DAS activities with benefits not only to host country governments but also to USAIDs which must deal with the consequences of host country agency limitations in supporting AID projects and related information requirements.

To the extent that host government agency responsibilities are the same as that of USAIDs, the DAS systems described above can be adopted for counterpart use. In fact, however, the problems are often partially overlapping but not entirely so. Host governments are expected to manage certain aspects of programs but have difficulty in doing so. Ultimately, and often late in the game, the USAID becomes aware of a problem affecting the program or project as a whole.

For purposes of this discussion, I will address one such set of problems which are common to most AID financed operations, tracking financial responsibilities associated with AID disbursements, host country contributions, and repayment of obligations to the U.S. Government by the host government. While these concerns would appear at first blush to be essentially a controller's office problem, they have significant implications for program and project management and therefore for project development as well.

An effective system would at a minimum track financial flows historically and project requirements for specified time periods to project completion on a project by project basis and in aggregations by responsible agencies and host government overall. It would be useful to incorporate information, although on a less detailed basis, for operations of other donors.

Tracking of official debt repayment obligations is, in many countries, a matter of considerable importance because of U.S. statutory requirements to suspend disbursements in the event of excessive repayment delays. Because many countries are now making repayments on large numbers of loans granted over decades, the control problem can be more complicated than one might think. In countries hard pressed for foreign exchange resources, making dollar repayments on a day-to-day basis to avoid statutory sanctions may be the normal procedure. This in turn places an additional monitoring burden on USAID staffs.

The foregoing is only one dimension of the host country implementation support problem. It may well be that one of the most important areas for further exploration will be the host country side of the development information problem.

Evaluation is an obvious and a crucial application of the DAS concept. The evaluation function could logically be attached to each of the foregoing DAS applications areas. Indeed, provision for the extraction of data for evaluation purposes must be programmed into each DAS in any event. The choice reflected here of defining a separate evaluation DAS implies not a diminishing of the importance of evaluation in program and project development and implementation but rather a sense that evaluation methodology and data should be to some degree managed separately in order to maintain independence and objectivity.

It follows that evaluation DAS for various types of AID projects and activities would be developed and maintained centrally. Such a DAS would track not only the actual experience in AID projects, but would also test the theoretical assumptions on which various AID policies and practices are based. An example of such cross-project assumption tracking might be an on-going testing of the assumption that mobilizing rural savings contributes to loan repayment and institutional reform in the institution which pays market interest rates to attract savings. This is a powerful assumption with very significant implications if true. Data relating to these factors should be tracked closely and not left to the happenstance of routine evaluation to be examined.

Another dimension of the evaluation problem which is difficult to address under current practice is post-termination impact. Once an AID project is fully disbursed, USAID management and tracking typically ends even though the development impact may only be beginning. The ability to learn from experience, to facilitate follow-up operations, and to help explain the effectiveness of AID operations to Congress and the public would be aided by the on-going gathering of information on the effects of AID financed operations after project implementation is terminated. This kind of follow-up, however, could be a significant burden on USAID staffs.

The desirability of maintaining a follow-up DAS is demonstrated by the effort now underway in S&T/OIT to develop a system to track AID financed participants. Restructuring the information after the fact is, of course, expensive and cannot be wholly successful. It is, however, properly viewed as worth the effort even at this late date.

A low-cost, minimum management system for post-implementation tracking is quite feasible through design of a project follow-up DAS which would identify certain key information points for periodic observation. Such a DAS might be related to the Host Country Support DAS (HDAS). Alternatively, the system could be implemented by contract with local firms or institutions which would minimize costs. In some cases, it may be possible to provide micro-computer hardware and software to local university groups in exchange for services involved in tracking information for the system.

Most USAIDs must deal with a substantial flow of visitors some of whom carry out activities for the mission, such as contractors and USG TDY personnel, and some of whom are visitors carrying out activities for other organizations. In many missions, the burden of orientation and provision of important information for such individuals is significant. Generally, missions prepare a package of descriptive materials which cover much of the basic requirements. But the problem of providing more detailed information to meet the particular needs of individuals is a continuing problem.

Development of a program to extract relevant data from DAS data bases described above would simplify the process of preparing orientation material considerably. Certain types of standardized information could be provided for certain types of visitors.

For example, contractors and TDY personnel involved in project development have certain information requirements which could be routinely conveyed through a standard orientation printout. Such standard information requirements might include names and telephone numbers of officials with whom the visitor may be in contact; airplane schedules; procedures for obtaining local currency, official transportation, health services, and other necessities; project budgeting data such as standard figures for travel and transportation to the United States, per diem rates in country, consulting rates for host country consultants, exchange rates; and a host of other information requirements.

The repetitive provision of such information is a hidden burden on USAID missions which is only partly resolved by the typical information packets provided in some missions. The ability of a control officer to design an individualized package for a visitor by checking off items required from a checklist or menu would save USAID staff time as well make visitor time more productive.

In most developing countries, there is considerable interest on the part of the public, and especially the journalistic and academic communities, in development in general and in AID activity in particular. It is, of course, the primary responsibility of USIS to deal with responses to expressions of this interest. Assisting USIS to do this effectively can be a time consuming problem for a USAID. Further, even the most development oriented USIS operation has limitations in development expertise and even the most public relations oriented USAID has limitations in staff resources to deal with public information problems.

CDIE could provide a most useful service to support USAID public information objectives by facilitating the process of providing both general and local development information. The centerpiece of such an activity would be a USAID based DAS with a data base supported in part from AID/W and in part locally. In addition to design of the system, CDIE would provide general substantive information on development knowledge and issues for the local system. This generalized information could be updated with material drawn from CDIE's information resources. The USAID would feed local information into this DAS including information on AID financed projects, AID financed educational opportunities, and perhaps local procurement opportunities.

Drawing on such a system, USIS could provide material for newspaper articles, speeches, and student papers on a wide range of development matters. This would simultaneously contribute to the public's understanding of development problems and USG development policy as well as establish USIS as a source of reliable information on development issues. In particular, it would be a helpful and non-intrusive way of dealing with a major public relations problem in developing countries: grossly inaccurate reporting by persons who do not intend to be inaccurate. Deliberate misrepresentation, of course, cannot be controlled. But providing sound information to reporters who are willing to report the truth if they could get accurate information would serve the interests of all concerned.

I Key Paragraph Data Base

A variation on all the foregoing possibilities for development information management would be a generalized data base containing entries on a wide range of subjects ranging from general development issues, project descriptions, host country economic and social data, AID policy, summaries of project and program evaluations, names and telephone numbers, and so on. Even a small USAID is a complicated enterprise within which a surprisingly large and diverse amount of information must be handled. The burden of USAID staff in dealing with that array of information requirements is very heavy but difficult to quantify. The use of information systems based on commercially available software in a microcomputer environment could contribute significantly to assisting USAIDs in dealing with these problems with limited staffs.

J. Country Data and Analysis DAS (CDA)

Considerable country-specific data is maintained in CDIE's Economic and Social Data Base (ESDB). CDIE staff is considering various approaches to providing downloading country data to floppy disks and providing them to missions along with SAS or other analytical software.

The problem of data gaps and data inconsistencies is not uncommon within the ESDB data sets and between ESDB and other data sets on similar subject matter. CDIE staff is considering organizing workshops on individual country data to bring together expertise available in the Washington area to examine such problems.

Individual missions may be interested in providing limited assistance to support data improvement efforts by such means as providing travel funds for U.S. based experts to attend such workshops and funding for students at U.S. universities to carry out data search and analysis efforts.

K. Concept and Function DAS (CAF)

The DAS concept is readily adaptable to application in the rapid dissemination of complex ideas within AID. It is often desirable to familiarize large numbers of people in the agency with new policies, techniques, and concepts. Normally, the regular channels of dissemination are adequate to the task. But when the ideas to be disseminated are very complicated, or involve a high degree of variability or intricacy in application, or when adequate sources of technical assistance are not available, the use of the DAS concept to provide interactive computer software along with hard-copy materials may prove useful.

Several new data gathering and analysis techniques currently under study by CDIE staff may useful examples of such applications, in particular, "rapid rural appraisal" and "social marketing". Both techniques appear to offer interesting features for USAID applications.

This Report suggests that USAID missions would be benefitted by the availability of "Development Application Support Systems" ("DAS") designed to facilitate development information management. Examples of such DAS systems are set out in Section IV. All such systems can be implemented in a microcomputer environment with commercially available software suitably programmed for USAID applications and provided with data from CDIE or CDIE accessible sources. The development and elaboration of the DAS concept would take several years effort beginning with experimental research to test the concept. Assuming the concept proves to be technically sound and acceptable to AID authorities, a project should be undertaken with significant funding to develop a wide range of DAS applications.

CDIE is uniquely qualified in the agency to handle overall management of a DAS development effort. CDIE not only manages AID's Economic and Social Data Base and the Development Information System but also has a wide range of knowledge of substantive development matters flowing in part from the evaluation program and in part from the direct experience of its staff. Regular contact with information resource bases in other institutions is a significant CDIE asset. Also crucial to the DAS management process is the technical expertise in small computer information system development on the staff. A growing list of consulting engagements with USAID missions on development information activities lends a field operation dimension to CDIE's technical expertise. The managerial and intellectual skills required to coordinate such an effort also appear to be available. While the technical information management capability exists within CDIE to manage an experimental effort, it is less clear that sufficient staff time is available as a practical matter to handle the job.

In addition to overall management of the DAS development process, CDIE can also support the development and implementation of specific DAS systems through activities such as the following:

1. Design of modular DAS components suitable for adaptation to specific field applications on topics in which CDIE has substantive and technical interests.
2. Assistance to missions in adapting standard modules to local applications.
3. On-going maintenance and update of DAS modules and systems.
4. Selection and provision of data for incorporation in USAID DAS modules and systems from existing sources (with regular update as appropriate).
5. Assistance in search for required data not otherwise readily available.
6. Integration and delivery of cross-country data to missions (USAID requirements for data on other countries should be provided by CDIE, not gathered by the individual USAIDs which may have needs for data on other countries).
7. Packaging of information (including formatting electronic data and hard copy studies, check-lists, and other products designed to inform, prompt, and simplify USAID officers' search for guidance

and information in various subject matter areas).

8. Development and communication of information concerning the hardware, software, and support requirements necessary for DAS activities (in conjunction with IRM)

While the DAS job is "doable", worth doing, and properly managed by CDIE, wide-spread support cannot be expected until a few attractive DAS are developed and tested. If good experimental products are developed, "marketing" will not be a problem. Without good experimental products, "marketing" will not be successful. It follows that the current requirement is for a small but sufficient set of resources - people and money - to execute a few DAS systems.

Selection of a set of mission-useful DAS systems to be developed and tested in the first instance should reflect interests of relatively small "steering committee" of AID/W people and one or two missions with interest, some technical competence, and substantive experience in the activity. It would be desirable to carry out this work in cooperation with a mission or missions which are relatively close to Washington to facilitate communication and travel.

It is possible that jurisdictional issues may arise in carrying out an inherently integrative approach to information resources support for USAIDs. In this connection, it appears that system design responsibility may fall within the mandate of IRM while responsibility for development information support would seem to be in CDIE. Numerous other AID/W organizational units have direct or indirect interest in development and use of DAS systems such as those described. Thus early consideration of the problem and ongoing coordination with interested offices would be both helpful and appropriate. An expression of interest at high levels in the agency would be invaluable.

A few topics which may be particularly useful for experimentation purposes because of their policy significance, the amounts of resources committed to them over time, and the availability of analytical, evaluation, and operational information include:

- rural roads construction and rehabilitation
- agricultural credit with particular reference to newly emerging concepts of rural savings mobilization
- export promotion
- agricultural research institutions and crop programs
- small scale private enterprise promotion
- training programs

At this stage, the subject matter is less important than the competence and commitment of the key contributors to the development effort.