Interdisciplinary Environmental and Sustainability Education and Research:

Institutes and Centers at Research Universities

A study conducted by The National Council for Science and the Environment for the Council of Environmental Deans and Directors



Shirley Vincent, Rica Santos, and Louise Cabral

Foreword by Antje Danielson and David Blockstein

January 2014

National Council for Science and the Environment
Improving the scientific basis for environmental decisionmaking

CEDD Council of Environmental Deans and Directors

National Council for Science and the Environment

The National Council for Science and the Environment (NCSE) is a not-for-profit organization that improves the scientific basis for environmental decision making.

NCSE brings together individuals, institutions and communities to advance environmental and sustainability science, education, and their applications in five strategic areas:

- Strengthening Education and Careers;
- Communicating Science to the Public;
- Hosting the annual National Conference on Science, Policy and the Environment;
- Science Solutions to Specific Environmental Challenges; and
- Advancing Policy that Improves the Connection between Science and Decision-making.

Council of Environmental Deans and Directors/ University Affiliate Program

The Council of Environmental Deans and Directors (CEDD) is the leadership group for members of the NCSE University Affiliate Program (listed at back of report). CEDD brings together environmental and sustainability leaders from members of the NCSE University Affiliate Program to improve the quality, stature and effectiveness of academic environmental programs at U.S. universities and colleges. CEDD represents academic environmental programs of all sizes and types. CEDD holds regular meetings that facilitate networking and collaborations. Among its many activities, CEDD supports projects and committees on

- Campus to Careers
- Climate Solutions Curricula
- Curriculum
- Diversity
- Environment & Human Health
- Interdisciplinary Tenure
- Program Assessment

Affiliates receive additional services and benefits including:

- Membership in multi-institutional collaborations to secure federal funding;
- Complimentary participation in the Federal Academic Dialogue;
- Exclusive access to information on federal funding for environmental research and education;
- Complimentary participation in the National Conference on Science, Policy and the Environment;
- Campus-wide subscriptions to online environmental and energy news services;
- Sabbatical opportunities; and
- Special reports and studies.

This report is a product of NCSE's ongoing academic program research and is distributed as a service to members of the NCSE University Affiliate Program.

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Foreword

The Council for Environmental Deans and Directors (CEDD) consists of the leaders of academic environmental and sustainability programs from 173 U.S. colleges and universities affiliated with the National Council for Science and the Environment (NCSE). The CEDD representatives more often than not have no direct peers in their home institutions. CEDD provides this peer group and a forum for exchange and discussion. CEDD members meet twice a year; the meetings provide a forum for new ideas, exchange, and reporting in a think-tank-like atmosphere.

One theme has become a recurring topic of discussion at CEDD meetings, and that is the question *whether the administrative structure of a program has specific advantages or disadvantages for the success of a program*. Interdisciplinary environmental and sustainability programs come in many shapes and forms. In order to facilitate interaction among faculty from many academic disciplines and departments, many colleges and universities have created centers, institutes and other cross-departmental structures. The CEDD members have discussed the pros and cons of those different structures extensively. At the 2011 summer meeting in Vermont, the differences among administrative types became acutely apparent when many representatives reported a turnover in their respective university leadership teams. They queried each other on how to manage through these times of transition and realized that they had only anecdotal evidence for certain assumptions but very few real data points. In the summer of 2012 even more members were experiencing leadership changes with the additional pressure of a changing perspective on the content of their programs. We then decided to survey the community in order to tease out some answers to the structural questions we were asking.

After the summer 2012 meeting, NCSE Director of Education Research Shirley Vincent met with CEDD President-elect Antje Danielson. At this meeting a preliminary set of survey questions based on the preceding CEDD member meetings was created. They decided on a subset of universities to include in the survey and on a preliminary classification of the centers and institutes in those universities. This was the beginning of this report.

The results of the survey and the cases detailed in this report are intriguing and provide a lot of information. There are definite predictors. With trust in our peers we should assume that we can use the predictors to improve our programs. This is one outcome from the report. However, new paradigms arise from unusual out-of-the-box approaches, and we sincerely hope that the information contained in this report will also enable some of our colleagues to create paradigm shifts and allow for us to discover our own niche. After all, wouldn't it be awful if we all did the same thing.

"War is ninety percent information." In the spirit of Napoleon Bonaparte we very much hope that this report will help you improve your programs, advocate for your approaches, benchmark your efforts, help you create a new institute or center, and in general make your programs more sustainable.

Antje Danielson, CEDD President 2014-2015,
Director, Tufts Institute of the Environment
David Blockstein, CEDD Executive Secretary,
National Council for Science and the Environment

Executive Summary

Interdisciplinary environmental and sustainability (IES) academic and research programs have an important and unique role in higher education. IES programs study the interfaces and interactions of coupled social-nature systems using interdisciplinary knowledge and insights gained from systems approaches and different epistemological perspectives. Linking science, policy and management has been identified by many experts as one of the critical unmet needs of society; IES programs address this need by conducting research and preparing students for careers at the science-policy, science-management, and policy-management interfaces. IES programs have a distinctive goal: preparing sustainability-oriented problem solvers through interdisciplinary scholarship, research, practice and informed citizenship.

IES institutes and centers (IESICs) serve a crucial role in bridging the knowledge needs of society and the knowledge production capabilities of universities. They facilitate interdisciplinary and transdisciplinary research, administer interdisciplinary academic programs, support campus sustainability initiatives, and engage in collaborative problem-solving with internal and external partners including students, faculty, staff, public and private sector organizations, citizen scientists, other colleges and universities, and governmental institutions from local to global.

Few studies have examined the roles and structures of institutes and centers and none have investigated IESICs.[1] This report describes the results of the first empirical study of IESICs in the United States and includes 28 individual profiles that illustrate the diversity of IESICs. The data for this report were obtained from a census of IESICs at research universities in the U.S. and a survey completed by a representative sample of 340 directors of IESICs at research universities across the U.S. The survey included questions addressing operational structure, activities and resources.

IESICs comprise about 8% of all research institutes and centers at universities in the United States. There are seven distinct categories of IESICs based on their names, which indicate their primary focus: [1] broad environmental and sustainability; [2] energy and climate change; [3] natural systems, such as aquatic systems or forests; [4] human wellbeing, including security, risk assessment and sustainable agriculture; [5] societal systems, such as economics, policy and law; [6] technology and informatics; and [7] sustainable built environments. Each category has its own set of characteristics, as discussed in the overview chapter and described in summaries for each category and in profiles of individual IESICs.

The broad environmental and sustainability group is the most distinctive. IESICs in this group are more likely to be titled institutes, have their own building, administer academic programs, support campus sustainability initiatives, engage with a wider diversity of partners, receive funding from institutional appropriations and endowments, and support full-time directors and other administrative staff when compared with IESICs in the other six categories.

1. Two studies have compiled limited sets of IESIC profiles. The Aspen Institute (2008). *A closer look at applied sustainability centers.* Washington, DC; Banas, S. (2007). *A survey of university-based sustainability science centers: supplement for the forum for sustainability science programs roundtable.* American Association for the Advancement of Science: Washington, DC.

Other key findings from the survey of IESICs include:

- About a third of IESICs are administratively located at the primary university level (report to top administrators and are not located within another unit such as a college); half are located administratively within a college or are shared by two or more colleges; a sixth are located within departments or are shared by two or more departments; and the remainder are administratively located in other units, are operated as non-profits affiliated with the university, or are subunits of larger institutes or centers.
- About of third of IESICs are titled institute and most others are titled center. A small proportion (<10%) use another name such as collaborative or initiative.
- IESICs with the title institute are more likely to be administratively located at the primary university level with directors reporting to top university administrators, while centers are most often located within colleges with directors reporting to one or more deans.
- Institutes on average have a broader focus on the environment, sustainability, energy and climate change, or natural systems, and are more likely to have their own physical space—a building or suite of offices. They are also more likely to have formal relationships with a larger number and diversity of affiliated faculty members.
- IESICs with names other than institute or center typically place less emphasis on research and more on education compared with institutes and centers.
- About two-thirds of IESICs occupy their own building (16%) or office suite (47%), while the other third either have space within another office (15%) or no dedicated space (22%).
- About 2% of IESICs are very large, supporting up to 250 full-time staff members, 150 part-time staff members, 27 core faculty positions, 60 joint faculty positions, and formal affiliations with up to 500 faculty members across the university. The vast majority of IESICs are much smaller. About two-thirds support 5 or fewer full-time staff and/or faculty positions. About 8% operate "virtually" without a designated physical space or current budget.
- Most IESICs focus most of their resources and activities on three goals: research, education and outreach, but individual missions and goals vary widely. About a quarter identify supporting campus sustainability initiatives as a primary goal. A few do not include research in their activities, but instead focus on technology commercialization and entrepreneurship, policy advising, or providing services and technical assistance.
- Over half of all IESICs partner with other colleges and universities, governmental agencies and administrations, and private or public sector organizations. Most also include faculty and other experts from a variety of disciplines, including the humanities and professional fields, as well as the applied, natural and social sciences. Experts in environmental science(s) and studies, engineering and other applied sciences, and natural resources management and agriculture are the most common partners participating in collaborative IESIC projects overall.
- A third of all IESICs administer some type of academic program. Graduate degrees, minors and certificates and continuing education certificates are most prevalent, but baccalaureate degrees and undergraduate minors and certificates are also housed in IESICs.
- IESICs rely on diverse sources for their funding, including institutional appropriations, endowments, grants and contracts, donor gifts, and fees for products and services.

NCSE University Affiliate members 2014-2015

Alabama A&M University
Alabama State University
Allegheny College
Antioch University New England
Arizona State University
Arkansas State University
Ball State University
Bard College
Barnard College
Bellarmine University
Bentley University
Boston College
Boston University
Brandeis University
Bryn Mawr College
California Polytechnic State University-San Luis Obispo
Chatham University
Clarkson University
Clemson University
Colby College
Colgate University
College of Charleston
College of Menominee Nation
College of Saint Benedict/St. John's University
Colleges of the Fenway
Colorado College
Colorado State University
Columbia University
Cornell University
Dartmouth College
Dickinson College
Doane College
Drexel University
Duquesne University
Evergreen State College, The
Florida A&M University
Florida Atlantic University
Florida International University
Franklin & Marshall College
Frostburg State University
George Mason University
George Washington University
Georgia State University
Goshen College
Guilford College
Haverford College
Hendrix College
Heritage University
Illinois Institute of Technology
Indiana University at Bloomington
Jackson State University
James Madison University
Johns Hopkins University
Kentucky State University
Keystone College
Lehigh University
Lewis & Clark College
Lewis University
Louisiana State University
Loyola Marymount University
Macalester College
Manhattan College
Maryville College
Marywood University
Michigan State University
Middlebury College
Monmouth University
Moravian College
Morgan State University
Mount Holyoke College
New College of Florida
North Carolina A&T State University
North Carolina State University
Northeastern University
Northern Arizona University
Northern Illinois University
Ohio State University, The
Old Dominion University
Oregon State University
Pace University
Pennsylvania State University
Pomona College
Portland State University
Purdue University
Reed College
Robert Morris University
Rutgers-The State University of New Jersey
Sacred Heart University
Salisbury University
Salish Kootenai College
Salem College
Sewanee, The University of the South
Siena College
Smith College
Southern New Hampshire University
Stanford University
Stetson University
Suffolk University
SUNY-College of Environmental Science and Forestry
Swarthmore College
Syracuse University
Temple University
Texas A&M University
Texas Southern University
Towson University
Tufts University
Unity College
University of Alabama
University of Arizona
University of Arkansas, Fayetteville
University of Alaska, Anchorage
University of California, Berkeley
University of California, Davis
University of California, Irvine
University of California, Merced
University of California, San Diego
University of California, Santa Barbara
University of Central Florida
University of Cincinnati
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University of Dayton
University of Delaware
University of the District of Columbia
University of Georgia
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University of Louisville
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University of Maryland-College Park
University of Massachusetts, Boston
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University of Minnesota, Twin Cities
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University of Nebraska-Lincoln
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