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ABSTRACT

This report on the third phase of a two-year study of human services information clearinghouses discusses clearinghouses in terms of their role in information dissemination and diffusion, planning considerations, operational cost recovery, overlap and duplication in services, and evaluation techniques and measures. Information was gathered from literature searches, interviews, data collected in Phase II, and group meetings attended by contractors and federal officials who monitor or operate clearinghouses. Findings indicate the need for: (1) the assignment of a group or an individual to be responsible for establishing DHHS policies or long-term actions to manage and coordinate information services; (2) the determination of government's role in providing information to define government information policy; (3) a clearer definition of the missions of each clearinghouse; (4) a reconciliation of fixed funding support for clearinghouses; (5) development of policies and guidelines for cost accounting practices; (6) establishment of a cost recovery policy; and (7) assessment of the clearinghouse performance. Recommendations are provided as well as appendices containing survey questionnaires. Listed are 10 tables and 62 sources. (RBF)

Prepared for:

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HUMAN SERVICES INFORMATION CLEARINGHOUSES: A DISCUSSION OF POLICY ISSUES

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This report was prepared under Contract No. HEW 100-79-0183 for the Office of the Assistant Secretary for Planning and Evaluation of the Department of Health and Human Services (DHHS). The report represents information gathered in response to selected policy concerns of interest to DHHS in the third phase of the "Exploratory Study of Human Services Information Clearinghouses."

Ms. Carol Baker and Ms. Susan King (Applied Management Sciences, Inc.) and Ms. Judith Wanger (Cuadra Associates, Inc.) wrote the report and also comprised the study team responsible for collecting and analyzing the background information. Dr. Richard Bale and Dr. Carlos Cuadra assisted by reviewing all draft products.

We wish to thank the following individuals for their assistance in conducting this study: the clearinghouse directors and their staffs who willingly devoted time to answering our questions; the Federal Project Officers who participated in a group meeting; representatives of numerous private publishing companies and information services who provided information about their activities; personnel at the Office of Management and Budget and the General Accounting Office who shared information about their studies and responded to our questions; Ms. Dorothy Mulligan for editing the report; and Ms. Janice LeFan and the rest of the Applied Management Sciences word processing staff who typed the manuscript. Special thanks also to Ms. Jean Favors, the Project Officer for this study, who has supported us in this project and helped to ensure that our work would be relevant to Departmental interests and concerns.

PREFACE

This report concludes a two-year study of human services information clearinghouses conducted by Applied Management Sciences, Inc. of Silver Spring, Maryland and its subcontractor, Cuadra Associates, Inc. of Santa Monica, California. The study was conducted for the Office of the Assistant Secretary for Planning and Evaluation of the Department of Health and Human Services.

History of the Study

The study was intended to provide an information base about human services information clearinghouses that would assist decision-makers and program managers in planning, operating, and evaluating these services. It was performed in three phases, each responding to different needs. Phase I produced a working definition of the term "information clearinghouses" that was used to identify existing human services information clearinghouses and related organizations. Phase II provided descriptive information about management, structure, operating procedures, costs, and evaluation for a sample of 27 information clearinghouses and five related information service organizations. It provided the first empirical information about the operations of a large number of government-supported information clearinghouses. The results of the first two phases of the study are presented in three major publications:

- Conceptual Framework, Definition of Clearinghouses, and Typology of Clearinghouses: A Working Paper, an unpublished paper dated March 1980;
- Catalog of Human Services Information Resource Organizations, June 1980, and available from Project Share as Monograph No. 15; and

- Descriptive Analysis of Human Services Information Clearinghouses, January 1981, available from NTIS (PB 81-169997).

This research indicated that there was no generally accepted definition of the term "information clearinghouse." Concepts of what a clearinghouse is and activities it should perform have evolved over the past twenty years as needs have changed and technological advances have made new services possible. The concept of a "clearinghouse" varied also by the needs of the program office sponsoring the service and by the other information resources available in that field. For the purpose of this study, seven criteria were established that specified the minimum characteristics an organization had to meet to be classified as a clearinghouse. They were:

- Must define its focus in terms of a specific subject area and target audience.
- Must actively engage in the acquisition of literature-based information related to its focus or maintain a database representing records of literature-based information resources.
- Must process and organize the acquired information into a collection to provide for systematic search and access.
- Must be willing and able to accept individual inquiries with minimal requirements related to the form of the inquiry.
- Must be willing and able to respond to each inquiry in a form tailored to the request.
- Must be willing and able to conduct systematic searches of its information collection in response to inquiries.
- Must have an outreach component for communicating with users and a dissemination component to inform the audience of information available in or from the clearinghouse.

A list of potential human services information clearinghouses was generated from a review of directories and guides to information services. Each potential clearinghouse was contacted by mail to obtain publicly available information about its programs and services. On the basis of this information, organizations were classified as information clearinghouses or related types of information service organizations.

The survey found that, as of June 1980, there were 71 human services information clearinghouses and 84 other information resource organizations that were similar to, but did not meet all the criteria to be classified as, information clearinghouses. Ninety-eight of the organizations identified were funded by Federal agencies; 43 were funded by private organizations, and the remainder were funded by academic institutions, state governments, or local governments. Of the 50 Federally-funded organizations that reported budget information, 33, or 66 percent, were operating on a budget of $500,000 per year or less.

In Phase II, site visits to 27 human services information clearinghouses and 5 related information resource organizations were conducted to obtain more information about operating procedures. This phase revealed that a clearinghouse is a complex entity performing many different and interrelated tasks. How each clearinghouse performed these activities depended, in part, on contextual factors such as the mission of the clearinghouse (e.g., whether it was intended to serve as a neutral information resource, or as an advocate for a particular position), the type of audience it was designed to reach (e.g., researchers, practitioners, or the lay public), and the relationship of the clearinghouse to a parent or sponsoring agency (e.g., an autonomous clearinghouse versus one that was an integrated component within a dissemination or programmatic unit of a Federal agency). Other factors influencing the design and operation of the clearinghouse included the year the clearinghouse was organized and the history of its mission (i.e., older clearinghouses were founded on somewhat different premises than newer clearinghouses) and its subject focus (e.g., there appeared to be inherent differences between the health, education, and social services fields that affected the structure and focus of information dissemination activities). These factors formed an environment that partially determined the structure and design of each clearinghouse.

Phase III Purpose and Methodology

Phase III was initiated in December 1980, to address selected policy issues pertaining to the planning, operation, and evaluation of human services information clearinghouses. Its intent is to provide policymakers with an understanding of the background of major policy topics being addressed by the government, an awareness of the implications of proposed policy options, and suggestions for potential courses of action.

The policy topics addressed in Phase III were selected by a Department of Health and Human Services advisory committee for this study. Topics were selected because of their relevance to current discussions within the Department and their importance to the planning of new clearinghouses and the evaluation of existing ones. The topics selected were: factors to consider in planning a clearinghouse; cost recovery in clearinghouse operations; overlap and duplication among information services; the role of clearinghouse publications programs; and techniques and measures for evaluating clearinghouses. To set a framework for discussing these topics, an introductory chapter was added on the role clearinghouses can play in information dissemination and diffusion.

The information presented in this report is derived from a variety of sources. A literature review was conducted to learn about previous research on the policy topics. Interviews were conducted with selected private information services and commercial publishers to understand how they operate and what their concerns are. Several clearinghouse directors were also contacted for information or to clarify data and opinions they had shared during our Phase II interviews. The data collected in Phase II were reviewed and, where appropriate, re-analyzed to support this phase of the work. In addition, two group meetings were held to help clarify the issues and to obtain feedback on our perceptions of the problems; the first meeting was attended by contractors who operate government-supported clearinghouses and the second was attended by Federal officials who monitor or operate clearinghouses.

The results of this research are presented in this report. We have attempted to make the document useful to policymakers by exploring topics of current concern to the Department and the Administration. Where appropriate, we have gone beyond presenting findings by stating our conclusions in a clearly identified summary chapter at the end of the report. The conclusions are those of the study team and are offered to DHHS for its consideration. We are hopeful that the ensuing document will meet the needs of government officials involved in managing human services information clearinghouses.

TABLE OF CONTENTS

TABLE OF CONTENTS

9

LIST OF EXHIBITS

10

1

THE ROLE OF CLEARINGHOUSES IN INFORMATION DISSEMINATION AND DIFFUSION

Introduction

The intent of this chapter is to provide a framework for establishing realistic expectations for information clearinghouses in the human services area and to place policies for their continued operation within that context. It begins with an overview of the variety that exists among the organizations now known as "information clearinghouses." The chapter also establishes the background for the report by describing the role clearinghouses can play in the knowledge utilization process.

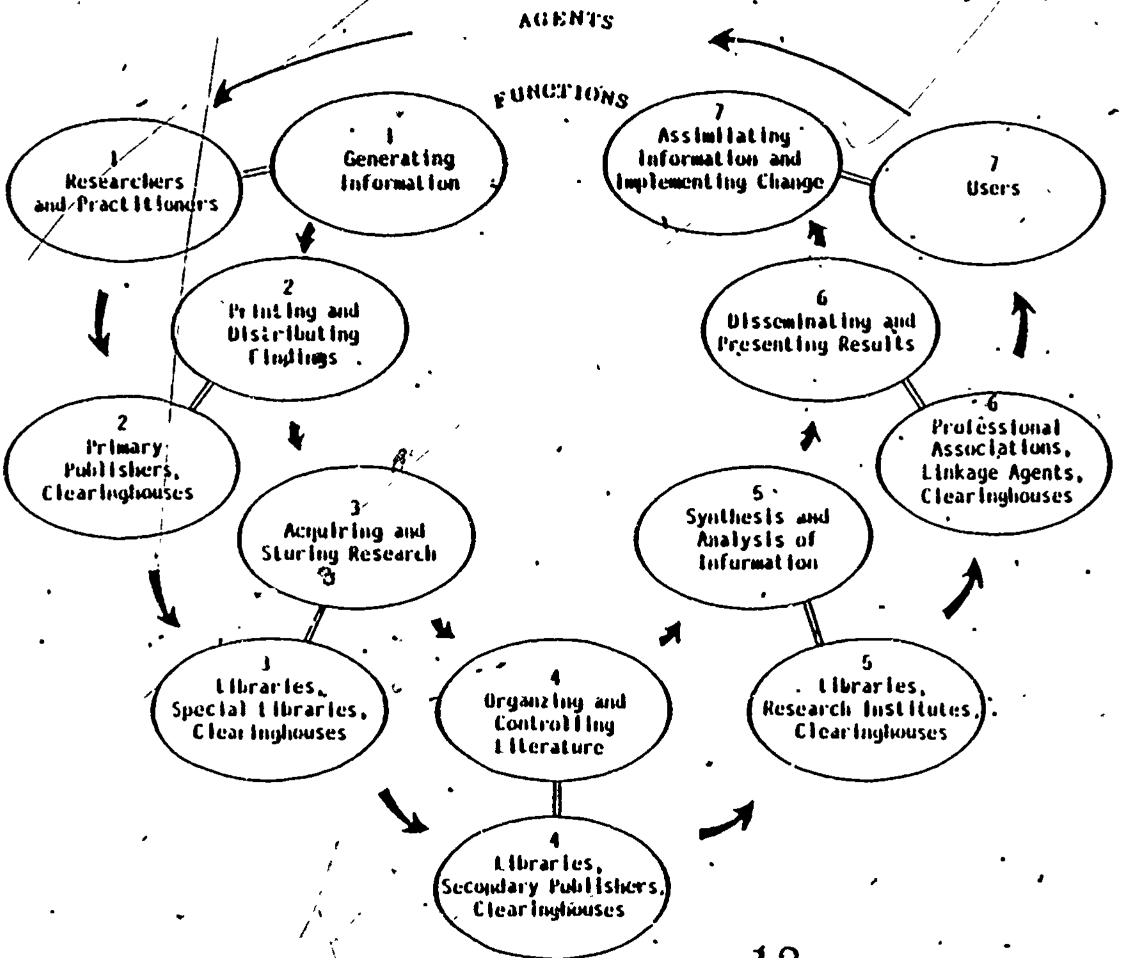
Variations in he Concept of a Clearinghouse

One of the major findings from our earlier analysis of 27 clearinghouses is that there is no clear, precise, or unitary concept of what a clearinghouse is. The term can be, and has been, used to refer to a wide variety of information service organizations. The variety is, in part, a function of the linkages that clearinghouse personnel establish with an agency program area and with other information services in the field. This section describes some of this variation to help readers develop an understanding of differences that must be considered when policies for clearinghouses are being discussed.

Exhibit 1.1 presents a conceptual diagram of the complete information utilization process. A variety of organizations, including libraries, publishers, information centers, and information linkage agents, can and do participate in the process. Clearinghouses perform a unique role in the process because they can take on some or all of the functions of several different types of information services. Clearinghouses can resemble:

- libraries and information centers (in their provision of reference and referral services, including literature searches for requesters);

EXHIBIT 1.1 CONCEPTUAL DIAGRAM OF THE INFORMATION TRANSFER AND UTILIZATION PROCESS 1/



[1] Adapted from Lancaster; 1977:3.

- special libraries (in their collection of materials in a narrowly defined area and in the preparation of bibliographies within that scope);
- secondary publishers (in their preparation of indexing/abstracting announcement tools in the form of printed publications and/or computer-readable databases, for distribution to the public);
- research institutes (in their analysis of technical literature and preparation of reports synthesizing their findings); and
- primary publishers (in their creation, publication, and distribution of new, original literature, e.g., handbooks, critical reviews, and summaries).

Some clearinghouses are designed to function in some ways like all of these types of enterprises, and others are designed to function like only one or two.

Clearinghouses that are involved in all or nearly all of the functions shown in the conceptual model can be considered full-service or full-capacity organizations. Other clearinghouses work with other organizations that perform additional roles in the information utilization process. For example, in the field of education, the ERIC clearinghouses are involved primarily in acquisition and storage (Step 3), organization and control of the literature (Step 4), and generation of information synthesis and analysis products (Step 5). Through such intermediary users of the ERIC database and microfiche collection as state and local education information centers and university libraries, ERIC information is made widely available to education practitioners, administrators, and researchers.

Another model exists in some of the health programs where a fully integrated program is designed to support the information utilization process. Examples include the National Clearinghouse for Mental Health Information, the National Clearinghouse for Alcohol Information, and the High Blood Pressure Information Center. In these areas, it is difficult to define the boundaries of the "clearinghouse" because it is embedded within a larger organization that performs many of the translation and dissemination functions. In some cases, clearinghouses in these program areas bear a close resemblance to special libraries; in other cases, they cover a wide spectrum of activities and are, in effect, a total program.

Other clearinghouses, such as Project Share, are not tied to a specific program and do not have a built-in support network. They perform a broad array of functions themselves. They publish the results of research in their field; acquire and store literature (particularly unpublished literature); develop a database for retrieval of relevant information as needed to respond to requests; and develop information synthesis publications to translate findings into materials that can be used by their target audiences. Where no other linkage organizations exist, clearinghouses also take on some responsibility for establishing user networks, such as in the case of the Consumer Education Resource Network.

The functions assumed by the clearinghouse can be seen to depend on:

- the nature of the mandate that has led to the establishment of the clearinghouse;
- the existence of other information service organizations, in the public or private sectors that already adequately perform some of the functions necessary to serve the clearinghouse's target clientele; and
- the degree to which the clearinghouse can tap into, rely on, or otherwise take advantage of existing information services related to its mission.

The concept of the functions a clearinghouse should perform is constantly evolving. In 1972, Herman Weisman developed a definition that suggested that the major functions of a clearinghouse were document collection, document processing (e.g., indexing), document storage, and document publication or reproduction. Issuing newsletters, developing directories, and issuing accession lists were considered to be "minor" activities. The preparation of critical reviews and state-of-the-art reports were not considered clearinghouse functions at the time (Weisman, 1972:20).

Since that time the announcement, repackaging, synthesis, and networking functions have become increasingly important aspects of many clearinghouse operations. Several factors have contributed to this expansion in the definition of a clearinghouse's functions. The recognition that dissemination alone does not produce behavioral change may become a powerful motivating factor in linking up with organizations that perform the additional steps in the research utilization process or in taking on those functions within the clearinghouse. The primary reason for such a change is that the environment in which they operate (i.e., the social or economic problems that need to be addressed, the subject matter and information involved, and the clearinghouse clientele) is changing and clearinghouses must adapt to these new situations and demands.

Clearinghouses also change as they begin to fulfill their initial objectives; their success generates a need for new objectives to be met. For example, a clearinghouse may be established to bring under centralized, bibliographic control all of the literature of a particular type in a specific area. As that literature is brought under control, the clearinghouse may perceive a need to broaden its coverage in related subjects or in additional types of source materials, or to institute new products or services from that database, to serve its users better and to attract the non-users in its target population. The expansion into new activities is a response to the desire to serve the clientele better; however, it brings with it the potential for encroachment on the work being performed by other information service organizations. (The problem of overlap and duplication among information services is discussed in Chapter 4.)

These two important characteristics of clearinghouses--their variety and their need for change--should be kept in mind while reading this report. One should not imagine a single clearinghouse model or any final definition of clearinghouse objectives and functions. If all clearinghouses were functionally identical, they could not be responsive to the different missions, objectives, clientele, and service needs for which individual clearinghouses have been established. If the clearinghouses were not prepared to evolve as their information environment evolves, they would likely become obsolete.

The need to adapt and respond to an ever changing environment is likely to take on added importance in the early 1980's, because of changing fiscal policies in the Federal government. The perceived need for government-sponsored information dissemination services--and for clearinghouses as a means to provide those services--is not likely to disappear during the forthcoming period of re-prioritizing Federal spending. However, the role and effectiveness of clearinghouses in achieving dissemination objectives are likely to be scrutinized even more closely in this new fiscal environment. An understanding of the role clearinghouses can play in information dissemination is, therefore, critical to establishing policy directions for the coming years. This role is discussed in the next section.

Clearinghouse Dissemination Objectives

The assessment of clearinghouse effectiveness must be made in context of a basic understanding of their objectives. It is generally agreed that the dissemination of information--to inform a target audience about the availability of information on a given topic and/or to provide that information directly--involves a set of objectives that are quite distinct from those that seek to bring about behavioral change, to encourage adoption of specific innovations and/or practices, and to bring about greater research utilization. This distinction is reflected in the definitions given by Blake (1973:3-4):

- dissemination--the act of creating an awareness of or an interest in a practice considered to be a worthy solution to a need or problem among potential users, e.g., the production and distribution of printed or audio-visual materials, conferences, interpersonal communication, traveling seminars, answering queries, oral presentations;
- diffusion--the process by which a practice or solution is moved from the producers and developers to consumers who adapt and translate into practice, e.g., awareness/interest activities, visitation/demonstration, technical assistance for installation, staff training in preparation for field testing, evaluation to determine impact.

The distinction between dissemination and diffusion is particularly important in establishing a realistic role for information clearinghouses. If dissemination is the goal of government information services, then expectations for evaluating their effectiveness should be stated in terms of increasing the target audience's awareness of and interest in specific practices or findings. On the other hand, if the goal is diffusion and adoption, then performance measures should be stated in terms of the type of change to be effected. What must be realized, however, is that methods suitable for achieving dissemination are not necessarily likely to produce diffusion.

Recent studies indicate that the techniques most useful in producing effective diffusion and research utilization are significantly different from the dissemination techniques used by clearinghouses. Strategies for influencing the populace or certain segments of the populace involve use of a wide variety of information exchange techniques and channels. For example, to encourage acceptance and widespread implementation of new practices and ideas among practitioners is likely to require active face-to-face communication between the designers of innovations and the target practitioner group, to facilitate the practitioners' participation in the innovation adoption and implementation process (Stevens and Tornatzky, 1980:34). Yin and Gwaltney (1981:569-571) also suggest the use of linkage agents and user panels as methods for facilitating the necessary communications between practitioners and researchers.

These studies also suggest that research reports and written materials are only one source of information used by practitioners. Other sources include first-hand experience, the experiences of trusted colleagues, and information obtained at conferences and workshops. Frequently these other sources are considered more reliable than the written word, in part because the user can determine whether the conditions under which the innovation was tried resemble the conditions in his or her environment (Yin and Gwaltney, 1981:559; Weiss, 1980:390). Exogenous factors, such as an organization's willingness and ability to change, also play a part in determining whether an innovation will be adopted (Knott and Wildavsky, 1980:545).

The role assigned to clearinghouses typically (although not in all cases) stops short of these types of intervention processes. Clearinghouses are active participants in the information transfer process but generally only supportive participants in the utilization process. Their support is to various types of linkage agents in a given field and/or to specific program areas within their sponsoring agencies. Therefore, unless a clearinghouse is given or assumes an active role in bringing about change, it cannot and should not be held accountable, after the fact, for accomplishing diffusion-related types of objectives.

The research summarized in this chapter has important implications for determining future policies for the planning, operation, and evaluation of clearinghouses. The criticism of the failure of clearinghouses to produce information that affects decision-making stems from unrealistic expectations about what effects dissemination of research findings can have on social policy and programming and from inadequate understanding of the interventions needed to produce behavioral change. Recognizing what information dissemination and clearinghouses can accomplish permits policymakers to:

- establish more realistic objectives for clearinghouses;
- plan the structure and placement of clearinghouses so that they are part of a support network that establishes the communication needed to ensure adoption of proven innovations, if that is the goal; and
- establish realistic standards for evaluating the performance of clearinghouses.

Policymakers must decide whether it is appropriate for the government to be funding and operating these types of facilities.

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2

PLANNING CONSIDERATIONS AND ISSUES

Introduction

Planning is the name of the process through which the goals of an enterprise are established and/or translated into operational policies and procedures. Every economic and social unit in both the public and private sectors engages in planning, sometimes in an intensive and highly explicit way but often in a more casual and implicit way. There is a moderate correlation between the quality of planning and the success of the operation being planned. An enterprise may succeed in spite of poor planning if it embodies a very sound or unique idea. On the other hand, it may fail in spite of good planning if the idea or concept behind the plan is too fragile, the circumstances on which the plan was based change drastically, or the plan, once developed, is not followed.

This chapter addresses the formal planning process as it relates to the establishment and operation of information clearinghouses. The chapter draws upon and extends, through further interpretation, the findings from our study of about 30 clearinghouses and other types of information-dissemination organizations. The chapter is not designed as a prescriptive handbook for planning any given clearinghouse. As becomes more evident in the discussion, the issues and choices involved in such planning are complex, and there is a dearth of well-tested principles and easy answers. Therefore we attempt primarily to illuminate the major issues and choices as they relate to the establishment of new clearinghouses and to changes to existing ones. Consideration of the latter reflects the fact that planning is not a one-time, once-and-for-all type of activity. Rather, it represents--or should represent--an ongoing activity in the management process. This chapter will address the topic of planning as it relates to:

- clearinghouse missions, objectives, and functions;
- management and organizational considerations; and
- operational considerations.

Clearinghouse Missions, Objectives, and Functions

In the description of any type of system or service, it is useful to differentiate three levels of specification. The "mission" (or sometimes "goal") is typically a broad statement of the basic purpose underlying the establishment of the system--in this case, the information clearinghouse. Because of the generality of most mission statements, the reader cannot determine from them what functions a clearinghouse actually performs or how it performs them.

Statements of "objectives" translate mission statements into more specific terms that can help the planners to begin defining clearinghouse functions--the latter representing a still greater level of specificity. A typical hierarchy might be as follows:

- Mission: disseminate safety information;
- Objective (one of several): identify numbers of organizations and individuals who need safety information; and
- Function/activity (one of many): screen all (or some percentage) of the published professional literature, as well as unpublished reports and dissertations, for information relating to the topic of safety.

One of the major findings of the earlier phases of this study was the general lack of specificity in clearinghouse objectives and the lack of articulation of the linkages between the mission and objectives of individual clearinghouses and between objectives and their functions, or activities. For the most part, clearinghouses are thought of and defined in terms of the activities that they perform, not in terms of what those activities are expected to accomplish, (i.e., their objectives).

It is taken as an article of faith that information dissemination is a service for public benefit. Therefore, clearinghouse objectives are rarely stated in terms of expectations for outcomes of a specified nature (e.g., the adoption of a particular innovation, improved practice, or improvement in a particular social condition). Instead, they are phrased in terms of information-related activities (e.g., to help a certain population stay abreast of current research or practice, or to make a body of literature more readily available in a certain area, or to distill and otherwise make sense out of the growing body of knowledge in a field or problem area). As one program director put it, "Information dissemination alone cannot bring about change, but change is not likely to occur without information."

The initial expression of need for a clearinghouse to perform information dissemination activities can stem from any of a number of sources, for example, through legislation or agency priorities, as a result of constituency concerns, or as an integral part of the conceptualization of solutions for a particular problem. Regardless of the impetus for clearinghouse development, there must be a realistic and specific statement of mission and objectives to facilitate the identification and development of an appropriate set of information service activities for the clearinghouse.

Without a clear and unambiguous mission statement, and without a reasonably specific definition of objectives, one cannot:

- establish realistic expections for the clearinghouse;
- provide a basis for designing the policies and procedures of the clearinghouse; or
- provide a basis for determining whether or how well a clearinghouse is doing its job.

There is a saying that "If you don't know where you're going, any road will get you there." What it means in the clearinghouse context is that if no objectives or targets have been specified for the clearinghouse, almost any course of action or any combination of clearinghouse activities is equally valid and equally defensible. The implications for the evaluation of clearinghouse activities are profound. We will return to this problem in Chapter 6. For purposes of this chapter, we will assume recognition and acceptance of the premise that clearinghouse sponsors and planners want to be able to answer questions such as these:

- What kind of information is to be disseminated?
- To whom will the information be disseminated, and if others are intended to be the ultimate beneficiaries, who are they?
- What is expected to be gained by the dissemination activities?
- How is the dissemination to be accomplished?

The choices available in answering these questions must necessarily be studied together in the context of technical, economic, and political realities, and in the context of the original expression of need. Decisions in one area influence and are influenced by decisions in other areas, and all of them must take realistic account of available resources and constraints.

A context for addressing these questions was provided earlier in Chapter I and a more specific context is provided in the following two subsections.

Dimensions of Information Dissemination

Information dissemination has a number of dimensions that need to be defined in the process of specifying the objectives of a clearinghouse. Among the most important are the characteristics of the "information package" being disseminated, the degree of neutrality (as opposed to advocacy) reflected in the information that is being disseminated, and the aggressiveness with which the information is being disseminated.

The Information Package. For any given clearinghouse, a multiplicity of outputs, or information packages, may be needed or desired. Those packages may be formal publications (e.g., state-of-the-art reports and critical summaries), informally prepared and bound materials (e.g., bibliographies on selected topics), or responses to inquiries that might include a cover letter and a bibliography or listing of referral sources. Since resources are typically scarce and must, therefore, be allocated carefully, it is necessary to make hard choices and establish priorities among various types of information packages. The clearinghouse can, for example, focus its dissemination effort on informing a target audience about the availability of information (and the means for obtaining the information) on given topics. On the other hand, the clearinghouse can focus on disseminating knowledge--information content--to educate the target audience to the findings from research and practice. These two objectives, although not mutually exclusive, call for very different kinds of information packages. A clearinghouse may try to accomplish both objectives. However, it should be aware that each of these objectives has its own set of requirements for support activities, for information formats, for appropriate channels of dissemination, and for staffing.

The foregoing discussion addresses the nature of the information package. An equally important and related consideration is the type of information being disseminated. The focus of most clearinghouses is on bibliographic information--information packaged primarily in printed form to refer recipients to a set of source materials that are also packaged in printed form. Similar reference activities and products can be envisioned for numeric or statistical data, referral sources (e.g., programs, people, or organizations), or for non-print materials, all of which tend to be much more "fugitive" than the printed record of knowledge.

Neutrality versus Advocacy. The neutrality-versus-advocacy issue has to do with the viewpoint that is reflected in the clearinghouse's dissemination efforts. Policies must be articulated in terms of whether to present the target audience with information about materials on all sides of an issue or only about those that support a particular viewpoint.

A number of clearinghouses today reflect current public policy on a given topic (e.g., the hazards of smoking) and by their very existence imply an advocacy position. Although some of these clearinghouses are relatively neutral in their collection of information and in their responses to requests for references on a given topic, their information analysis publications more clearly reflect their advocacy position.

Although the functions of a clearinghouse with a particular advocacy position may not differ significantly from those of a more neutral clearinghouse, there are major differences in their guiding principles and objectives. It is one thing to develop a strategy to inform the public about the issues in matters of public policy; it is quite another to develop a strategy for disseminating a particular viewpoint or message about those issues. In translating legislative or agency intent into a set of objectives, the appropriateness of the clearinghouse role with regard to the advocacy/neutrality issue must be fully explored and made explicit.

Aggressive Versus Passive Dissemination. A third important dimension of information dissemination has to do with the fundamental meaning of the concept "dissemination." Dissemination can be accomplished through an active and aggressive distribution of information--focusing on the "exposure"--or it can be accomplished through more passive and responsive distribution of information, on request--focusing on availability and access. Unless further specified, dissemination can be taken to mean any of several very different kinds of activities, as suggested in Exhibit 2.1, where three modes of dissemination are arrayed against three types of information.

A number of operational implications exist for each of the nine cells in the Exhibit, particularly in the area of outreach and marketing. If, for example, a clearinghouse intends to distribute copies of a particular publication to targeted individuals who have not requested that publication, a procedure must be developed to provide assurance that the publication will be of value to them. In this area of direct distribution, versus responding to requests for publications, clearinghouse roles and cost-recovery philosophy become most critical.

The distinction that is raised in this Exhibit between requesters and recipients involves some complex problems that must be faced in defining a clearinghouse's target audience and users. This is the topic of the next subsection.

Target Audiences and Users

The majority of clearinghouses in our study identified one or more sets of target audiences. These target audiences include professionals (e.g., researchers, practitioners, and administrators), organizations (e.g., foundations, associations, agencies, and other information services), and the general public or special population groups (e.g., handicapped individuals, low-income persons, and individuals with a particular health problem). The specific occupational or personal characteristics of these target audiences are defined in context of the mission of the particular clearinghouse (e.g., an education-related clearinghouse may define a practitioner as an elementary school teacher and a health-related clearinghouse may define a practitioner as a physician.

In practice, many clearinghouses serve a broader range of individuals and organizations than the defined target audience; these individuals become actual users through their requests for information and publications. However, not all clearinghouses are this accommodating. Some follow a policy of referring non-target audience requesters to other organizations better equipped to handle their requests. Although a clearinghouse may elect to serve all who request

EXHIBIT 2.1: COMBINATIONS OF DISSEMINATION MODES AND INFORMATION TYPES

Types of Information Disseminated / Dissemination Modes	Secondary (Abstracting and Indexing) Publications	Documents that Have Been Announced in Secondary Publications	Original Publications Developed by the Clearinghouse
Distribute only on request			
Distribute to those who subscribe or otherwise request to receive automatically			
Distribute to selected individuals and organizations in a target population without any prior knowledge that they are interested in being a recipient			

information, it is nevertheless important that its efforts be given some direction, as well as some boundaries, through the identification of particular targets. The characteristics of that audience (including who they are, where they are located, how many there are, what their information-seeking and information-using behaviors are) are the single most important factor in determining the shape of clearinghouse services and publications.

Having emphasized the importance of target audiences to the definition of a clearinghouse, we should point out with equal emphasis that the answers to some questions about the characteristics and needs of those audiences may not be knowable--or at least not readily knowable. Defining a target audience is often much more difficult than it is imagined to be. Those directly involved in clearinghouse programs understand well both the difficulty and the importance of distinguishing between the characteristics of practitioners and those of researchers, or between individuals in their professional/occupational roles and their role as citizens, in their development of appropriate publications, services, and channels of dissemination. The following questions help to illustrate the difficulties that can be encountered by clearinghouse personnel in translating the spirit of a legislative or agency policy into a realistic statement of intent on who is to be served.

- Is the target audience actually definable at any given point in time (e.g., practitioners with a particular health care delivery responsibility) or do individuals become a part of that audience only under special conditions or when confronted with a particular problem (e.g., pregnant teenagers)?
- Is the target audience directly reachable, or is it necessary or desirable to reach its members through a set of intermediaries (e.g., private organizations and/or state and local agencies) that are likely to have contact with that audience?

Answers to these types of questions are needed to formulate a successful outreach strategy and to determine the types of linkages that must be established to reach effectively (and cost-effectively) the ultimate beneficiaries of clearinghouse services. Therefore, although it may be politically desirable to speak in terms of ultimate beneficiaries as the target audiences for clearinghouse publications and services, it is also of practical importance to clearinghouse personnel to identify the actual audiences, including intermediaries, with whom they will be in direct contact.

Management Considerations and Issues

This section uses the major findings from our data collection to illustrate the ways in which certain variables can influence the design of a clearinghouse and/or aid in the management of an existing clearinghouse. Major decision points and issues are discussed in the areas of budgeting and financial planning, organizational and staffing options, the role of automation, and marketing.

Budgeting and Financial Planning

Final formulation of a clearinghouse design, including its activities, staffing, and service objectives, is clearly dependent on the budget that is available to develop and operate the clearingnouse. Therefore the clearinghouse design should be conceptualized in different configurations to fit realistic "minimum" and "ideal" levels of funding.

The mean funding level of 19 Federally funded clearinghouses, including those operated internally and those under contract, is now about $1 million. The range is between $108 thousand and $4.8 million. The contrast between these two extremes may be somewhat exaggerated, because the smaller budget figure is associated with a Federally operated clearinghouse and all of its direct and indirect costs may not be represented. Nevertheless, the differences in budgets between these two clearinghouses reflect significant differences in their target audience. In the case of the smallest clearinghouse, the target audience is a very restricted and well-defined set of professionals; in the case of the largest clearinghouse, the target audience is the "general public." In the case of the smaller clearinghouse, the processing of information into a collection is a major objective; in the case of the largest clearinghouse, a major objective is to be able to handle some 240,000 requests per year.

Some other key budget-related findings from our earlier analyses are presented in Exhibit 2.2. Because clearinghouses are labor-intensive enterprises, it is not surprising that the variable of "staff size" shows the closest relationship to the size of the clearinghouse budget. Larger budgets and, in turn, increased staffing permit a clearinghouse to engage in additional activities and to handle higher volumes within those activities.

EXHIBIT 2.2: CLEARINGHOUSE CHARACTERISTICS, BY SIZE OF THE OPERATING BUDGET

Characteristic	Size of Operating Budget a/		
	$249,999 or less per year (n = 6)	$250,000 - 749,999 per year (n = 7)	$750,000+ per year (n = 8)
Mean Size of Staff (FTEs)	4.6	13.6	33.1
Mean Size of Collection	10,103	11,985	78,132
Mean Number of Items Processed in Most Recent FY	2,929	2,621	7,695
Mean Number of Requests Processed in Most Recent FY	6,550	25,102	95,674
Mean Size of Mailing List	6,877	4,433	50,929
Mean Number of Publication Series Issued in Most Recent FY	4.1	5.7	6.6

a/ Data are reported for a total of 21 clearinghouses that provided the budgetary data needed to classify the organizations by size of budget. NTIS is excluded because the volume of its activity would skew the means in the $750,000+ category.

Clearinghouse Objectives and Economic Realities. In conceptualizing various clearinghouse configurations, one must keep in mind the relative costs of various activities. For example, user services is typically one of the most, if not the most, labor-intensive activities. It tends to require a significant percentage (a mean of 24 percent in our survey) of all operating costs (Applied Management Sciences, Inc. and Cuadra Associates, Inc., 1981:7.15). That is not to say, however, that the publications or database development activities could not equal or surpass these median percentages for any given clearinghouse budget. The main differences among the three major types of clearinghouse activities is that costs in the other two areas are more easily controlled (e.g., through the specification of numbers of publications and their associated budgets and through the specification of numbers of documents to be processed).

The amount of time spent by staff in handling reference and referral questions in a user services activity can be reduced through management policies that limit the levels of service that are to be provided, and through the use of computer-based literature searching services. However, there are no easy ways to control labor costs in situations with high or highly variable volumes of requests. The knowledge that user services is likely to be a significant operating expense means that in planning, careful consideration should be given to making choices such as the following. Given the objectives of the clearinghouse, is the provision of reference and referral services as necessary as some other activities, such as the development of the database or analysis of the information for preparation in re-packaged form?

- If the answer is YES, can other activities be given less priority or be excluded entirely in the clearinghouse design?
- If the answer is NO, can the same amount of money, or less money, be spent initially to establish linkages with existing organizations (e.g., libraries and other service units within universities, hospitals, associations, or social service agencies and organizations) that can provide some or all of these user services? Or can limits be established on who will be served or on what types of requests will be handled, and can those limits really be observed in practice?

Although there may be no completely satisfactory answer to any of these questions, the trade-offs are clear and so are the options: one can provide no service at all; one can provide only a limited range of services; or one can attempt to provide a full range of services, knowing that they may lack timeliness, quality, or other generally desirable characteristics.

This discussion introduces a dilemma in clearinghouse operations that was revealed in interviews with 27 clearinghouses and is represented in the following contradiction: clearinghouses are given the mandate to disseminate information (e.g., by responding to requests that require individualized handling), but many of the clearinghouses cannot actively promote this service, because they have neither the capacity to grow nor the budget to handle the higher volume of requests that might be generated. This dilemma must eventually be resolved through: (1) cost-recovery policies (see Chapter 3); (2) the establishment of limitations or reductions in expectations for the dissemination activities in which a clearinghouse is to be involved; or (3) the development of creative contracting practices that both permit and provide incentive for clearinghouses to grow and to be responsive.

Careful planning and budgeting in the design stage are needed to reflect priorities among the clearinghouse activities being developed. The management of the budget requires good cost-control procedures, the topic of the next subsection.

Cost-Accounting Expectations and Practices. Our data collection suggests that with a few major exceptions, little attention has been given to establishing cost-accounting practices and the appropriate management information systems that support sound ongoing financial planning. These systems are needed to develop realistic expectations within an agency for what it costs a clearinghouse to be "in business" and are especially important if cost recovery is envisioned. The problem is particularly acute in Federally operated clearinghouses, the sponsors of which sometimes have no data on total operating costs. Although contract costs are known for those clearinghouses operated by contractors, the data available are typically not organized in such a way as to permit the computation of per-unit costs that are meaningful outside an individual clearinghouse.

If sound financial planning for agency-wide information management is to occur, some reasonably uniform means for expressing costs must be developed. Such "standards" need to be framed as guidelines, to accommodate major differences among clearinghouses. However, development of the guidelines will not be easy. A major difficulty has to do with the interrelatedness of many of the typical clearinghouse activities. One activity may produce outputs that support several other activities, making it difficult to attribute an accurate share of the costs to each of the activities being supported. For example, a clearinghouse-developed computer-readable database may be used in both the preparation and publication of "spin off" bibliographies and in the provision of literature searches. Some way needs to be found to allocate the cost of the database between those two activities. Significant progress in measuring cost-effectiveness is not likely to occur until some reasonable true costs can be compared against some standard costs or range of costs.

Organizational and Staffing Options

Organization-related areas in which alternatives need to be weighed include the selection of operating organizations, the placement of a clearinghouse within a total program, the definition of functional work units or divisions, and the establishment of staffing requirements.

Selection of Operating Organizations. Among the 24 Federally supported clearinghouses studied, about half are operated entirely under contract. The others are managed and operated within government agencies, although in a few cases, selected functions are performed under contract. The "in-house-versus-contractor" choice may not be available if, for example, the Federal staff positions necessary to operate the clearinghouse have not been authorized. However, if the option exists, the balance of performance and benefits needs to be weighed for in-house versus contractor-operated clearinghouses in these areas:

- (lower) costs;
- cost control;
- overall performance in outreach/visibility;
- constituency development;
- continuity over fiscal years;
- adaptability/flexibility to meet changing needs of populations and programs;

- adaptability/flexibility to stay abreast of and have access to the newest equipment, procedures, techniques, etc.;
- ability to meet staffing requirements;
- service responsiveness; and
- ability to integrate into total agency program effort.

The consensus among several clearinghouse operators and Project Officers with whom discussions have been held is that the balance of benefits or performance typically rests on the side of contractor-operated clearinghouses. It should be noted, however, that in many of these areas, including costs, the basis of the judgments is largely conjectural because comparable data are not available.

Organizational Placement of the Clearinghouse. A Federal agency can find itself subjected to the criticism that its management is not aware of the clearinghouses that its funds are supporting. This should not be too surprising, given the fact that not all organizations classified in this study are known, or readily identifiable, as clearinghouses. Clearinghouse-like functions can be, and sometimes are, embedded in a total program area, with little or no separate identity and visibility. For example, a library collection can be established initially to support a particular program or research area, and as the need for dissemination about the program or about the problem area in which it is working grows, the library can evolve into a rather different type of entity without changing its name or external image.

To accommodate this phenomenon, a distinction can be made between "integrated" ("programmatic") clearinghouses and "independent" clearinghouses. The dichotomy is not altogether satisfactory, but it permits useful discussion of differences in organizational structure that clearly affect the way in which a clearinghouse is designed and the way it is perceived within its parent or sponsoring agency.

For example, the ERIC system, although a part of the total information dissemination program in NIE, operates essentially independently of other program efforts, such as those in the Research and Development Exchange (RDx) and National Diffusion Network, that are directed toward information utilization. The Project Share and the Arthritis Information Clearinghouse also illustrate the concept of an "independent" clearinghouse. In contrast, however, the clearinghouses or clearinghouse-like components in several NIH programs and others (e.g., mental health, high blood pressure, child abuse) are much more integrated into the program areas and into the overall agency mission.

Although one cannot conclude that organizational placement is the most significant variable in accounting for differences in ways clearinghouses are defined (i.e., in the functions they perform and the objectives they work toward), it is clear that such placement is one of the most important variables. Integrated clearinghouses are more likely functionally to resemble special libraries and to have a more limited range of responsibilities, particularly in information analysis and in outreach/promotion. In the health area particularly, it appears that a set of social/research/information aims have been addressed through large, multi-function program units, which are difficult to compare with clearinghouses whose aims are primarily information-related.

Definition of Functional Work Units. Although considerations in this area may be viewed as matters of management detail, differences in the ways clearinghouses are structured functionally and in the ways that staff are assigned to those functions, contribute significantly to difficulties in defining and implementing standard cost-accounting procedures. In some of the larger clearinghouses, organizational charts reflect distinct work units and the assignment of staff to those different units. However, in the smaller clearinghouses, particularly those with a strong service orientation, the work units are not distinct and the staff are perceived as team members who "pitch in" to help wherever the need exists.

For clarity in reporting the various activities of clearinghouses, a single taxonomy was used to analyze the data we collected. This classification of activities includes:

- The input and processing function
  - -- information resources (i.e., collection development)
  - -- processing of materials and facilitation of bibliographic access;
- The information analysis function
  - -- clearinghouse publications;
- The dissemination and user services function
  - -- user services
  - -- promotional and outreach activities; and
- Clearinghouse management.

Other equally valid classification schemes or organizing principles can be developed on the basis of staffing and on the basis of the kind of interaction among activities that needs to be facilitated. For example, user services personnel are likely to be in the best position to detect the need for a topical bibliography or particular information analysis publication. Thus while user services and publications development may be treated conceptually as separate work units, the personnel in a smaller clearinghouse may actually be assigned to help in both units. In larger clearinghouses, an organizational system must be consciously developed to provide appropriate levels of communication and feedback among the different sets of personnel assigned to different functional units.

One example of the complexities in defining and implementing cost-accounting procedures that results from the interrelatedness of clearinghouse activities is represented in the conceptual versus actual organizational placement of announcement publications. These indexes or index/abstract journals are the end product of a series of information input processing steps that produce a master database, although their production may organizationally be a part of the publications preparation work unit. Regardless of their placement, accounting principles must be established that treat these and other products derived from the "master" database in one of two ways: (1) they will share the "first-copy" costs associated with the development of the full database, or (2) they will be treated as by-products that bear only the incremental costs associated with their unique labor, printing, distribution, and other direct costs. This choice becomes particularly relevant to our discussions of cost recovery, in Chapter 3.

Staffing Requirements. The knowledge and skills required in a clearinghouse operation, particularly a full service clearinghouse, span a number of disciplines. Some, such as public administration, communications and journalism, and library and information science, are process-related disciplines. Others, such as in the medical, social science, or education areas, are content-related disciplines that are relevant to the clearinghouse mission. Most of the clearinghouses we studied have a majority of staff members with content-related backgrounds.

There is, of course, no formula that can be prescribed for achieving an appropriate mix of backgrounds. If a full service clearinghouse is the objective, subject expertise is required, not only for information analysis and synthesis but also to provide credibility for the publications and services. On the other hand, infusion of process- oriented skills is also vital, to help ensure an efficient implementation of information processing principles and techniques (with a minimum of re-invented wheels) and that professional skill and understanding are brought to the task of analyzing user needs and selecting appropriate channels for information dissemination.

Because clearinghouses are functionally hybrid organizations, the requirement for an appropriate balance of educational backgrounds is only one element of the broader need for appropriately balanced staff capabilities. A plan for staff development is also needed to bring about a blending of those multiple backgrounds and experiences to create a cohesive and mutually supportive clearinghouse staff.

The Role of Automation

Computer and communications technologies are being applied effectively in many types of organizations, and new applications are being explored or adopted every day. The clearinghouses in our survey do not seem to be in the vanguard in this utilization and exploration, although there is some use of word processing equipment, particularly by the contractors, and some automation in database development and distribution.

In discussions with selected clearinghouse personnel--both Federal personnel and contractors--one could sense reluctance to use automation and skepticism about the relevance of advanced technologies to clearinghouse missions. One can readily understand some of this reluctance. Computer and communications technologies are changing so rapidly that it is not easy for any information service organization in either the public or private sector to keep current with the technology and be able to evaluate its relevance and potential importance to clearinghouse operations. Nevertheless there is a very strong possibility that clearinghouses as a group may be failing to capitalize on automation to help develop more effective and efficient operations and thereby contribute to the achievement of their missions.

Clearinghouses operate within the larger information environment in our society--an environment in which a number of important trends are evident. For example, a number of information service organizations, including clearinghouses, were created to help reduce perceived bottlenecks in identifying relevant information on given topics. The advent of online computer-based systems, through which more than 400 producers of bibliographic, referral, numeric, and full-text databases are distributing their products, has largely removed this bottleneck so successfully, in fact, that with respect to the availability of the professional literature, the chief bottleneck now is the lack of efficient means of obtaining full-text copies of documents that have been identified through the online bibliographic systems.

Efforts are underway to remove this "new" bottleneck. The number of services designed to facilitate document delivery is growing, and both secondary and primary document fulfillment services are using automation to a much greater extent than ever before. The longer-term solution to the document fulfillment problem will occur primarily through the use of online and other electronic distribution media. The pioneers in this area have been the online services in the legal and news-related fields, but some of the primary publishers are following their example. Several experiments are under way to test the technical and economic feasibility of providing the full text of scientific and technical journal articles online.

Not all pieces of the total technology needed to support full-text retrieval and document delivery, particularly documents on demand, are economically viable for widespread use, but by some estimates the technology will be able to support such use within the next five to ten years. The reshaping of the traditional roles of primary, secondary, and other information delivery organizations has yet to be fully envisioned, but it is clear that these organizations will have to change and adapt. Economically and otherwise suitable alternatives or complements to print-on-paper will continue to be sought, because the rate of inflation in publishing printed materials continues to outdistance the general rate of inflation (Lancaster, 1980:4).

Paralleling these developments are equally important developments in distribution media that use broadcast and cable technologies to make the television set a display device. For those clearinghouses whose mission is to reach the general public, the new "teletext" and "videotex" technologies* offer the promise of providing a great many new channels for outreach and dissemination into the home.

It is too soon to forecast the role of the government, and clearinghouses specifically, as users of these technologies. An awareness of these advances and of the issues that surround them, however, is mandatory in planning for new clearinghouses and the continual planning that is part of managing existing clearinghouses. For example, some observers would argue that these technologies, instead of having a democratizing influence and being able to broaden access and availability, are creating even more clearly distinguishable information-elite and information-poor segments of society. This may occur if clearinghouses follow the pattern adopted by other information services of charging for information made available via these technologies. All publicly supported information services, including clearinghouses, need to consider both the merits and implications of this argument.

Marketing, Promotion, and Selling

Marketing professionals make a distinction between "marketing" and "selling." They consider marketing to include activities associated with the definition of the target audience, definition of the product/service line, pricing, establishing sales performance targets, gathering market intelligence, and performance evaluation. "Selling" is seen to encompass those activities that establish contact with the prospective user and persuade that user to buy (or use) the product or service.

Most clearinghouses directors do not make these types of technical distinctions. To the extent that they even use the terms marketing and/or selling, they tend to use them as meaning approximately the same thing, or they use the term "promotion," which has a less commercial connotation than "selling," and more

* One- and two-way transmission systems that use the television set as the "terminal."

accurately represents those activities that are aimed at informing their target audiences about the clearinghouse and its products or services. In this report, we have treated some of the traditional marketing considerations (e.g., defining the target audience) under the general rubric of planning. Some of the other marketing considerations, as well as promotion and sales considerations, are discussed as part of narrower topics, such as publications programs and evaluation of clearinghouse performance.

As in a number of other functional areas, marketing is presently perceived as being closely related to many other clearinghouse operations, particularly user services. However, for planning purposes, it is useful to distinguish between those outreach activities that support other operational areas and objectives (e.g., contacts made to solicit papers for acquisitions) and those that are aimed specifically at informing target and other populations of the existence of a clearinghouse and of its products and services.

A wide range of marketing techniques are used by clearinghouse personnel, including:

- exhibits at meetings and conferences likely to be attended by members of the intermediary or ultimate target audiences;
- presentations about the clearinghouse given at conferences;
- direct mailings of specially prepared promotional materials;
- news releases;
- advertising in professional trade journals;
- mass media advertising; and
- exhibits in shopping malls.

Some clearinghouses use a variety of marketing techniques, while others use a fairly narrow set.

The selection of appropriate promotion and sales approaches and media will necessarily be guided by the characteristics of the target audiences. What is appropriate for reaching particular subsets of professionals, even in the same general field, may be different; and none of these approaches may be ideal for reaching the general population. It may, in fact, not be worthwhile for a clearinghouse to attempt to aim its promotional activities directly at the general public or to selected special population groups because they are so difficult or expensive to reach. Clearinghouse marketing resources may be used more efficiently for the distribution of promotional materials to intermediaries (organizations and individuals) with whom members of the ultimate target audience are likely to come in contact.

Relating marketing and promotional strategies to the definitions of target audiences and differentiating those strategies from others designed to achieve a different set of information dissemination objectives involve complex problems. Until recently both marketing and sales activities have been neglected or, at best, carried out in a half-hearted way, sometimes disguised in euphemisms. This has been true for publicly supported institutions, and even within the private not-for-profit sectors. One reason for this situation is that some information service managers and information service sponsors view selling as "unseemly". However, economic realities are helping to develop the counterbalancing attitude that the ability of an organization to achieve its purposes requires that it also achieve some visibility. In this context, all marketing-related activities have become legitimate, although the resources being applied to them are still very limited by business standards. Only about 5 percent of the budgets of the clearinghouses in this study was being spent on marketing and sales activities. Whether this investment level is sufficient to achieve a desired level of visibility is an important issue that clearinghouse sponsors and managers must address.

Planning and Evaluation

Planning and evaluation are usually regarded as two of the most important functions of management. While this entire report is an exposition on planning as it relates to clearinghouses, we mention the topic of planning here as a reminder of its role as a management function, a function that itself must be planned. Planning may be reflected in the specifications contained in a contract work statement, in the recommendations from advisory groups, in the product of some other periodic review and evaluation process, and in other processes and products. Evaluation is addressed in Chapter 6.

Operations and Operational Considerations

The major sections covered in this chapter focus on increasingly detailed levels of planning. In discussing this final set of considerations, the focus is on the major operational choices that must be studied. Some of the choices will influence and be influenced by decisions made in some of the earlier areas; others are primarily a matter of specifying operational procedures and guidelines. Ideally, the decisions that result from this and related sets of operational considerations will be documented by the clearinghouse involved, with appropriate sets of work-flow schematics.

This section covers three major and traditional clearinghouse activities: collection development and dissemination objectives; processing of materials into a formal collection; and user services. A fourth major activity, publications, is covered separately in Chapter 5.

Collection Development and Dissemination Objectives

At the outset of this study it was necessary to define the concept of a clearinghouse in terms of a number of characteristic activities that, collectively, distinguish clearinghouses from other types of information service organizations. Two activities that are of particular relevance to collection development and dissemination objectives are:

- Acquiring literature. Must actively engage in the acquisition of literature-based information related to its focus or maintain a database representing records of literature-based information resources. Note: "literature" is broadly defined to include audiovisual materials, speeches, descriptions of organizations or programs, etc.
- Developing an organized collection with appropriate access tools. Must process and organize the acquired information into a collection with indexes and other tools to provide for systematic searching and access.

The presence of each of these activities was an important criterion in distinguishing the targets of this study from information and referral services, "hot line" help units, and other information service entities that might also claim the name "clearinghouse."

In the planning process, the relative importance of these two functions should be related to the overall goal of the clearinghouse, and a set of more specific objectives should be associated with the functions, to help determine what types of materials will be acquired by the clearinghouse and how they will be used. One objective may be to establish a small core collection of materials that will be supplemented, as needed, by materials in other collections. The collection and supplementary materials could be used as a resource by clearinghouse and agency staff in meeting user services and other information analysis and dissemination objectives. A different objective may be to develop a comprehensive collection of materials and to disseminate widely information about the availability of these materials through an online database and/or printed announcement journals.

Collection Use. If the source materials in a collection are a key ingredient in the information dissemination objectives of the clearinghouse--as in the second example given above--then a number of dissemination vehicles can be developed to help ensure awareness and use of these materials. The vehicles include:

- periodically issued accessions listings that provide citations or citations with abstracts to newly acquired items of general interest. These listings may be distributed as individual pieces or, alternatively, within newsletters, columns in journals, or other multi-purpose news-related items;
- periodically issued bibliographies (citations only or citations with abstracts) on particularly relevant ("hot") topics that are distributed as individual mailing pieces or, alternatively, as part of other clearinghouse-released publications;
- regularly issued secondary journals containing citations or citations with abstracts and appropriate indexes of newly accessioned items that have been received and processed during some recent period of time. Cumulated indexes that are issued on some regular basis (e.g., semiannually or annually, are also essential); and
- citations or citations with abstracts that correspond in part or in whole with the items included in the alternative listed above, and are represented in computer-readable form for use in online retrieval.

Within each of these choices, a second level of related planning questions must be addressed. For example, the initial stimulus for preparing citations and abstracts in computer-readable form may be one of gaining efficiencies by creating a "master database" for a photocomposition-based publication of the desired journal and indexes. However, once the master database is in computer-readable form, it can be used as an online database to support many other management and service objectives, including ongoing analysis and monitoring of a collection (e.g., to learn the ratios of items on various subjects that are being acquired, as a aid in selection, or to provide quality control checks for indexing consistency). The master database can also be used to provide online retrieval services for the staff's needs. A logical extension of the use of a database for internal retrieval purposes is to make it available for direct online access by the public, a step that has been taken (or is planned) by about 40 percent of the clearinghouses in our study. If the database is likely to have some utility to those outside the clearinghouse, it can be made available online through one or more online service organizations in the public sector (e.g., the National Library of Medicine; the Chemical Information System of the National Institutes of Health and the Environmental Protection Agency) or the private sector (e.g., BRS, Inc.; DIALOG Information Services, Inc.; or SDC Search Service).

As indicated earlier in the discussion of "first copy" costs, a large proportion of a clearinghouse's operating costs can lie in the preparation of the collection. Thus having a "master database" from which multiple products are generated and multiple uses are supported helps to maximize the return on that basic investment.

Types of Materials to Be Collected. The information dissemination objectives associated with collection development are established through interpretation of the answers provided to questions raised earlier in this chapter. However, they will also be answered in the context of the types of materials that are the focus of the collection development effort. The types of materials likely to be considered for inclusion (unless a particular type of information is a given starting point for the clearinghouse planning process) are given in Exhibit 2.3.

A clearinghouse that is established to deal primarily with government-sponsored research in a particular area will weigh a different set of choices than a clearinghouse that intends to deal with statistical data or the full range of professional literature, regardless of source or format. For a clearinghouse focusing on the collection of government-sponsored research reports or other types of government-sponsored or government-collected information, the use of NTIS and/or ERIC for processing and dissemination must be considered. If the journal literature is the primary focus of the clearinghouse collection, as it is for most of the clearinghouses in our sample, already existing outlets for processing, announcement, and distribution exist in both NLM and ERIC, as well as many private-sector services.

EXHIBIT 2.3: ILLUSTRATIVE LISTS OF TYPES OF MATERIALS TO BE CONSIDERED FOR INCLUSION IN CLEARINGHOUSE COLLECTION*

Audiovisual materials (e.g., films, cassettes) Bibliographies Books Computer-readable tapes Conference proceedings and speeches Curriculum guides Directories Dissertations Journals Journal articles Legal documents (Federal) Legal documents (State) Manuals and handbooks Newsletters News clippings Pamphlets Program descriptions (Federal or Federally supported) Program descriptions (other) Reference tools Research reports (Federally sponsored) Research reports (other) Referral sources (individuals and organizations) Statistical data (collected by the government) Statistical data (collected by others)

* The scope of a clearinghouse collection also needs to be defined to include the matter of whether it will deal only with U.S.-related materials.

A relevant model for a clearinghouse that "feeds" materials into NTIS and NLM exists in the National Health Plannning Information Center. This model was apparently rejected in the planning for the National Clearinghouse for Bilingual Education and the National Clearinghouse on Aging, although the reasons for that rejection are not clear. The issues of overlap and duplication are discussed in more detail in Chapter 4; but we should note that the starting point for consciously accepting or rejecting overlap and duplication is in the needs assessment and planning process.

Economies of scale may be achieved in using capabilities already developed within the government to process, announce, and distribute materials. If these capabilities were used by other clearinghouses, could (and would) more resources and attention be given to information analysis and to tailored dissemination efforts? The merits of the "tertiary database" concept, as developed by the now-defunct Women's Educational Equity Communications Network (WEECN),* also needs to be studied further. The research should determine whether this is an economically satisfactory alternative for focusing attention on the literature in a very specific problem area while at the same time minimizing or eliminating the duplication of processing effort, across public agencies and between clearinghouses and private information organizations.

Processing of Materials in the Collection

Levels of resources and effort associated with the information processing steps need to be commensurate with the intended uses. What is done to maintain a small resource library will be considerably different from what is done to support the development of a database that is to be made available online or used to generate a printed announcement publication at regular intervals. In Exhibit 2.4, a number of decision areas are described, to illustrate the range of choices to be considered in developing operational procedures. The illustrations of choices given in this Exhibit reflect the variety of practices currently adopted by existing clearinghouses.

* Through a series of agreements worked out with 13 public and private database producers, WEECN identified citations relevant to its scope through computerized searches of their databases and produced its own publication announcement using selected output of these searches (Butler and Brandhorst, 1980:174-176).

EXHIBIT 2.4: ILLUSTRATION OF PROCEDURAL DECISION AREAS

Identification and Acquisitions

Decide whether the desired materials must be defined through an active solicitation program to obtain typically unpublished or otherwise "fugitive" materials. If so, decide how potential authors and sources of those materials will be reached and with what frequency.

Decide whether formal exchange agreements are needed with organizations that regularly or periodically produce relevant materials.

Identify published sources, including online databases, that can be scanned and searched regularly for relevant items.

Decide whether identified items will be purchased or only acquired on loan or through other means that do not require payment.

Selection

Decide whether all items will be included in a single collection, or in one of several collections (e.g., a library, an informal secondary collection of materials maintained in vertical files for reference and referral use, and/or a computer-readable database).

Decide if any criteria, in addition to the relevance of an item to the defined scope of the clearinghouse, will be used in screening materials for inclusion in the collection. If such criteria as quality, reproducibility, availability, format, methodology, and objectivity are to be used, formulate the definition of each in writing.

Decide whether the clearinghouse collections will be limited to U.S. or English language materials.

Decide whether the collection will cover only current materials or whether older items of value will also be collected. If so, decide on the period of coverage and what exceptions, if any, will be made.

Preparation of Bibliographic Records

Decide on the descriptive elements (e.g., titles, author) that are to be included and the standard conventions or practices (e.g., Anglo-American Cataloging rules, MARC, ANSI) that are to be adopted or adapted.

EXHIBIT 2.4: ILLUSTRATION OF PROCEDURAL DECISION AREAS (Continued)

Decide whether a classification system and/or subject terms will be assigned to each record.

If subject terms are to be assigned, decide whether these terms will be drawn from a controlled vocabulary list or from the text of the title, abstract, and/or document.

If the access tool being developed is a database, decide whether the facility of free-text searching that will be provided by the online service (i.e., the ability to retrieve by words in titles and abstracts, as well as any other fields) in any way changes the requirement for developing a highly structured controlled vocabulary for supporting effective retrieval.

If a controlled vocabulary is to be developed, decide whether an already existing vocabulary is applicable, as is, or whether one or more existing vocabulary tools could be adopted for use by the clearinghouse.

Decide whether records will be typed (e.g., in the form of catalog cards) or a computerized database will be created (e.g., through Optical Character Recognition or online data entry).

46

A basic question that must be posed in considering the options available in preparing a "bibliographic" record (i.e., a set of elements of information that describe and facilitate later location of a book, a journal article, or a magnetic tape of statistical data) is whether automation should be used. This question is usually posed in terms of: What is the "critical mass" or point at which it is worth automating? One of the reasons that no simple rule-of-thumb principle has been developed to answer that question is that studies contrasting costs of manual and automated systems are dealing with two essentially different outputs (e.g., a card catalog versus a computer-based catalog). It is likely, in fact, that for smaller collections, it will be cheaper to develop and use a catalog or index manually. However, to answer the ultimate question of whether that catalog or index is more cost-effective than one created in computer-readable form requires that the capabilities for access, retrieval, and other manipulations (i.e., the effectiveness) of those two end products be compared.

Costs and some measure of value must be attributed to each of the by-products produced and uses served by the two different types of collection access tools. For example, a determination must be made of the costs for generating topical bibliographies manually as compared to generating them from an online search. The value to management of being able to monitor and manage collection growth, analyze acquisiton trends, and conduct periodic checks on the quality of indexing must be quantified. Whether these activities could be done readily through use of the manual tool is an important planning consideration. Another factor to consider is the costs to user services for conducting a literature search manually, as opposed to online. Research findings suggest that use of an online database is more cost-effective than a manual approach (Wanger et al., 1976; East, 1980). However, if no particular value is attributed to increased facility in the use of a collection tool, automation will always appear to be the more costly alternative.

User Services

A taxonomy of types of user services associated with clearinghouses was developed for purposes of collecting and analyzing data for our survey. A further refinement of that taxonomy is presented in Exhibit 2.5.

Reference and referral services may be characterized in terms of the degree of responsiveness and in terms of how active the clearinghouse will be in seeking out opportunities to provide these services. A clearinghouse that responds to all

EXHIBIT 2.5: ILLUSTRATION OF MAJOR TYPES OF USER SERVICES

REFERENCE AND REFERRAL SERVICES

Document delivery

Document loan

Responses to requests for:

- -- information about the clearinghouse
- -- information about an agency program
- -- information on "what is available on this topic," for which preassembled lists of references and/or copies of materials have been prepared
- -- quick-reference questions that require less than 30 minutes to obtain an answer through searching a reference tool, contacting one or a few other organizations, or obtaining list of a few references (to the literature, people, programs, or organizations)
- -- research on a problem that requires more than 30 minutes to obtain an answer and requires preparation of some distillation/synthesis of findings from readings in multiple sources or contacts that are made with other organizations
- -- computerized or manual literature searches, to generate a bibliography tailored to the particular request, using the clearinghouse database (or indexes) and/or databases (or indexes) produced by other agencies and organizations.

CONSULTING/TECHNICAL ASSISTANCE

Sponsorship of conferences and workshops on topics or problem areas within the scope of the clearinghouse, for members of the target audience (e.g., to facilitate communication among those working in the same area).

Education and training seminars aimed at helping the target audience or intermediaries (including library and information services personnel) to use the clearinghouse, its publications, or its databse.

Consulting and technical assistance to help an individual or organization, or groups of individuals and organizations, to apply information to particular situations and problems.

inquiries with standard, pre-assembled lists of references will be perceived as less responsive than a clearinghouse that handles each request individually and tailors the response appropriately. However, if reference and referral services are not perceived to be the most important instrument in meeting clearinghouse dissemination objectives, it may be entirely justifiable for the clearinghouse to provide only minimal levels of such services. On the other hand, referral services are almost mandatory in a clearinghouse operation. Requesters are not likely to have an understanding of clearinghouse objectives, operations, and limits, and they are likely to expect a government-sponsored agency to extend itself, at least to the point of referring the requester to a more appropriate information source.

User services need not be thought of simply in terms of passivity and responsiveness. Many opportunities for outreach exist in this area as a number of clearinghouses seize on these opportunities to provide a very targeted service. For example, some clearinghouses volunteer their services to other organizations that operate in the field (e.g., agencies, foundations, professional associations). They may support the research and publications dissemination efforts of these organizations or may develop materials for use in their conferences, meetings, and special events. These special materials (e.g., bibliographies or summaries of major research and development activities) are tailored for greater effect to the theme or special focus of those meetings.

For each of the reference and referral services that will be provided by the clearinghouse, it will be necessary to define relevant policies and procedures. For example, policies will be needed on telephone follow-up to mail inquiries (to help ensure that a request is understood) and on adherence to copyright restrictions related to the copying of materials developed by others. Similarly, procedures must be defined for receiving and screening requests (e.g., by mail or phone) and routing them to appropriate staff, and for the use of standard letters and forms (e.g., for maintaining records and for inclusion in the response package).

In addition, consideration needs to be given to methods of supervision and load balancing. Regular staff meetings are a means by which requests are discussed in a group, ideas for fulfilling those requests are shared, and targets are set for allocating time. A clearinghouse can strive for quality assurance through regular review of responses prepared for users and through use of evaluation/feedback forms sent to users in response packages.

Another area of user services involves giving technical assistance to individuals and organizations in their use of information for specific purposes. This service is not a traditional function in most clearinghouses surveyed. Strategies and models for such linkages exist (e.g., in the NIE educational diffusion programs), but determining their applicability to each field and problem area covered by a clearinghouse is beyond the scope of this study.

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3

COST-RECOVERY ISSUES AND CONSIDERATIONS

Introduction

The feasibility of operating government-supported information services on a cost-recovery basis has been discussed for many years by proponents and opponents of this approach, but no final decision has been made about implementing it on a government-wide basis. In an era of limited Federal funding, cost recovery is again being suggested as a means for continuing such information services, but at a reduced cost to the government. This chapter presents information to inform policymakers by highlighting the following topics:

- the demand for cost-recovery practices;
- economic theories of information;
- current practices among information services; and
- considerations in implementing a cost-recovery policy.

The Demand for Cost-Recovery Practices

The Federal government has long had a policy of charging recipients of government services if they receive special benefits above and beyond those accruing to the general public. The policy is specified in Title 31 Section 483A 686A of the U.S. Code and in the Office of Management and Budget (OMB) Circular A-25, issued in September 1959. The circular states that a charge should be made to each identifiable recipient of a government service from which a special benefit is derived, to recover the full cost to the government of rendering the service.

In the past few years, pressure has grown to apply this policy to information services. A 1979 report by the General Accounting Office (GAO) recommended that the Director of OMB direct attention to the development of a clear cost-recovery policy and to assuring its consistent implementation (GAO, 1979:33-34). In June of

1980, OMB issued a draft circular on the improved management and dissemination of Federal information. It specified that information made available through mechanisms other than the depository library system be provided at a price that recovers all costs to the government associated with disseminating that information. Although the circular has not yet been published in final form, OMB officials indicate that they expect a requirement of this type to be issued.

Cost recovery for government-supported information services has become increasingly relevant in recent months. As reductions in proposed Federal spending for human services programs are discussed, it appears likely that some of them will affect agency spending for information services in those areas. In addition, OMB and GAO have activated studies of government information services in response to the Paperwork Reduction Act of 1980. Officials at both agencies indicate that cost recovery is one of the topics to be addressed. They are aware of the limited extent to which government-supported information services currently recover costs and indicate that previous levels of Federal financial support for information services may be inconsistent with current priorities. Two key considerations in the discussion of cost-recovery practices for information services have to do with whether such services constitute a "public good" and, if a cost-recovery principle is to be applied, what the basis for fees should be. These are discussed in the next section, in the context of economic theories and practices.

Economic Theories and Practices Related to Information

A discussion of the feasibility of cost recovery for information services should be grounded in an understanding of the information market and of alternative pricing strategies. The intent of this section is to provide this background.

The Information Market

A market economy in which goods are sold and bought is thought to work well in circumstances where people pursuing their own self-interest act in a way that is consistent with the wants and needs of others. For example, it is in the interest of a manufacturer to produce goods as efficiently as possible and of a buyer to purchase those goods at the lowest possible price. Thus, the interests of buyers and sellers are mutually reinforcing, and the decisions of buyers and sellers determine the amount of goods and services sold and the prices at which they are sold.

There are some goods and services that are provided to the public through mechanisms other than the marketplace. The best example is national defense, which is something that is provided to the entire populace and should therefore be paid for with tax revenues. When goods or services are provided outside the marketplace, they are known as "public" goods.

Economists define several conditions under which a good may be considered a public good. Some of the conditions have already been implied above: that the good is provided to the entire populace and that those who do not pay for the good cannot be excluded from benefiting from its existence. For example, when fire and police protection are available to a community, all citizens receive such protection. Another condition under which goods may become public goods is if private property rights are difficult to protect.

During the past several years there has been intense debate on whether information is a "national resource" that should be treated as a public good or a commodity that should be treated like other commodities that are bought and sold in the marketplace. There are some special characteristics of information that underlie the debate:

- information is an intangible that can be made available in many media;
- information is not consumed by use; it can be resold or given away with no diminution of its content or, in most cases, its value;
- the price of information bears little relationship to the costs of making copies available. The "first copy" cost is likely to be the major cost, with reproduction costs being relatively minor; and
- information has value in the marketplace, as a capital resource, an essential tool for decisionmaking, and a means for better management of tangible resources (Olson, 1973:8-12).

Although information services have some of the characteristics of a public good, they are also succeeding in the marketplace as commodities. Particularly in technical and specialized fields, there is a growing willingness to pay for information. These markets are served by information enterprises that sell newsletters, indexing and abstracting publications, current awareness services, and other information services, often at a substantial price. For example, many organizations spend over $10,000 a month for commercial online reference services.

The users' willingness to pay is interpreted as a reflection of the growing recognition of the value of specialized information. The development of viable commercial information services is seen as an indication that at least some information can be treated as a commodity.

Costs and Pricing of Information Products and Services

Cost Categories. There are various categories of costs that are incurred by information services. These include:

- information generating costs incurred in collecting or organizing the information input;
- design and development costs associated with producing a publication or providing a service;
- fixed costs involved in maintaining the operation, including the costs of equipment, utilities, and space;
- reproduction costs associated with printing or photocopying reports, search results, or other written materials; and
- distribution costs for marketing, handling, and mailing.

Average cost pricing establishes a price based on recovering the fixed costs, the reproduction costs, and the distribution costs. Marginal cost pricing, aimed at recovering the costs associated with each additional unit of service, recovers only the distribution and reproduction costs. Both of these pricing strategies assume that the true cost of the publication or service is known. When records are not detailed enough to support such price calculations, other pricing strategies may be used.

Calculating Prices. Two methods used when all costs are not known are formula pricing and target pricing. In formula pricing, the manufacturing (e.g., printing) cost is multiplied by a previously determined factor; publishers sometimes use a formula of five or six times the manufacturing cost to price books. Target pricing, a method used by utilities, involves determining in advance a price that will yield a desired rate of return on the total cost at an estimated volume of demand (Zais, nd:146-47).

Price discrimination is another pricing strategy used by some information services. This practice involves charging different fees to various categories of users. Price discrimination is considered feasible only when the market is segmentable and recipients of lower priced services are not likely to resell the information to those groups who are being charged more.

For government agencies, selection of the pricing mechanism may be a political or philosophical decision. A major factor in government agencies' pricing calculations is the objective to be met by distributing the information. Many agencies regard the cost of generating the information (e.g., support of research and information-gathering programs and dissemination of findings) as a necessary program expense and consider information production the reason for their existence. They argue that unless policymakers, researchers, and administrators are informed about prior work, there will be unintentional duplication and/or pursuit of fruitless avenues of investigation. Therefore, supporting the development of an appropriate information base and the means for storing, retrieving, and disseminating the information are valid and necessary government activities. This philosophy leads to the view that, if costs are to be recovered, only the marginal costs incurred in disseminating the information should be recovered. Another agency might maintain that the purpose of its program is to inform the public about a social problem or societal priority, such as the dangers of high blood pressure or alcohol abuse, and that its mission makes it essential for the government to absorb <u>all</u> costs, including those related to dissemination.

Another point of view suggests that secondary literature (i.e., abstracting and indexing publications, bibliographies, and related reference materials) should be priced low because they have limited informational value, except as a means for directing users to the primary literature. They contribute to increasing the demand for primary literature, thereby decreasing its average cost. This view holds that other considerations are involved in pricing tertiary literature (e.g., syntheses, state-of-the-art reviews, and similar summaries) because this literature is expensive to produce and does not necessarily stimulate the demand for primary literature (King Research, Inc., 1980:37).

<u>Types of Fees</u>. Several mechanisms are used for collecting fees for information products and services. Among the more common methods are:

- a fee-for-service, based on the level of effort required to produce the information, with the fee paid after service is provided (e.g., a search charge based on computer connect time and number of "hits" or a fixed price for a specific publication);

- a flat rate established in advance for a specific type of service and paid for before or after receipt of the service (e.g., a charge of $x per search); and
- a subscription fee, paid in advance, to establish eligibility or to cover up to a certain level of service (e.g., an annual charge of $x, which entitles a subscriber to a certain number of free or reduced-cost searches during the year).

An important factor that providers of information products and services consider in selecting the fee collection method is the transaction cost. Transaction costs are those costs incurred by the seller in billing and accounting for the fees collected and the costs incurred by the purchasers in ordering and paying for the item. For inexpensive items, the transaction cost may be as high as, or higher than, the production cost. Because transaction costs can be substantial, sellers tend to prefer the least burdensome payment method. For this reason, subscription and prepayment plans offer some advantages.

Current Cost-Recovery Practices

Many directors of government-supported information services maintain that full-cost recovery is not feasible for their operations. The arguments that they use to justify their position are summarized in Exhibit 3.1. The views expressed by proponents of cost recovery are also summarized in the Exhibit. The literature and the interviews conducted for this study present both points of view, but no definitive research has been conducted to verify the potential impacts presented on both sides of the issue. It is, therefore, instructive to describe current practices among government-supported and private information services.

As part of this study, we gathered information from 27 clearinghouses about their cost-recovery practices. The three clearinghouses in the sample that are not government-supported rely on user fees to recover all costs. Of the 24 clearinghouses in the sample that are totally or partially supported by public funds, 14 recover some of their expenses from fees, and one operates on a full-cost-recovery basis. The latter is the National Technical Information Service, which is legislatively mandated to be self-supporting. It differs from the other organizations in the sample, because it reproduces reports developed by other agencies and does not generate synthesis and analysis publications. Nine clearinghouses, primarily those in the health field, recover no costs through user fees.

EXHIBIT 3.1: ADVANTAGES AND DISADVANTAGES OF COST RECOVERY FOR PUBLICATIONS AND SERVICES

Advantages of Cost Recovery	Disadvantages of Cost Recovery
Shifts the costs from the sponsoring agency (and the general public) to the specific users of the information	Costs are shifted, not eliminated, when users are government agencies, and costs may actually increase, because of the addition of processing costs for handling transactions
Reduces or eliminates some Federal spending	
Permits more people to be served by increasing the financial resources of the clearinghouse	Reduces demand, because of user inability or unwillingness to pay fees
Produces more accurate targeting of information, because only those who are interested will request it	Leads to less adequate dissemination of information that has been designated a government priority area but that may not have a significant market
Reduces the distribution of unnecessary or unwanted information, because poorly received services and publications will be eliminated.	
Provides an incentive for greater responsiveness to user needs and better selection of topics for publications	Reduces willingness to share and exchange information, at no charge, when suppliers of information cannot get anything in return
	Increases time-lag in processing of requests to handle billing
Improves the environment for commercial enterprise, because all services can compete equally, if government subsidies for some services are eliminated	Creates potential billing and bookkeeping problems, as well as difficulties in recovering fees from delinquent accounts
	Unless money reverts to the clearinghouse budget, provides no incentive for improving products and services

These findings are consistent with those produced by other studies. Of 111 government-supported scientific and technical information services studied in 1980, 57 percent charge for at least some publications or services. Charges are most common for monographs, non-print media, and computerized searches. Newsletters, advertising brochures, and referral to other sources are typically provided free of charge (King Research, Inc., 1980:40-48). A study of 17 subsidized centers for selective dissemination of information reports that a mean of 30 percent and a median of 14 percent of all revenues are derived from subscription payments (Zais, nd:174-177). A GAO report indicates that information centers typically recover about 15 percent of the costs associated with user services (GAO, 1979:25).

These data indicate that although some costs are recovered, government-subsidized information services tend to rely heavily on their subsidies. Many clearinghouse directors express doubt that full-cost recovery is feasible for their operations because of the inability of users to pay for services, difficulties in establishing and maintaining billing operations, and the highly targeted audiences for some of their services and publications. They maintain that marginal costs for synthesis and analysis publications and search services can be recovered, but that the development costs for these publications and for establishing databases cannot be recovered. For question-answering and referral services, where there is an immediate need for a response and the answer is provided without substantial time devoted to research, directors believe that it would be impractical to charge a fee. They assert that in these cases the transaction costs would exceed the value of the revenue taken in. The same viewpoint is expressed concerning the distribution of pamphlets, brochures, and short bibliographies that serve both public relations and information functions.

A survey conducted by King Research, Inc. asked respondents at government-supported information organizations that charge for their publications and services what effect user charges have had on the organization. Of 100 respondents, 5 estimated that there was some increase in the number of users, 31 stated that there was no change in the number of users, 49 estimated there was a decrease in the number of users, and 15 did not know the effect. A similar distribution was shown with respect to the impact on the number of requests received. Although some respondents indicated that the quality or size of publications had increased as a result of the imposition of user fees, most reported that no change had occurred and that no major change in user satisfaction had been noted. A majority responded that bookkeeping and accounting costs had increased because of the institution of user fees (King Research, Inc., March 1980: 52-54).

Personnel at selected private information services and representatives of the information industry were contacted to learn about their cost-recovery practices. One database producer received government grants to partially subsidize start-up costs for the online database, but the grants covered only a portion of the actual cost. Other services contacted indicated that they had received no government subsidy. Typically, the commercial sector relies on investment capital or profits from other product lines to offset losses until a new service becomes self-supporting. To provide the potential for initiating new services, private information services often charge substantial user fees for established services. Where there is no competitive service, the fee may be based on what the market will bear, in other words, on the perceived value of the service to the user, rather than on actual costs for providing the service.

To illustrate the cost differential between government-sponsored and privately supported information services, we explored charges for leasing databases. Tapes of the database typically contain literature citations, or citations and abstracts, and are updated regularly. Several government-supported clearinghouses, including ERIC and the Clearinghouse on Child Abuse and Neglect Information, make copies of the tapes of their databases available to commercial vendors and other interested institutions at a nominal price to recover the cost of reproducing the tape. There are also no royalty fees assessed for use of the data online by users. Non-government information services, by contrast, sell their tapes to interested institutions for a limited period of time and either apply a standard fee or negotiate that fee with each lessee. The fees, among those services contacted, range from $1,000 to $6,000 per year for one year of the tape. Often there are additional charges for each use of the database and/or each "hit" (i.e., each citation selected for offline printing). These royalty fees are passed on to the user in the connect-hour prices and charges for offline (and, sometimes, online) printing.

Many private services operate to a large extent on a pre-payment basis. They rely on annual subscriptions to index and abstract services and current awareness services and charges for databases as sources of revenue. Some services also have a prepaid search service, in which the user pays a fixed fee for a prescribed number of searches during the year. Deposit accounts, which involve drawing against funds in an established account as requests are received, represent another mechanism that has been used. (A few government organizations, such as GPO and NTIS, also use the deposit account mechanism.) These arrangements reduce the need to bill for services as they are provided, and they simplify the entire transaction process. However, they are appropriate only in those cases where users are repeat customers. For one-time users, some private organizations permit charging services on a credit card to prevent the time lag involved in waiting for payments to arrive before service can be rendered.

Whether clearinghouses could follow the practices of private information services cannot be determined without knowing if the populations served by the two groups differ in ways that would affect their ability or willingness to pay. Some of the private services believe that the population using their services is not substantially different from the population of clearinghouse users. For example, many academic and drug company researchers are users of private scientific databases; they are also users of the government-supported MEDLINE database. However, the extent to which public employees, whose agency information budgets are limited, and the lay public could afford or would be willing to pay the fees charged by private services has not been thoroughly explored in any previous studies.

In addition to the ability and willingness of current users to pay for clearinghouse services, procedural and policy considerations must be addressed before a cost-recovery policy can be fully implemented. These topics are presented in the following section.

Considerations in Implementing a Cost-Recovery Policy

Policy Questions to be Resolved

Three major policy questions that have not been resolved in previous OMB circulars, GAO reports, or other policy statements must be addressed before a cost-recovery policy can be implemented. They are:

- What publications or services should be sold on a cost-recovery basis?
- What kinds of costs should be recovered?
- Who will receive the resulting revenues?

Each of these questions is discussed below.

Publications or Services to Be Provided on a Cost-Recovery Basis. The concept of cost recovery as described in existing law and OMB Circular A-25 generally implies that costs should be recovered in all cases in which the recipient of services derives a special benefit over and above that obtained by the public at large. Directors of government-supported clearinghouses assert that applying this policy is impractical unless distinctions can be drawn about the categories of services to be covered by the policy. They cite several types of examples, such as the following, to support their view.

- Some clearinghouse materials, including brochures, short fact sheets, and mini-bibliographies are intended to serve as advertising for the clearinghouse or as elements of a broad outreach program. Non-government information services provide similar types of materials free of charge, and it is unrealistic to expect potential users to pay for these items.
- If a charge were made for the types of materials identified above, the transaction costs for billing and accounting could exceed the revenues taken in, because processing a large volume of small orders is very expensive.
- Some clearinghouses were established to support a government mission, such as enhancing the public's awareness of the dangers of a particular disease. The public may place no priority on this information, but the government has decided it is an important social concern. Expecting the public to pay for information that is basically a government priority is considered unrealistic.

These views were raised in discussions with personnel at OMB and GAO to learn how they would apply cost-recovery principles to the activities of government-supported information clearinghouses. Their responses indicate a need to make case-by-case decisions in applying a general cost-recovery policy. They agreed that previous policy enunciations, including the 1979 GAO report and the 1980 draft OMB circular, do not distinguish among publications and services, and they noted that it is difficult for a short policy statement to address all possible circumstances.

The primary point expressed by these officials is that high-level policy-setting is needed regarding what government information services should be provided free of charge. They are concerned that high-level agency officials may be unaware of the amount and type of information currently provided free of charge and that there is no consistency, either within or across agencies, with respect to fee policies.

They maintain that these decisions should be made by responsible agency officials and justified in agency budget submissions. In some cases, a cost-recovery objective may interfere with achieving other, more important government objectives and may therefore be inappropriate. In other cases, these officials assert, agencies may decide that enough information is available from other sources to eliminate the need for additional government-supported information generation and distribution. However, if an agency determines that continued provision of information is desirable and that the costs cannot be covered with agency funds, cost-recovery procedures should be implemented.

Categories of Costs to Be Recovered. As indicated earlier in this chapter, there are costs associated with each stage of providing an information service, including the cost of collecting information, designing a publication, reproducing it and distributing it. There are also fixed costs for maintaining the facility, regardless of the volume of service provided. Clearinghouse personnel are concerned about which of these costs must be covered by user charges. Many of them assume that full-cost recovery implies recovery of all cost categories, a policy they believe may not be feasible.

The original mandate for cost recovery, as stated in Title 31 of the U.S. Code, indicates that costs in all categories should be recovered. It states that all services performed for any person or organization not engaged in official government business should be self-sustaining to the greatest extent possible and authorizes establishing fees that take into consideration direct and indirect costs, value to the recipient, and public policy or the interest served. A 1974 Supreme Court case, National Cable Television Association vs. the U.S., interpreted the law to mean that the fee could not exceed the actual value received by the user. Thus indirect costs for activities that benefit the public at large, rather than the individual user, and the costs incurred in establishing the entire program were not to be included in the user fee. The case determined that the fee should recover only the costs of providing the specific service (GAO, 1979:20-21).

This modified interpretation is reflected in the draft OMB circular issued in 1980. It states that user fees should cover the costs associated with dissemination of the information, including printing, processing, and retention costs, but excluding costs incurred in producing or creating the information (OMB, 1980:6). This view was reiterated in discussions with OMB personnel responsible for drafting the proposed circular. They indicate that costs incurred as part of normal program operations (e.g., for research or development) need not be recovered; it is the incremental cost associated with dissemination--in other words, the marginal costs of the information service--that should be recovered. However, if a database or information service is created specifically to make the information available to the public at large, then recovery of all costs may be appropriate.

Some literature pertaining to disseminating government-generated information supports the view that only marginal costs should be recovered (Kertesz, nd:3-4; Olson, 1973:12-13; DeGennaro, 1975:366). Some theorists suggest that, in calculating costs, only the additional expense of the specific service provided should be considered. The input costs (i.e., developmental costs for synthesizing or organizing the information) should not be included because they represent the primary information transfer function--the raison d'etre of the information center (Kertesz, nd:3-4). It should be noted that charging only the marginal cost for information services differs from the practice common among private information services of charging to recover all costs. However, to the extent that government-sponsored clearinghouses provide services that go beyond organizing the extant literature by, for example, synthesizing the literature in state-of-the-art reviews, they also incur costs that are not normally a part of the operating expenses of private information services.

Another factor that could affect pricing policies of government-supported clearinghouses is that many of them are targeted to serve relatively small audiences. If a small group were asked to pay the average cost of information, as opposed to its marginal cost, the cost per unit would be higher than most users would be willing to pay.

Agency to Receive the Revenue from User Fees. Several clearinghouse directors have observed that current laws provide a disincentive to collecting fees because, if an organization operates on appropriated funds, any revenues taken in must be returned to the U.S. Treasury. Under this arrangement, if cost recovery is practiced, the clearinghouse incurs additional billing and accounting costs but receives no benefits from the funds that are collected. Neither the 1979 GAO report nor the draft OMB circular addresses this problem, but officials of both agencies are aware that this is a significant disincentive. Although no attempt has been initiated to change the law, there is a willingness to consider alternative approaches. One such alternative is to permit the program to recoup user fees up to the point where they equal operating expenses; any revenues in excess of costs would revert to the U.S. Treasury.

It should be noted that some government organizations operate on a cost-recovery basis because they do not receive appropriations for their normal operating expenses. For example, NTIS's authorizing legislation specifically requires it to operate on revenues derived from user fees, and GPO operates under a provision that requires prices to be based on the cost of printing, plus 50 percent to cover other operating expenses. These two organizations also retain the revenues they receive from the sale of any clearinghouse publications they distribute.

Because most government agencies are unable to retain revenue from user fees, several contractor-operated clearinghouses have contractual arrangements whereby all user fees are retained by the contractor. In some cases, the fees are placed in a revolving fund to cover specific expenses, such as printing costs. In other cases, the government's reimbursement to the contractor is adjusted downward in an amount equal to the retained revenues. Although these arrangements have proven satisfactory where they have been tried, other government Project Officers express doubts about the effectiveness of this approach. They assert that if there were a move toward more complete cost recovery, the government would lose control over the contractor because the contractor would have an independent source of funding. To the extent that the clearinghouse is intended to support a specific programmatic mission, this loss of control would be undesirable. They prefer an arrangement that would permit revenues to revert to the government program funding the clearinghouse.

Implementation Problems to be Resolved

In addition to the three policy considerations discussed above, several operational problems must be resolved before a more comprehensive cost-recovery program can be practicable. These problems are reviewed in the paragraphs below.

Need for Accurate Cost Data. Cost recovery depends on an accurate and complete accounting of the costs of the operation, by function. This information is needed to establish fees that reflect the cost of each type of publication or service.

This study revealed that few among a sample of 27 clearinghouses maintain records in a form that permits tracking costs by function. Some contractor-operated clearinghouses use a task-based cost accounting system that reflects contractually required tasks, rather than information processing functions; other contractor-operated clearinghouses do have a cost accounting system that tracks costs in a manner that is relevant to establishing fee schedules.

The problem is more severe in the case of clearinghouses operated entirely or largely by government agencies. Only limited cost data are available for the eight clearinghouses of this type in our sample. In three cases, the clearinghouse is not a separate line item in the budget, and staff are unable to provide any estimate of the organization's budget. Four can provide estimates of the total budget, and another can provide total cost data for the program (broader than the clearinghouse) and for those clearinghouse functions that are contracted out. At the level of costs by function, only incomplete data can be provided. Where a function is contracted out, the contract cost is known. In some cases, clearinghouse personnel can estimate direct labor charges to a function, such as staff time devoted to management or user services, but they do not have data on the indirect costs attributable to the function (e.g., telephone, supplies). In other cases, some of the direct costs of a function are known, such as the costs for purchasing journals, but the labor costs associated with the activity are not known.

Government-operated clearinghouses also do not have cost data for functions and services provided by the government, such as rent and utilities. One of the costs that has proven difficult for some clearinghouses to obtain is the cost of GPO printing. Several clearinghouse directors indicate that they do not regularly receive a report on their bills for GPO printing. In checking with GPO, we learned that GPO works through each agency's Printing Officer or Chief of Publications. Printing arrangements and billing are handled in a centralized manner, and GPO does not usually report information to the organization that initiated the job. Each agency's printing or publications office is left to set its own policies on divulging cost information to the originating organization. Although it may be difficult for GPO to report costs back to all of the originating organizations, some arrangements whereby each agency's printing or publications office could provide a report back to the originator of the document is essential to a cost-recovery program.

Need for Marketing to Build a Clientele. Commercial information services realize that it often requires several years for a new service to become self-supporting. In the interim, commercial enterprises rely on investment capital and/or on cost sharing, in which already profitable services subsidize those that have not reached the self-supporting or profitable stage. If full-cost recovery were implemented for government-supported clearinghouses, it is not certain that they would initially have any publications or services that would generate sufficient revenue in excess of costs to subsidize their less "profitable" enterprises. Limited demand may be a problem that is particularly acute because reliance on user fees requires extensive marketing to generate high demand and thereby permit reliance on user fees (Weisman, 1972:133). The data we gathered in our interviews with clearinghouse personnel indicate that few of the government-funded clearinghouses have substantial expertise in either marketing or sales. Also, they have not had large budgets for these activities and, therefore, have been limited in their selling efforts. One complication to possible expansion of sales activities is that commercial and non-profit information services are likely to take a very dim view of aggressive selling by the government-- particularly in competitive areas.

Application of Cost Recovery When Intermediaries Are Involved. A final problem, and one that may prove particularly difficult to resolve, is how to implement cost-recovery procedures in cases where clearinghouses work through intermediary agencies, such as professional associations or state and local service providers, to reach their target audiences. This approach is used when the target audience is difficult to reach and/or widely dispersed (e.g., drug users, youth). The intermediaries provide a vehicle for distributing clearinghouse-produced information to such audiences. In that role, they provide a valuable service to the government, and asking them to pay for the materials that they distribute may not be realistic. Also, having the intermediaries collect fees and then reimburse the clearinghouses may be cumbersome, and they would have no incentive to perform this function. No solutions to this problem were suggested in the course of the research.

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THE MULTIPLICITY OF INFORMATION SERVICES: OVERLAP, DUPLICATION, COMPETITION, OR COOPERATION?

Introduction

A catalog we developed in an earlier phase of this study identified 157 organizations that deal with human services information (Applied Management Sciences, Inc., and Cuadra Associates, Inc., 1980:i). Given this number and the possibility that new legislation could lead to the establishment of still more government-sponsored information service organizations, questions are being asked about the need for all of these services. There is concern that the government may be providing services that are or could be provided by the private sector and that there may be undesirable duplication of effort among government-supported information services. Three central questions emerge from this discussion.

- What role should the government play in providing information services?
- To what degree do government-supported services compete with or pre-empt privately supported information services?
- To the extent that there is a role for government-supported services, is the present structure, with a large number of highly specific information services, the best one for providing these services?

This chapter reviews the issues being considered with respect to each of these questions. It identifies problems that are perceived to result from the multiplicity of information services and discusses possible alternative approaches to service delivery.

Definition of Key Terms

Considerable confusion exists about issues in part because of terminological confusion about what the terms "overlap," "duplication," and "competition" mean.

Several distinct problems are noted in the literature, but the language used to describe them is often very loose. To clarify and separate the issues, we will use these terms in specific ways.

- "Overlap" will refer to the existence of multiple government-supported sources of information on the same or highly related topics. The concept implies encroachment of one information service into the topical jurisdiction of another.
- "Duplication" will be used to describe performance of the same task by multiple government-supported information services. It may occur in designing information services or databases, indexing and abstracting, provision of bibliographic access, and/or document delivery. The concern is for repetitive performance of a function rather than multiple coverage of the same subject matter.
- "Competition" is the term we will use to describe situations in which there is a potential for or there already are both publicly and privately supported information services. There may be both overlap and duplication between the services, but the primary concern is that government activity pre-empts or precludes successful private activity in the field.

To clarify the distinction between overlap and duplication, consider the following illustration. Two clearinghouses in different subject areas scan the same journal for relevant articles. From a particular issue each clearinghouse selects the following articles for its database:

Clearinghouse 1 Selects	Clearinghouse 2 Selects
Article 1	Article 1
Article 2	Article 3
Article 5	Article 7

The presence of Article 1 in both databases probably represents overlap between the databases. The scanning of the journal by both clearinghouses and multiple development of a bibliographic reference to Article 1 probably represents duplication of effort. It should be recognized that overlap between the two clearinghouses may be justified by the pertinence of an article to both topical areas or target audiences and that the journal itself may be sufficiently generic to justify scanning it for both topical areas. The question becomes whether there is a more efficient way to perform the scanning task.

The reason for saying "probably" is that a given article or other item of literature can be viewed and indexed from a variety of perspectives. Thus an article about an experiment on hallucinagenic drugs, using college students, can lend itself to the production of a variety of quite different abstracts oriented toward experimental technique, the pharmacological properties of a particular drug, the biological impacts of drugs, the personality of college students, or ethical standards in research on humans. Even the sets of index terms produced for these orientations can be very different from each other. Therefore, while the coverage by different clearinghouses of the same set of articles very likely involves overlap (as well as duplication), it does not always, or necessarily, do so.

The existence of "competition" is also difficult to determine, with precision. There are very few identical information products and services and, even where there are similar information products and services, one cannot easily determine the extent to which the existence of one impacts on the sale or use of the other. Some members of a given target audience, or market, do not know about one (or both) of a pair of similar products and services; therefore, it is not justifiable to claim that one of the products or services deprives the other, fairly or otherwise, of a market. These considerations are very important to keep in mind in discussing competition, which is often more potential than real.

The concern for overlap, competition, and duplication covers all facets of information service, including acquisition and storage of information sources, development of tools for retrieving information, publications development, and user services. To limit the scope of this analysis, we have elected to examine overlap and duplication in two of the major user services activities: provision of bibliographic access and document delivery. These areas were selected because they have been discussed extensively in the government and are topics of concern to policymakers. The role of clearinghouses in publications development, another major activity, is described in Chapter 5.

- "Bibliographic access" is the process by which a user is informed of the existence of materials of a particular type or on a specific topic. Online databases, topical bibliographies, and index and abstract journals are methods for providing bibliographical access.
- "Document delivery" is provision to the user of a copy of an item such as a book, journal article, or report in either hardform or microform. It may involve sale, loan, or library access to a copy of the text.

The Government's Role in Information Services

Underlying the concerns about competition, overlap, and duplication is a broader question: what role should the government assume in providing information services? This question has been raised with increasing frequency during the past ten years and is currently the subject of a National Commission on Libraries and Information Science (NCLIS) Task Force, as well as a subject of study by the Office of Management and Budget and the General Accounting Office. It was also the central theme of the Spring 1981 meeting of the Association of Information and Dissemination Centers (ASIDIC). It is important to recognize that the question pertains to all types of government-supported information services, including information analysis centers, GPO, NTIS, and depository libraries, in addition to information clearinghouses.

The Federal government has been involved in the transfer of information virtually since its inception. Early activities included the constitutionally-mandated decennial census and the 1790 Patent Act, which established a government committee of experts to examine and approve patent applications. To support this work, the Patent Office developed a collection of literature on inventions and equipment that permitted it to determine whether patent applications were for truly novel items. The Library of Congress, established in 1800, and the National Library of Medicine, founded in 1836, are other early Federal information initiatives. The Office of the Superintendent of Documents, with responsibility for the sale and distribution of government publications, was established by the Government Printing Act in 1895. These activities and later government involvement in information services reflect the view that it is a legitimate government function to provide its citizens with access to information.

Questions posed in the literature about the appropriate role of government involve all phases of information generation and dissemination. These questions relate to degree of government involvement and the relationship between public and private services. Questions that are now the focus of national debate include:

- Is it a government responsibility to publish the results of government-sponsored research?
- Should there be a single source for processing and distributing the results of government-funded research?

- Is it a government responsibility to facilitate access to its publications through the development of information and retrieval services or other dissemination mechanisms?
- Is there a need for a consistent national policy with respect to information dissemination or should the policy vary by type of information and/or type of user?

Answers to these questions depend largely on one's point of view. Advocates of the free market and private enterprise tend to favor limited government activity and greater reliance on private service providers. They assert that if there is sufficient interest in a particular topic, private entrepreneurs will enter the field and offer services to meet those needs. Advocates of greater government participation in information services suggest that private enterprise cannot be relied upon to provide all of the services needed by the public because the private sector will enter the market only when the demand appears sufficient to produce a profit. They maintain that the idea of providing information publications and services on highly technical topics and topics pertaining to health and welfare is not likely to attract private enterprise even though it may represent an important government priority. Free-market advocates counter that if the demand is so small, the activity may not be a justifiable government venture, either.

The differences in point of view are largely philosophical, and there are no "right" or "wrong" answers. Berninger and Adkinson, in a study of the interaction between the public and private sectors in the delivery of information services, suggest that there are no uniquely public or uniquely private information activities. They indicate that both sectors perform similar functions, including development of primary and secondary journals and newsletters, database development, indexing and abstracting services, selective dissemination of information, information search services, and user education programs. Both sectors also use similar technologies, cover similar topics, and attempt to serve similar populations (Berninger and Adkinson, 1978:14-15).

Another justification for government involvement in information services is the belief that there is a qualitative difference between what government agencies and the private sector will provide. For instance, an academic association may have a narrower view of scientific validity than a government agency and may, therefore, be more restrictive in selecting items to announce or distribute. Other organizations may be interested in presenting a particular perspective (e.g., the American Cancer Society's and the tobacco industry's views on the relationship between smoking and health). It is claimed that government information services are needed as a balanced and objective source of information. Our research indicates that this view is not always accurate. Interviews with personnel at 27 human services information clearinghouses indicate that a majority take a neutral stance in their information programs. However, 10 respondents indicated that the clearinghouse was established to promote a particular point of view, such as educational equity for women, and that this view was reflected in clearinghouse publications. In most cases, neutrality was maintained in the acquisition and announcement of literature, but a few respondents indicated that material presenting a view that contradicted the purpose of the clearinghouse might be excluded from the collection (Applied Management Sciences, Inc., and Cuadra Associates, Inc., January 1981: 3.3-3.4).

A concern that OMB has raised recently has to do with the extent of government involvement in information collection, as well as dissemination. Doubts are being expressed about the need for the large volume of information currently collected and made available through the government. To reduce the volume of information being collected, Congress passed the Paperwork Reduction Act of 1980 with the goals of:

- minimizing the Federal paperwork burden on respondents;
- minimizing the costs to government for collecting, maintaining, using, and disseminating information;
- maximizing the usefulness of information that is collected; and
- coordinating information practices and policies (P.L. 96-511; Section 3501, 1980).

The law establishes an Office of Information and Regulatory Affairs within OMB to develop and implement standards and guidelines for information collection activities and interagency sharing of information. Although the law specifically addresses only information collected for use by government agencies, OMB is interpreting the law broadly as a mandate to examine the role of government in disseminating information. One of the questions being raised is whether all the information that is produced is necessary. If it is needed, then questions must be asked about how to disseminate it effectively. Whether the task can be assumed by private entities and the relative effectiveness of small, decentralized, government-supported dissemination centers targeted to specific fields of interest as compared to larger, more general services, such as the Library of Medicine, are key questions. Current thinking on these issues is presented in the remainder of this chapter.

Competition Between Government-Supported and Private Information Services

Discussions of competition and overlap between government-supported information services and those in the private sector tend to focus on the inconsistency between a government policy of encouraging private initiative and a practice of government pre-emption of potential private initiatives. Government policy, as expressed in OMB Circular A-76, is to rely on private sector goods and services where they are available at a reasonable cost. This policy is based on the assumption that government should not compete with its citizens, particularly when the private sector can offer the service at an equal or lower cost than the equivalent government activity (OMB Circular A-76, 1979:1-2). The circular specifically identifies distribution, research and development support services, library operations, and cataloging as information-related activities that could be performed by private organizations.

From the perspective of private entities providing or considering initiating information services, the possible entry of a government-subsidized service is regarded as a major disincentive to private investment. Because government-subsidized services can be provided free of charge or at a fee below the full cost of the operation, they can be offered at prices that private services cannot match. If the services are roughly equivalent, users are likely to select the less expensive alternative, making it difficult for private services to gain or retain market. Representatives of the private sector indicate that the existence of government-subsidized services precludes the successful operation of private sector services. They also assert that there is a threat, even when the private service already exists, because government agencies have initiated competing government-supported services without first exploring the potential for existing private services to meet their needs.

Counter-arguments are made by proponents of government-supported information services. They maintain that the government becomes involved primarily in areas where commercial viability is questionable because of the limited market for highly specific technical information or because of the inability of users to pay the full cost of the service. They assert that private enterprise would not be willing to serve the target audiences served by government-funded clearinghouses. The application of these concerns to document delivery and the provision of bibliographic access is presented on the following pages.

Competition in the Provision of Bibliographic Access

In addition to the many databases being produced by government-supported information services, there are numerous databases which have been developed by commercial and non-profit organizations. We spoke with representatives of several of these databases, as well as a representative of the Information Industry Association, to explore public/private competition in the provision of bibliographic access. The views of those respondents, supplemented by information contained in the literature, are presented below.

Representatives of private information services are concerned primarily about the government's pre-empting their market through development of subsidized government databases. The concern becomes most acute when a government-supported, computer-readable database is made available to the public for online searching. The database is then in direct competition with any privately developed database in the same field. Private sector database developers are becoming more sensitive to any government-supported database activity, however, because they see the possibility that many internal clearinghouse databases could eventually be made commercially available for online searching. Several examples of such a development already can be cited.

There are two separate issues here. The first issue is whether the government should produce databases and make the tapes available. The second is whether the government should provide online access to the databases through its own computers or computer time rented from the private sector. Members of the private sector are concerned primarily about direct online access from government-sponsored computers. Many private-sector organizations are in favor of having the government collect basic data and make it available, on tape, to all comers, including themselves. Private sector database developers, however, are concerned about government competition in database development, as well.

The National Clearinghouse for Mental Health Information (NCMHI) is an example of the latter situation. The NCMHI database, funded by the government, was made publicly available through a commercial vendor, BRS, Inc. It contains citations and abstracts of the mental health literature, covering both biomedical and social aspects of mental health. The database includes materials from journals, books, technical reports, and conferences; its coverage is international back to 1969. The American Psychological Association (APA) produces a database known as "Psychological Abstracts" that is also publicly available through BRS, Inc., as well as other commercial online service vendors. The latter database covers primarily journal literature in psychology and the behavioral sciences. This privately sponsored database has been in existence since 1967 and is also international in its coverage.

"Psychological Abstracts" became publicly available online in 1972 through DIALOG and later became available through other commercial vendors. The NCMHI database was not publicly available for online searching by users until considerably later, although the clearinghouse did perform searches of the database for government agencies and their contractors in the interim years. The major point to be made is that the privately developed database was in existence and publicly available for about eight years before the government-sponsored database was made equally accessible.

APA perceives the NCMHI database as a substantial competitor that has reduced the usage of the "Psychological Abstracts" (PA) database. It appears that users may be searching the NCMHI database first and then refining their search strategy before searching the PA files because the usage charges are much lower for the NCMHI database. BRS, Inc., can offer the NCMHI database at a lower price than "Psychological Abstracts" because the government does not charge a royalty for the use of its NCMHI tapes* nor depend upon such income to finance continued production of the file.

Private database developers foresee several problems with this type of competition. First, if the private database producer is forced out of business by government competition, the government becomes the only available source of

* The government typically does not require royalties for online use of its databases. An exception is NTIS, which levies royalty charges based on the amount of database use, in addition to an annual license fee.

information in the area affected. This circumstance is not consistent with the concept of a democratic free flow of information. In addition, there is the possibility that if government priorities subsequently change, the government database may be eliminated, leaving no source of information. Recent discussions about closing several government clearinghouses, including NCMHI, make this comment particularly pertinent.

Although the major competition arises when the government-supported clearinghouse databases become publicly available, some private database producers question the necessity for developing any clearinghouse-specific databases. Several producers suggest that the government first solicit the existing database producers about their willingness to expand an existing database or establish another related one before embarking on a new government-sponsored venture. They suggest that they would be cooperative if a real market were known to exist. The Department of Commerce, under pressure from the Information Industry Association and others, is following such a path in developing WITS, a Worldwide Information Trade System designed to provide information on domestic producers and their products and the needs of overseas buyers.

We explored the willingness of private database producers to participate in cooperative ventures with the government as a means of moving from competition toward greater cooperation between the two sectors. The Women's Educational Equity Communications Network (WEECN) tertiary database and the WITS example offer some basis for optimism, but there still are problems that must be overcome. Some publishers and database producers are reluctant to become involved in any enterprise that involves working with a government agency. In the 1960s, when the ERIC system was planning its index and abstract publication of the journal literature, Current Index to Journals in Education (CIJE), the publisher of the Education Index was approached about the possibility of expanding its operation to meet the needs of the ERIC system. At least one reason cited for the Wilson Company's refusal was hesitancy about getting involved with government agencies and subsidies.

Another problem from the perspective of the private database producers is the potential loss of copyright protection on any citation or abstract that is picked up for use in a government-supported database. Government information is not protected by copyright and producers of copyrighted databases are concerned that any citations and abstracts that become included in a government database are no longer protected. They might be willing to permit such inclusion if the lease provisions include a copyright protection or if the government database simply referenced the relevant items in the private database without including the complete abstract. Private database producers prefer the second alternative because they are reluctant to lose control over the content of the citation and fear that the government might alter or reformat the citation for use in its database, if the first alternative were implemented.

An alternative to creating government databases is a partial subsidy to encourage private sector development when the government perceives the need for a new database. Several respondents indicate that either tax incentives or matching grants could be used to stimulate private database producers to enter new subject areas. Such subsidies would reduce the risk involved in entering an untested market.

Competition in Document Delivery

The role the government chooses to play, either through a clearinghouse or some other mechanism in delivering documents reporting on government-sponsored research, determines whether there is any potential for private organizations to become involved in document delivery. The government may act as the primary distributor, as wholesaler, or as a facilitator supporting the creation of private distribution mechanisms. When a clearinghouse serves as the primary distributor, it reproduces copies of government-sponsored research reports and distributes them, upon request, free or for a fee. In the role of wholesaler, the clearinghouse may sell or distribute publications in bulk to intermediaries who in turn distribute them to users. As a facilitator, the clearinghouse's role is one of making the document available to a vendor, such as NTIS or a commercial publisher, for reproduction and distribution.

Advocates of greater private sector involvement assert that the private sector can efficiently provide document delivery services and that there is no need for government-sponsored clearinghouses to perform this function. The problem, as they view it, is not so much one of duplication of effort but rather that the government has sometimes pre-empted the market and precluded the potential for commercial ventures.

An example of government competition involves the Congressional Information Service (CIS), a private company that has been collecting, abstracting, indexing, and microfilming Congressional documents for sale to the public for over ten years. Recently, GPO began microfilming the same documents for distribution to the depository libraries. GPO previously printed these materials in hardform only, but moved toward microfilming as a cost-saving measure. CIS is worried that once GPO has begun microfilming Congressional documents, it will also begin selling these documents in microform to the general public. CIS considers such a development an infringement on its market and contrary to the policy expressed in OMB Circular A-76.

The ERIC Document Reproduction Service (EDRS) illustrates a possible approach to cooperation between a government-supported clearinghouse and the private sector in document delivery. ERIC Central enters into a five-year agreement with a commercial organization to reproduce and distribute copies of documents collected by the 16 ERIC clearinghouses. The contract is competed every five years and is awarded to the bidder who can provide service to users at the best price. The contractor is supported by the sale of copies directly to users and retains all fees that are collected. A similar arrangement exists between the Securities and Exchange Commission and Disclosure, Inc., for the sale of mandatory filings by publicly owned companies that trade on the New York, American, or over-the-counter stock exchanges.

Although such arrangements allow the private sector to become involved in document delivery, some representatives of the private sector maintain that this structure still permits too much government interference in the marketplace. By granting a five-year contract to one organization, the government may adversely affect other firms that wish to enter the market. These critics prefer a "hands-off" approach in which no organization is given a competitive edge.

Another facet of the document delivery topic relates to providing the text of non-government publications, such as journal articles or sections of commercially published books. Some publishers complain about infringement of copyright protections when portions of their journals or books are reproduced for distribution in response to user requests for information. They assert that reproduction of selected articles reduces the market for the sale of their publications. The new copyright law states that when "systematic" photocopying of copyrighted materials occurs, the authorization of the copyright owner must be obtained each time a copy is made. Although the language of the law focuses on libraries, it applies equally to other types of information services, including clearinghouses.

Data collected for this study indicate that of the clearinghouses in the sample that provide document-delivery services, over one-third limit the service to non-copyrighted items. Those clearinghouses that reproduce copyrighted items usually provide items that the clearinghouse itself has produced or items for which the author has signed a release. Other methods, used by one clearinghouse each, include interlibrary loan of copyrighted materials and provision of no more than one copy per request of any copyrighted item.

Overlap and Duplication Among Government-Supported Information Services

If one accepts the idea that there is an important role for government in the dissemination of information, questions still remain about the most efficient and effective structure for performing these activities. The present information dissemination structure of the Federal government includes many small, specialized information services targeted to the needs of specific audiences. Specialization occurs through a focus on rather narrowly defined subject areas, such as health indexes or women's educational equity, or through selection of a narrowly defined target audience, such as researchers or patient educators. Specialization has led to a situation in which there may be several services offering information on related topics (e.g., a clearinghouse on child abuse and neglect and another on domestic violence among adults) or several services offering information on the same topic to different audiences (e.g., separate cancer information services for researchers, patient educators, and the lay public).

In addition to the small, specialized services--frequently called clearinghouses--the government also supports several broadly focused information activities, some of which produce large and comprehensive databases. The most relevant ones for human services information ar the MEDLARS database of biomedical information compiled by the National Library of Medicine (NLM) and the ERIC database of education information, sponsored by the National Institute of Education.

The existence of both the broad databases and the smaller, specialized databases in government-sponsored clearinghouses raises questions about the potential for inefficiency through overlapping collections and duplication of effort. The types of questions raised about overlap include:

- To what degree are there multiple references to the same materials?
- To what extent are the same topics addressed by multiple information services?
- What effect does overlap among information services have on users?

Questions pertaining to duplication of effort include the following:

- What is the cost of acquiring and storing the same or similar materals by multiple services?
- To what extent are multiple services allocating resources to scan, index, and abstract the same literature?
- Is it necessary to incur development and maintenance costs associated with separate databases for each service?

Concerns about overlap and duplication in provision of bibliographic access and in document delivery by government-supported information services are discussed on the following pages. Techniques that offer the possibility for reducing overlap and duplication are also presented.

Overlap and Duplication in Providing Bibliographic Access

The potential problem in providing bibliographic access involves citations to the same publication available in different databases. This situation occurs when several information service organizations on related topics collect and cite the same document. There may also be a more limited type of content overlap when the organizations cover the same subject matter even though the referenced items are different.

Although assertions about the pervasiveness of overlap in the provision of bibliographic access are widespread, there is little evidence on the actual extent of the problem. Those studies that have been conducted have generally focused on overlap with privately produced databases (Perk, 1977 and Oppenheim and Perryman, 1980). The studies indicate some methodological problems that inhibit the researchers' ability to assess the extent of overlap. The absence of standardized document identification formats makes it difficult to determine, in some cases, whether the same item is being referenced (Rowlett, 1971:111). Another problem is determining what comprises overlap. For example, several of the same journals are scanned by two organizations developing databases in the field of education. However, one database indexes all articles in the journals, whereas the other is more selective in its coverage and scans a broader range of journals (Park, 1977:222-223). Whether this constitutes overlap or simply the existence of two different products serving different audiences depends on one's definition and perspective. Since the end products are quite different, one could justifiably argue that this situation does not constitute overlap. Specific approaches to measuring overlap that have been tested on a limited basis are briefly described in the Appendix to this chapter.

Clearinghouse personnel report that clearinghouse collections frequently emphasize types of materials different from those in the large comprehensive databases. Thus they believe that overlap among the collections is not as extensive as the similarity in topical focuses might suggest.

Duplication in the provision of bibliographic access involves multiple performance by two or more organizations of the tasks required to store and retrieve information. The possibility of multiple investments in (1) computer hardware, (2) design of storage and retrieval systems, (3) and staff time for scanning the literature and preparing bibliographic citations raise concerns about inefficient utilization of government funds. Policymakers are asking whether it would be possible for the organizations that produce the comprehensive databases to perform these tasks for all information clearinghouses or whether some coordinative and cooperative arrangements could be worked out among the services to share equipment, designs, and perhaps even personnel.

Clearinghouse directors and their Federal Project Officers accept that some duplication and overlap in providing bibliographic access occurs and they cite the following justifications for this phenomenon:

- The clearinghouses need a complete database to support their user services activities because it becomes too costly to reference multiple external databases continually in response to questions;
- The large databases tend not to be as current as the clearinghouse databases, and clearinghouse services would be less up-to-date if they had to wait for materials to be announced through the larger databases; and

- The index terms and abstracts developed to describe the common references differ depending on the needs and interests of the audience being addressed; therefore it is not possible for all clearinghouses citing the same document to use a single set of index terms or a common abstract.

Failure to explore the feasibility of expanding an existing clearinghouse, before deciding to establish a new one, is considered a fairly common occurrence. It often results from the pressure to respond to Congressional or agency mandates for an information service to be operational within a specified period of time. Project Officers, in particular, are critical of the limited time often provided to plan a new information service. They assert that insufficient time is allowed to explore current resources, to negotiate with them, or to learn from their experiences. Instead, the emphasis is to get the new service "up and running" as quickly as possible. Pressure groups who want their own clearinghouse independent of those already in existence also contribute to the absence of sharing and limited efforts to build on what exists. Difficulties with combining different funding sources are another impediment to cooperation.

Clearinghouse personnel also point out that overlap is not necessarily wasteful and detrimental. They maintain that the large collections, such as the MEDLARS collection of the National Library of Medicine, are difficult for users to access because of their vast size and research orientation. They claim that subsets of these collections respond to highly specialized target audiences with unique needs. The clearinghouse databases, therefore, may include subsets of numerous other databases, with abstracts and index terms modified to be relevant to the needs and vocabulary of a specific audience.

Overlap and Duplication in Document Delivery

Much of the discussion about duplication among government-supported information services in document delivery addresses services other than information clearinghouses. It has focused on relationships between NTIS and GPO and the adequacy of the depository libraries as a substitute for clearinghouses.

One reason that clearinghouse involvement in document delivery has not generated substantial concern may be that not all clearinghouses engage in this activity. Among the sample of 27 human services information clearinghouses we visited, 15 provide document delivery for publications not developed by the clearinghouse, four provide limited document delivery services for selected items not available elsewhere, and eight do not offer document delivery services. There may be occasional duplication in document delivery when an item in the clearinghouse collection is also available through NTIS, GPO, or another government agency. More commonly, however, the duplication occurs in distribution of clearinghouse-generated publications, such as synthesis and analysis publications. This type of duplication can occur when GPO performs a print run for a clearinghouse and elects to print additional copies for sale through GPO bookstores or for distribution to the depository libraries.

Multiple points of access to a clearinghouse publication should not be regarded as a serious problem. Although some users have complained because the same publication is available from different sources at different prices or because they resent paying for an item that others receive from another source free of charge, this situation cannot be averted if publications are to be broadly available. It is apparent that some duplication is necessary to provide public access. For example, libraries in San Francisco and New York "duplicate" each other in providing access to the same magazines, but almost no rational person would imagine removing this duplication, because it is not convenient for a New Yorker to come to San Francisco to read a magazine in its library. Similarly, access to a clearinghouse-generated document from multiple sources is more of a convenience than a duplication of effort. Also, different sources have credibility among different audiences.

Current Approaches to Addressing the Problem

Evidence of cooperation between clearinghouses and with the large government-funded databases is presented by clearinghouse personnel to minimize OMB's and GAO's concerns about overlap and duplication. Clearinghouse personnel point out that there is a continuous effort to define each organization's scope to avoid overlap among collections. In the eyes of clearinghouse personnel, the National Library of Medicine's MEDLARS database has, been primarily a resource to support researchers. (It should be noted, however, that the NLM database is widely used to support the information needs of practitioners and health educators.) Personnel at several health clearinghouses report that they focus on literature that is more appropriate to practitioners and patient educators. Clearinghouse personnel also indicate that when one clearinghouse finds a document that is more appropriate to another's focus, the document is typically sent to the second clearinghouse for consideration. Sometimes the comprehensive database is checked to see whether an item is already listed before the specialized clearinghouse decides to acquire and process it. The National Clearinghouse for Bilingual Education uses this procedure to reduce overlap with the ERIC system, for example.

Policymakers' concerns about overlap and duplication are particularly relevant to the health clearinghouses because of the existence of the NLM's MEDLARS database and the many separate health information databases that support the clearinghouses. The ERIC system, with its 16 specialized clearinghouses, produces a single database for the announcement of education-related materials. There is some debate about whether the ERIC model could be successfully applied to the health field. One clearinghouse director stated that if DHHS were to set the standards, all health clearinghouses could follow the same indexing and abstracting format. Other clearinghouse directors are less inclined to follow the ERIC model. Some of them cite as evidence of the failure of this model the fact that new clearinghouses in the education field are now being established outside the ERIC system; however ERIC personnel explain this phenomenon in a different way.

ERIC personnel explain the move toward the establishment of clearinghouses outside the ERIC system as a result of representatives of new interests in the education community wanting clearinghouses in their fields to provide more extensive services to users. Once they receive funding, these organizations prefer to establish a totally independent entity. ERIC personnel suggest that another approach might be feasible and more economical. They indicate a willingness to add new subjects to the ERIC database if the interested organizations can provide funds to support that activity. Such a process would eliminate the costs incurred in developing a new database and would provide coverage within the framework of the existing ERIC database. The interested organizations could still fund their own information activities to provide other clearinghouse services, such as personalized reference services, searches of the database, development of networks, and other activities that are not a major function of the ERIC system.

The possibility of consolidation and more coordinated control among health clearinghouses has recently been studied by the Public Health Service and the Office of Human Development Services. The Public Health Service study (Comstock and Pollack, 1981) was initiated in response to the apparent lack of coordination in establishing and operating health clearinghouses and the Public Health Service's interest in determining whether any economies of scale could be achieved through greater cooperation. Six management alternatives, ranging from maintaining the current approach to total consolidation into a single health clearinghouse, were considered. Retaining the present structure was rejected because of the known duplication of effort in databases and software development. Total consolidation was rejected because it would be difficult and extremely time-consuming to gain cooperation for dismantling existing operations and developing compatible systems for meshing ongoing activities. The report recommends an intermediate approach involving establishment of a Division of Clearinghouse Management to assume consolidated responsibility for major clearinghouse decisions (e.g., establishing or closing a clearinghouse, purchasing equipment), while maintaining oversight of daily operations at the program level. A task force has now been established by the Assistant Secretary for Health to consider alternatives and plan for the implementation of a coordinative mechanism for Public Health Service-funded clearinghouses.

This alternative reflects awareness of political realities that are quite different from those that existed at the time the ERIC system was established. At that time, no education clearinghouses were in operation and no direct clearinghouse/program sponsor relationships had been established. In contrast, today these relationships exist in the health field and are strongly supported by operating clearinghouses and their sponsors. The approach proposed by the Public Health Service does not involve consolidating database development or establishing a single contact point for communicating with target audiences. The report recognizes that, although economies of scale might be realized if these activities were consolidated, such a union would not likely occur without strong support from the highest levels of DHHS.

The Office of Human Development Services (OHDS) has also conducted a recent study on the potential advantages of greater consolidation of information services and duplication between public and private services (U.S. Department of Health and Human Services, July 1981). The study was conducted in a very brief period of time and does not claim to be a detailed analyses of all the issues. The report indicates that there is duplication among government services and between the public and private sectors in the types of publications and services provided and concludes that there might be some advantages to be gained from greater consolidation. Because of the proposed elimination or reduction of several OHDS information programs, the report does not recommend any immediate action but suggests the need for further study.

From a management perspective, it is important to decide whether the economies of scale that would potentially be realized outweigh the costs involved in achieving that consolidation. The costs would include antagonism from organizations or program offices that currently sponsor clearinghouses, resistance from clearinghouse personnel and their constituencies, and the operational problems of meshing currently incompatible systems. The possible benefits include building on the knowledge and capabilities that already exist within the government to process, announce, and distribute materials; elimination of activities that "reinvent the wheel"; and reduction of multiple processing of the same materials.

Another approach to cooperation is the development of a tertiary database, a model tested for two years by the Women's Educational Equity Communications Network (WEECN). The concept involves developing a highly specialized database from citations in existing secondary sources (i.e., other databases). WEECN searched approximately 13 relevant databases on a regular basis to extract pertinent references. Separate agreements were negotiated with each source database to permit extraction of the citations and their reformating to a WEECN style. Creators of the proprietary databases were paid a royalty for each citation selected from their database. When WEECN identified a document that was pertinent to its collection but not currently cited in any of the source databases, it forwarded the document to the most appropriate database producer. WEECN then picked up the citation when it was entered into that producer's database.

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APPENDIX

Techniques for Measuring Overlap among Databases

Several studies have suggested different approaches to measuring overlap among databases. A summary of the techniques is presented below.

1. Oppenheim and Perryman (1980) suggest the use of a relative recall measure to assess overlap between two databases. The formula they use is:

$$\frac{\text{\# of relevant items recalled in database A}}{\text{\# of unduplicated relevant items recalled in databases A\&B}} + \frac{\text{\# of relevant items recalled in database B}}{\text{\# of unduplicated relevant items recalled in databases A\&B}}$$

If there is complete overlap between the two databases, the sum of the two equations will be 2.00. If there is no overlap between the two databases, the sum of the equations will be 1.00. Any result between 1.00 and 2.00 identifies a proportion of overlap. For example, if there were two databases, one with six relevant references and one with four relevant databases, and no common citations, the results would be

$$\frac{6}{4+6} + \frac{4}{4+6} = \frac{10}{10} = 1.00$$

If there were two common citations, the results would be

$$\frac{6}{8} + \frac{4}{8} = \frac{10}{8} = 1.25$$

or 25 percent overlap.

2. The term "notional overlap" has been used to describe overlap in content between two different documents. This concept can be applied to measuring the degree to which clearinghouse databases cover the same subject matter, although not necessarily the same documents. A study by the Bath University Library (1973) suggests that notional overlap can be measured by looking at the number of common citations among a set of documents. They call this approach "bibliographic coupling."

3. Cleverdon and Kidd (1976) suggest a method for measuring notional overlap within a collection or between collections using the same index terms. They suggest that most databases assign seven to ten index terms to a citation. By conducting a search for related items using only three index terms, one can measure the extent of match on the remaining "free" terms (i.e., the terms not used in the search). If a prescribed threshhold number of matching index terms is set in advance, it is possible to assert that all matches in excess of the threshhold level represent documents whose content overlaps. The overlap score when examining two documents can be derived with the following formula:

$$\frac{\text{matched terms above threshold level}}{\text{\# of free terms}}$$

For comparing subsets of a collection or two collections using the same indexing vocabulary, the formula would be:

$$\frac{\text{all matches above threshold}}{\frac{\text{\# of documents} \cdot (\text{\# of documents} - 1)}{2}} \times \frac{\text{total \# of index terms}}{\text{average \# of free terms per document}}$$

5

CLEARINGHOUSE PUBLICATIONS PROGRAMS

Introduction

Federally-funded clearinghouses produce and publish a wide variety of publications, including both primary publications (e.g., state-of-the-art reports and other original literature) and secondary publications (e.g., indexes and bibliographies). In the context of current government priorities, questions are being raised about the necessity of these and other government produced publications. The pricing policies and dissemination strategies for publications are also being reconsidered. This chapter examines current publication programs in Federally funded clearinghouses in light of these concerns and explores the options available for future publication activities. Specifically, the following topics are addressed:

- the historical context in which clearinghouse publications programs have developed;
- current government views toward clearinghouse publications programs;
- current clearinghouse publications programs;
- planning considerations for future publications development; and
- management considerations in response to government priorities.

The Historical Context in Which Clearinghouse Publications Programs Have Developed

Before 1960, when the concepts of information centers and clearinghouses were in their developmental stages, the functions typically associated with these information programs were limited primarily to document acquisition, indexing and abstracting, and document delivery. The publications resulting from these activities were index and abstract journals and other bibliographic publications documenting the available literature in a given field (Applied Management Sciences,Inc. and Cuadra Associates, Inc., 1980:11-14). In 1963, the Panel on Scientific Information of the President's Science Advisory Committee issued the "Weinberg Report," which suggested a shift in these functions by emphasizing the need for analysis services. Stating that "retrieval of documents is not the same as retrieval of information," (President's Science Advisory Committee, 1963:32) this report called for information centers to review, synthesize, and interpret the published literature to provide users with information, rather than source documents. It was suggested that syntheses would better meet the users' needs by presenting information in a format more oriented to the application of research. This perspective led to the addition of information analysis products to the emerging concept of the clearinghouse publications program. As an example, soon after the first ERIC clearinghouses were established in 1966, the need for information analysis products was recognized. The development and distribution of these types of publications is now a central function in the ERIC clearinghouses (Trester, 1979:283-286).

The need for information analysis products was further specified in the 1969 "SATCOM Report," prepared by the Committee on Scientific and Technical Communication of the National Academy of Sciences' National Academy of Engineering. The "SATCOM Report" emphasized the special information needs and rights of practitioners, in contrast to those of scientists and technologists. Making the distinction between research-oriented literature and practitioner-oriented literature, the "SATCOM Report" stressed the need for information services to collect and synthesize literature of interest to the practitioner.

Serving the information needs of the human services practitioner and policymaker took on increased importance with the growth of "problem-oriented" human services programs* during the 1960s. The information available to meet the needs of practitioners and policymakers in these programs typically spanned several scientific disciplines and was highly technical. Information service organizations, such as clearinghouses, were considered a means for synthesizing and repackaging discipline-based literature across several different fields to meet the specialized

* For a more detailed discussion of the "problem-oriented" programs and information services developed during the 1960s, see Applied Management Sciences, Inc. and Cuadra Associates, Inc., 1980:4-14.

needs of these audiences (Applied Management Sciences, Inc. and Cuadra Associates, Inc., 1980:5-14). To disseminate information in a format that is relevant to the needs of their users, clearinghouses review available information, analyze it, and repackage it into new formats that facilitate the users' awareness and understanding of knowledge. Consequently, some clearinghouse publications programs have expanded beyond bebliographies and index and abstract journals to include such publications as monographs, literature reviews, state-of-the-art papers, and handbooks.

Current Government Views Toward Clearinghouse Publications Programs

The political environment, which once provided support for clearinghouses' information analysis and dissemination functions, has shifted recently to a position that is more restraining. The appropriateness of the Federal government's involvement in information dissemination and its efficiency in managing this dissemination are now being examined. In today's political environment, emphasis is being placed on reducing the amount of money spent on government-produced publications and on developing better management for government dissemination activities. In this environment there is a growing belief that government publications should not infringe on commercial and non-profit publishing and information dissemination efforts. This philosophy is forcing a review of the publications programs of all government agencies, including clearinghouses.

Since 1978 several reports have been issued indicating growing concern about government publications, including those of clearinghouse programs. One of the first indications of this concern was a 1978 survey conducted for the Senate Committee on Governmental Affairs. This survey collected data on the volume, costs, and distribution of government publications in 80 departments and agencies. Results indicated that even basic information on Federal publications could not be adequately identified, and that distribution procedures were inconsistent and confusing to the individual requester (Library of Congress, 1979:51-91).

A second report, documenting hearings held by the Joint Committee on Printing (JCP) in 1978, identified major issues and policy questions, explored options, and developed questions concerning the government's system of printing and distributing information, as related to revisions to Title 44 of the U.S. Code. The Committee determined that the role of the private sector in distributing government information needed to be clarified. Private publishing of government information was discussed as a way to minimize overlap and competition between the public and private sectors. It was suggested that a system be established to provide government information to private publishers, without the JCP approval for each request that is currently required.

The Office of Management and Budget's Bulletin No. 81-16 placed a moratorium on Federal spending for new periodicals, pamphlets under 80 pages in length, and audiovisual products, effective April 21, 1981. It also called for a comprehensive review, which has recently been conducted, of all existing information products, as well as those planned for the next two years. This review was intended to identify ways to reduce nonessential publications and recover costs wherever possible. Agency control systems are currently being established to monitor publication activities.

A draft OMB circular that has not yet been issued in final form provides another indication of the government's current perspective. It addresses the proliferation of publicly-supported information dissemination activities that increase Federal costs, place the government in "unnecessary competition with the private sector, and inhibit the ability of the private marketplace to provide information goods and services" (Office of Management and Budget, 1980:4). It proposes that the Federal government place greater reliance on the private sector to disseminate public information. In addition, it calls for each Federal agency to establish mechanisms for identifying the costs associated with information dissemination, including costs for printing, processing, and retention of information publications.

Clearly, the Federal government is questioning the level of its publication activities and current dissemination strategies. Greater reliance on the private sector is suggested as a means for continuing to disseminate government information while at the same time reducing the Federal budget. These concerns have direct implications for clearinghouse publication programs. However, before these concerns can be translated into specific management considerations, current clearinghouse publications programs must be understood.

Current Clearinghouse Publications Programs

All clearinghouses produce one or more different types of publications as part of their information analysis and dissemination activities. These publications are distinct from those referenced in the clearinghouse's database or held within its collection and in some cases reproduced for distribution upon request through document delivery services. Publications produced by clearinghouses are those that are written, printed, and distributed with clearinghouse funds. In addition, some clearinghouses print and distribute documents written through other government offices, or through research contracts and demonstration grants, to provide wider dissemination for these documents than would otherwise occur. Clearinghouse publications represent "tools" through which most clearinghouses actively carry out their dissemination function by synthesizing information to meet the needs of their users.

Based on the best available data, publications programs appear to consume a relatively significant proportion of clearinghouses' operating budgets. Data collected from a sample of 27 clearinghouses indicate that a mean of 15 percent (a median of 11 percent) of total clearinghouse operating costs is allocated to the publication development function. An additional mean of 14 percent (a median of 7 percent) is allocated to printing and a mean of 3 percent (a median of 2 percent) is allocated for mailing costs. These figures suggest that a mean of 32 percent (a median of 20 percent) of clearinghouse operating costs are budgeted for publications programs (Applied Management Sciences, Inc., and Cuadra Associates, Inc., 1981:7.15).* A less generalizable indication of the budgetary significance of publication programs can be seen in the ERIC clearinghouses. Within the ERIC system approximately one-third of each clearinghouse's total budget has been spent on information analysis publications (Trester, 1979:294).

Clearinghouse publications span a wide range of document types. The most typical combination of publication types produced by clearinghouses includes bibliographies, newsletters, original literature, and index and abstract publications.

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* It must be noted that these figures represent estimated expenditures of only those clearinghouses in the sample that could provide budget data. Information provided was often difficult to separate out into comparable functional categories. Additionally, the three percent allocated to cover mailing costs may be used to mail materials other than clearinghouse publications and the 14 percent apportioned for printing may cover printing beyond that required for clearinghouse publications. Given the nature of the data, this assessment can only be interpreted as the best known indication of the relative significance that publications programs play in the budgets of most clearinghouses.

Less commonly produced publications are reviews, summaries, and miscellaneous publications such as promotional brochures and fact sheets. Almost all clearinghouses produce bibliographies. The particular combination of publications a clearinghouse produces is determined by the clearinghouse's dissemination objectives, the needs of its target audiences, and its funding level.

Publications such as newsletters, bibliographies, reviews, and original literature are typically produced in periodical style with multiple issues or multiple topics addressed each year. The number of issues, per periodical, produced each year varies most often according to the extent of identified need, the clearinghouse's workload, and available funds. Most clearinghouses rely on program directives, user feedback, and/or suggestions from advisory board members in determining the specific topics to be addressed. Although clearinghouses typically maintain an awareness of existing publications to prevent duplicating existing products, they do not often consider whether a needed publication could be produced by a non-governmental organization.

Most publications are produced with clearinghouse funds and authored by in-house professionals or outside authors who are contracted or paid an honorarium. Outside authors may be invited or are sometimes chosen through a competitive selection process. Publications in draft form are usually critiqued by in-house staff and advisory board members, but not all clearinghouses routinely subject their draft publications to outside review by experts or a sample of users.

Documents are most often printed through the Government Printing Office (GPO), if more than 25,000 impressions are to be printed. Smaller printing jobs are handled by clearinghouse printing facilities or are contracted out to private printing companies. Primary distribution is typically provided through the clearinghouse. In some cases, publications are mailed to all or selected persons on the clearinghouse mailing list without charge. In other cases, the availability of a new clearinghouse publication is announced through the newsletter or index journal and distribution occurs on request, with or without charge.

Although clearinghouses as a whole follow these publication procedures, some clearinghouses use more innovative arrangements in their publication programs. A few clearinghouses arrange to have authors, mostly academicians, write scientific publications on a volunteer basis as an alternative to paying in-house staff or contracted authors to develop publications. This approach is possible when clearinghouses have established working relationships with experts in the field to whom topics needing attention can be suggested for journal articles or other scientific publications. With these arrangements, clearinghouses are able to initiate publications that are written and produced without clearinghouse funds, but they then have little control in imposing deadlines or guaranteeing publication.

Several clearinghouses provide some of their draft publications to commercial publishers or private organizations to be printed and distributed at no cost to the government. The best available information suggests that nearly 60 percent of government-wide information organizations, including human services information clearinghouses, have made at least one of their information products or services available for sale by the private sector (King Research, Inc., 1980:21-22). When a human services clearinghouse makes printing and distribution arrangements with the private sector, the arrangements are most often with a professional association, a journal publisher, or a scientific and technical publishing company. In some cases, clearinghouse personnel write journal columns or articles to be printed and distributed by the journal publisher. Other clearinghouses have co-publishing arrangements whereby the clearinghouse provides a draft publication to a commercial publisher for printing and marketing or provides printed copies to a professional organization which assumes the costs of distribution to its members.

Current clearinghouse publications programs will inevitably be altered by the changing political environment discussed earlier. Government directives call for specific changes to the level of effort, pricing policies, and dissemination strategies that have been used in the past. These specific changes will be discussed more fully in later sections of this chapter. However, the increased scrutiny being applied to government publications programs, in general, suggests the need for stronger planning in the process of publication preparation, as well. Potential planning procedures are addressed below.

Planning Considerations for Future Publications Development

The first and most basic question that must be considered in planning future publications is whether previous assumptions in determining the types of publications to produce are still applicable. With the broader availability of online searching capabilities and the expansions in professional publishing, each publication type should be re-examined to determine whether it continues to be the most efficient way to serve user needs. For example, index and abstract publications or short bibliographies may have been effective when manual searches of materials in a collection were more common. The more widespread use of online databases and the quicker and more comprehensive response to user requests that they allow now suggests less need for these preassembled reference publications. Clearinghouse information analysis publications may not be as necessary as they once were because of the expansion in specialized professional literature, particularly journals, during the past decade. These developments suggest that clearinghouses may need to perform a thorough review of the assumptions underlying the selection of publications types. The changing environment may require a new set of responses.

The second factor to consider is the selection of topics to be addressed. In the past, a commitment to producing a specific number of publications each year has influenced the topic selection process. If publications programs are to receive more careful scrutiny in the future, then a more rigorous needs assessment may be needed to justify each new publication. The needs assessment process could include greater use of data on user requests and a review of alternative materials available from other sources as justification for selecting topics for clearinghouse publications.

The third aspect of the planning process that could be strengthened is the publication development and review process. A more consistent use of competitive selection in choosing outside authors and a more thorough review of draft publications by professionals and users in the field would help to maximize the quality and utility of future publications. The Health Message Testing Service of the National Institutes of Health has devised formats and procedures for pretesting published materials that could be adapted for use by clearinghouses (U.S. Department of Health and Human Services, n.d.).

Management Considerations in Response to Government Priorities

Clearinghouse managers are also faced with the need to re-examine clearinghouse publications programs in response to specific administrative directives affecting the level of publication effort, pricing policies, and dissemination strategies. Management considerations must take into account the current administration's emphasis on overall budget reductions and greater reliance on the private sector in disseminating government information. Given the current administrative emphasis on budget reductions, allocations for clearinghouse operations, in general, are more likely to be maintained or reduced than to be increased. Also, given that as much as one-third of clearinghouse operating costs are spent on publications programs, it is likely that in many cases this function will absorb some of the budget modifications. If clearinghouses' current information analysis and publication roles are to be recast, several options exist:

- the current level of clearinghouse publication efforts can be reduced;
- costs for publication production and/or dissemination can be recovered; or
- the use of cooperative arrangements with private publishing organizations can be increased.

Reductions in Clearinghouse Publication Programs

Some clearinghouses have reduced their publication and dissemination efforts in response to previous budget decreases. Further reductions have been imposed more recently by OMB Bulletin No. 81-16, which calls for a moratorium and comprehensive review of current publications activities. The Bulletin requires that publications not essential in accomplishing agency missions be eliminated and that the number of copies made for essential publications be reduced.

Specific ways in which clearinghouse publications programs have been reduced in the past or could be curtailed in the future include:

- eliminating particular publications or types of publications considered less essential or those that have potential for being picked up by other organizations;
- decreasing the number of periodical issues published each year;
- simplifying the format, graphics, and printing style where possible;
- reducing the number of copies printed; and
- limiting the number of copies distributed to requesters only, rather than automatically mailing copies to all names on a mailing list.

The advantages and disadvantages of each reduction strategy vary with specific circumstances and priorities within each clearinghouse. The extent to which reductions can be made without jeopardizing the effectiveness of clearinghouse publications and dissemination efforts also varies depending on the clearinghouse's mission and previously imposed reductions. Decisions as to the most feasible and appropriate reductions must be made on a case-by-case basis.

The extent to which Bulletin No. 81-16 will affect specific clearinghouse publications is not yet known. However, those particular publications that will continue to be produced by the clearinghouse but reproduced in limited numbers may be candidates for cooperative publishing arrangements with the private sector. Possible cooperative arrangements are discussed later in this chapter.

Cost Recovery

Recovering costs of publications through user fees is called for in OMB's Bulletin No. 81-16, unless those publications are specifically described in and mandated by law. In addition, the OMB draft circular on "Improved Management and Dissemination of Federal Information" proposes that direct and indirect costs incurred in the printing, processing, and retention of information be identified and that all costs associated with information dissemination be recovered.

Although very few clearinghouses currently recover all publication costs, most clearinghouses do charge user fees for at least some of their publications, particularly for their primary publications. Implementation of a more extensive cost recovery policy is likely to affect the criteria clearinghouses use in determining which publications to produce and, in some cases, the extent to which clearinghouses are able to promote their program objectives actively through their publications programs. Some clearinghouse directors are concerned that criteria for producing particular publications may begin to reflect the publication's marketability rather than its ability to meet user needs or to provide information for the public good. If cost recovery were applied to publications that promote a government concern or priority (e.g., the hazards of high blood pressure or the societal costs of child abuse), the accomplishment of the mission of some clearinghouses might be seriously hampered. Further considerations in implementing a cost recovery policy are discussed in Chapter 3.

Cooperative Arrangements with the Private Sector

Expanded use of cooperative arrangements with the private sector offers opportunities to accommodate user needs and accomplish dissemination objectives, while at the same time functioning at reduced funding levels and encouraging private sector activity. Increased cooperation between government and the private sector is recommended by the Joint Congressional Committee on Printing, the draft OMB circular, and by Bernard Fry in a report for the National Commission on Libraries and Information Sciences.

As discussed earlier, some clearinghouses have established cooperative arrangements with commercial publishers, academia, or professional associations whereby publications produced by the clearinghouse are printed and distributed by the private sector. These efforts are intended to facilitate wider dissemination of clearinghouse publications at a reduced cost to the government and, in some cases, to foster good working relationships with the professional community. In addition, commercial publishers have initiated the publishing of non-copyrighted clearinghouse publications that were viewed as having a broader market than would be reached through the normal government distribution channels.

An example of the extent to which cooperative arrangements can be implemented for the benefit of both the government and the private sector is evidenced in the Market Linkage Project for Special Education. The Market Linkage Project was established in 1977 by what is now the Department of Education's Office of Special Education (OSE) to facilitate broader dissemination of books, instructional materials, and educational media produced with OSE funds. These materials represent products that could not be developed economically by the commercial sector because the marketable audience is so thin. However, when the cost of research and development is subsidized by the government, commercial publishers are able to profitably reproduce and distribute the products.

In the Market Linkage Project, materials developed through OSE research and development activities are screened for their marketability according to criteria of quality, suitability to audience, market demand, and format. With approval from the Joint Committee on Printing, items considered marketable are announced to as many as 500 publishers and producers as available for commercial publication. Interested companies submit bids or proposals presenting their production and marketing strategy and their planned commitment to the product. Bids are assessed by an independent panel of reviewers, and a license to produce and distribute the product is negotiated with the most appropriate company. In addition, technical assistance is offered to OSE research and development grantees in techniques that will maximize the eventual marketability of those products. The Market Linkage Project is reportedly a cost-effective dissemination model, providing substantial savings to the government, and in some cases bringing in additional royalties (Market Linkage Project for Special Education, 1981:7). More thorough evaluations of the Market Linkage Project are currently being conducted.

If commercial distribution of government-produced materials is shown to be viable and cost-effective, the Market Linkage Project or similar dissemination strategies may be transferable to clearinghouse publications programs. This model increases reliance on the private sector and provides an alternative to reducing current publications programs or incurring the additional burden of cost recovery.

To explore the feasibility of implementing such a model, six representatives of commercial publishers and five representatives of Federally-funded clearinghouses were queried about their initial receptivity to the concept. Responses were mixed. Almost all of the clearinghouse representatives expressed interest in such a model and felt it was worth exploring. Some commercial publishers reported an interest in getting more involved in publishing government products, whereas others expressed little interest. Some publishers feel that commercial dissemination and marketing strategies would provide more awareness, broader distribution, and better accessibility to clearinghouse publications than current dissemination activities. They explain that limitations on the distribution mechanisms of government-supported disseminating organizations, such as information clearinghouses, NTIS, and GPO have resulted in less than adequate performance in disseminating information to the public. Bureaucratic delays, funding restrictions, and lack of marketing efforts cause limited awareness of available materials. They maintain that even users who are aware of a particular publication often cannot acquire a copy because of the limited number of printed copies or delays in processing and announcing its availability. They also maintain that if the private sector is interested in publishing government publications under available copyright opportunities, existing clearinghouse dissemination efforts tend to weaken their potential market viability. Clearinghouse dissemination efforts typically provide copies to the core audience of interested recipients, thus limiting the total audience that is available to the private sector.

Commercial publishers agree that the major disincentives to involvement in cooperative publishing arrangements are the complications, paperwork, and time delays caused by government clearance procedures. Private publishers interviewed consider completing government forms or submitting lengthy proposals, such as the ones required in the Market Linkage Project, a major impediment. One publisher specifically reported that if bidding forms or proposals were required, they should be no more than one page in length. Time delays involved in working with government publications are also described as problems for private publishers. Delays can be caused by the review process required to assess the proposals submitted and by clearance procedures required by the Joint Committee on Printing, if each publication licensed for private publication requires clearance. Publishers who have previously published government publications report a six- to nine-month turnaround before the product can be marketed, in contrast to the 90-day turnaround they require for most other authors. Additionally, publishers express the need to receive sole publishing rights if cooperative arrangements are to succeed. These rights would have to preclude the non-co -ighted publication of the same document by GPO, the clearinghouse, or by other publishers.

Of course not all clearinghouse publications are of a type that would interest the private sector. Few clearinghouse publications have "best seller" potential. Cooperative publishing arrangements would be applicable only to those publications that meet marketability criteria. Such publications are more likely to include original literature, index and abstract publications, catalogs and directories, and some types of reviews and summaries. Bibliographies, factsheets, and brochures are less likely to be commercially marketable. Although determining the marketability of a particular publication is somewhat subjective, the private sector is more interested in publications that:

- are of comparable--or better quality than commercially produced publications, with clearly stated objectives and good internal organization;
- have a practical content that is clearly presented and understandable by audiences at all levels;
- have a scope that is neither too narrow nor too universal;
- have an acceptable format with more narrative than tables and graphs;
- can be published without major editorial or format changes;

- provide master material that can be reproduced in present form;
- are sufficiently unique from other products available; and
- have been subjected to a pre-publication review process among potential audiences and/or professional reviewers.

More widespread use of these cooperative arrangements depends on the ability to match the dissemination needs of the clearinghouse with what the private sector can readily offer. Those who have worked with alternative publishing arrangements suggest that, to be effective, three major factors must be considered. First, the organization or company interested in publishing clearinghouse publications must be strong in marketing, have high visibility in the field, and be equipped and experienced in handling the type and size of publication to be published. An association's membership or a commercial company's marketing arena must be the same or encompass the same target audience as that of the clearinghouse.

Second, if a publication is to be published by a commercial publisher, the marketable audience must be broad enough to ensure the publication's commercial viability. Often a potential market can be strengthened when specific mandates or funding directives are implemented that focus attention toward a particular problem area and provide funds to acquire supportive materials in working with that problem. A clearinghouse itself can often generate a potential market by focusing the attention of its audience on a particular topic or issue. Once this attention is sufficiently mature, the interest and demand for publications increases and the audience can be marketed more successfully by commercial publishers.

Third, if a professional association or commercial publisher plans to charge for a publication, the price will need to take into account the target audience's ability and willingness to pay. For the arrangement to be a practical alternative, the price should be comparable to what GPO or NTIS would charge or to what the clearinghouse would charge in recovering printing and dissemination costs. In some cases, the private sector has been able to sell a publication for a much lower price than what GPO or NTIS would charge, whereas in other cases the price has been comparable or much higher. One government research report that sold at NTIS for almost $5.00 was also published by a commercial publisher and sold in paperback for

$.95. On the other hand, a clearinghouse-produced directory that sold through GPO for $6.50 was estimated by a private publishing company to be a $45.00 value on the commercial market.

If the Market Linkage Project model or similar cooperative publishing arrangements are to be implemented more widely, mechanisms need to be established to facilitate such implementation. The Market Linkage Project and clearinghouse personnel who have worked with joint publishing arrangements offered suggestions on how to facilitate these arrangements. Publishers who are initially reluctant can be encouraged by at least establishing reliable communication channels, minimizing the paperwork and time delays, ensuring sole publishing rights, and developing more marketable publications. Centralizing the communication channels between the public and private sectors, by using the existing publications offices at the agency or department level rather than the clearinghouse level, may be more efficient for the government and more convenient for the private sector.

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6

EVALUATING THE PERFORMANCE OF CLEARINGHOUSES

Introduction

Federally sponsored clearinghouses operate in a public-service and education-oriented environment. This gives them some advantages over organizations in the information service industry. For example, they are not compelled to show a profit (a requirement that can sometimes lead to short-sighted planning and inadequate attention to the quality of the service provided). On the other hand, government-sponsored clearinghouses operate under some distinct disadvantages, of which the most important may be the lack of good marketplace measures to evaluate the usefulness and attractiveness of their publications and services. Thus, alternative measures that are appropriate for their missions and special operating environments are needed to provide some level of accountability and a basis for ongoing planning.

A number of accountability questions related to effectiveness, cost effectiveness, and benefits have been and continue to be raised regarding Federally sponsored clearinghouses and their activities. These questions are asked at two levels: the individual clearinghouse and a group of clearinghouses. Questions that are asked of a specific clearinghouse include the following:

- Is this clearinghouse doing a good job?
- What good is this clearinghouse accomplishing?
- Do members of the target audience know about this clearinghouse and its publications and services? If not, why not?
- If some members of the target audience are aware of the clearinghouse but do not use it, why are they non-users?
- How is the clearinghouse's information being used and what effect does it have on the user or the situation that led to the use of the information?

- What are the users' perceptions of the quality and utility of this clearinghouse's publications and services?
- How effective or efficient is this clearinghouse, compared to others?

Sometimes the questions are posed, not concerning a single clearinghouse, but concerning a group of them. For example:

- Are the clearinghouses sponsored by this agency doing a good job?
- What good is being done by this group of clearinghouses?
- Are there areas in which two or more clearinghouses are duplicating effort unnecessarily?
- Are clearinghouses, in general, obsolete? Is there some better mechanism for providing the publications and services that they currently provide?

These and similar questions have been posed by individuals in many different organizations, including the Congress, GAO, OMB, and program offices of government agencies. Clearinghouse directors often pose these questions themselves.

Individuals in each of these organizations may have somewhat different reasons for asking these questions, however. For example, Congress or OMB may wish to determine whether the clearinghouses are sufficiently worthwhile to warrant more or less Federal funds, or any at all. On the other hand, clearinghouse personnel may want this information to support the planning process by helping them make the publications and services even more responsive to users' needs. When the reason for asking the question varies, the type of information required to satisfactorily respond may also differ. The appropriate evaluation strategies and data -- including the identification and definition of objectives, performance criteria, methodologies, and measurements -- vary, depending on the purpose for which the information will be used. One cannot describe the "best" evaluation data and procedures, except in the context of a particular set of evaluation questions, objectives, and purposes.

Measuring the "value" of information and determining how information is being used have long been concerns in the field of information science and are now also topics of interest to some social scientists. However, neither field has developed a completely satisfactory technique for obtaining this type of information. When applying concerns about the value of information services and products to the evaluation of clearinghouses, the measurement problem is intensified because clearinghouses perform many functions and produce several different kinds of materials in their effort to serve the public interest and support specific social programs. The state-of-the-art in evaluating information services and the variety of clearinghouse activities that could be measured necessitate that clearinghouse performance be measured at the micro level. At this level, evaluators can focus on questions for which measurement techniques have been developed and they can select specific clearinghouse activities or services to examine. In discussion of methods and measures, we have assumed two possible audiences and evaluation purposes: (1) clearinghouse directors and Project Officers who are interested in assessing the performance of a specific clearinghouse and identifying areas for its improvements; and (2) agency program managers and policymakers who are interested in evaluating and comparing groups of clearinghouses.

This chapter addresses the evaluation process generally and discusses how the suggested measures can be used. It focuses primarily on information that can be used by clearinghouse personnel to improve the performance of the clearinghouse and by decision-makers who wish to compare performance among a group of clearinghouses. Since information dissemination alone is not sufficient to effect specific social or attitudinal changes and outcomes (see Chapter 1), the discussion is limited to evaluation and measurement of neutral information-related activities (i.e., those that serve an awareness and reporting function). The chapter is organized into the following sections:

- problems and issues in evaluation design;
- current evaluation practices;
- use of readily accessible data to support evaluation; and
- user surveys to obtain additional evaluation information.

Problems and Issues in Evaluation Design

A number of factors must be considered in designing a clearinghouse evaluation that addresses the needs of the two audiences listed above. Among the most important are:

- the specification of evaluation objectives and performance criteria;
- the definition of clearinghouse "users"; and

- the appropriateness of comparisons between and among clearinghouses.

These factors are discussed on the following pages.

Evaluation Objectives and Performance Criteria

Gathering evaluation data, particularly user-satisfaction data, without a clear statement of objectives and performance criteria, is often an inefficient use of time and resources. Questions can be posed in a periodic survey or data can be collected on an ongoing basis, to assess levels of user satisfaction and/or to measure volumes of activity. However, without some a priori set of performance standards or targets, results are highly susceptible to interpretation of what constitutes "good" performance.

Two examples illustrate this point. The ERIC Document Reproduction Service (EDRS) sold 17 million microfiche during fiscal year 1980. This is certainly a large number, but does it represent good or poor performance for EDRS? If we know that the 1980 sales represent a growth of over 400 percent compared to 1970 sales (about 4 million microfiche), we are in a better position to interpret the 1980 data. We would have an even more concrete basis for interpreting these data if we knew whether this growth rate matched, exceeded, or failed to meet the targets set for 1980 EDRS microfiche sales. A very different example is provided by an independent survey of physicians in which it was learned that approximately 60 percent of the survey population was aware of a core document produced by the High Blood Pressure Education Program. This percentage was considered to be "highly satisfactory." But what if it had been 50 percent or 35 percent? To interpret any such figure properly, we need to know the expectations the program had for awareness of this publication within the chosen sample of the target audience.

Performance targets are frequently specified in statements of work for contractor-operated clearinghouses, but these are primarily associated with process-related measurements (e.g., volumes of documents processed for inclusion in the system or timeliness in responding to requests). Similar types of targets are not typically established for specific outcomes (e.g., degree of penetration within a target population or levels of user satisfaction). To establish such targets, the participants in the evaluation process, including the clearinghouse or its sponsor, may need to invest in some preliminary research and to track certain key performance indicators over a period of time.

Definition of Clearinghouse Users

The complexities involved in defining and differentiating between target audiences and users of clearinghouses were discussed in Chapter 2. These complexities must be dealt with not only in the planning function but in evaluation, as well, because a basic design problem for certain types of evaluation studies involves identifying and sampling users (or non-users). Identification is a major problem for many clearinghouses; their mailing lists and records of requests may or may not represent the population to be studied. For example, the organization that requests the information from a clearinghouse may be a library or other intermediary organization that is obtaining information (e.g., a publication or a literature search) on behalf of one or more other individuals -- the actual users of the information. Or the organizations and individuals that request and receive information may repackage that information for further distribution to the ultimate -- or, at least, once-removed-users. These ultimate users may or may not be aware of the original source of information -- the clearinghouse.

The specific definition of target audiences for each clearinghouse and the linkages they establish through intermediaries must guide the process of defining appropriate strategies and methodologies for identifying the population to be studied. What is appropriate for one clearinghouse may very well be inappropriate for another.

Multi-Clearinghouse Evaluations and Comparisons

Differences in target audiences and users and the information infrastructure in the field in which a given clearinghouse operates are only two of several major factors that must be addressed in designing evaluation studies that involve more than one clearinghouse. Evaluation is complicated by the facts that (1) a shared set of taxonomies for users, products, and services has not yet been developed and (2) cost-accounting procedures are not standardized across clearinghouses.

Our data collection activities indicate that policy decisions requiring the development and use of common definitions would be extremely helpful in supporting evaluation studies of multiple clearinghouses. For example, two possible sets of generic classes of users are presented in Exhibit 6.1. Clearinghouses could elect to classify users by affiliation or institution, by occupation and position, or by both types of classes. Although some generic framework is needed, it must accommodate the specific needs of any given clearinghouse. For example, each clearinghouse needs the latitude to impose some greater specificity within the generic classes. In the health field, clearinghouses may well want to specify nurses, physicians, and other specific classes of health-service practitioners to provide an appropriate level of user-related detail for analysis.

The taxonomies are important both for studies that involve analysis of internally maintained data and for studies that involve full-scale field research. For records that are maintained internally, obtaining the desired level of demographic data on requesters and users of clearinghouse services and publications is not easy. The establishment of prescribed classification systems represents a major first step that is needed to support clearinghouse evaluation.

Current Clearinghouse Evaluation Practices

One can envision three types of clearinghouse evaluations relating to (1) internal operations; (2) user satisfaction; and (3) impact of clearinghouse services. Data to support any of these evaluation types can be gathered formally or informally, as shown in Exhibit 6.2. In our sample of 27 human services information clearinghouses, the preponderant data collection methods were informal. Cost, the need for OMB clearance, and the absence of a strong demand for more formal or scientific methods contribute to the decision to rely on informal techniques. Consequently most current measurement of clearinghouse performance relies on readily accessible data.

Performance is measured to keep clearinghouse administrators informed about what the organization is doing and how well it is operating. Although all clearinghouses collect some performance data, their efforts are frequently limited to whatever information the sponsoring agency requests. Some respondents indicate that, with the number of demands placed on clearinghouse personnel, it is difficult to find the time to analyze data for performance measurement.

EXHIBIT 6.1: GENERIC CLASSES OF CLEARINGHOUSE USERS -- ILLUSTRATION OF A TAXONOMY TO SUPPORT MULTI-CLEARINGHOUSE EVALUATIONS

User Classes, by Occupation or Position

Administrator or manager
Educator
Legislator
Librarian or information specialist
Health service practitioner
Researcher
Social service practitioner
Other professional services (e.g., lawyer, consultant)
Trustee or board member
Student
Not applicable; requested as a private citizen

User Classes, by Affiliation or Institution

Sponsoring agency
Government agency: _Federal _State _Local
Legislative or judicial branch: _Federal _State _Local
University, college, or other post-secondary or adult education institution
Pre-school through high school: _Administration _Instructional
Medical institution: _Hospital/Clinic _Research Center
Social service delivery institution or agency: _Private _Publicly supported
Business or industry
Association, society, or foundation
Other non-profit organization
Library or information center: _Public _State _University/College _School _Business/Industry _Clearinghouse _Commercial
Not applicable; requested as a private citizen

EXHIBIT 6.2: EXAMPLES OF DATA SOURCES FOR DIFFERENT TYPES OF CLEARINGHOUSE EVALUATIONS

Type of Evaluation	Informal Sources	Formal Sources
Internal Operations	administrative data from a specific clearinghouse	standardized administrative data from one or several clearinghouses
User Satisfaction	unsolicited comments from users	large-scale user surveys or interviews
Impact of Information on User's Actions	occasional unsolicited comment from a user	large-scale user surveys or interviews

116

The information most frequently recorded relates to internal processing capabilities, services provided, characteristics of users, and costs (Applied Management Sciences, Inc., and Cuadra Associates, Inc., 1981:9.2). These types of data are valuable both to the clearinghouse director, who must allocate staff and monitor activities, and to the sponsoring agency, which wishes to ensure that funds are being spent in accordance with contract provisions.

Measuring user satisfaction or the quality of publications often requires that the clearinghouse obtain feedback from users. Techniques for measuring outcome include both formal surveys and informal methods, such as letters and telephone calls from users. Insertion of user response cards in clearinghouse publications and searches, compilation of letters received from users, telephone surveys of users, expert assessment of publications, and participant evaluation of workshops are commonly used techniques. Staff at all but three of the clearinghouses visited report the use of at least one of these techniques; the use of two or more evaluation methods is reported by personnel at 16 of the 27 clearinghouses (Applied Management Sciences, Inc., and Cuadra Associates, Inc., 1981:9.4).

Use of Readily Accessible Data to Support Evaluation

There is considerable potential for evaluating clearinghouse performance using readily accessible data. Administrative data can be used creatively to support more evaluative analyses of clearinghouse effectiveness and performance. Currently, use of administrative data for evaluation may be limited for two major reasons. First, some of the more innovative measures may not have been shared among clearinghouse personnel. More importantly, there is no consistency from one clearinghouse to another in the measures and taxonomies used. The latter situation is a more substantial impediment to evaluation because it precludes cross-clearinghouse comparisons. For administrative data to support evaluation activity, resources will need to be devoted to developing consistent reporting formats and definitions. Suggested measures for the major clearinghouse activities are presented in Exhibit 6.3.

EXHIBIT 6.3: ILLUSTRATION OF CLASSES AND TYPES OF READILY ACCESSIBLE DATA

INFORMATION SELECTION AND PROCESSING

Activity Levels

1. Number of sources scanned or searched regularly for pertinent information and items

2. Number of exchange and review agreements established with other organizations to support acquisitions

3. Number of contacts made (e.g., with previous or potential authors and with associations) to solicit material for review

4. Number of items reviewed

5. Number of items accepted for inclusion in the formal collection/database

6. Number of items processed (cataloged, indexed and, if applicable, abstracted)

Costs

1. Cost per item (e.g., for cataloging, indexing, abstracting; creation of computer-readable records)

Effectiveness

1. For each update (i.e., items added to the database during a given time period), the currency of materials processed: those published in the past month; the past three months; past six months; etc.

2. Correlation between proportion of requests, by topic area, and proportion of items in the collection/database, by topic area

3. Percentage of user requests that are fulfilled entirely from the collection/database; fulfilled only partially from the collection/database; not fulfilled at all by the collection/database

4. Number of hours of usage and numbers and types of using organizations (for publicly available online databases only)

EXHIBIT 6.3: ILLUSTRATION OF CLASSES AND TYPES OF READILY ACCESSIBLE DATA (CONTINUED)

PUBLICATION PREPARATION AND DISTRIBUTION

Activity Levels

1. Total number of publications produced and by publication type: bibliographic/referral; original analyses of the literature; newsletters and other multi-purpose reporting, announcement, and analysis pieces

2. Number of publications prepared by clearinghouse staff and number prepared by outside consultants

3. Number of pre-publication reviewers and number of favorable and unfavorable reviews

4. Numbers of sources, by type, used to select a publication topic

5. Numbers and types of channels used to alert potential users to the availability of a publication

6. Number of copies for which requests are received by the clearinghouse, and comparison of this number with the number of copies in the initial press run

7. Number of copies distributed by the clearinghouse and by other organizations

8. Average turnaround time for responding to requests for publications

Costs

1. Total cost per publication

2. Cost per publication, by one or more of these categories: labor (internal and external); production; printing; mailing; marketing

Effectiveness

1. Number of favorable and unfavorable unsolicited comments and letters received and the areas of satisfaction and dissatisfaction, per publication

2. Number of favorable and unfavorable reviews in the published literature and areas of strengths and weaknesses reviewed

3. Number of clearinghouse publications picked up for reprinting and sale or distribution through another source

EXHIBIT 6.3: ILLUSTRATION OF CLASSES AND TYPES OF READILY ACCESSIBLE DATA (CONTINUED)

USER SERVICES

Activity Levels

1. Total number of requests received during specified time period, and breakdown by mail, telephone, and walk-in

2. Total number of requests for which responses were prepared versus the number of referrals

3. Number of inquiries received, by type of user

4. Number of responses by subject or topic area

5. Total number of responses prepared, by type (e.g., information about the clearinghouse; general information about agency program; general question on information available on a topic for which pre-assembled or readily identifiable packages of materials are sent; quick reference questions that take less than 30 minutes to fulfill; computerized literature searches, using the clearinghouse database and/or other organizations' databases; research problems requiring more than 30 minutes of staff research)

Cost

1. Labor costs in all user services activities

2. Average time spent per inquiry

3. Average time spent per inquiry, by type of inquiry

4. Range and average computer costs per search, on the clearinghouse database and on other organizations' databases

Effectiveness

1. Average turnaround time between time an inquiry is received and the response is mailed to the user

2. Number of unsolicited, favorable and unfavorable letters or calls received and areas of satisfaction and dissatisfaction regarding the response package to an inquiry

3. Number of users who have previously used the clearinghouse ("repeat users")

EXHIBIT 6.3: ILLUSTRATION OF CLASSES AND TYPES OF READILY ACCESSIBLE DATA (CONTINUED)

MARKETING/PROMOTION

Activity Levels

1. Number of promotional activities undertaken and completed, including attendance of staff at meetings and conferences; exhibits staffed at meetings and conferences; speaking engagements by staff; training seminars conducted on use of clearinghouse; advertisements; conferences and meetings for which special clearinghouse materials are prepared; journal columns prepared about the clearinghouse; and mailings of promotional pieces about the clearinghouse or specific publications and services

Costs

1. Labor hours involved in promotional activities
2. Percentage of total budget used in promotional activities

Effectiveness

1. Estimates of target population (by class) aware of clearinghouse, through analyses of numbers of names on mailing lists or number of organizations and other intermediaries to which mailings are regularly sent
2. Percent and absolute growth in clearinghouse use defined in terms of numbers of inquiries for information, numbers of different individuals requesting information and/or publications, numbers of publications ordered
3. Numbers of organizations (e.g., association, foundations) that regularly use the clearinghouse as a source of information, refer users to the clearinghouse, or "publicize" the clearinghouse
4. Numbers of other information organizations (e.g., libraries, other clearinghouses) that regularly use the clearinghouse as a source of information, refer their clients to the clearinghouse, or subscribe to clearinghouse publications

The proposed measures provide a taxonomy for classifying publications (see Item 1 in Publications Activity Levels) and user services (see Item 5 in User Services Activity Levels). A taxonomy for classifying users was presented earlier, in Exhibit 6.1. Another area for which a taxonomy is needed is cost information.

The data generated from these measures can be used internally to track performance over time. If objectives are set in advance, it is possible to assess whether planned performance levels are being met. Where problems are found, personnel can perform additional studies to identify causes and to develop solutions. If the same data are collected for several reporting periods (e.g., quarters or years), trends can be followed.

Particularly informative indicators include the following:

- the correlation between the proportion of requests by topic area and the proportion of items in the database or collection for each topic area--an indication of the adequacy of the selection process and an indicator of a possible need to more fully develop the collection on a particular topic;
- number of favorable and unfavorable reviews of clearinghouse publications--an indicator of the visibility and quality of clearinghouse publications;
- number of clearinghouse publications picked up for reprinting--another indicator of their quality and visibility;
- number of responses by subject area--an indication of "hot" topics that may warrant development of a publication;
- number of repeat users--an indication of user satisfaction; and
- percent of and absolute growth in clearinghouse use--an indication of clearinghouse visibility and user satisfaction.

If all clearinghouses were asked to collect these data and to use a common taxonomy for generating the data, the results would also have utility for cross-clearinghouse comparisons. Such information could be useful to DHHS and other agency decision-makers who may have to make choices about the funding of particular clearinghouses. It must be recognized, however, that there are some dangers in comparing numbers across fields. For instance, the number of sources scanned for potential acquisitions may be a reflection not only of the level of effort for a specific clearinghouse, but perhaps also of the volume of literature in a particular field. Similarly, variation in the number of information requests received or the number of copies distributed for a document, may reflect, in part, the size of the target population, as well as the extent to which the clearinghouse has penetrated the market. Interpretation of the data must be sensitive to such differences.

Despite these limitations, the use of administrative data and unsolicited user comments has important advantages. These data are relatively inexpensive to obtain and can be collected regularly. In contrast, formal evaluation surveys tend to be more expensive and to yield results at only one point in time. The advantage of formal surveys is that more complete information can be obtained about user characteristics, their preferences, and their assessments of the clearinghouse. In addition, some questions such as reasons for not using a particular clearinghouse, can only be answered through surveying the target population. The following section describes three possible survey evaluations.

User Surveys to Obtain Additional Evaluation Information

User surveys can be designed to address many different topics of interest. Because of general interest in user satisfaction with clearinghouse publications and services, we have designed instruments that can be field tested in these two areas. A third instrument to measure clearinghouse visibility and target audience penetration is also presented. These three types of evaluation and challenges associated with their design are discussed in the text; the survey instruments are presented in an Appendix to this report.

Publication Evaluations

Clearinghouses often use other publication distribution channels (e.g., NTIS, GPO, the ERIC Document Reproduction Service, and professional associations) to supplement their own direct distribution, thus creating some distance between clearinghouses and their readers. Despite this, most clearinghouses receive sufficient feedback through the mechanisms discussed in the previous section to sense the general response to a publication and to identify their "best-sellers." However, informal feedback lacks sufficient detail--particularly in the areas of quality, utility, use, and non-use--to provide adequate support for the publications planning process. Measurement areas and types of data that would be helpful to clearinghouse personnel in planning publications have been translated into illustrative questionnaire items shown in the Appendix to this report. They include users' perceptions of the quality and utility of the publication, whether they used the publication in their work, for what purposes it was used, how they learned of the publication, and whether they would recommend it to others.

In designing an evaluation study to obtain data in these areas, a number of considerations must be addressed. They are discussed briefly below.

Approaches to Publication Evaluation. The design of the evaluation will depend on what questions it is intended to answer. One study objective may be to have a fairly large sample of target audience members review one or more publications, independent of specific personal needs for such information at that time. In this case, a publication may be sent to a large sample of reviewers who are asked to comment on it and project how it might be useful to them. Another approach may be to learn from a sample of target audience members whether they have read one or more clearinghouse publications and, if so, whether those publications met their specific needs at the time the publications were read. This approach provides information about the visibility of the publication and about recipients' responses to it. In a third approach, an evaluation form may be sent to known recipients either with the publication or a few months later. This method assures that respondents will know of the publication.

Readers and Non-Readers: A Timing Problem. Timing is a vital aspect of any publication assessment. The person who requests a publication may not become a reader of that publication for some period of time, so an evaluation questionnaire may reach some recipients before they become readers. On the other hand, some recipients may be reached long after they have read the publication and they may not recall the specific publication under review.

In dealing with the recall problem, one approach that has been used successfully in the past is the "recall prompter" (Wanger, 1972). Color photographs or document representations (e.g., copies of title pages, tables of contents, and extracts or summaries) can be used to help a reader recall particular publications. It would still be necessary, however, to differentiate the responses of those who are answering "from memory" from those who have a copy in hand at the time of responding to the survey questions.

Dimensions of Publication Quality and Utility. Quality and utility can be defined in generic terms (i.e., as two generic variables) or in terms of the more specific variables that each comprises. The uniqueness and independence of these general dimensions has yet to be established. Utility to the user may be a function of quality, or perceived quality may be a function of utility to the user at the time the document is read. In an earlier survey effort (Wanger; 1972:VII-37), some results suggested that "the need for a document on a particular topic may supersede the need for a quality document."

A Context for Interpreting Evaluation Results. As discussed earlier in this chapter, the interpretation of user-satisfaction survey results can pose a problem. In addition to the need for specifying a certain set of expectations against which the evaluation results can be compared, it is also necessary to develop analysis plans that help to focus the interpretation of results (e.g., in terms of performance/effort ratios). This concept involves comparing the value of a publication from the users' perspective to the level of effort involved in producing it, to determine whether publications that require more effort to produce receive a higher user rating. A similar approach was preliminarily tested in a study for the National Center for Educational Communication (Wanger; 1972). In that study a Visibility Index (to represent the degree of effort expended in promoting a publication) and a Level of Effort Index (to represent the cost of the publication) were created. Either or both of these process measurements could be developed and compared to some overall indicator of the users' judgments of quality and utility. If study results show, for example, that high-cost or other high-level efforts do not produce high quality or high utility assessments, the clearinghouse may need to change direction.

User Services Evaluations

As indicated in Chapter 2, the user services area involves a wide range of activities. The focus of this discussion is on clearinghouse reference services, one of the services most visible to users. A substantive evaluation question in this area deals with user satisfaction with the information provided by the clearinghouse. This information, often referred to as the response package, is typically a bibliography and/or set of documents that deal with a question that has been posed by a requester. Measuring user satisfaction with reference services involves study of users' perceptions of variables such as:

- appropriateness and relevance of the information to users' needs;
- currency of the information received;
- attractiveness of the information package;
- clarity of response;
- appropriateness of the quantity of information received; and
- usefulness of referral sources identified.

In addition, it would be useful to know the purpose for which the information was used and, where appropriate, the users' perceptions of value relative to cost. Some of these and other measurement areas are illustrated in the sample set of questionnaire items provided in the Appendix.

A broad user services survey is helpful in assessing the adequacy of the user services staff, provided that careful judgment is exercised in interpreting the results. One clearinghouse director noted that it is desirable for user services to receive a positive rating, but that extremely high satisfaction ratings may mean the staff is spending more time than necessary responding to each request. The implication is that there is a trade-off between user satisfaction and efficient allocation of staff time that needs to be monitored regularly.

For certain types of evaluation objectives, focused experimental studies may be more appropriate than surveys. For example, to evaluate more specifically the quality of output from a computerized literature search, requesters may be asked to judge the relevance of each citation in a bibliography and the relevance of actual documents referenced in that bibliography. This type of study can be used to assess the effectiveness of the indexing system or the quality of searches performed by clearinghouse personnel. A recent study of searches of several National Library of Medicine databases indicated that behaviors and attitudes of searchers had a considerable effect on the outcome of the search. Failure to check on the adequacy of the search formulation during the conduct of the search, for instance, limited the utility of the results (Wanger, 1980:3).

An approach to evaluating user services is the use of an expert panel to review a sample of responses to real or simulated user requests. The approach offers the potential advantage of providing feedback on the quality of clearinghouse services without the expense and time required to conduct large-scale survey research. However, the ability of experts to accurately predict users' responses has not been tested and is not likely to be high, since judgments of user satisfaction tend to be quite subjective. It might be valuable to conduct an experimental study comparing user and expert responses to determine the extent to which experts can predict users' assessments. A 1968 study by Cuadra suggests that great care would be needed to select and define the experimental conditions. The study found that judgments of relevance were influenced by numerous factors, including the skills and attitudes of the judges, the instructions given, the setting in which the judgments took place, and the rating scale used (Cuadra, 1968;1-12).

"Visibility" Evaluations

Some clearinghouses are constrained through budgets or policies that limit their investments in promotional activities and prohibit active image development (e.g., through promotional mailings or use of distinctive logos on publications). But even these clearinghouses should make some effort to periodically assess the degree of awareness within their target audience of the clearinghouse and of its information resources and services.

This type of evaluation, more than any other area already discussed, is a prime candidate for an independent, full-scale evaluation study. Ongoing mechanisms are more readily developed (or are already in place) for micro evaluations of specific user services and publications, but assessment of clearinghouse visibility and target audience penetration is exceedingly difficult without some external data-gathering effort. One major objective for such a study would be to identify and characterize non-users (i.e., individuals within the target population who are not aware of the clearinghouse or, if aware of it, have chosen not to use its services or obtain copies of its publications).

A major methodological concern in developing such a study is the identification and sampling of an appropriate survey population. This process is particularly important for clearinghouses that operate under the constraints mentioned above because their limited promotional activities make the use of their publications and services highly dependent on the users' seeking them out or on the dissemination activities of intermediaries. Clearinghouses that actively seek to develop awareness and an image -- with intermediaries and ultimate users' -- may find it appropriate and highly desirable to develop a broad based sample population. They will then be able to assess success within the more immediate target audiences and begin measuring "ripple" effect among users typically served by those intermediaries.

A set of questionnaire items that might be used in conducting such a study is presented in the Appendix. For any given clearinghouse, the questions can be tailored to its specific activities and to develop a set of respondent background questions that capture demographic characteristics and information needs, as well as user characteristics that are most appropriate for its operations. In cases where intermediaries are likely to comprise a major portion of the survey population, it will also be useful to add questions (or, alternatively, to use a case-study approach) to quantitatively and qualitatively assess how intermediaries use clearinghouse services and publications in serving their own clients.

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7

CONCLUSIONS AND RECOMMENDATIONS

Introduction

The conclusions and recommendations presented in this chapter derive from the research conducted in Phase III and from the study team's basic understanding of the role and operations of human services information clearinghouses. They represent the opinions of the study team and are presented to the Department of Health and Human Services for its consideration.

It has been noted in the past that there is an absence of high level agency involvement in the management of information services and that coordination of information services is limited both within departments and across departments (GAO; 1979:3-8). We find that this condition continues to exist within DHHS and between DHHS and other departments. Although some efforts are now being made to develop bureau or agency-wide policies (e.g., the studies initiated by the Office of Human Development Services and the Public Health Service), no one has been assigned responsibility for establishing DHHS policies or considering appropriate long-term actions. Without a group or individual specifically designated to consider the options presented in this chapter, it is unlikely that coordinated actions will be taken. One possible strategy is to continue the internal panel that has advised this study and to assign it the task of reviewing these suggestions. Alternatively, an individual or a new committee could be designated to perform this work.

Furthermore, several of the options presented in this chapter require changes in legislation that would affect information services throughout the government. A higher-level body with responsibility for government-wide policymaking will need to consider these options and their implications. Since the Office of Management and Budget and the General Accounting Office are currently involved in studying and suggesting government-wide information policies, they may wish to consider these matters.

Although the body of this report is arranged around specific policy topics, there are broader policy considerations that should be addressed by the Department before it can set directions for such specific facets of operation as cost-recovery practices or publications programs. If policies can be established in the broad area of defining the government's role in information services, then a framework will have been established within which to examine the more specific concerns. This chapter discusses the broader considerations first and provides recommendations relating to specific management and operational concerns within that context.

Establishing a Government Information Policy

Determining the appropriate role of government in providing information is a critical first step in defining government information policy. Since its inception, the government has been active in collecting information and making it available to the public. As needs have changed and the capacity to produce and distribute information has become more sophisticated, government involvement has expanded without a concerted effort to define which types of activities are properly within the governmental sphere and which can or should be performed by the private sector. The result is the situation described in Chapter 4, in which there are no uniquely public or uniquely private markets, technologies, or functions.

As the amount of Federal funding to support information services becomes more limited, it is increasingly important to determine in which areas the government wishes to continue its involvement and to establish priorities for funding. Although most decisions will have to be made on a case-by-case basis, some guiding principles may be helpful. The following suggestions are offered for consideration.

First, the objective of "information dissemination" must be given more precise meaning within the context of defining the government's role in the provision of information services. The government may become involved in, and current government-supported information programs offer, the following types of services:

- disseminating (i.e., collecting, organizing, announcing, and sometimes distributing) data and reports produced by government agencies or with government support;
- disseminating data and documents produced by commercial and non-profit organizations (e.g., journal articles, reports); and

- analyzing and synthesizing the literature in various fields to meet the information needs of different target audiences.

The first decision point is to determine which of these services are appropriate government responsibilities.

In identifying appropriate government information services, the services available from other agencies and the private sector should be considered. One can assert that it is appropriate for the government to continue its involvement in disseminating information produced with government support. This is a role performed by such agencies as NTIS and SSIE, as well as many clearinghouses, which collect, organize, and announce the information to the public, and make it equally available to all interested users. It might be possible for a private organization to perform these services, and some private organizations do, but there is little debate about the legitimacy of these government services. Systematic synthesis and analysis of the literature in various fields, or facilitating the distillation process, may also be appropriate government services because few private secondary publishers assume these responsibilities. Disseminating information originally produced by the private sector (e.g., journal articles or abstracts developed by private database producers) is another matter, however. This is a service provided by many private organizations, and the private sector tends to view government involvement as an encroachment on its area of jurisdiction.

Once decisions are made concerning the appropriate role for government in the provision of information services, it becomes necessary to establish priorities in terms of the subject or problem areas that the Department of Health and Human Services considers most important for continued funding. This decision can be made in one of two ways:

- by identifying and providing information services in those subject or problem areas that are of highest concern to DHHS agencies; or
- by identifying those areas that have the greatest commercial viability and attempting to stimulate private involvement in these fields, thereby conserving DHHS funds for priority areas that have limited commercial potential.

We believe the second alternative is preferable because it is consistent with stated government policy not to compete with private enterprise and yet it offers assurance that areas of priority concern to the Department will be covered.

Several techniques are available to foster greater reliance on the private sector. Before any government-supported information service is initiated, the sponsoring agency should be required to explore the feasibility of relying on the private sector for service. In some cases minor modifications in existing services could be made to accommodate Federal needs. Techniques that can be used to encourage private initiatives include tax incentives, matching grants, or partial subsidies (i.e.; seed money) to encourage the private sector to enter a particular field. These methods might permit a gradual phase-out of government support for a specific information service. To support document delivery services, the model followed by ERIC and the Securities and Exchange Commission can be replicated. These agencies contract with private organizations to provide all document delivery services on a full-cost-recovery basis. The contract is essentially a license to operate; there is no public subsidy of the service. This same approach may have applicability to other services.

Another approach that should be explored is developing tertiary databases--databases derived from other databases--as a means for providing better access to highly specialized data needed to support some government programs. Because the large databases produced by ERIC, NTIS, NLM, and SSIE cover a number of disciplines and areas, the items in their collections that are relevant to a particular program area are perceived to be "buried," and because these operations are run outside the program area, they are perceived to be "remote." Tertiary databases respond to the need for more convenient access. The private database developers with whom we spoke indicated a willingness to allow development of tertiary databases if the copyright on citations selected from their databases could be assured. A revision of the copyright law is needed to provide this protection.

In those areas where continued DHHS participation is deemed desirable, the next step should be an analysis of the best structure for providing service. Information services can be provided by a single centralized source that disseminates information from many agencies (e.g., the NTIS model). Alternatively, a single source for information might be organized by Federal department, by subject area (e.g., health or education), or by program area. The current system includes elements of each approach, thereby raising questions about the efficiency of the overall design. To determine whether consolidation would be more effective, one must consider both efficiency of operations and convenience to users.

The data we collected suggest that some economies of scale may be achieved through consolidation. They also suggest that there may be some disadvantages, particularly in terms of the difficulties encountered in combining existing, incompatible databases and in targeting services to the needs of a variety of different audiences. A definitive answer about the feasibility and possible advantages of consolidation cannot be provided without further studies to:

- develop consistent and complete cost-accounting systems that permit objective measurement of the cost of clearinghouses and other information services, both for those operated by the government and those operated by contractors;
- assess the full cost of performing similar activities, such as indexing or abstracting a document, through the large government-supported information systems (e.g., NTIS and NLM) and at the clearinghouses, to determine which type of organization has lower per-unit costs;
- determine the management and administrative costs of the current system and the potential for savings through consolidation;
- examine the output of both types of organizations to assess differences in their ability to meet users' needs.

These studies would provide a basis for judging whether cost savings can be achieved without substantially reducing responsiveness to user needs.

In considering the relative merits of consolidating information services, it is our belief that greater effort should be directed toward reducing duplication of effort than toward eliminating overlapping content coverage. Overlapping content coverage serves primarily as a convenience to the user and does not necessarily represent wasteful use of resources. However, duplication of effort between the databases developed by the large government-supported information services and the database development activities of the clearinghouses appears to be less justifiable. This problem may be difficult to resolve in the case of existing clearinghouses, where resources already have been expended to design and develop a database. However, action can be taken to avoid the repetition of duplicative activities in the future. When new programs with an information component are established and when existing information service organizations elect to automate their systems, they should be required to explore the feasibility of working with an existing government-supported database. Through various cooperative arrangements, it should be possible to take advantage of already existing system capabilities and to let each program area focus on such activities as information analysis and targeted information dissemination.

The decision points outlined above are the broad information policy topics that must be addressed for the Department and for the entire Federal government. Only after these broad decisions have been made can policy be established to address management and operational concerns pertaining to clearinghouses.

Clearinghouse Management and Operations Policies

As indicated in Chapter 2, designing and operating a clearinghouse involves making a great many decisions about the objectives of the clearinghouse, its organizational structure, and the package of services it will offer. In this report, we have examined three areas in detail: planning considerations, the feasibility of recovering operating costs through user fees, and the role of the publications program. We have also addressed the topic of evaluating clearinghouse performance, to provide input into future planning at the clearinghouse and agency levels. Our conclusions and recommendations in these areas are offered on the following pages.

Planning

The primary planning need is to define more carefully the mission (i.e., the fundamental purpose) of each clearinghouse, within the context of the program in which it operates. In defining this mission and translating it into a set of specific objectives, program managers must understand what "information dissemination" is and what it can accomplish, so that they can determine whether a clearinghouse is, in fact, the appropriate response to the perceived need. If a clearinghouse is desired and appropriate, then objectives that are both measurable and realistic must be set as a basis for directing the clearinghouse and assessing its performance.

When deciding where to place a clearinghouse within the bureaucratic structure, greater consideration should be given to the implications of establishing a "programmatic" clearinghouse embedded within a larger program activity as opposed to creating an "independent" clearinghouse that operates as a relatively autonomous entity. Each approach offers specific advantages that may be better suited to some situations and contexts than others. The choice of approach should be made deliberately, after full examination of the implications of each alternative.

There is a need to reconcile fixed funding support for clearinghouses with expectations that clearinghouses will provide a certain level of service to their constituencies, particularly in handling reference and referral requests. There are no incentives in the present system for a clearinghouse to become highly visible, because it most likely could not absorb any increased demands. Therefore a conflict develops between the objective of disseminating information as widely as possible and the ability of a clearinghouse to finance broad distribution of its materials or expand its base of users.

The development of policies and guidelines regarding cost accounting practices for clearinghouses is another critical planning need. There currently is no consistency in how costs are categorized, and cost data for clearinghouses operated by the government are particularly limited. Availability of complete information would support assessment of the relative cost of "in-house" versus "contractor" operated clearinghouses and permit selection of the most cost-effective approach. This information also is needed as a basis for pricing in any cost-recovery program that the government decides to implement.

Cost Recovery

Cost recovery is a complex issue because there are so many variables to consider in establishing a realistic policy. It is important to consider the type of information being provided and the purpose it is intended to serve, to help determine whether asking the target audience to pay for the materials will negate this purpose. It seems that both the clearinghouses and their users are receptive to the idea of charges for document delivery and literature searches. Whether fees should be imposed for all clearinghouse publications and whether their distribution should be limited only to those who are willing to pay the fee are topics that are still being debated. Answering these questions is difficult because there is no objective information about how users perceive or use these publications. It may be that free distribution through depository libraries and to a very select list of key organizations is sufficient and that all other users should pay for the publications that they receive.

If a decision to institute cost recovery in clearinghouses were made, there still would be two policy questions to address: what categories of costs should be recovered and what agency should collect and retain the fees? The first question has important implications for setting prices. If the government fosters greater private involvement in commercially viable services (a direction we recommend), it is likely that the priority services that it elects to continue will require at least partial government subsidy. Charging for the marginal costs incurred in providing services and disseminating clearinghouse publications may be more realistic than charging the full costs. It must be recognized, however, that until laws are changed so that clearinghouses or their sponsoring agencies can retain the revenues generated from the sale of their products and services to support further activity, there will be little incentive to incur the expenses involved in implementing user fees. Consequently, we recommend that government-wide action be taken to correct legislative impediments to cost recovery.

It is necessary to institute two additional activities to support a cost-recovery program. The first, as suggested earlier, is the development of a cost-accounting system that is capable of producing data on all the costs associated with specific clearinghouse functions. The second is a commitment to building the marketing capacities of the clearinghouses so that they can generate the usage levels needed to support a viable cost-recovery program. This step will require a reorientation of priorities for program sponsors and clearinghouse personnel who, traditionally, have been guided by a public service orientation.

Clearinghouse Publications Programs

Most clearinghouse publications receive only a limited distribution--typically no more than a few thousand copies--because of the restricted marketing and distribution budgets of clearinghouses. If these publications are truly serving a need, then their limited circulation and their lack of availability through the communication channels most target audience members are familiar with (e.g., journals and commercial publications) are substantial impediments to reaching potential recipients. We suggest that a comprehensive planning process be instituted for clearinghouse publications programs so that the need for, and quality of, the documents is assured and the probabilitity of broad distribution is enhanced.

Although all clearinghouses plan aspects of their publications programs, few utilize the most systematic and cost-effective procedures. Such a planning process would include the following considerations.

1. Conduct a formal needs assessment to identify topics that are considered government priorities or are of considerable interest to the target audience but are not adequately addressed in available materials.
2. Determine whether other channels, such as commercial publishers, academic presses, or professional journals can address the topic.
3. If any of these channels is appropriate, encourage and facilitate publication development through that channel by providing bibliographic and referral services. Consider production by the clearinghouse only when no other source is feasible.
4. When the clearinghouse elects to produce a publication, select authors through a competitive process. The author should be an expert on the topic; in-house staff may not be appropriate.
5. Determine the most appropriate format (e.g., journal article, monograph, or pamphlet) for presenting the information.
6. Conduct an extensive review of the draft publication; experts and target audience members should be asked to comment on the document to ensure that it meets high standards for accuracy, clarity, and appropriateness to the intended audience. The National Institutes of Health, Health Message Testing Service has developed review procedures that may be adapted for this purpose.
7. Select, the distribution channel that will ensure the widest circulation at the least cost to the clearinghouse. Consider refereed journals, cooperation with a professional association, and commercial publishers as alternatives to printing and distribution by GPO or the clearinghouse.

Working with commercial publishers requires an understanding of their needs and timelines, streamlined procedures, and a reliable, centralized point of contact between the government and the publishers. The Market Linkage Project operated by the Office of Special Education offers a model DHHS may wish to study for its applicability to clearinghouse publications.

Evaluating Clearinghouse Performance

The information currently reported by clearinghouses is insufficient for fully assessing their performance. One reason is the absence of comparable data across clearinghouses. In addition, little attention is devoted to analyzing the statistics that are compiled. The ability to measure performance can be substantially improved by modifying current data collection activities. The Department of Health and Human Services should invest in:

- developing key evaluation questions--i.e., defining what needs to be learned about the performance of a clearinghouse or set of clearinghouses, how the information is to be used, and by whom;
- developing common taxonomies for users, publications, and services, particularly if cross-clearinghouse comparisons are to be made;
- developing a cost-accounting system that will permit determination of the full costs associated with each function and will provide comparable cost data across clearinghouses;
- directing all clearinghouses to report the same performance data; and
- compiling data already available in the clearinghouse(s) and analyzing these data, to identify baseline data for establishing performance targets and for developing hypotheses to be tested in the field.

These actions will provide an information base capable of supporting analysis across clearinghouses and over time. Evaluators still will need to take into account the unique features and characteristics of the clearinghouses being compared, however.

We believe it is important that attention be given to the ongoing evaluation processes and that adequate budgets be allocated to the planning and evaluation functions. To be sure, some questions, particularly those pertaining to users' perceptions, can be answered only through survey research, and a complete evaluation is likely to require information of this type, as well. But evaluation surveys--unless designed specifically as longitudinal studies--capture data at only one point in time. Ongoing evaluation, based on administrative data and unsolicited feedback, is critical to the year-by-year planning effort, to help clearinghouses remain responsive to changing environments and user needs.

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141

APPENDIX

Survey Forms

PUBLICATIONS SURVEY

The publication that we would appreciate your reviewing is identified and described below.

Insert brief publication description here

1. Because publications can be used in a number of different ways, it will help us first to know how you have used this publication. Please check the <u>one response</u> below that matches your use.

   ☐ Have <u>read</u> the publication with a particular purpose in mind (please describe purpose:) ______________________________
   ____
   ____
   (Go to Question 2)

   ☐ Have <u>skimmed</u> the publication with no specific use in mind at this time. (Go to Question 2)

   ☐ Have not yet read or skimmed the publication. (If you are unable to skim or read the publication within the next week, please go on to Question 3 of this questionnaire.)

2. The following chart identifies a number of different areas of the potential quality and usefulness of publications. For each of the areas identified in the left-hand column, please check the rating that best represents your evaluation of the publication. The 5-point rating scale represents the following adjectives:

   1 = Extremely
   2 = Very
   3 = Acceptably
   4 = Not very
   5 = Not at all

   You will need to read these rating-scale choices in the context of each particular area. For example, the choice points for the first area would be read as follows: 1 = Extremely authoritative; 2 - Very authoritative, etc. Please provide your considered judgment for each area, using the central choice point (3) only when it best reflects your opinion, and using the unnumbered responses only if necessary.

	RATINGS						
QUALITY	1 Extremely	2 Very	3 Acceptably	4 Not Very	5 Not at all	No opinion	Not applicable
Authoritativeness							
Accuracy							
Appropriateness and reasonableness of organization							
Appropriateness of length							
Clarity of writing							
Comprehensiveness of scope and coverage							
Contribution of format, including typography and illustrations, to readability							
Up-to-dateness (timeliness)							
USEFULNESS							
As an introduction to the topic							
In identifying experts							
In identifying programs/projects							
In identifying research							
In providing an update, e.g., of trends and new developments, in the field							
In obtaining practical guidance							
OVERALL QUALITY AND UTILITY							
Relevance of topic to needs in the field							
Relevance of topic to my specific needs							
Relevance of approach (e.g., type of document and content selection) to my specific needs							
[illegible]ce of publication's contribution to [illegible] in the field							

3. If you have not read or skimmed the publication, please indicate why. (Check the one response that most accurately describes your reason.)

- [ ] The publication has just arrived.
- [ ] I have not yet had time to review the publication but plan to review it in the future.
- [ ] The publication arrived too late to be useful for my needs.
- [ ] The publication does not seem sufficiently pertinent to my needs or interests to warrant review.
- [ ] Other (please specify) ______________________________

(Go on to Question 4)

4. Are you aware of publications on this topic produced by sources other than this clearinghouse?

- [ ] Yes (Go on to Question 5)
- [ ] No (Go on to Question 6)

5. If yes, would you rate this publication in comparison to publications produced by other sources as:

- [ ] A very useful publication
- [ ] Not unusually useful, but worth having available
- [ ] Not sufficiently useful to justify its publication
- [ ] No opinion

(Go on to Question 6)

6. If you had not obtained this publication from the clearinghouse, what would you have done? (Check as many responses as appropriate.)

- [ ] Gone to the library to obtain materials
- [ ] Asked colleagues for information
- [ ] Gone to another clearinghouse in the field for assistance
- [ ] Relied on other resources already in my possession
- [ ] No other resource would have been available to me
- [ ] The need for this publication was not very great and I would not have made any effort to obtain information from another source
- [ ] Other (please specify) ______________________________

7. As a result of reading the publication, did you use the information or the publication in any of the following ways? (Check as many responses as appropriate.)

- [ ] Used the facts or recommendations to make a decision
- [ ] Applied the information in my own work
- [ ] Used the information to give advice to other people
- [ ] Examined other documents
- [ ] Consulted with author(s) or other persons identified in the publication
- [ ] Passed the publication on to colleague(s) to read
- [ ] Other (please specify) ______________________________

The following questions are intended to provide some background information on yourself and on your awareness and use of the clearinghouse that produced the publication that you have just reviewed.

8. Check the one choice below that best and most specifically represents the type of organization in which you work. In a few cases, you are also asked to check another more specific response. (Please read all choices before making your selection. If none of them applies, please check "OTHER" and describe your organization. If receipt of the clearinghouse publication was not associated with any professional responsibilities, please check "Received as a private citizen".)

- ☐ Government agency (and, also check one): ☐ Federal ☐ State ☐ Local
- ☐ University, college, or other post-secondary institution
- ☐ Pre-School through high school (including all administrative and instructional units)
- ☐ Medical institution (e.g., hospital, clinic, or research center)
- ☐ Public or private social service delivery agency
- ☐ Business or industrial firm
- ☐ For profit research organization or consulting firm
- ☐ Not-for-profit research organization, association, or foundation
- ☐ Library or information center (and also check one): ☐ public ☐ state
  ☐ university/college ☐ school ☐ business/industry ☐ clearinghouse
  ☐ commercial information broker ☐ other: ____________
- ☐ Received as a private citizen, for non-professional use
- ☐ Other (please specify): ____________

9. Check the one choice below that best describes the capacity in which you requested this information. (Please select the most specific description and the one that best describes your primary responsibilities relating to the use of this information.)

- ☐ Legislator
- ☐ Administrator or manager in an organization (e.g., a Federal, state or local governmental agency, non-profit agency, or educational institution)
- ☐ Educator (e.g., teacher, instructor, professor)
- ☐ Health services practitioner (e.g., nurse, doctor, clinical psychologist)

- [ ] Social services practitioner (e.g., social worker, counselor, case worker)
- [ ] Researcher
- [ ] Librarian or information specialist
- [ ] Student
- [ ] Requested/received as a private citizen
- [ ] Other (please specify): ______________________________

10. Indicate below the frequency with which you have initiated contact with the clearinghouse that produced this publication.

- [ ] I have not used this clearinghouse before; I obtained this document from another source.
- [ ] I had my first contact with this clearinghouse when I requested this publication.
- [ ] I have previously requested information from this clearinghouse. (If this response is checked, please also check one of the choices below.)
  - [ ] One previous request
  - [ ] 2 to 5 previous requests
  - [ ] Over 5 previous requests
  - [ ] I do not recall the number of previous contacts with this clearinghouse

11. How did you first hear about the availability of this publication?

- [ ] I did not hear about it directly; I obtained a copy from (please check below):
  - [ ] our library
  - [ ] a professional association
  - [ ] a colleague
  - [ ] another clearinghouse
  - [ ] other (please specify): ______________________________

☐ I learned about it in the following way (please check below):

- ☐ from newsletter or other announcement sent by the clearinghouse
- ☐ from newsletter or other announcement sent by some other organization
- ☐ from a column in a journal that I read
- ☐ at a conference or meeting
- ☐ as a result of an inquiry I made at the clearinghouse
- ☐ it was sent to me without my specifically requesting a copy
- ☐ other (please specify): ______________________________

Thank you for your cooperation in this study.

USER SERVICES SURVEY

1. Please indicate the purposes of your request for information from the clearinghouse, (Check as many as are applicable.)

- ☐ To update my knowledge in an area that I am studying or researching
- ☐ To obtain an overview of a new area with which I have little or no familiarity
- ☐ To obtain some specific background information that will help me to solve a personal problem
- ☐ To obtain some specific background information that will help me to solve a professional problem that I am researching or studying
- ☐ To obtain a specific fact or answer
- ☐ To identify individuals who are working in this area
- ☐ To identify relevant research in this area
- ☐ To identify programs, projects, or other types of resources in this area
- ☐ Other (please specify): ______________________________

2. Did the information you receive meet the objectives you checked above?

☐ Yes, fully ☐ Yes, but only in part ☐ No ☐ Not sure

3. After obtaining the clearinghouse response to your question, did you use the information in any of the following ways? (Check as many as are applicable.)

- ☐ I read one or more of the documents that were referenced (or provided).
- ☐ I used the information to give advice to others.
- ☐ I consulted with at least one other individual who was identified through the clearinghouse information I received.
- ☐ I passed the information from the clearinghouse on to one or more of my friends or colleagues.
- ☐ Other (please specify): ______________________________

4. Please comment on the overall usefulness of the information that you received from the clearinghouse.

5. The following chart identifies a number of different areas of quality and usefulness. For each of the areas, identified in the left-hand column, please check the rating that best represents your evaluation. The 5-point rating scale represents the following adjectives:

1 = Extremely   3 = Acceptably   5 = Not at all

2 = Very   4 = Not very

You will need to read these rating-scale choices in the context of each particular area. For example, the choice points for the first area would be read as follows: 1 = Extremely courteous and helpful; 2 = Very courteous and helpful, etc. Please provide your considered judgment for each area, using the central choice point (3) only when it best reflects your opinion, and using the last three response choices only if necessary.

ASPECTS OF SERVICE	RATINGS							
	1 Extremely	2 Very	3 Acceptably	4 Not Very	5 Not at all	No opinion	Do not Recall	Not Applicable
(For telephone inquiries and site visits only) Courtesy and helpfulness								
Acceptability of lapsed time before an answer was received								
Overall appropriateness (relevance) of response to the inquiry								
Accuracy of the information provided								
Up-to-dateness (currency)								
(If appropriate) Attractiveness in formatting of package that was received								
(If appropriate) Appropriateness of the number of references that were identified to my needs								
(If appropriate) Usefulness of references in identifying and locating full-text source documents, AV materials, individuals, etc.								
(If appropriate) Quality of service received from organization or individual to whom the clearinghouse referred me for an answer or additional information								

6. Would you use the clearinghouse again to obtain information in the area that it covers?

☐ Definitely ☐ Likely ☐ Not Sure ☐ Not Likely ☐ Definitely Not

Comments:

7. Check the one choice below that best and most specifically represents the type of organization in which you work. In a few cases, you are also asked to check another more specific response. (Please read all choices before making your selection. If none of them applies, please check "OTHER" and describe your organization. Your information request was not associated with any professional responsibilities, please check "Requested as a private citizen".)

☐ Government agency (and, also check one): ☐ Federal ☐ State ☐ Local

☐ University, college, or other post-secondary institution

☐ Pre-School through high school (including all administrative and instructional units)

☐ Medical institution (e.g., hospital, clinic, or research center)

☐ Public or private social service delivery agency

☐ Business or industrial firm

☐ For profit research organization or consulting firm

☐ Not-for-profit research organization, association, or foundation

☐ Library or information center (and also check one): ☐ public ☐ state

☐ university/college ☐ school ☐ business/industry ☐ clearinghouse

☐ commercial information broker ☐ other: ____________

☐ Received as a private citizen, for non-professional use

☐ Other (please specify): ____________

8. Check the one choice below that best describes the capacity in which you requested this information. (Please select the most specific description and the one that best describes your primary responsibilities relating to the use of this information.)

- [ ] Legislator
- [ ] Administrator or manager in an organization (e.g., a Federal, state or local governmental agency, non-profit agency, or educational institution)
- [ ] Educator (e.g., teacher, instructor, professor)
- [ ] Health services practitioner (e.g., nurse, doctor, clinical psychologist)
- [ ] Social services practitioner (e.g., social worker, counselor, case worker)
- [ ] Researcher
- [ ] Librarian or information specialist
- [ ] Student
- [ ] Requested/received as a private citizen
- [ ] Other (please specify): ______________________________

9. Indicate below the frequency with which you have initiated contact with the clearinghouse that provided this information.

- [ ] I had my first contact with this clearinghouse when I requested this information.
- [ ] I have previously requested information from this clearinghouse. (If this response is checked, please also check one of the choices below.)
    - [ ] One previous request
    - [ ] 2 to 5 previous requests
    - [ ] Over 5 previous requests
    - [ ] I do not recall the number of previous contacts with this clearinghouse.

10. How did you first hear about the existence of this clearinghouse?

- [ ] from newsletter or other announcement sent by the clearinghouse
- [ ] from newsletter or other announcement sent by some other organization
- [ ] from a column in a journal that I read
- [ ] at a conference or meeting
- [ ] as a result of an inquiry I made at another information service or library
- [ ] other (please specify): ____________________

Thank you for your cooperation in this study.

VISIBILITY SURVEY

Description of Clearinghouse (include logo or other distinctive text used regulary on clearinghouse announcements/publications)

1. Please indicate below your familiarity with the clearinghouse that is described above. (Check only one response.)

   ☐ RESPONSE A: I am familiar with this clearinghouse and its publications and services. (If checked, please proceed to Question 2 and continue.)

   ☐ RESPONSE B: I have heard that such a clearinghouse exists but have no personal knowledge about its publications and services. (Please skip to Question 6 and continue.)

   ☐ RESPONSE C: I did not know that such a clearinghouse existed prior to reading the description provided above. (Please skip to Question 6 and continue.)

QUESTIONS 2, 3, 4 and 5 SHOULD BE ANSWERED ONLY BY THOSE WHO CHECKED "RESPONSE A" ABOVE.

2. Check each of the response choices below that applies either to your knowledge of or use of the clearinghouse. (Check as many as apply.)

   ☐ I read newsletters and other announcements that are sent to me by the clearinghouse

   ☐ I have contacted this clearinghouse for the following reasons (check as many as apply):

      ☐ to order one or more publications

      ☐ to obtain the answer to a specific question

      ☐ to ask that a search of the literature be conducted on a topic of my choice

☐ to sign up for a conference or workshop that it was sponsoring

☐ other (please specify): ______________________________

____

☐ I read publications that are sent automatically by the clearinghouse

☐ I have read one or more of its publications, although I generally obtain them from some other source

☐ I sometimes hear about the activities of this clearinghouse from my colleagues

☐ I have sent the clearinghouse at least one document (e.g., paper, article, or report) that I prepared, for inclusion in its collection or database

☐ I have received requests from the clearinghouse for me to submit documents (e.g., papers, articles, or reports) that I have written, but I have not yet submitted any

☐ Other (please specify): ______________________________

3. If you have contacted the clearinghouse directly (i.e., you checked the second response choice in Question 2 above), please indicate the frequency of your usage over the past two years. (A "contact" is defined to mean that you have asked the clearinghouse--in writing, in person, or in a telephone call--for information or for a publication, you have signed up for a conference or workshop, or you have otherwise initiated some request.)

☐ Have had only one contact in the past 2 years

☐ Have had between 2 and 5 contacts over the past 2 years

☐ Have had over 5 contacts over the past 2 years

☐ Cannot estimate the number of contacts I have had

4. What is your overall assessment of the quality of services and/or publications?

- [ ] Generally very good
- [ ] Generally good
- [ ] Generally fair
- [ ] Generally poor
- [ ] Can't really say; have formed no opinion
- [ ] Can't really say; have had a wide mix of reactions--some good and others not

5. If you are familiar with the clearinghouse but have had no contacts with its staff over the past several years (other than to receive its periodic mailings), please indicate the reasons why:

- [ ] Not applicable; have had contacts, as indicated above
- [ ] The area covered by the clearinghouse is only a peripheral interest to me
- [ ] The procedures for contacting the clearinghouse are not clear
- [ ] I have yet to hear about a publication or service that is of specific interest to me or particularly relevant to my needs
- [ ] I have not been entirely sure what kinds of requests the clearinghouse could help me with
- [ ] I simply have not had the occasion to seek help from the clearinghouse
- [ ] I do not have any particular reasons
- [ ] Other (please specify): ______________________________

(Please skip now to Question 7)

QUESTION 6 SHOULD BE ANSWERED ONLY BY THOSE WHO CHECKED "RESPONSE B" OR "RESPONSE C" IN QUESTION 1 ABOVE.

6. Check below the response choice that represents your potential interest in the publications and services of this clearinghouse. (Check only one.)

- ☐ I am definitely interested in learning more about this clearinghouse and plan to write for more information.
- ☐ I would be interested in learning more about this clearinghouse, but doubt that I will pursue it further, because my information needs in this area are being met through other sources
- ☐ I am unable to form any opinion on the potential interest in the publications and services of this clearinghouse. (Check only one.)
- ☐ I would be interested in learning more about this clearinghouse, but doubt that I will pursue it further, because my information needs in this area are being met through other sources.
- ☐ I am unable to form any opinion on the potential usefulness of the clearinghouse until I have learned more about it; however, I am not sure whether I will contact the clearinghouse for more information
- ☐ I am not at all interested in learing more about this clearinghouse because (please check below):
  - ☐ it is not relevant to my area of interest
  - ☐ it is doubtful that I would ever use its publications or services
  - ☐ Other (please specify): ______________________________

  ____

7. Check the one choice below that best and most specifically represents the type of organization in which you work. In a few cases, you are also asked to check another more specific response. (Please read all choices before making your selection. If none of them applies, please check "OTHER" and describe your organization. If your interest in the clearinghouse is not associated with any professional responsibilities, please check "As a private citizen".)

- ☐ Government agency (and, also check one): ☐ Federal ☐ State ☐ Local
- ☐ University, college, or other post-secondary institution
- ☐ Pre-school through high school (including all administrative and instructional units)

☐ Medical institution (e.g., hospital, clinic, or research center)

☐ Public or private social service delivery agency

☐ Business or industrial firm

☐ For profit research organization or consulting firm

☐ Not-for-profit research organization, association, or foundation

☐ Library or information center (and also check one): ☐ public ☐ state

☐ university/college ☐ school ☐ business/industry ☐ clearinghouse

☐ commercial information broker ☐ other: ______________

☐ As a private citizen, for non-professional use

☐ Other (please specify): ______________

8. Check the one choice below that best describes the capacity in which you might be interested in this information. (Please select the most specific description and the one that best describes your primary responsibilities relating to the use of this information.)

☐ Legislator

☐ Administrator or manager in an organization (e.g., a Federal, state or local governmental agency, non-profit agency, or educational institution)

☐ Educator (e.g., teacher, instructor, professor)

☐ Health services practitioner (e.g., nurse, doctor, clinical psychologist)

☐ Social services practitioner (e.g., social worker, counselor, case worker)

☐ Researcher

☐ Librarian or information specialist

☐ Student

☐ As a private citizen

☐ Other (please specify): ______________

Thank you for your cooperation in this study.