Business Case for Information Services: EPA's Regional Libraries and Centers

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I. Executive Summary

The Environmental Protection Agency's network of regional libraries and environmental center libraries provides substantial value to the Agency, its professional staff, stakeholders, and the public. Calculated conservatively, the benefit-to-cost ratio for EPA library services ranges between 2:1 and 5.7:1. Libraries and librarians are nonetheless a significant investment, costing the Agency roughly $6.2 million annually to operate and maintain. It is an opportune time to initiate an Agency-wide dialog on the extent and nature of library services at the Environmental Protection Agency.

II. Background

Established in 1971, the Environmental Protection Agency's Library Network is composed of 28 libraries serving 10 regional offices, 2 research centers, 12 research laboratories, and 4 separate libraries in Headquarters. The libraries differ in function, scope of collections, extent of services, and organizational reporting structure. Each library also differs with respect to the amount of support they offer for public access; their use of new technologies; and their level of budgetary support. Each library supports a collection of materials that have been chosen over time. These collections contain a wide range of information resources on environmental protection and management; basic sciences such as biology and chemistry; applied sciences such as engineering and toxicology; environmental law and regulation; and issues unique to specific regions or ecologies.

The combined EPA collections include 504,000 books and reports, 3,500 journal titles, 25,000 maps, and 3,600,000 information objects on microfilm. The Online Library System (OLS) provides the shared catalog for all these resources and is available to both EPA staff and the public via the Internet. The EPA Web site, with over 60,000 PDF files indexed, provides searchable access to full text, on-line EPA documents. In addition, for EPA staff, the "Desktop Library" provides an electronic collection of over 430 mostly commercial information resources. It can be accessed by all Agency staff directly from their desktop computers via the Intranet. The Desktop Library (http://intranet.epa.gov/desktop) includes the full text of scientific and policy journals, reports, newspapers, reference works, and databases.

Separately, each library is charged with providing services to EPA staff and external users with access to their location. However, each library within the Network has always leveraged the capabilities of the other libraries to assist patrons with information not available at their own locations. This cooperation allows the Agency to extend the value of its materials and services to create an "institutional value" greater than the sum of its parts.

Finally, some libraries contain materials that the Agency must make publicly available under law. Two examples are the Regional National Priorities List Public Dockets and the risk management plans for chemical facilities.

III. Addressing New Challenges

Due to a number of factors, EPA's libraries are under pressure to transform the way they support their diverse customers. Technological changes, changes in the marketplace for commercial information resources, and budget uncertainties contribute to a dynamic and challenging business environment. The impact of how the Agency, its staff, and the public use the Internet as well as how service providers have addressed pricing models for online databases and other resources cannot be overstated. Every year EPA libraries must re-assess the value of their services and the costs of providing those services and determine which pricing models and vendors can best fit their mission priorities and patron preferences. At the same time, budgets have been unpredictable, but generally tight. These factors have resulted in growing disparities in the resources available to EPA staff based on their physical location and organizational commitment to information access.

This analysis reviews the costs and value of services currently being provided through the Agency's network of libraries and library centers. The goal is to structure and evaluate library resources and services in a manner that will enable internal stakeholders to conduct an informed dialog concerning whether and how to re-configure the library network to address challenges and better support EPA's mission.

IV. Drivers for Change

In recent years, the need to assess and re-position library business practices has become evident. The drivers for change that led to this review are:

- Information (as distinguished from data) is an asset that EPA must manage strategically;
- The Agency is shifting away from producing printed materials, yet lacks a controlled repository of either paper or electronic EPA documents;
- Physical space requirements for libraries are periodically reviewed, yet organizations rarely consider the value of collections beyond their own need;
- Budgets have become susceptible to quick and radical shifts, creating difficulty to collect and manage information on a continuing basis;
- Direct costs for libraries are increasing and cuts are often made without input from the customer EPA organizations;
- Agency organizations are purchasing information products/services on their own. Some examples are:
  - The Superfund program contracts outside of EPA libraries to do searches for potentially responsible parties;
  - Offices subscribe to print and online journals without coordinating purchases with libraries or others in the Agency;
  - Contracts are being competed that include research support duplicative of support services being provided by libraries; and
  - Web-based and other electronic information sources and search tools are perceived to be supplanting traditional library services. The availability of Internet search engines has caused some to question (a) the role of reference

librarians, and (b) the value of traditional library classification systems and controlled vocabularies.

Recognition of the drivers for change raises a number of crucial issues:
- The relationship between EPA libraries and other Agency information providers such as clearinghouses, hotlines, inter- and intranet sites, and public information centers. The Agency has never fully addressed how the public interacts with individual units or with the Agency as a whole; EPA libraries often act as the safety net, catching the most frustrated members of the public trying to find information or assistance.
- The relationship between print and online information resources. Questions being asked include:
    - To what extent should EPA convert Agency materials, including legacy documents, to electronic formats and therefore enhance both EPA's and the public's utilization of that information?
    - Who should lead the identification, conversion, and release of materials for such an effort?
    - Does the Agency have the infrastructure to support virtual libraries for staff working in the field or from home?
- The ongoing conflicting mandate for EPA's libraries to service both internal staff and the public.
- Accepting the need to adapt to changing staff and budget levels within the libraries, e.g., doing "more with less," are there potential funding models that maintain flexibility and focus while creating efficiencies?
- The need to support emerging mission priorities, such as the public's right-to-know, homeland security, and real-time information provision for situational analyses.
- The need to acquire specialized subject matter competence quickly in order support rapidly evolving issues; and
- The need to adopt new technologies and practices for serving customers (including virtual reference) without either the funds or technical support to do so.

V. Methodology for the Business Case

Before EPA internal stakeholders and library customers can address issues such as those outlined above, it is critical to characterize current library activities in terms of costs and benefits to the Environmental Protection Agency, its professional staff, external partners and stakeholders, and the public. This analysis was approached by means of a six-step process, outlined below:

Step 1 – EPA Library activities were classified into five core functional categories: (i) performing research and interpreting results for patrons, (ii) distribution of information and bibliographic resources to patrons, (iii) selection and acquisition of information products for paper and electronic collections, (iv) access to information collections both within and outside EPA, and (v) management and administration.[1] Each of the functional categories was described along with benefits derived to EPA through performance of those functions.

Step 2 – The Office of Environmental Information worked with an Agency-wide Working Group to conduct an resource survey which included two principal aspects: detailed breakdowns of (i) library labor and extramural costs; and (ii) activity levels and service volume.

Step 3 – Cost and service volumes were apportioned to the appropriate functional categories (as identified under step 1, above).[2]

Step 4 – A literature review was conducted to identify appropriate and tested metrics of library performance, focusing on time-savings and knowledge value-added to EPA research, business, and information products and decisions. Key metrics and associated assumptions are outlined in Section VI, below.

Step 5 – For each applicable functional category, available data on costs and service volume were combined with the metrics to develop provisional estimates of performance.

Step 6 – For each applicable functional category, available data on costs and benefits were compared to develop a provisional benefit/cost ratio.

Step 7 – Anecdotal evidence was supplied for those activities which support the Agency's mission but for which metrics were unavailable. For example, the Regional Libraries provide information to support litigation; however, successful litigation does not provide income as it does for private firms. Successful litigation does result in benefits that cannot be assigned a dollar value. Consequently, It is difficult to subject legal and company research to a strict cost/benefit computation. Examples of situations in which library-provided information contributed to non-financial benefits are given.

VI. Key Assumptions and Metrics

Assessing the return on investment (ROI) for EPA libraries depends upon adequate characterization and valuation of core library services and resources. The literature base indicates that corporate and government libraries can achieve impressive benefit/cost ratios and ROI when considered in terms of two primary metrics:

- *Value of professional time-saved*. Patron surveys conducted by Baldwin, Strouse and others find special libraries save in-house, professional patrons substantial amounts of time through performance of various research-related activities. Librarians are found to save professional staff as much as 16 hours "per question answered." For this analysis, however, we have used a more conservative measure of 1 hour saved for quick reference questions answered; and 8 hours saved per extended reference question answered. The professional time was valued at $35/hour per EPA staff and $26/hour per external user.[3] Patron surveys also suggest that librarians save professional staff approximately 1 hour "per document delivered."

- *Value-Added Per Reading*. Patron surveys conducted by Griffith and King, Strouse, and others find that discovery and provision of key documents, data, and information to professional researchers and administrators result in significant positive value to the organization, ranging between $600-777 "per reading."[4] For this analysis, an approximate mid-range estimate of $670 per resource supplied was utilized.

Section VII, below, outlines the core functional categories introduced in Section V, above; describes the benefits derived to EPA through performance of each category; and combines available data on costs and performance benefits to develop a provisional benefit/cost ratio.

VII. Summary of Key Activities and Services

EPA libraries are in the business of information science; providing unique skill sets and resources that enable the Agency to gather, classify and organize, store, retrieve, and disseminate information that is available physically and/or electronically. The EPA Library Network is a network of *librarians*, who ensure the effective and efficient functioning of EPA's information services; and *libraries*, which provide physical and cyberspace locations for storing information and conducting research activities. The key roles and functions of the librarians and libraries are described below.

VII.1 Research and Interpretation of Results for Patrons
Information science is by no means a process of passive bibliographic retrieval. It requires skilled and diplomatic communications with patrons to help them state and clarify assumptions, topical foci, research hypotheses, and other business objectives.

Library patrons do not always come with well-formed questions or clearly articulated requests for specific information resources. Rather, research is frequently a joint venture between the patron and the librarian. As the librarian helps the patron discover a variety of aspects about the research topic, the original question gradually sharpens into the right set of questions and their answers. Utilizing the "reference interview" process, librarians interact with patrons to translate ambiguous and problematic requests (e.g. Do you have information on drinking water?) into viable research topics (e.g. Our well water has had a reddish color since the last bad storm).

Specific activities included in this category include the following:
- reference assistance for EPA staff and the public,
- email referrals, including those from EPA web sites,
- hotline support,
- business information research,
- scientific and legal research,
- training and user support for EPA staff to use Agency resources including the Desktop Library and other tools purchased for their direct use.

Benefits to EPA: The Environmental Protection Agency was established to protect human health

and the environment. The development of regulations based on sound science, the enforcement of those regulations, the cleanup of hazardous waste sites using innovative technologies, and ongoing extensive research projects all require access to accurate, up-to-date information. The EPA libraries provide an in-house resource to assist EPA Program Offices in the discovery and interpretation of scientific, technological, legal, and business information. The interpretation and discovery of quality information sources informs management decisions and litigation strategies; promotes innovation in program and regulatory development, implementation, and enforcement; and enables enforcement staff to access data and information.

On an annual basis, provision of this functional category accounts for slightly under $1.7 million, or nearly one-third of the composite library services budget (see Exhibit 1). In 2003, librarians fielded and successfully addressed 56,175 reference questions from EPA staff and the public; of that total, approximately 60 percent, or 33,499 questions were posed by internal staff (see Exhibit 2). Librarians also conducted 90,116 database searches for EPA staff and the public. For the purposes of valuation, database searches are assumed to lead to resources supplied.

Table 1. Value of Research and Interpretation of Results for Patrons

Service	2003 Total	Hours saved*	Cost per hour	Total savings
Quick reference for EPA staff	16,243	16,243	35.00	$568,505
Quick reference for external users	14,553	14,553	26.00	$378,378
Extended reference for EPA staff	17,256	138,048	35.00	$4,831,680
Extended reference for external users	8,124	64,992	26.00	$1,689,792
Database searches for EPA staff	60,275	60,275	35.00	$2,109,625
Database searches for external users	29,841	29,841	26.00	$775,866
Total	146,292	323,952		$10,353,866

* - See the "Value of Professional Time Saved" assumption above.

Between answering reference questions and conducting database searches, EPA librarians are estimated to have saved over 214,566 hours of EPA staff time, resulting in a cost-savings to the Agency of slightly over $7.5 million. The benefit to cost ratio for provision of library reference services within EPA is conservatively estimated to be over 4.4:1. Adding in the value of Public Access, the ratio exceeds 6:1.

VII.2 Distribution of Information Resources

Library customers often identify needed resources that are physically housed at other libraries both within and without the Agency or are available electronically. Likewise, the result of reference questions is often an identified document or citation that must be obtained for the user. Librarians, therefore, are responsible for obtaining needed documents (reports, articles, patents, standards, etc.) for in-house staff. Conversely, they also provide materials, often EPA documents, to outside users directly or through standard library procedures such as interlibrary loan.

Librarians manage and facilitate access to physical and electronic information products within and among EPA facilities as well as other libraries and vendors that provide resources for EPA staff. These interactions with other libraries are often referred to as interlibrary loan and include working with academic and research institutions, private companies, and law firms. Each EPA library also coordinates access to commercial vendors that can provide necessary reports, documents, and other resources as funds are available. Products such as Dun & Bradstreet company reports, full-text journal articles, and legislative case law are all acquired in this fashion by EPA libraries with the funds to purchase them.

Librarians are also responsible for ensuring that the collections they own in their location are securely preserved, kept up-to-date, and maintained. Preservation and access to physical materials is becoming pressured by issues of how large the library is in the facility. At the same time, most legacy EPA materials are only in paper format. Likewise, the preservation of digital material is challenging in cases where information products do not reside on EPA servers and/or where the library does not own the information collections. Another complication is that current EPA documents and research reports are posted and deleted from the EPA web site at the discretion of the webmaster and web site manager. When paper copies do not exist, the information is often lost.

Specific activities under this service area include the following:
- interlibrary loan and document delivery processing,
- cataloging and assigning metadata,
- journal and periodical routing,
- photocopying and downloading information,
- shelving and inventory,
- serials check-in and management and inventory control, and
- classifying and indexing electronic resources.

Benefits to EPA: It is expensive for EPA organizations to acquire information that they may need for regulatory development, enforcement actions, and research activities. However, not obtaining quality information, whether from commercial vendors or from Agency resources, could be exponentially more costly–in terms of dollars, environmental and public health impacts, and Agency credibility. EPA libraries compile and acquire bibliographic materials, databases, or other information products in order for the Agency to know what it needs to know as soon as the need is identified. The organization, upkeep, and maintenance of these collections is therefore paramount to their effective utilization. Librarians quickly access collected data and bibliographic resources (both physical and electronic) and employ effective mechanisms to provide these resources to internal patrons. These same activities also assist outside users in identifying and locating EPA-produced information.

As illustrated in Exhibit 1, the distribution and maintenance of materials accounts for almost $1.5 million, or nearly one-quarter of the annual composite budget. As illustrated in Exhibit 2, in 2003, EPA libraries processed and delivered 99,197 documents and other information resources to patrons, including 65,825 to EPA staff.

Table 2. Value of Distribution of Information Resources

Service	2003 Total	Hours saved*	Cost per hour	Total value
Resources supplied to EPA staff	65,825	65,825	35.00	$2,303,875
Resources supplied to external users	33,372	33,372	26.00	$867,672
Total	99,197	99,197		$3,171,547

* - As outlined in Section IV, above, patron surveys conducted in government library systems analogous to the EPA libraries suggest that typical distribution services (processing inter-library loans, downloading articles, providing publications from collections) save users approximately 1 hour per information resource.[5]

Considering only EPA patrons, the benefit to cost ratio for distribution and maintenance of EPA library resources is 1.5:1. Considering the value of these service to external users increased the value to 2.1:1.

VII.3 Selection and Acquisition for Collections
EPA librarians conduct all tasks related to selecting and purchasing the documents and other information products for their library collections, whether within its physical collections, electronically accessible products, or resources made available via consortial or other arrangements.

The subject specialities required to fulfill the Agency's mission are wide and varying. Because it is impossible to acquire, store and organize the information pertaining to all of EPA's mission foci, the professional judgment of librarians is key in selecting those resources most critical to the users served by each library. For example, Regional libraries frequently develop and maintain extensive collections of localized data and literature. The RTP Library has an extensive collection of air quality information. Also, selection and pricing of periodicals, journals, monographs, and other bibliographic materials has grown very complex in the electronic era, requiring knowledge of the general marketplace as well as of individual products. Negotiating licenses for electronic products is particularly challenging, requiring good negotiating skills in addition to in-depth product knowledge.

Specific activities included in this category include the following:

- specialized collection development,
- selection of journals, books, and databases,
- procurement of journals, books, and databases, and
- procurement of licensing agreements for access to electronic and digital information resources.

Benefits to EPA: Many of EPA's mission activities entail the need for rapid and/or repeated access to relatively specialized collections of data, scientific information and methods, and legal and legislative information. Similarly, it is necessary for EPA scientists, economists, attorneys, financial analysts, and other professional staff to stay abreast of cutting-edge developments and state-of-the-discipline information. The establishment of these collections enable EPA professionals to save time during the research phase of their activities, to conduct rapid turnaround research projects in response to evolving events, and to complete research projects that might have been stymied were unique and appropriate references not immediately available.

The process of selecting and acquiring information resources – including books, journals, legal subscriptions and databases – costs EPA slightly over $1.8 million per year, or approximately 29 percent of the composite budget (see Exhibit 1). The vast majority of these costs is in journal and legal subscriptions, nearly $1.3 million per year. Access to the most recent materials in scientific research is often critical for research activities and for field activities requiring the use of "new and innovative technologies." Lack of current legal information can easily lead to failed litigation. However, journal and legal service costs have skyrocketed over the last 20 years well above inflation--with some titles costing tens of thousands of dollars annually--while budgets have often decreased.

The value of EPA's collections lies not only in addressing the immediate needs of its users (those identified in the statistics collected by each library), but also in addressing their future needs. If the Agency were to cease its maintenance and collection of the 504,000 books and reports and 3,500 journal subscriptions, the costs of acquiring those materials on demand would be prohibitive to all but a few locations. Likewise, the loss of time in tracking materials down and having them sent to a location would reverse the value identified previously regarding resources supplied.

While we are aware of no metrics establishing either the value of a collection or the value-added to an organization's mission through establishment of a targeted collection, it is clear that establishment and maintenance of a collection is a necessary condition for the fulfillment of EPA's knowledge-intensive mission. For example, an October, 2003, a decision by an Administrative Law Judge reduced a proposed fine by 80% and criticized the Agency for not providing sufficient financial information on the company involved.

VII.4 Access to In-House and Remote Collections
The EPA libraries offer their patrons an enormous collection of documents, journals, books, and other information products, which are available at individual library facilities, through interlibrary loan, or electronically.

As indicated previously, the combined EPA libraries' collection includes over 504,000 books and reports, 3,500 journals, 25,000 maps, over 3,600,000 microfiche, and numerous other documents. The collection is also specialized in terms of both topics and media, including videos, databases, specific types of government documents (e.g., environmental impact statements), foreign language collections, and documents requiring special care use (e.g., Risk Management Plans). In addition, EPA librarians facilitate access to related EPA resources, including numerous technical and specialized hotlines, clearing houses, and Web sites, many of which contain or distribute documents and other information products.

In recent years, libraries (including those within EPA) have come to expand the traditional view and definition of collections: the concept no longer equates with physical objects that the library owns. As noted in a recent report from the Association of Research Libraries (ARL) Collections and Access Issues Task Force, the boundaries have expanded far beyond the print collections on site or the electronic files mounted locally to include electronic materials licensed or managed by the library and materials available through consortia. Increasingly, libraries are taking responsibility for born-digital collections (such as geospatial or numeric data sets as well as event- or incident-driven Web sites) and developing tools for their management and use. In a growing number of cases, a library's collection also includes resources that reside outside the domain of the library but for which the library takes some responsibility for managing and servicing.[6]

EPA librarians must exercise a comprehensive understanding of this widespread and diverse information milieu, and be able to develop effective search and retrieval strategies to match information requests with appropriate information media and repositories.

Specific activities in this functional category include the following:
* training and outreach,
* web site maintenance, and
* other.

Benefits to EPA: The information that EPA staff require to meet the mission of the Agency is extensive and complex. EPA librarians are familiar with the content of EPA collections, both in-house and remote. This results in significant time savings. It also results in a substantial increase in the quality of information resources presented for consideration in any given research application. Not only do trained, experienced librarians find resources more quickly, what they find is typically higher quality and/or more topically appropriate.

Activities and resources that enable and facilitate access to EPA's extensive and dispersed collection of information resources cost $568,791 per year, accounting for 9 percent of the composite budget (see Exhibit 1). This service category is vital to the efficient fulfillment of other duties, especially the provision of creative and intelligent reference services and rapid delivery of documents and other information resources. There are, however, no available metrics to quantify the value of this service category.

VII.5 Management and Administration
An obvious, but important, function of libraries is to provide the physical location for their patrons to conduct their information searches and research activities.

EPA library facilities provide their users with immediate access to professional information services and to clean, well-lit, quiet spaces in which to conduct research. The facilities also provide computers and other equipment to enable patrons (including the public) to locate and use electronic resources and to store EPA's inventory (both active and archival) of books, journals, and other bibliographic materials. These spaces are administered and maintained primarily by library contract staff.

Specific activities in this functional category include the following:
• coordination of EPA libraries via the EPA Library Network
• management of physical facilities,
• OCA Reading Room support,[1]
• contract and task order management, and
• staff development.

Benefits to EPA: As with any human and capital resource being utilized in a dynamic environment, competent management is essential to the library's ongoing role within EPA. Each library's management team develops and executes procurement strategies, develops and evaluates technical RFPs, and manages contracts and task orders to assure the smooth operation of the Agency's far-flung physical and electronic inventory of information resources. The EPA Library Network provides a voluntary, informal structure to coordinate activities, share resources and expertise and recommend changes to policies and procedures.

The management and administration of facilities, resources, staff, and contracts accounts for 11 percent, or $665,429 of the composite budget. The literature review conducted for this analysis uncovered no appropriate performance metrics for library system management. For this reason, no benefits estimates or benefit/cost ratio was calculated.

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[1] Off-Site Consequence Analysis (OCA) information is collected under section 112(r)(7) of the Clean Air Act as part of the Risk Management Program. Individuals living within the region addressed by a particular OCA are allowed to review, but not copy or remove, such materials from federal reading rooms at 50 locations nation-wide, including EPA libraries.

VIII. Integrated Analysis of Costs and Benefits

In section VII, above, five functional categories were defined and assessed in terms of their individual costs and benefits. However, none of these services occur in isolation from the others. The fundamental purpose of the EPA libraries is to provide timely business- and mission-relevant information to EPA professional staff, such information is a necessary condition for the fulfillment of the Agency's mission. Functional categories 3,4, and 5 provide indirect support to EPA through administration and facilitation of functional categories 1 (reference) and 2 (distribution), which in turn provide direct support to Agency staff through time-saving assistance in the identification and provision of current, accurate and relevant information. If this were all that should be considered, the EPA libraries would have a benefit to cost ratio of almost 2.2:1. However, this is not all that should be considered.

In addition to the time-savings that EPA library services provide for the Agency's (and stakeholder) professional staff, EPA libraries and librarians also provide substantial value-added to Agency missions. In a classic 1993 study, Jose-Marie Griffith and Donald King estimated that professionals derive an average of $670 per reading of pertinent technical materials. Griffith and King's estimate attaches a monetary value to the axiom that information, in and of itself, is a valuable organizational resource.[7]

As discussed in section V, EPA librarians delivered a combined total of 99,197 information products in 2003. While there clearly is no basis to assume that *all* resources delivered via EPA librarians are actually "read," it is a safe assumption that *some* of these resources are read and utilized by Agency staff and/or the external parties. If, for example, it is assumed that only 1 percent of delivered documents are read, than the value-added benefit stands at approximately $664 thousand per year, resulting in a conservative benefit to cost ratio of almost 2.3:1. If it is assumed that one-third of delivered resources are read, than the value-added would be slightly under $22 million per year, with an associated benefit to cost ratio of over 5.7:1.

Table 3. Integrated Analysis of Costs and Benefits

Service	2003 Total	Hours saved*	Cost per hour	Total savings
Quick reference for EPA staff	16,243	16,243	35.00	$568,505
Quick reference for external users	14,553	14,553	26.00	$378,378
Extended reference for EPA staff	17,256	138,048	35.00	$4,831,680
Extended reference for external users	8,124	64,992	26.00	$1,689,792
Resources supplied to EPA staff	65,825	65,825	35.00	$2,303,875
Resources supplied to external users	33,372	33,372	26.00	$867,672
Database searches for EPA staff	60,275	60,275	35.00	$2,109,625
Database searches for external users	29,841	29,841	26.00	$775,866
Total Cost Savings				$13,525,393
Total Costs (see Exhibit 1)*				($6,195,436)
Aggregate Cost/Benefit Ratio: 2.2 : 1				

Service	2003 Total	Assume 33% Read	Value	Total Value-Added
Value-Added for Resources Delivered	99,195	33,065	670.00	$ 22,153,550
Aggregate Cost/Benefit Ratio: 5.7 : 1				

* Note: These costs do not include expenses incurred by supporting organizations that are not separately managed by the library coordinators. No estimates were given for rent, utilities, or telecommunications costs.

IX. Moving Ahead: Toward the Optimization of EPA's Library System
The Environmental Protection Agency's libraries are clearly a source of substantial value to the Agency, its stakeholders, and the public. Even employing the most conservative of assumptions, benefit-to-cost ratios for core library services indicate that libraries "give back" far more than they take in terms of Agency resources. EPA libraries are nonetheless a significant capital and operational investment, costing the Agency roughly $6.2 million annually to operate and maintain. It is therefore essential to assure that each component of the library system is configured and operated in a manner that is as efficient and effective as possible; and that Agency resources are well adapted to EPA's mission parameters, operating environment, and technological milieu. A critical aspect of this task will be to avoid popular myths and hyperbola concerning the operation of contemporary libraries (see section XI), while nevertheless addressing real issues, opportunities, constraints, and barriers in an effort to assure that individual libraries are well-configured in terms of their place and role within the system as a whole.

In Section VII, above, the role of EPA's libraries was characterized in terms of five functional categories. This categorization scheme was adopted in order to individually address significant cost categories incurred in each EPA library. The five functional categories were thus articulated in terms of an inward focus on library activities. However, from the perspective of library users, it makes sense to adopt a simpler model and to assess the structure of how we provide information services in terms of four basic categories:

1. Each Regional and Center Library provides some level of **basic onsite support** to their host organization. EPA staff and external users in each location receive varying amounts of onsite support such as the development of unique collections, operation of Public Information Centers, and training in the use of electronic resources.
Benefits to Regions: services/collections customized to unique needs/priorities of each Region; Easy and timely access to research assistance; Contact point for coordination with Network, Etc.

2. Librarians also currently provide **specialized research** support for EPA professional staff. Partnerships could be formed among the libraries that allow these services to be performed by dedicated staff at designated locations. These locations would be outfitted with a broad array of print and electronic information tools for providing better service more efficiently. For example, establishing one or two business research "centers of excellence" would relieve each Region of purchasing expensive, and often duplicative, business research services.
Benefits to Regions: access to services requiring specialized expertise

3. Each library currently maintains its own collection of EPA and commercial information resources, both physical and electronic. The Regions and Centers could partner to create **repositories** to share their collections and reduce duplication while meeting the needs of their users.
Benefits to Regions: Lower maintenance costs and decreased storage space; Assurance that materials will be accessible permanently

4. Libraries act as **service centers** with library staff operating hotlines, dockets, and other information-related support. Regions and Centers could partner to provide these services

for one another. For example, East and West Coast libraries could work together to expand hours for telephone inquiries. Partnering could also facilitate the development of new services including virtual reference and publications management. It could also increase onsite support for functions including interlibrary loan processing and cataloging of local collections.

Benefits to Regions: More efficient services leading to lower costs.

Although EPA professional staff utilize and rely upon all of these support areas, it remains an open question how these services should be deployed and distributed among the various units of the Agency's network of libraries. Numerous questions can be posed, including the following:

- Do individual EPA libraries need to own everything, or could collections or parts of collections be more centralized?
- Is it necessary for all libraries to support all business functions, and if not, which libraries should support which business functions?
- Do all EPA libraries need the same array and level of site support services, and if not, how should site support features be apportioned among the various units?
- Is it necessary that all EPA libraries act as service centers for their respective host unit, and if so, is there a minimum or core level of services that must be available at all sites?

Exhibit 3, below, portrays a hypothetical portfolio of services distributed among the various units of a multi-site library system. As suggested by Exhibit 3, the balance of services and resources used and provided by such a system of libraries can vary from unit-to-unit. Services and resources such as an efficient document delivery process, networked electronic information sources, downloadable Web-based journals and documents, distance learning and training, email reference, and virtual reference make it possible for individual library units to meet patron needs without necessarily providing all needed services in-house.

Similar to the hypothetical model outlined in Exhibit 3, EPA's libraries are both resource and service *users* and resource and service *providers*. Not surprisingly, some EPA libraries have more extensive collections than others, others have more sophisticated and comprehensive programs and resources to support scientific and legal research, while still others have adopted innovative approaches to public outreach and other aspects of site support. Effective management of EPA's libraries is thus best approached as an exercise in portfolio optimization. In other words, it is in the interest of all EPA information service users to optimize and leverage available resources at a shared, or Agency level, rather than unit-by-unit or program-by-program.

X. Actions for Implementation

It is important that the National Library Network work with librarians, Program Offices, and Assistant Regional Administrators (ARAs) to facilitate an Agency-wide dialog addressing the future of information services at EPA. To adequately inform such a dialog, it would be important for the Agency to take the following actions:

- Survey EPA information users at each location to characterize the needs of end users;
- Inventory EPA information resources, including books, journal subscriptions and licenses, databases, electronic information applications and other licensed information as well as service contracts dealing with library and related information services;
- Characterize and assess organizational, business, or technological factors that either enable or constrain the shared, co-funded services and resources recommended in this report;
- Develop models of cooperative services that address the individual needs of participating locations while leveraging available resources. These models would include, among other approaches, a proposal to implement a Working Capital Fund activity for information services; and
- Review the existing policy framework for information services and develop revisions to address the roles and responsibilities of Regional Offices, Centers, Laboratories, and Program Offices in providing information services to staff.

Exhibit 1. Annual Cost Summary		
Cost Categories	**Total Annual Costs**	**Percentage Annual Costs**
Interpretation and discovery of information for patrons	$1,668,052	27.0%
Reference desk time	$813,781	13.0%
E-mail referral	$83,455	1.0%
Hotline support	$94,923	2.0%
Program support research	$113,160	2.0%
Scientific research	$231,265	4.0%
Business information research	$138,328	2.0%
Legal research	$100,453	2.0%
Other research activities	$92,687	1.0%
Distribution and maintenance of information resources	$1,488,799	24.0%
Interlibrary loan	$418,586	7.0%
Document delivery	$46,174	1.0%
Publications distribution	$66,960	1.0%
Cataloging	$374,863	6.0%
Serials check-in and management	$150,191	2.0%
Shelving/inventory/repair/maintenance	$180,721	3.0%
Other	$251,284	4.0%
Selection and acquisition for collections	$1,804,385	29.0%
Journals	$1,298,303	21.0%
Books	$264,219	4.0%
Databases (online, CD, etc.)	$241,863	4.0%
Access to in-house and remote collections	$568,791	9.0%
Program web site maintenance	$133,713	2.0%
Library web site maintenance	$94,649	2.0%
Current awareness (training and education)	$340,429	5.0%
Management and administration	$665,429	11.0%
Contract management	$85,936	1.0%
Library network support	$59,859	1.0%
Task order management	$205,468	3.0%
Management of physical facilities and equipment (OCA support)	$61,067	1.0%
Staff development and training	$59,542	1.0%
Special Projects	$193,562	3.0%
GRAND TOTAL	**$6,195,436**	**100%**

Exhibit 2. National Library Network FY2003 Statistical Summary

Service	Reg 1	Reg 2*	Reg 3**	Reg 4	Reg 5	Reg 6	Reg 7	Reg 8	Reg 9	Reg 10	RTP+	Cinci	HQ++	All Libs	Subtotals
Reference															56,175
Quick Reference from EPA Staff	2,276		899	783	1,101	914	608	262	1,307	1,619	1,783	1,063	3,629	16,243	
Quick Reference from external users	1,209		2,911	2,328	1,622	63	136	418	3,221	589	405	127	1,524	14,553	
Extended questions from EPA staff	892		700	1,045	886	2,848	488	4,615	1,185	451	441	2,291	1,415	17,256	
Extended questions from external users	649		227	820	646	880	189	31	3,027	172	274	109	1,100	8,124	
Database Searching															90,116
Database searches for EPA staff	2,049		4,970	8,420	10,165	2,380	2,170	3,640	6,949	4,533	4,819	6,376	3,804	60,275	
Database searches for external users	1,531		1,565	5,755	1,991	187	627	644	13,058	1,935	0	791	1,757	29,841	
Resources Supplied															99,197
Resources supplied to EPA staff	794		893	5,180	5,097	1,155	5,684	3,026	5,880	1,779	12,697	11,088	12,552	65,825	
Resources supplied to external users	567		3,641	3,571	721	257	4,835	1,132	7,312	1,097	8,102	847	1,288	33,372	
Outreach															1,482,279
People reached via outreach	11,865		13,020	1,389	63,993	1,144	6,437	12,495	20,752	17,448	7,607	202	83,612	239,964	
Web pages retrieved (Internet/Intranet)	316,925		66,146	28,880	23,283	4,250	25,300	26,831	33,817	3,655	56,448	11,728	624,838	1,222,102	
Internet materials developed or improved	26		350	229	572	17	58	39	2,284	268	228	92	16,049	20,213	
Cataloging															24,458
Original Descriptions			542	480	83	1,611	212	203		123	326	119	2,619	6,319	
Edit/modifications	653			919	298	485	3,333	1,445	1,297	1,749	3,559	454	3,833	18,025	
Web pages	4				16	2	52					0	39	115	

Exhibit 3. Hypothetical Distribution of Service and Activity Among Units of a Multi-Library System

	Repository	Business Area Research			Site Support	Service Center
		Legal	Scientific	Business Related		
Unit 1						
Unit 2						
Unit 3						
Unit 4						

= High level of activity

= Moderate level of activity

= Limited activity

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