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THE NICHOLAS INSTITUTE

Bringing Academia Into a Leadership Position for Environmental Policy

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Duke University

In the field of environmental policy, there are not many animals like the Nicholas Institute for Environmental Policy Solutions at Duke University. Since its creation in 2005, the Nicholas Institute has been able to develop an institutional form that allows it to engage directly in environmental decision making without being perceived as biased and without being hampered by the usual conflict of incentives that stifles academic engagement in the policy sector. Based at a major research university, it possesses the ability to draw on academic expertise in all relevant disciplines, and particularly from multiple disciplines simultaneously, to formulate and inform environmental policy in both the public and private sectors. And staffed by professionals familiar with the ongoing debates in environmental policy, the Nicholas Institute is able to engage with decision makers on the time schedules and in a matter consistent with the rhythms of government and private sector practices.

Like many stories, the creation of the Nicholas Institute for Environmental Policy Solutions owes its success to an alignment of timing, good fortune, and investment with foresight. These forces came together to create a distinctive institution at Duke, built on a platform of interdisciplinary collaboration at the university, infused with the resources of a generous university and the creativity of entrepreneurial leaders, and launched in a time of increasing demand for its product.

The Nicholas Institute's interdisciplinary grounding and service orientation was built on a cultural platform that long predated its creation. For more than 20 years, Duke

University has invested in interdisciplinary collaboration, starting with a 1988 report titled *Crossing Boundaries: Interdisciplinary Planning for the Nineties* (Duke University Self Study, 1988). Duke invested throughout the 1990s in increasing the university's commitment to inquiry across the academic disciplines, creating new centers of research, encouraging faculty engagement beyond the campus, prioritizing faculty hires between the disciplines, and generally encouraging interdisciplinary exploration. Thus, when the Nicholas Institute was created in 2005, it already benefited from a campus culture embracing its mission.

The leadership chosen for the Nicholas Institute then complemented this culture by steeping it in a structure and approach intended to foster innovation. Both the founding director and the Nicholas Institute's first senior staff hire (the two authors of this chapter) arrived after working in the office of Senator Joseph Lieberman. In the Lieberman office, the head of policy, Bill Bonvillian, also focused on the academic study of the nation's most successful innovative organizations, such as the Defense Advanced Research Projects Agency (DARPA) and the Radiation Laboratory at MIT. Such organizations had a number of common characteristics, including relatively flat, collaborative organizational structure, significant resources and autonomy given to project leads, and a clear problem focus in research. Institute leadership, with an abnormal degree of support from the university administration and faculty due to the aforementioned culture, was able to imbue the Nicholas Institute with a professional staff structure that copied many of these

characteristics from the innovative organizations studied by Bonvillian (Bonvillian 2002; Bonvillian & Van Atta, 2011; Weiss & Bonvillian, 2009, 2011).

The Nicholas Institute was then provided the resources needed to grasp its mission fully through the provision of core operational support by the university. That funding allowed the Nicholas Institute to build its structure without immediate financial pressures, enabling a sole focus on how to engage on key environmental challenges.

Finally, the Nicholas Institute benefited, mostly through simple good fortune, from an increased interest in its activities at the very time of its creation. In the latter half of the decade of the 2000s, there was a swelling of interest in addressing environmental challenges, both through public policy and through private initiatives. The Nicholas Institute therefore was able to secure numerous high profile roles at its outset that helped it establish its brand and reputation in short order.

Thus, through a mixture of strategic investment, resource, and luck, the Nicholas Institute was able to demonstrate quickly a new model of environmental organizational leadership through a major research university. This chapter will describe that model in greater detail, both in terms of its external mission to proffer solutions to environmental challenges and its internal mission to bridge Duke's academic units, and then forecast the new frontiers of leadership for which the Nicholas Institute could strive.

Institute as Formed

The Nicholas Institute is designed to be a bridge between academia and decision makers. At each end of this bridge, it has an audience to engage and a mission to achieve. Its external mission, which is also its public mission, is “to help decision makers create timely, effective, and economically practical solutions to the world's critical environmental challenges.” To achieve this mission, the Nicholas Institute has the resources of a diverse and robust research university to draw upon. Duke University has leading schools of the environment, business, law, engineering, divinity, medicine, and public policy as well as the strength of its traditional arts and sciences faculty. The Nicholas Institute is strongest when it incorporates and builds on the knowledge and expertise found at Duke in its work with global decision makers. Thus, it must achieve a second, internal mission of engaging Duke's faculty and other academic experts in its work.

To build this bridge, the Nicholas Institute has developed a nontraditional model for an academic institute (Mallon & Bunton, 2005). University institutes are normally led and staffed by faculty who carry the academic responsibilities of teaching, peer review research, and academic service, which already require the focus of full-time employment. Although they may not be required to perform all these tasks while engaged at an institute, nontenured faculty who desire tenure

or those who want to remain competitive in the academic job market will generally need to maintain these activities. This can limit the capacity of faculty led institutes to provide many of the services needed by external audiences, such as convening of meetings or dialogue, rapid response analysis or advice, and synthesis of existing science.

In addition, many faculty are uncomfortable working directly with external policymakers (government agencies, legislators, or corporate leaders) as they often lack experience and knowledge on how best to do this, do not have sufficient time, or feel it can be inappropriate or compromise their independent voice. If they do so at all, it is usually through a scientific association that organizes Capitol Hill Days once a year. There are of course exceptions—faculty who are extremely effective in their interactions with external decision makers and integrate this activity seamlessly with their academic pursuits. However, even these faculty leaders tend to lack the time, resources, and incentives to engage additional faculty across their institutions to take advantage fully of the broader expertise available and to respond to a broader range of policy issues. Given these potential limitations to the more traditional approach, the Nicholas Institute decided to test a different model.

The Nicholas Institute's work must maintain the credibility that comes from an academic process yet be produced on a schedule that corresponds with the decision-making cycles of government, industry, and other institutions. To do so, the Nicholas Institute built a staff focused on meeting these needs of decision makers while drawing upon faculty expertise. The Nicholas Institute depends on a core group of professional staff whose knowledge, training, and academic experience are sufficient for them to be perceived as equals with faculty. They could potentially be or have already been faculty elsewhere.

But academic experience is not the only requirement. This core staff also holds significant experience and personal networks with the relevant decision-making communities, greatly enhancing their ability to engage with these targeted audiences. For example, the first three hires of the Nicholas Institute into core staff positions, described in Table 27.1, illustrates how each hire came to the Nicholas Institute with both academic experience and experience engaging with target audiences.

The core staff directs the various programs of the Nicholas Institute. They focus on developing active and ongoing conversations with key decision-making communities—both public and private—to assess critical questions and issues that need resolution. These directors and their staff take on the lion's share of the work, focusing on the delivery of the work product on schedule to meet the needs of decision makers, but do so with input from faculty and other experts. In many cases, they pull together interdisciplinary teams of faculty to provide relevant research, analysis, synthesis, or review for decision makers. Faculty are engaged using devices such as faculty

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Lydia Olander	Directs ecosystem services program	Master of forest science, PhD in ecology, legislative fellow for U.S. senator
Brian Murray	Directs economic analysis work across the Nicholas Institute	PhD in environmental economics, director of consulting group that worked extensively with federal agencies

Table 27.1 Examples of the Experience of Nicholas Institute Staff

working groups, time buyouts, consulting fees, funding for doctoral and postdoctoral students, visiting faculty appointments, and fellowships. The Nicholas Institute uses its time, expertise, and resources to lower the activation energy for new faculty collaborations, for faculty engagement on policy issues of interest, and most importantly for bringing the wealth of academic knowledge to the service of decision makers.

The performance of the Nicholas Institute program directors is judged on how well they are achieving the two missions of the institute, rather than peer-reviewed publication and teaching. The directors were given research appointments and a number have pursued and received nontenure track appointments in the various schools at Duke University. While the staff focus on producing products—white papers, reports, meetings—for decision makers, many continue to publish in the peer-reviewed literature (e.g., see Cooley & Monast, 2011; Lawlor, Weinthal, & Olander, 2010; Pendleton, Mohn, Vaughn, King, & Zoulas, 2011). Freeing the directors from typical academic requirements, however, allows them to be more responsive to the needs and time lines of the decision makers and provides greater incentive for them to develop and support faculty collaborations.

The Nicholas Institute can also be a great tool for the university's furthering of its core mission of education. Junior researchers and staff gain real world experience; greatly expand their networks in academia, government, and beyond; gain a broader perspective on critical research questions; and a better understanding of how to make their research relevant to decision makers. Many staff guest lecture or teach specialty courses and advise students, providing opportunities for students to take advantage of the applied knowledge and policy perspective that institute staff brings.

While having the experience on staff and building bridges to faculty are critical to making the institute work, this alone is insufficient. It also requires empowering the institute to be actively engaged with decision makers in environmental policy debates, which took bold university leadership. To the Nicholas Institute staff, actively engaged means sitting down with senators, representatives, and their staffs; executive branch policymakers; or corporate and nongovernmental organization leaders to understand their policy questions and concerns, working with them to design

analysis and synthesis they need, and using this information to help them formulate better policy. The Nicholas Institute's goal is for its work to be in the board room, on the senate floor, and in the news, not just sitting on a shelf. Such an institute could not have been built without the progressive leadership of the president and provost of Duke University and Duke's purposeful nurturing of multidisciplinary applied research as "service to society." Most dramatically, Duke's leadership hired a lawyer with 5 years of experience working in the U.S. Senate as director of the Nicholas Institute, with the intent of building a new kind of academic institute. The Nicholas Institute does not come to decision makers to sell its ideas or those of Duke's faculty. It comes to offer its help, its manpower, and Duke's expertise and convening power to help build workable policy solutions.

In this role, the institute does not lobby. It works in the realm of "if, then" statements. If the decision maker wants to achieve X given Y, then the institute will help analyze the options. For example, if the policymaker needs to design a policy to incorporate greenhouse gases into the Clean Air Act, the institute assesses the viability, benefits, and limitations of different options for such policy. While the Nicholas Institute may protect the privacy of decision makers or stakeholders involved in its work, all of the research and work provided to decision makers is shared publicly. The university has fully supported the institute's mission and its aggressively engaged approach.

As noted earlier, the Nicholas Institute's founding leadership was greatly influenced by the legislative director of the office of Senator Lieberman, Bill Bonvillian, and his study of innovative organizations. The most innovative and effective organizations over the last century (i.e., Xerox Corporation's Palo Alto Research Center, which designed the first user-friendly computer; the Defense Advanced Research Projects Agency [DARPA], which developed the Internet; Lockheed's Skunk Works, where the U-2 spy plane and the Stealth bomber were developed; and the Manhattan Project, whose scientists created the atomic bomb) share a number of similarities in the way they are structured.

Among other characteristics, each of these organizations was deeply collaborative, nonhierarchical, and relatively flat, featuring close-knit groups and the ability to be quick off the mark. All of the organizations were outcome driven, and measured their progress by that metric. All of the organizations were driven by a sense of urgency to

accomplish their goals in short order. The only one of these organizations to survive after its initial objective was reached, DARPA, created an iterative process of renewing itself by developing new objectives, tackling new issues, or adopting new modes of operation (Bennis & Biederman, 1997). The institute's structure is modeled on these incredibly productive institutions of the past.

The Nicholas Institute director sits above a relatively flat organization of program directors, each of whom is given significant freedom to create his or her own programs and research agendas within the common mission. The programs were designed as a matrix of topical issues and disciplinary expertise that covered the necessary areas to pursue critical environmental challenges and bring Duke's expertise to bear. One challenge has been providing equitable salaries to the diverse array of interdisciplinary experts who make up the program directors. The Nicholas Institute was never intended to be a large institution, originally hoping to have between 30 to 40 staff but is now approaching 50. The institute has also been designed to provide significant administrative support to free up the experts to focus on achieving real impact.

The program directors have overlapping areas of interest and expertise. They meet and collaborate regularly across projects. They share a common vision that smart policy can help alter course and improve environmental outcomes and the overall economic and social benefits to society. Rather than focusing on a single outcome, the Nicholas Institute is more like the DARPA model in that its programs are focused on a handful of different objectives. This makes tracking and assessing progress more difficult.

It has been difficult to develop appropriate metrics for progress as the Nicholas Institute is playing a supporting role to a complex process. Sometimes the most influential activities of the Nicholas Institute are the intangibles of informing critical decision makers and bringing together diverse stakeholders in neutral forums. While any institution could create easy to assess metrics such as papers published or funding received, these do not reflect the organization's impact on decisions. More direct metrics might be passage of an economy-wide national climate policy or a new more effective clean water act that encourages technology and policy innovation. The Nicholas Institute, however, like others engaged in the policy process, is dependent upon political and corporate leadership with the vision and sufficient public support to make progress. Designing appropriate metrics of its success is a work in progress.

External Mission

To achieve its external mission—"To help decision makers create timely, effective, and economically practical solutions to the world's critical environmental challenges" (<http://nicholasinstitute.duke.edu/about>)—the Nicholas Institute immediately recognized three core challenges. In

its initial 2005 strategic plan, the Nicholas Institute described these challenges as follows:

1. To produce timely applied work product that is of a quality consistent with Duke's world-class reputation
2. To communicate the work product, once produced, to appropriate decision makers and opinion leaders
3. To act with the deepest scientific and ethical integrity to ensure that the Nicholas Institute's credibility cannot be impugned

Answering these challenges has largely been addressed by the institute structure described above. The program directors provide the Nicholas Institute with sophisticated professionals focused on the provision of timely product, and those directors come to the Nicholas Institute with a network within, and understanding of, the audiences that the institute serves. Moreover, the university's provision of core funding allows the Nicholas Institute to carry out its work without concern over the public questioning of its financing.

The implementation of this strategy, however, also requires institutional flexibility to fit the work to the audience's need. The work of the institute is thus most fairly described as heterogeneous, with the projects varying in scale, disciplinary focus, timing, and publicity depending on the project need. Such nimbleness certainly creates challenges, but it also allows the Nicholas Institute to be responsive to the specific need of the decision maker. Such nimbleness, however, would not be possible under a more traditional academic structure.

In particular, let us provide five different roles the Nicholas Institute has played in engagement with decision makers over the past few years in order to provide a greater sense of the diversity of the institute's work and its ability to provide environmental leadership in a variety of contexts. The first role could be described as "just-in-time" counsel. In such cases, the Nicholas Institute may be asked to provide advice to a decision maker on a schedule dictated by political and business time frames, not the normal rhythms of the academic sector. In these cases, the Nicholas Institute has relied primarily on its core staff—informed by their ongoing dialogue with faculty colleagues—to serve the audience.

One recent example of just-in-time counsel occurred in the context of California's recent development of a cap-and-trade program for greenhouse gases. After proffering draft regulations, the California Air Resources Board's (CARB) effort was enjoined in court because it did not adequately evaluate the policy alternative of a carbon tax. Informed by the years of engagement on the issue, three senior Nicholas Institute researchers were able to produce a document comparing the cap-and-trade and tax alternatives within 2 weeks, allowing CARB to assess the alternative to the satisfaction of the court and in this case to go forward with its original regulations.

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A second role for the Nicholas Institute could be characterized as *trend anticipating*. In such a case, the Nicholas Institute staff's intimacy with trends in the public, private, and nonprofit sectors allows it to perceive a coming policy debate and begin deeper academic inquiry into topics before the questions ripen. Such forecasting is only possible because Nicholas Institute staff members are in constant conversation with the external constituencies involved, providing the means to develop a sense of the debate's direction. Forecasting future needs well allows the Nicholas Institute to pull the university's resources to the question early so that work can be produced coincident with the need.

There are many examples of the Nicholas Institute's successful forecasting. One particularly apt example occurs with the Nicholas Institute's recent work on the regulation of greenhouse gases under the Clean Air Act. Because of its intimacy with the federal legislative debate on global warming, the Nicholas Institute forecast as early as 2008 that the legislative effort might fail, thereby triggering Clean Air Act regulation. In collaboration with faculty colleagues and student assistants, the Nicholas Institute organized a series of workshops on the regulatory issues, producing papers for peer-reviewed legal publications to increase familiarity with the topic. The issue is now front and center in the global warming debate, and the Nicholas Institute and its faculty collaborators have matured their role based on those early papers to be a leading voice on the regulation of greenhouse gases under the Clean Air Act.

A third category of project is the provision of the academic underpinning to a policy initiative. Often, policymakers have a declared interest in an area of environmental policy, but they lack the research capability to design policy so it would address the full complexity of the environmental challenge involved. The Nicholas Institute has often been brought into such situations to assemble the multidisciplinary input needed to craft policy under fuller appreciation of the trade-offs and complexities.

The Nicholas Institute's work creating and coordinating the Technical Working Group on Agricultural Greenhouse Gases (T-AGG) provides a good example of this work to provide academic rigor to policy questions. T-AGG's mandate—to assemble the scientific and analytical foundation to support the implementation of high-quality agricultural greenhouse gas mitigation activities—led the Nicholas Institute to gather over 40 academic and research experts from Duke and across the United States to advise and inform a synthesis of research and methods that can be employed for implementation of programs in the United States. This body of work is being used by federal and state agencies as they consider the greenhouse gas benefits of their programs and design new metrics and tools and by voluntary carbon market programs as they design new protocols. It can also provide context for corporate or government programs that move forward on reporting or management of greenhouse gases emissions or storage in agricultural systems.

A second illustrative example of the Nicholas Institute's academic foundation work lies in its work on *blue carbon*, or the greenhouse gases stored in coastal habitats, such as mangroves, sea grasses, and salt marshes. This project is worthy of mention because, instead of responding to the requests of policymakers, the Nicholas Institute was able to capture their imagination with a new approach devised within the academy. With regard to blue carbon, the Nicholas Institute staffers, commissioned by visionary funders, drafted the first report assessing the economic potential of carbon policy to influence the conservation of these habitats, and they have now followed it up with further stakeholder engagement on the topic through the United Nations process.

Sometimes, however, it is not the Nicholas Institute's intellectual leadership that is most needed. Rather, it is the Nicholas Institute's ability to convene and facilitate a forum for discussion of an issue. This role, what we will term the Nicholas Institute's *convening* function, benefits both from the reputation of a university institute as a neutral, "safe" place for a conversation and from the ability of the institute to inform any conversations with the expertise of the university.

A recent example of the Nicholas Institute's convening function involved the facilitation of a stakeholder conversation over water pollution limits for the Falls Lake watershed. The watershed, which is near Duke's campus, was not meeting its federal pollution guidelines, making new pollution controls imminent. Rather than allowing the conversation to proceed in its usual course of quarreling between different classes of polluters, pointing the finger at each other, the Nicholas Institute convened a stakeholder roundtable to seek a more creative and more effective way to secure the needed pollution reductions. Informed by experts from Duke and other academic partners, the conversation was able to identify some more creative means of dividing the burden among the sources of the pollution.

A final category of Nicholas Institute projects might best be described as "standing events." For certain communities of decision makers—those with more predictable patterns of decisions—to have a reliable infusion of input from the Nicholas Institute proves superior to a more need-based engagement. The Nicholas Institute's Fisheries Leadership and Sustainability Forum, a joint project with the Stanford Woods Institute of the Environment, the Center for Oceans Solutions, and the Environmental Defense Fund, has been a very successful standing event. The forum, aimed at the Fisheries Management Commissions that regulate the nation's fisheries, provides a twice-per-year educational offering to those commissioners on the most current fisheries topics. By providing commissioners with a predictable infusion of informed thinking about the most salient fisheries issues on their dockets, the Nicholas Institute and its partners have created a comfortable forum in which these policymakers can continue to inform themselves with the knowledge they need to exercise leadership.

Internal Mission

While the Nicholas Institute was able to quickly establish its external vision, building the internal mission has been a slower process. After extensive interviews around campus, the director's 5-year review in 2010 flagged the need to invest greater time and effort in engaging faculty from all the schools at Duke and in building stronger ties to the Duke community generally. The Nicholas Institute has responded by developing faculty working groups for each of its substantive research areas as well as by assembling a faculty advisory group to steer its strategic plan. By deepening its ties to the intellectual community of Duke, the Nicholas Institute benefits from the tremendous resources of Duke's faculty and students and brings its own knowledge of global debates on environmental concerns back to Duke's research and educational mission.

The challenges and opportunities in developing faculty partnerships include the following:

- Engaging in conversation about how nontraditional sources of funding—foundations, corporations, and federal cooperative agreements instead of federal research grants and individual alumni donors—is a new way of thinking but can provide new opportunities
- Communicating across disciplines, which requires patience but can result in transformative research and ideas
- Helping encourage a cultural shift in thinking about decision makers (not just academic peers) as a key audience
- Developing an incentive and support structure for faculty to publish outside their discipline, take time to participate in meetings or dialogs or communicate in other ways (blogs, commentary, and webinars) with external audiences, and provide input on policy decisions
- Developing relationships to foster coordinated fund raising and comfort with multi-institutional ownership of research and other products

The Nicholas Institute has had some early successes of substantial faculty engagement in projects. One of its longest running examples is a project on geological carbon capture and storage from coal fired power plants. The project has focused on understanding the science and economics of developing pipelines and long-term geologic storage for carbon dioxide and using this knowledge to inform the development of policy. For this project, the Nicholas Institute was able to access a source of funding not usually targeted by faculty: corporate gifts that helped build and seed the project. A couple of key faculty members were engaged early, a geologist, Lincoln Pratson, and an ecologist and engineer, Rob Jackson. The initial grant helped support the work of the faculty and a team of high-level technical research staff at the Nicholas Institute who work with the faculty. Together, this team laid the groundwork for additional corporate and federal grants, which have continued to fund faculty and institute staff and as well as a doctoral student.

While the faculty members continue to publish results in the academic literature, the Nicholas Institute helps access and reach other audiences, engaging its legal experts to publish in law and policy journals, developing policy outreach reports, organizing workshops to engage state regulators, presenting at stakeholder meetings, engaging corporate partners, and coordinating individual meetings with and briefings for the staff of U.S. legislators on Capitol Hill. One example is a collaboration on geologic sequestration of greenhouse gases from power plants. The institute has developed policy and legal papers (Nicholas Institute, 2008; Nicholas Institute, 2011a), worked with stakeholder groups, and contributed to faculty led research published in traditional research journals (Eccles, Pratson, Newell, & Jackson, 2009). Another recent example is on the impacts of and policy context for shale gas extraction (Nicholas Institute, 2011b; Osborn, Vengosh, Warner, & Jackson, 2011; Plikunas, Pearson, Monast, Vengosh, & Jackson, 2011).

The Nicholas Institute administration's approach for building internal engagement is to use the institute as a hub of activity, bringing faculty and students together with its staff to develop and design policy solutions to address global environmental challenges. The Nicholas Institute has developed a number of different approaches for broadening internal engagement in its first 5 years in action.

One engagement approach has been the development of faculty working groups. The Nicholas Institute developed its first working group around the topic of ecosystem services. The group began as part of a grant with a couple of faculty and an institute director. Over the next few years, the group expanded to include numerous faculty and staff interested in the topic. There are now around 40 people participating, including ecologists, economists, engineers, and lawyers. Members of this group began meeting regularly to share updates on relevant faculty research, to apply for interdisciplinary funding opportunities, to host guest speakers, to share summaries of relevant meetings, and other opportunities. The working group strengthens cross-school relationships, enhances cross-disciplinary conversations and understanding, and leads to coadvising of student projects and to development of promising proposals and future opportunities. One priority of the working group is to fund students and postdoctoral researchers to link faculty research and expertise to the institute's policy work. The group is coordinated by the institute staff with guidance of an institute director and faculty lead Dean Urban, a professor at the Nicholas School of the Environment. The Nicholas Institute works to make sure there are topics and speakers of interest and maintains an e-mail list to coordinate meetings and share information on funding opportunities and conferences potentially of interest to this community.

A second engagement approach has been providing seed grants for new initiatives. In an effort to involve faculty in research design and to spur innovation in research and outreach that will result in high-impact decisions, the Nicholas Institute will begin offering startup research grants in the amount of \$25,000 annually. These

grants are intended to promote strategic interdisciplinary environmental research. A similar program funded through the provost's office provides a good example. One such grant has launched a collaborative project to evaluate the linkages between climate change, water resources, and human health in the Rift Valley, Ethiopia, to improve water management in rural areas. The project involves institute staff with expertise on water and health and a number of faculty with diverse expertise: a water chemist and quality expert, Avner Vengosh; a public policy and global health expert, Marc Jeuland; and an environmental policy expert, Erika Weinthal. This work has led to other research proposals and is helping to fund a postdoctoral and doctoral student as they engage in fieldwork in Ethiopia.

A third strategy is faculty appointments across institutions. While formally housed at the Institute, a number of the program directors have research appointments in one of Duke's schools, allowing more integrated decision making on strategic hires and integration of programs across Duke. This also allows directors to advise and coadvise students, which creates another avenue for connecting research between the Nicholas Institute staffers and Duke's faculty expertise while taking advantage of bright and talented students and giving them engaging real world experiences.

This relationship can also work in the other direction where the Nicholas Institute develops joint faculty appointments with the various schools at Duke. The first such appointment recently brought one of the nation's preeminent climate and energy economists, Billy Pizer, to Duke. Pizer will bring his considerable expertise in public energy finance from his tenure at the U.S. Treasury to bear on new research efforts at the Nicholas Institute and at Duke's Sanford School of Public Policy. Such efforts will form the cornerstone of a concerted Duke campaign to build faculty expertise in energy finance and energy economics.

The Nicholas Institute envisions joint professorships with many schools on campus. Appointments would be made to explicitly connect the interests and expertise of the Nicholas Institute with those of the schools. The Nicholas Institute administrators plan to use the Provost's fund for such appointments to the degree that it is available, but they also hope to partner with the deans to fund raise for new joint professorships in the context of Duke's development activities.

A final engagement strategy the Nicholas Institute has used is through the development of new or external educational programs. Given that Duke already houses one of the preeminent interdisciplinary environmental education institutions in the United States, the Nicholas Institute does not need to fill that role. Instead it has focused on providing specialty classes that survey current

and emerging issues in environmental management, policy, law, or economics. Institute staff has taught classes in ecosystem services markets, energy law, state water policy, and ocean policy and guest lectures regularly for classes across campus. The director of the Nicholas Institute's program on sustainability and commerce has worked with schools and faculty across Duke to design and launch a new certificate program on sustainable systems analysis.

The Nicholas Institute staff has also designed and led several specialty and professional education courses. Staff led the university's inaugural Winter Forum, a special winter session course for undergraduates focused on a global challenge. In this case, the staffers brought their intimacy with energy policy and its effect on investment to create a 3-day program on the "green economy." A second example lies in the partnership of Nicholas Institute staff with the Organization for Tropical Studies on a course about the design of reduced emissions from deforestation and degradation (REDD) programs for policymakers from the legislative and executive branches of the U.S. federal government.

Summary

Over its 6 years of history, the Nicholas Institute has covered novel ground and in doing so has found success as well as frustration. But in large part, its distinctive model has been effective, particularly in the pursuit of its external mission as a resource to public and private decision makers. The increased infusion of multidisciplinary input from the academy alone has empowered more informed leadership across the environmental field.

At this point in its history, however, the Nicholas Institute is at an inflection point, transitioning from a rapidly expanding new organization to one that is firmly embedded between the worlds that it intends to bridge. And to continue to increase its value on environmental issues, the Nicholas Institute must bring more of its intellectual heft across the bridge. Such an evolution requires continued innovation with regard to the Nicholas Institute's internal mission: deploying a full understanding of the incentives that the university system creates for faculty collaborators and aligning those incentives with the needs of decision makers. Many of these efforts are under way and hopefully will bear fruit as faculty colleagues turn slowly from preexisting commitments to new initiatives with the Nicholas Institute. Nonetheless, while the efforts described herein will hopefully perform this function, they should be regarded, as with all other concepts deployed by the Nicholas Institute, as hypotheses to be tested in this ongoing experiment in bringing academia into a position of environmental leadership.

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