

GAO

Report to the Chairman, Committee on
Science, House of Representatives

October 1995

EARTH SCIENCE INFORMATION NETWORK

Relationship of Consortium to Federal Agencies





United States
General Accounting Office
Washington, D.C. 20548

National Security and
International Affairs Division

B-259468

October 27, 1995

The Honorable Robert S. Walker
Chairman, Committee on Science
House of Representatives

Dear Mr. Chairman:

As you requested, we reviewed the activities of the Consortium for International Earth Science Information Network (CIESIN) and identified (1) the nature of CIESIN's mission, (2) CIESIN's past and prospective funding, (3) the way the National Aeronautics and Space Administration (NASA) will oversee CIESIN's work on the human dimensions of global change (HDGC),¹ (4) the similarity of activities between CIESIN and the National Science Foundation's Centers for HDGC, and (5) CIESIN's building requirements.

Background

CIESIN (pronounced "season") was established in 1989 as a private, nonprofit organization chartered by the state of Michigan. It is structured as a consortium of university and nongovernmental research organizations. The current members of the consortium are

- University of Michigan, Ann Arbor, Michigan;
- Michigan State University, East Lansing, Michigan;
- Saginaw Valley State University, University Center, Michigan;
- University of Maryland, College Park, Maryland;
- Polytechnic University, Brooklyn, New York; and
- Environmental Research Institute of Michigan, Ann Arbor, Michigan.

Results in Brief

CIESIN's mission is to provide access to, and to enhance the use of, information related to human interactions in the environment by scientists and policy decisionmakers. In support of this mission, CIESIN provides the means that enable access to HDGC databases worldwide.

CIESIN has received almost all of its funding—a total of over \$82 million made available through June 1995—from the federal government, primarily under congressional appropriations specifically designated, or earmarked, for CIESIN. Most of this funding came from four federal agencies—NASA, the Department of Agriculture, the Department of

¹Human activities, such as industrialization and urbanization, have contributed to such environmental impacts as ozone depletion and greenhouse gases.

Defense, and the Environmental Protection Agency. The Departments of Agriculture and Defense and the Environmental Protection Agency, although generally satisfied with CIESIN's performance, will cease funding CIESIN once the remaining funds are spent, principally because of tight budgets and higher priority, mission-related requirements. Because of the pending loss of most of its current funding sources, CIESIN has instituted a strategy for competing for grants and contracts from federal, state, and local government agencies; private companies; foreign governments; and international organizations. As of June 1995, CIESIN officials told us they had submitted or were planning to submit 29 competitive proposals.

NASA will continue to provide funds for CIESIN to incorporate socioeconomic data as an essential part of its Earth Observing System Data and Information System² and develop and operate a Socioeconomic Data and Applications Center (SEDAC). The SEDAC mission focuses on data related to human interactions in global environmental change and the integration of this data with earth science information in the Earth Observing System Data and Information System.

NASA officials believe they can appropriately oversee the management of a SEDAC. To help CIESIN focus on the human interactions of global change, NASA has established a SEDAC users' working group, consisting of social scientists and other experts from universities, state and federal agencies, and environmental groups and other private institutions.

Under congressional direction, the National Science Foundation is establishing centers for HDGC research and teaching. CIESIN is competing for a Foundation grant to archive the basic research results produced under the Foundation's grants for dissemination to and use by the HDGC research community and others. There would be no duplication, however, between the functions to be performed by the Foundation's HDGC centers and CIESIN's work for federal agencies since CIESIN provides researchers with access to data and information; it does not do or sponsor basic research.

Congress appropriated about \$42 million in fiscal year 1993 to build CIESIN's headquarters. However, over several years, Congress withdrew the money. Recently, the balance of \$27 million was rescinded. Although federal funding of a CIESIN headquarters facility is no longer applicable, NASA's support of CIESIN's facilities infrastructure is still an open issue.

²Earth Observing System: Funding Requirements for NASA's EOSDIS (GAO/AIMD-95-153FS, June 8, 1995).

Under governmentwide cost principles, NASA will only be able to support CIESIN's current leased facilities to a level sufficient to support SEDAC activities.

In the course of our work, we noted two matters that could help maximize the usefulness of CIESIN's work and ensure that NASA's noncompetitive approach to contracting for the SEDAC was appropriately justified. The Departments of Agriculture and Defense and the Environmental Protection Agency will have spent over \$15 million by the time they terminate their current relationships with CIESIN. The products that CIESIN has provided, however, have not been examined for their potential usefulness to the U.S. Global Change Research Program.³ Such an examination could help identify any CIESIN products relevant to the needs and priorities of the Research Program. Also, NASA justified awarding a noncompetitive contract to CIESIN for creation and operation of the SEDAC on the basis that it was directed by statute. We disagree with NASA's basis for the noncompetitive award. Prior to exercising the next 1-year option on the contract that is due to occur in June 1996, NASA should determine whether there is justification for a noncompetitive award to CIESIN.

CIESIN's Mission

According to CIESIN officials, CIESIN's mission is to provide access to, and enhance the use of, information worldwide on human interactions in the environment and to serve the needs of scientists and public and private decisionmakers. CIESIN uses computer and communications technology to provide tools to search for, obtain and understand data. Some of its current activities include (1) providing information on the human aspects of global environmental change to the research and policy communities; (2) furnishing computer tools for data access, research, and analysis across academic disciplines; (3) serving as a bridge between the socioeconomic and natural science research communities; (4) operating the SEDAC; (5) managing the U.S. Global Change Research Information Office; and (6) continuing the development of its Information Cooperative.

The Information Cooperative is being developed to enable worldwide cataloging of data archives to be shared over the Internet. It is intended to enable rapid access to information about human activity and its relationship to the environment through a network of U.S. federal entities, including NASA, National Oceanic and Atmospheric Administration,

³The U.S. Global Change Research Program was established by Congress in 1990 to provide a U.S. research program to understand and respond to human-induced and natural processes of global change. A committee of 15 federal entities was created to increase the effectiveness of federal global change research efforts.

Department of Agriculture, Environmental Protection Agency, and Agency for Toxic Substances and Disease Registry; state and regional environmental information systems; U. N. agencies, such as the World Health Organization; other multilateral entities, such as the Organization of American States and the World Bank; individual foreign countries, including China and Poland; and selected nongovernmental organizations and international scientific research programs. Members of the Information Cooperative work with CIESIN to make their HDGC-related databases compatible with and accessible through CIESIN's computer network and to maintain those databases. CIESIN plans to continue to work on broadening the database capabilities and data sources supporting its mission. Further information on CIESIN's Information Cooperative is in appendix I.

CIESIN's Funding

To date, CIESIN has received most of its funding from federal agencies, including the Departments of Defense and Agriculture, the Environmental Protection Agency, the Office of Science and Technology Policy, and NASA, primarily through earmarked appropriations—portions of lump-sum amounts appropriated to agencies for general purposes. Appropriations for CIESIN through fiscal year 1995 totaled over \$89 million, exclusive of over \$42 million provided for building a CIESIN headquarters facility, which was subsequently withdrawn. Through June 1995, CIESIN was furnished over \$82 million⁴ by federal agencies and had used almost \$74 million, as shown in table 1. Nonfederal sources of funding for CIESIN totaled about \$505,000 through June 1995. Most of this funding has been fees from members of CIESIN.

⁴The difference between the \$89 million appropriated and the \$82 million received by CIESIN, as of June 30, 1995, is related to federal agencies' retaining funds in electronic accounts until they are needed.

Table 1: CIESIN's Federal Sources of Funds

Dollars in millions

Funding source	Funds made available through 6/30/95	Funds spent through 6/30/95	Funds remaining	Time frame when funds will no longer be available
NASA	\$64.64	\$59.90	\$4.74	Mid-fiscal year 1996 for grants; SEDAC contract extended until June 1996—then year to year
Department of Defense	6.55	5.03 ^a	1.52	December 31, 1995
Environmental Protection Agency	6.33	4.46	1.87	Summer 1996
Department of Agriculture	2.43	2.17	0.26	September 1996
Office of Science and Technology Policy	2.00	0.08	1.92	Early 1999
Miscellaneous grants/contracts	0.19	0.19	0	June 1995
Subtotal	82.14	71.83	10.31	
Encumbrances and commitments	0	2.08	-2.08	
Total	\$82.14	\$73.91	\$8.23	

^a\$1.13 million of these funds had been made available to CIESIN, but had not been spent as of 6/30/95.

Because CIESIN funding was largely specifically designated, the funding agencies initially had to work with CIESIN to find functions or activities for CIESIN to perform that related to their missions. These agencies used various mechanisms, including grants, cooperative agreements, and contracts, to provide funds to CIESIN for work that generally fell into three main categories: (1) obtaining data sets, (2) integrating data systems, and (3) developing software support retrieval and analysis of data. For example, CIESIN's work for the Department of Agriculture includes five tasks under that agency's Global Change Data Assessment and Integration Project: (1) data survey, assessment, integration and access; (2) data rescue; (3) Geographic Information Systems; (4) knowledge transfer; and (5) laboratory support.

Officials at the federal agencies providing significant funding for CIESIN told us that, in the absence of actual or anticipated earmarks, funding of CIESIN would not have been requested because budgets were tight and that they all had higher priority, mission-related requirements. Of the federal agencies currently funding CIESIN, only NASA plans to do so after the remaining funds are used.

NASA’s continued funding of CIESIN is for developing and operating a SEDAC. The SEDAC is one of nine Distributed Active Archive Centers under NASA’s Earth Observing System Data and Information System.⁵ The SEDAC is to develop and implement innovative activities that integrate data from both the social and natural sciences and respond to high priority information needs of policy decisionmakers. The SEDAC is also to make the HDGC data it holds—and the information about the earth science held by the eight other centers—easily available to the scientific community.⁶

NASA noncompetitively awarded the SEDAC contract to CIESIN in June 1994 for 1 year with up to four 1-year extensions. In June 1995, NASA exercised the first of these extensions, which runs to June 1996. NASA officials told us that, subject to an annual review, they plan to fund the SEDAC at about \$5.7 million each year. This total amount is less than half of the average annual funding CIESIN received from federal agencies prior to fiscal year 1995.

CIESIN had an increasing flow of operating funds through fiscal year 1992. However, federal agencies’ funding has been decreasing in recent years, as shown in table 2.

Table 2: Funding Available to CIESIN From Federal Agencies

Dollars in millions by fiscal year					
1990	1991	1992	1993	1994	1995
\$3.90	\$9.35	\$29.83	\$23.74	\$11.49	\$3.84 ^a

^aAs of 6/30/95.

As a result of decreasing funding and in anticipation of the pending loss of most of its current funding sources, CIESIN has been developing and implementing a strategy to find new customers from domestic, international, governmental, and commercial sources. As of June 1995, CIESIN had submitted 17 proposals and was preparing 12 more. The submitted proposals went to federal agencies, state and local government agencies, and the United Nations. The planned proposals would be funded

⁵These nine centers are currently online and interoperable with each other. The SEDAC provides HDGC data; the other eight archive space and ground based earth science measurements.

⁶Since at least the late 1980s, scientific advisory groups have been supporting the need for HDGC data to help evaluate global change. For example, in 1992 the National Academy of Sciences, Committee on the HDGC, recommended “that the federal government should establish an ongoing program to ensure that appropriate datasets for research on the HDGC are routinely acquired, properly prepared for use, and made available to researchers on simple and affordable terms.”

by a mixture of private corporations, foreign countries, and state or federal agencies.

CIESIN has also competed for and won peer recognition. For example, CIESIN won a competition against 22 other nominees for the Computerworld Smithsonian Award in the category of Environment, Energy, and Agriculture for its Gateway software, which is briefly described in appendix I. This award honors creative and innovative uses of technology from throughout the world.

In addition, the National Research Council's Committee on Geophysical and Environmental Data has recommended consideration of CIESIN as a World Data Center to the International Council of Scientific Unions.⁷ The recommendation was agreed to at an early 1995 meeting of the International Council of Scientific Unions.

Other awards that CIESIN has competed for, and/or won, are identified in CIESIN's letter found in appendix III.

NASA's Oversight of CIESIN

In 1994, NASA brought CIESIN under a contract, in place of a grant, to ensure the development and operation of a SEDAC. As the SEDAC operator, CIESIN is primarily responsible for providing users with access to HDGC data and information. It neither does nor sponsors basic HDGC research.

In early 1994, NASA's Associate Administrator for Mission to Planet Earth wrote that "by rescoping CIESIN's mission to include only SEDAC-related activities, NASA now possesses the necessary expertise to manage CIESIN. Because the context within which SEDAC will operate is data management and integration, NASA is more uniquely qualified for this role than any other federal agency."

To help it oversee CIESIN's management of the SEDAC, NASA established a SEDAC Users Working Group in November 1994. The working group consists of social scientists and other experts from universities, state and federal agencies, and environmental groups and other private institutions. According to one of the co-chairs of the working group,⁸ the working group has significant influence over the SEDAC, and it makes sure the SEDAC

⁷World Data Centers are currently operating in the United States, Australia, Russia and China. The purpose of these centers is to provide a free and unrestricted exchange of data among scientists around the world.

⁸The other co-chair is the SEDAC project scientist—a CIESIN employee.

serves the needs of both the earth sciences and socioeconomic segments of the global change research community. The working group has thus far offered several recommendations for improvements.

National Science Foundation's HDGC Centers

In the Conference Report explaining the Veterans Affairs and Independent Agencies Appropriations Act for fiscal year 1995,⁹ Congress provided the National Science Foundation with \$6 million “. . . for a global climate change initiative for a center or consortium for the human dimensions of global climate change.” In December 1994, the Foundation announced the special funding opportunity to facilitate HDGC research, promote HDGC education, and foster interdisciplinary research collaborations on HDGC issues. The Foundation intends to sponsor a variety of HDGC activities under the funding opportunity.

The Foundation received 52 proposals for its funding opportunity competition. One was from CIESIN, in which it proposed to provide a data archive and resource center for the HDGC research community. Thus, as HDGC researchers work under Foundation grants, CIESIN would provide electronic data and software support services. When the research is completed, CIESIN would archive and provide access to the research data.¹⁰ Consequently, there would be no duplication between the functions to be performed by the Foundation's HDGC research centers and research teams and the functions CIESIN would perform.

CIESIN's Building Requirements

Through the early part of fiscal year 1993, Congress had appropriated over \$46 million for the proposed CIESIN building but in subsequent years gradually withdrew the funding. In the fiscal year 1993 Veteran Affairs and Independent Agencies Appropriations Act, Congress earmarked \$42 million for the CIESIN headquarters facility.¹¹ Later, in July 1993, Congress reduced the amount of available appropriations to \$37 million.¹² In October of that same year, Congress directed that another \$10 million¹³

⁹H.R. Rep. 103-715 at 50 (1994).

¹⁰It is the policy of the National Science Foundation not to provide information on how well a proposal has competed, during a competition. Therefore, no information was available as of September 14, 1995.

¹¹H.R. Rep. (Conf.) No. 102-902 at 70 (1992).

¹²P.L. No. 103-50, 107 Stat. 266 (1993).

¹³H.R. Rep. (Conf.) 103-273 at 35 (1993).

not be used until completion of a NASA Inspector General report.¹⁴ The fiscal year 1995 appropriations act specifically rescinded \$10 million.¹⁵ The balance of \$27 million was recently rescinded by law.¹⁶ The earmarked items in NASA's fiscal year 1991 and 1992 appropriations included a total of \$4.4 million for planning and designing a headquarters facility for CIESIN. In February 1994, as a result of its Inspector General's report, which questioned the need for the building, NASA issued a stop-work order on the engineering design work, freezing finalization of the building design. In all, over \$3 million was spent on planning and designing the facility. Another \$75,000 to \$150,000 will be spent to terminate the facility contract. The balance of over \$1 million will remain with NASA in the appropriate account for expired unobligated balances.

Although the question of federal funding of a headquarters facility for CIESIN is no longer applicable, the question of NASA's support for CIESIN's facilities infrastructure is still an open issue, primarily because, as previously noted, CIESIN's support from federal agencies has been declining. Unless CIESIN is successful in its efforts to generate new business, further reductions will occur with the cessation of the current support CIESIN is receiving from the Departments of Agriculture and Defense and the Environmental Protection Agency. Such prospects raise the issue of the extent of NASA's future support of CIESIN's infrastructure under the SEDAC contract, especially under governmentwide guidance for federal agencies' use in determining the cost of work performed by nonprofit organizations, such as CIESIN.¹⁷

Under the government's cost principles for nonprofit organizations, the costs of idle capacity are allowable for a reasonable period of time—ordinarily not to exceed 1 year—if the facilities were necessary when acquired but are now idle due to changes in program requirements. CIESIN is currently located in various leased facilities in Washington, D.C., and Ann Arbor and University Center, Michigan. NASA has not yet evaluated the extent to which it should support CIESIN's infrastructure for SEDAC purposes once other federal agencies' funding of CIESIN ceases. If NASA must reduce its support of CIESIN's facilities, it could consider the cost/benefit of various alternatives, including reducing the overall space at currently leased facilities, consolidating activities at fewer existing

¹⁴The final report was entitled CIESIN, Lewis Research Center, NASA Office of the Inspector General, Mar. 28, 1994.

¹⁵P.L. No. 103-327, 108 Stat. 2326 (1994).

¹⁶P.L. No. 104-19, 109 Stat. 239 (1995).

¹⁷Office of Management and Budget Circular A-122, "Cost Principles for Nonprofit Organizations."

facilities, and relocating to reasonably accessible vacant federally owned space.

NASA officials at the Goddard Space Flight Center told us they would be examining the continuing need for NASA's support of CIESIN's current management structure, as well as its facilities, under the SEDAC contract.

The Value and Future Use of CIESIN's Completed Work Have Not Been Determined

Department of Defense, Environmental Protection Agency, and Department of Agriculture officials expressed general satisfaction with CIESIN's performance, including the technical quality and timeliness of its work. These agencies will have spent over \$15 million by the time they terminate their current relationships with CIESIN. The products they receive from CIESIN's efforts have not been examined for their potential usefulness to the U.S. Global Change Research Program. Federal agency officials we spoke with said such an examination would be useful in identifying the products relevant to the needs and priorities of the global research community.

Noncompetitive SEDAC Contract Requires Rejustification

NASA's award to CIESIN for the SEDAC was not competed. NASA based its justification for other than full and open competition on the belief that the award of a sole-source contract to CIESIN for the SEDAC was statutorily authorized¹⁸ and, therefore, was an appropriate exception to the competitive requirements set forth in the Competition in Contracting Act. However, we believe that the award to CIESIN was not directed by statute.

The Comptroller General has held that language in congressional committee reports and other legislative history about how funds are expected to be spent do not impose legal requirements on federal agencies.¹⁹ Only the language of the enacted law imposes such requirements. In this instance, the conference report, rather than the law, called for CIESIN to function as a SEDAC. Thus, the noncompetitive award to CIESIN could not properly be justified on the basis that it was statutorily authorized.

The next opportunity NASA will have to determine whether the noncompetitive award to CIESIN can be justified as an exception to the competitive requirements in the Competition in Contracting Act on a basis

¹⁸10 U.S.C. 2304(c)(5).

¹⁹55 Comp. Gen. 307, 319 (1975).

other than that it was statutorily authorized is prior to exercising the next 1-year option in June 1996.

Recommendations

We recommend that the NASA Administrator direct

- procurement officials at the Goddard Space Flight Center to determine, by the end of fiscal year 1996, the extent of the CIESIN infrastructure that should be supported under the SEDAC contract and, if this determination shows that a reduction in NASA's support is warranted, NASA should examine the cost/benefit of various alternative actions, including relocating the SEDAC to excess federally owned space that is reasonably accessible to the SEDAC-user community;
- program officials, in conjunction with the U.S. Global Change Research Program's Subcommittee on Global Change Research and other appropriate interested parties, to evaluate, and incorporate into Earth Observing System Data and Information System, any useful CIESIN products developed for the Departments of Agriculture and Defense and the Environmental Protection Agency; and
- procurement officials at the Goddard Space Flight Center to reexamine the Competition in Contracting Act exemptions to full and open competition and, prior to exercising the next 1-year option on the contract, determine whether an appropriate exemption justifies continuation of the noncompetitive award of the SEDAC contract to CIESIN.

Agency Comments

We obtained formal written comments from both NASA and CIESIN. NASA agreed with our recommendations. NASA officials stated that they appreciated our effort to review CIESIN. (See app. II for NASA's comments.) CIESIN generally agreed with the report and elaborated on various points discussed in the report. (See app. III for CIESIN's comments.)

Scope and Methodology

Our methodology included examining applicable laws, regulations, and policies; interviewing CIESIN and federal agency officials; reviewing plans, contract files, and financial and program reports; and accessing and testing CIESIN's databases. Specifically, we discussed the nature of CIESIN's mission and its past, present, and potential future activities with CIESIN officials. Also, we obtained documentation of its funding sources from CIESIN and the federal agencies involved. The material reviewed included federal awards audit reports, audited financial statements, Defense

Contract Audit Agency reports, and NASA and Department of Agriculture Inspector General reports.

In evaluating CIESIN's future funding level and building requirements, we discussed future funding plans for CIESIN with federal agency officials, obtained information on CIESIN's ongoing and planned activities, and discussed the funding levels needed to perform the SEDAC mission with NASA headquarters and Goddard Space Flight Center officials. Further, we reviewed documents associated with the establishment and negotiation of the SEDAC contract, visited CIESIN's main operating facilities, and obtained information on current and planned staffing levels from CIESIN officials.

We discussed NASA's role in overseeing work on the human dimensions of global change with NASA, National Science Foundation, and Office of Science and Technology Policy officials. We also reviewed documents and held discussions with National Science Foundation and CIESIN officials related to (1) the National Science Foundation's approach to carrying out congressional direction to establish HDGC centers or a consortium and (2) the relationship of such centers to CIESIN activities.

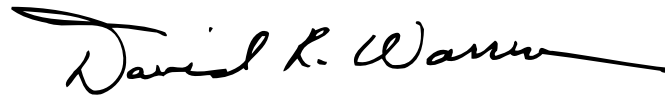
We conducted our review at CIESIN in University Center and Ann Arbor, Michigan, and Washington, D.C.; NASA headquarters, Washington, D.C., NASA's Goddard Space Flight Center, Greenbelt, Maryland; NASA Inspector General at the Lewis Research Center, Cleveland, Ohio; the Department of Defense, Washington, D.C.; Environmental Protection Agency, Washington, D.C., and Research Triangle Park, North Carolina; Department of Agriculture headquarters, Washington, D.C., and Greenbelt, Maryland; Office of Science and Technology Policy, Washington, D.C.; Office of Management and Budget, Washington, D.C.; National Science Foundation, Arlington, Virginia; and the U.S. Global Change Research Program, Arlington, Virginia. We conducted our review from October 1994 to August 1995 in accordance with generally accepted government auditing standards.

Unless you announce its contents earlier, we plan no further distribution of this report for 30 days from its issue date. At that time, we will send copies to the Chairmen of the Senate Committee on Commerce, Science, and Transportation and of the House and Senate Appropriations Committees; the Director of the Office of Management and Budget and the Director of the Office of Science and Technology Policy, Executive Office of the President; the NASA Administrator; the Secretary of Agriculture; the

Secretary of Defense; and the Administrator of the Environmental Protection Agency. We will also provide copies to others upon request.

Please contact me at (202) 512-8412 if you or your staff have any questions. The major contributors to this report are listed in appendix IV.

Sincerely yours,

A handwritten signature in black ink that reads "David R. Warren". The signature is written in a cursive style with a long horizontal flourish extending to the right.

David R. Warren
Director, Defense Management
and NASA Issues

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Abbreviations

CIESIN	Consortium for International Earth Science Information Network
HDGC	human dimensions of global change
NASA	National Aeronautics and Space Administration
SEDAC	Socioeconomic Data Applications Center

Consortium for International Earth Science Information Network's Information Cooperative

The Information Cooperative has been developed and is being expanded by the Consortium for International Earth Science Information Network (CIESIN) to allow the cataloging of data archives worldwide, which will be shared over the Internet. The Information Cooperative facilitates CIESIN's accomplishing its mission of providing access to worldwide information on human interactions in the environment. The data may be in the form of the actual data, or information about the data and how best to obtain the information from its original source.

The Information Cooperative

- provides a means for communication and coordination between global change research organizations,
- fosters common standards to access data, and
- makes data available to nations with developing and transitional economies.

An important part of the Information Cooperative is the Gateway software, which is a single means of entry to a large number of databases by using state-of-the-art search software and Internet access. Because various databases around the world are often incompatible, the Gateway allows users to simultaneously search many different databases and to rapidly identify and obtain data from various database sources without knowing where the data are coming from—seamless searching.

Much of the Information Cooperative is still under development. The connection points currently online, in addition to CIESIN, include the SEDAC, the Department of Agriculture, Environmental Protection Agency, National Oceanic and Atmospheric Administration, Agency for Toxic Substances and Disease Registry, U.S. Global Change Master Directory, Inter-University Consortium for Political and Social Research, Great Lakes Regional Environment Information System, Great Lakes Information Management Resource, World Health Organization, Roper Center, World Bank, and the country of Estonia.

Further information about CIESIN can be obtained from CIESIN's World Wide Web site on the Internet (<http://www.ciesin.org>).

Comments From the National Aeronautics and Space Administration

National Aeronautics and
Space Administration
Office of the Administrator
Washington, DC 20546-0001



Mr. David R. Warren
Director, Defense Management
and NASA Issues
General Accounting Office
Washington, DC 20548

Dear Mr. Warren:

We have reviewed the General Accounting Office (GAO) draft report "Consortium For International Earth Science Information Network: Mission and Relationship to Various Federal Agencies" which was provided via your letter of August 25, 1995, to NASA Administrator Daniel Goldin. NASA concurs with the three GAO recommendations and will perform the necessary implementation. As your study indicated, the Office of Mission to Planet Earth has restructured the funding and activities of the Consortium for International Earth Science Information Network (CIESIN) to fit with the needs of the Global Change Research Program and ensure that no overlaps with other Federal activities exist. NASA will keep Congress fully informed of any changes in our funding and direction to CIESIN as we endeavor to meet the challenges of future budget targets.

Enclosed are NASA's comments to the GAO draft report. If we can be of further assistance, you may call Mr. Jerry Garegnani at 358-0770.

Sincerely,

A handwritten signature in black ink, appearing to read "J. R. Dailey".

J. R. Dailey
Acting Deputy Administrator

Enclosure

NASA comments to Draft GAO Report "Consortium For International Earth Science Information Network: Mission and Relationship to Various Federal Agencies"

A. General Comments:

We appreciate the substantial effort expended by the GAO to review the activities of the Consortium for International Earth Science Information Network (CIESIN), ensuring that the focus is on necessary and efficient activities important to the Global Change Research Program (GCRP). The Office of Mission to Planet Earth has been aggressive in restructuring the funding and direction to CIESIN in order to ensure results that support the goals of the GCRP. The recommendations provided by the GAO are supportive of NASA's effort and will be implemented.

B. Comments to the GAO Recommendations:

1) GAO recommends that procurement officials at the Goddard Space Flight Center (GSFC) determine, by the end of fiscal year 1996, the extent of the CIESIN infrastructure that should be supported under the SEDAC contract and, if this determination shows that a reduction in NASA's support is warranted, NASA should examine the cost/benefit of relocating the SEDAC to excess federally owned space that is reasonably accessible to the SEDAC-user community, if it is cost-effective to do so;

NASA agrees. The project office at GSFC, which manages the SEDAC contract, has already held preliminary discussions with the Defense Contract Audit Agency to review CIESIN's indirect rate pools. Once the budget issues for FY1996 have been resolved and funding for SEDAC is clear, these audits will be implemented, and any further action will be based on the results of these audits.

2) GAO recommends that program officials, in conjunction with the U.S. Global Change Research Program's Subcommittee on Global Change Research and other appropriate interested parties, to evaluate, and incorporate into the Earth Observing Data System and Information System [EOSDIS], any useful CIESIN products developed for Departments of Agriculture and Defense and Environmental Protection Agency;

NASA agrees. Prior to August 1996 when many of the other agency funds will no longer be available, the Office of Mission to Planet Earth will meet with program managers from the funding agencies, as well as CIESIN and GCRP personnel, to evaluate the appropriateness of incorporating these products into EOSDIS. Recommendations will be presented to the Subcommittee on GCRP for final approval.

Enclosure

3) GAO recommends that procurement officials at the Goddard Space Flight Center reexamine the Competition in Contracting Act exemptions to full and open competition and, prior to exercising the next 1-year option on the contract, determine whether an appropriate exemption justifies continuation of the noncompetitive award of the SEDAC contract to CIESIN.

NASA agrees. Once funding for SEDAC is available to support contract activity in FY1996, and prior to exercise of the next contract option, GSFC procurement personnel will examine the Competition in Contracting Act exemptions to full and open competition identified in FAR 6.302 to determine whether another exemption is applicable. If none is appropriate, GSFC will consider recompeting the contract for operation of SEDAC. If a competition is required, it may be necessary to exercise the next option on the existing SEDAC contract until a new contract can be definitized. This is necessary in order to avoid a gap in our support of this user community while competing the contract.

In summary, NASA agrees that these recommendations support NASA's goal of obtaining the most scientific value possible from limited budgets. We welcome ongoing evaluation and constructive suggestions for increasing the cost effectiveness of providing access to disparate data sets necessary for global change research.

Comments From the Consortium for International Earth Science Information Network



Consortium for International
Earth Science Information Network

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Roberta Balstad Miller
President & Chief Executive Officer

11 September 1995

David R. Warren
Director, Defense Management and NASA Issues
National Security and International Affairs Division
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Washington, DC 20548

Dear Mr. Warren:

Thank you for the opportunity to comment on the draft report on the activities of CIESIN. We were pleased to cooperate with the GAO professional staff in the review of our mission, performance, and organization. It is a matter of public record that our small institution has experienced an extraordinary number of evaluations, reviews, and audits over the past two fiscal years. We are proud of our mission, our relationship to the sponsoring federal agencies, and the tangible results we have achieved. Therefore, we welcomed the government wide nature of this GAO review and its endorsement of the impact that our results-oriented work has had on the public service missions of these supporting agencies. Following are our comments on the report.

Audits Confirm CIESIN's Program Accomplishments and Awards Compliance -- Over the past two years CIESIN has been the subject of intense audit scrutiny, well in excess of what an organization of CIESIN's size would normally be subject to. In addition to this GAO audit and annual audits conducted under OMB Circular A-133, CIESIN programs and financial records have undergone a comprehensive examination by the NASA Office of Inspector General, and, on several occasions, been subject to Defense Contract Audit Agency audits. CIESIN's SEDAC project is currently part of another ongoing NASA OIG audit of EOS-DIS. The results of every audit have been the same--no adverse findings about CIESIN's programs or how it conducts its business. In fact, the audit teams have been impressed by CIESIN's programs and its compliance with federal grant and contract regulations. CIESIN is very proud of its performance and track record.

CIESIN's Origin and Purpose -- The GAO reports that "Because CIESIN funding was largely specifically designated, the funding agencies initially had to work with CIESIN to find functions or activities for CIESIN to perform that related to their missions". This is an important point that warrants elaboration. Indeed, CIESIN worked closely with various program offices of the science-based agencies that have funded project activities since 1990. In all instances, CIESIN purposefully recommended for agency approval a program design and work plans (and a technical proposal for review and approval) that were directly responsive to the documented objectives of the US Global Change Research Program, as well as specific data management priorities expressed in congressional language, agency strategic plans, and other interagency research programs with which the subject agency has been an active participant.

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See comment 1.

As written, the GAO Report may be interpreted to read that CIESIN and the agencies entered their project partnerships without common purpose (e.g., improving data access in accordance with a host of National Research Council and GAO Reports), without regard to the law (e.g., Global Change Research Act of 1990), or apart from the agencies' strategic mission planning process (e.g., USDA Global Change Strategic Plan). This is not the case, as careful reading of the report suggests. All of the designated programs CIESIN has undertaken with federal agencies have yielded a valuable set of tools, methodologies, and data and information resources that serve the public, practitioners, researchers, and policy analysts with unprecedented responsiveness. Moreover, CIESIN's development approach recognized the emergent Internet model very early on by providing applications and data bases configured for the broadest possible access by Internet users. This anticipatory design strategy will continue to yield benefits for many years to come, particularly for those agencies that will experience substantially reduced budgets and require intensifying linkages with state and local governments in the conduct of their devolving missions.

See comment 2.

SEDAC Award Justified Under CICA -- While we do not take issue with the recommendation that NASA should document CIESIN's SEDAC contract award in accordance with the Competition in Contracting Act, we believe that the basis for the justification should be included in the report, given that it has been a subject of discussion between GAO and NASA, and because the Act clearly addresses this particular situation, where it says an agency "...may use procedures other than competitive procedures... when it is necessary to award the contract to a particular source... to establish or maintain an essential...research or development capability to be provided by an educational or other nonprofit institution..." This clearly applies to the SEDAC contract.

CIESIN is an NII Award Program Finalist and Wins URISA Awards -- In addition to the Computerworld Smithsonian Award and the World Data Center nomination mentioned in the report, CIESIN has also won recent peer recognition by two other groups. In July 1995, CIESIN's Information Cooperative was recognized as a Finalist in the Government category for the first annual National Information Infrastructure (NII) Awards. This recognition was earned after careful evaluation by a private sector judging panel drawn from leaders in the telecommunications, information technology, education, entertainment, and state and local government sectors. The Awards honor the best uses of the "Information Highway" and help demonstrate what is possible when people combine the forces of human creativity and communications technology.

An electronic meeting system that supports collaborative interaction with geographic data sets -- the "Active Response Geographic Information System" -- which was developed by CIESIN in cooperation with USDA, USGS, and IBM Government Systems Company, won the "most innovative project" award at the 1995 Urban and Regional Information Systems Association (URISA) conference. The system was used to assist planners at the Arapaho-Roosevelt National Forest respond to public comments in their Forest Management Plan revision. At last year's URISA conference, a different application of the system won the award for "best overall project." URISA conferees include policy and decision makers and technical experts who meet once per year to share experiences in developing and implementing information systems, to monitor trends, and to view the latest technological developments.

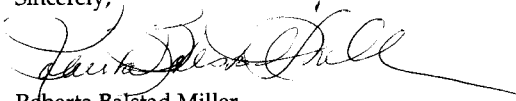
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Maintaining the Federal Government's Investment in Data Resources -- Although CIESIN has made important contributions to improving the access to and dissemination of scientific data from federal agencies and other federally-funded programs, we recognize that elevating the priority which is attributed to data management and public access within agency missions remains a formidable challenge requiring much more work into the future. CIESIN has received consistently strong support from nearly sixty data-providing institutions around the world who have adopted the model, methodologies, and tools of the CIESIN Information Cooperative (see enclosed lists of Information Cooperative Partners and Servers in Operation). The NII Award mentioned earlier acknowledges the greater value of the CIESIN integrated program that links all users to data bases and directories developed from the composite assets of *many* US federal government agencies, non-governmental organizations, and academic research institutes.

This places perspective on the value of work CIESIN has performed for US Government agencies. We have been consistent in support of cross-cutting program priorities and research needs articulated in NRC, GAO, interagency, and agency-approved plans spanning the period 1986 to the present. Therefore, we are pleased that the GAO has recommended broader review of all CIESIN accomplishments and "products" by all the US Global Change Research Program agencies. We are privileged to assist all of these federal agencies in achieving their objectives articulated in existing strategic and program plans, and we remain proud to have advanced our Nation's readiness to meet the needs of *information for a changing world*.

Thank you for giving these comments your full and due consideration. If you have any questions, please feel free to contact me or either of CIESIN's Vice Presidents, David Gregorka (313/741-4671) or Robert Coullahan (202/775-6606).

Sincerely,



Roberta Balstad Miller
President and CEO

Enclosures: 1. CIESIN Information Cooperative Servers in Operation
2. Information Cooperative Partners & Affiliated Organizations

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**CIESIN Information Cooperative Servers in Operation
(As of 30 August 1995)**

- Agency for Toxic Substances and Disease Registry
- Consortium for International Earth Science Information Network
- Environmental Protection Agency
- Estonia
- Global Change Master Directory (NASA/GFSC)
- Great Lakes Information Management Resource
- Great Lakes Region Environmental Information System
- Inter-University Consortium for Political and Social Research
- International Development Research Centre
- National Oceanic and Atmospheric Administration
- NOAA-Great Lakes
- Roper Center
- United Nations Environment Programme
- US Department of Agriculture
- World Bank
- World Conservation Monitoring Centre
- World Health Organization

Under Test or in Final Installation

- Latvia
- Lithuania
- Poland
- Ukraine

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**Information Cooperative Partners & Affiliated Organizations
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The following organizations have memoranda of understanding, letters of intent, or active programs with CIESIN in support of its Information Cooperative.

Administrative Center for China's Agenda 21, Beijing, China
Agency for Toxic Substances and Disease Registry, Atlanta, GA, USA
Center for Indigenous Knowledge of Agriculture and Rural Development,
Ames, IA, USA
Center of Information and Communication of the Environment of North
America, Mexico
Centre for International Research & Advisory Networks, The Hague, The
Netherlands
Chiang Mai University, Thailand
China in Time and Space, Seattle, WA, USA
Chinese Academy of Sciences, Institute of Geography, Beijing, China
Earth Resources Observation System (EROS) Data Center, Sioux Falls, SD, USA
Economic and Social Research Council, Essex, UK
Environmental Protection Agency, Washington, DC, USA
Estonia Country Node, Tallin, Estonia
Harris Center, Institute of Research in Social Sciences, Chapel Hill, NC, USA
Human Dimensions Research Program, Saginaw, MI, USA
Hungary Country Node, Budapest, Hungary
Institute for Cultural and Social Studies, Leiden, The Netherlands
Inter-American Development Bank, Washington, DC, USA
International Centre for Research in Agroforestry, Nairobi, Kenya
International Development Research Centre, Ottawa, Canada
International Institute for Applied Systems Analysis, Laxenburg, Austria
International Programs Center, U.S. Census Bureau, Washington, DC, USA
InterUniversity Consortium for Political and Social Research, Ann Arbor, MI, USA
Joint Research Centre, Center for Earth Observation, Ispra, Italy
Keio University, Fujisawa, Japan
Latvia Country Node, Riga, Latvia
Lithuania Country Node, Vilnius, Lithuania
Michigan Department of Natural Resources, Michigan Resource Information
Program, Lansing, MI, USA
National Technical Information Centre and Library, Hungary
Organization of American States, Washington, DC, USA
Pan African Development Information System, Addis Abba, Ethiopia
Peking University, Beijing, China
Poland Country Node, Warsaw, Poland

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RIVM, National Institute of Public Health and Environmental Protection,
Biltoven, The Netherlands
Socio-Economic Data and Applications Center, CIESIN, Saginaw, MI, USA
South Africa Data Archive, Pretoria, South Africa
The Roper Center for Public Opinion Research, Storrs, CT, USA
The World Bank, Washington, DC, USA
Third World Network of Scientific Organizations, Trieste, Italy
Ukraine Country Node, Kiev, Ukraine
United Nations Development Programme/Sustainable Development Network
Programme, New York, NY, USA
United Nations Educational, Scientific, & Cultural Organization, Paris, France
United Nations Environmental Programme/Global Resources Information
Database, Sioux Falls, SD, USA
United States Dept. of Agriculture, Washington, DC, USA
U.S. Global Change Research Program, Washington, DC, USA
WETV Global Access Television Service
World Conservation Monitoring Center, Cambridge, UK
World Conservation Union, Gland, Switzerland
World Health Organization, Geneva, Switzerland
World Resources Institute, Washington, DC, USA
ZA, Central Archive for Social Research, Cologne, Germany

The following are comments on the CIESIN letter dated September 11, 1995.

GAO Comments

1. Our focus was on the initial time period when CIESIN and the agencies began to have a technical and business relationship. Most agencies, at that time, had structured their on-going activities without considering a role for CIESIN. When funding for CIESIN was earmarked, they had to adjust their activities to do so.

2. The National Aeronautics and Space Administration (NASA) and our office held numerous discussions about the basis of the justification NASA cited for exemption from the Competition in Contracting Act. However, any decision about the justification for exemption from other than free and open competition would be NASA's.

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