School of Environment and Sustainability

Report of the Implementation Committee

Submitted to:
Provost Russell Moore
Dean of the College of Arts and Sciences Steven Leigh

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Implementation Committee Chair:
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Implementation Committee Members (in alphabetical order):

- Nichole Barger, Assistant Professor, Ecology & Evolutionary Biology
- William Boyd, Associate Professor, Law School and RASEI Fellow
- Bruce Goldstein, Associate Professor, Environmental Design
- Pat Kociolek, Professor, EBIO and University Museum
- John Lanterman, Senior Instructor, Environmental Design
- Steve Lawrence, Associate Professor, Leeds School of Business and RASEI Fellow
- Scott Summers, Professor, Civil, Environmental, and Architectural Engineering and Environmental Engineering Program
- Helmut Muller-Sievers, Director, Center of Humanities and the Arts (CHA), Professor, German and Slavic Languages and Literatures
- Cora Randall, Professor, Atmospheric and Oceanic Sciences, Laboratory for Atmospheric & Space Physics (LASP)
- Paul Sutter, Associate Professor, History
- Kathleen Tierney, Professor, Sociology, IBS, and Director, Natural Hazards Center
- Alan Townsend, Professor, Ecology and Evolutionary Biology, INSTAAR
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- Jim White, Professor, Geological Sciences, Environmental Studies, INSTAAR
- Emily Yeh, Associate Professor, Geography
Section I: Envisioning and implementing a school of environment & sustainability

In 2012-13, Provost Russell Moore appointed the CU-Boulder campus-wide Environment and Sustainability Visioning Committee (ESVC) with the charge to “…develop a broad vision for how existing campus strengths in the study of the environment and sustainability can be leveraged to create new, cutting edge opportunities in scholarship and education. The key focus should be on identifying the unique opportunities that may exist through the promotion and development of programmatic synergies on the Boulder campus, and then providing recommendations for how these synergies could best be fostered.”

The ESVC submitted its final report on March 29, 2013, recommending the formation of a new College at CU-Boulder focused on environment and sustainability (http://www.colorado.edu/esvc/community-forum). The ESVC concluded that a new College would enhance our stature by increasing the visibility of our academic strengths, create new opportunities for interdisciplinary education, improve student recruitment, retention, and career opportunities, and provide a compelling case for new donor support. The ESVC report proposed an integrative structure for the new College, with strong ties to existing colleges, institutes, and programs. To do this, they proposed a flexible and porous system of faculty rostering that would facilitate engagement of faculty and students from across campus and the external community in environment and sustainability research, teaching, and outreach.

In response to the recommendations of the ESVC, in November 2013, Provost Russell Moore and Dean of the College of Arts and Sciences Steven Leigh announced that they were moving forward to create the structure necessary to propose a new school within the College of Arts and Sciences with a focus on sustainability and earth and environmental sciences. The Provost and Dean appointed Sharon Collinge, professor of environmental studies and ecology and evolutionary biology and the current director of the Environmental Studies Program, as director of the proposed new school. They charged Professor Collinge to work closely with the dean of Arts and Sciences and with the Office of Academic Affairs on this process, and announced that a Faculty Implementation Committee chaired by Jason Neff, associate professor of environmental studies and geological sciences would assist Collinge in this new role.

Section II: Implementation Committee Formation and Process

Following the decision to create a new school with a focus on sustainability and earth and environmental sciences, the Faculty Implementation committee (IC) members were nominated, approved, and directed to develop a plan for implementation of the new school. The committee membership was comprised of faculty drawn from a number of schools, colleges, departments and programs across campus (see p. 2 for names and affiliations of IC members). The charge of the committee was to maintain the vision forwarded by the ESVC’s March 2013 report and to develop plans for implementation of the new school within the College of Arts and Sciences. The committee met approximately bi-weekly from January – March, 2014.
The initial IC meetings focused on broad themes related to the proposed school including undergraduate and graduate degree programs and related educational opportunities, school structure, and resource flows. During these meetings, the committee spent a large amount of time addressing uncertainties related to the structural configuration, budget models, resource flows, and intellectual scope of the new school.

In April of 2014, the IC initiated a series of meetings with broader groups of faculty organized loosely into three domains of inquiry that would likely comprise the intellectual core of the new school (see Fig. 1, p. 5): 1) Environmental sciences, 2) Environmental design, governance, and policy, 3) Environment and society. The domains were chosen to encompass groups of faculty with potentially similar research and educational interests in order to facilitate broad conversations. The domains were not designed to represent, implicitly or explicitly, a proposed structure for the new school. These three areas are a subset of a larger group of intellectual activities that encompass many of the potential teaching and research efforts that would be part of the new school.

Section III: Scope and intellectual domains of the school

The vision for the new school of environment and sustainability is that it will be a focal point on campus for research, education, and community engagement centered on critical thematic areas in environment and sustainability. These thematic areas relate to society’s greatest sustainability challenges in the coming decades and include the built environment, food and water, human health, land use, climate change and adaptation, minerals and energy, conservation and biodiversity, environmental communication, and culture and history (Fig. 1, p. 5). The school will facilitate the activities of groups of faculty with shared interests and expertise in the environmental sciences; environmental policy, governance and entrepreneurship; environmental design, planning, and engineering; and environmental history, culture, arts, values and communication. The school will enhance the international recognition of CU as a leader in environment and sustainability research, education, and community engagement. Activities in the school will span three broad, overlapping conceptual domains (Fig. 1, p. 5), which intersect to address the key sustainability issues shown in the central green oval of the figure. These three domains are briefly described below, and are intended to provide organizational groupings of some of the areas that may be included as part of the school. They are not meant to imply or impose any specific structures (e.g., departments or divisions) of the school.

Environmental Sciences:
Environmental sciences includes quantitative and empirical scientific approaches to understanding fundamental processes that govern environmental systems, as well as links between the physical and biological environments and the social and behavioral dynamics that drive human interactions with ecological systems. It includes physical and biological sciences, environmental engineering and quantitative and empirical social sciences.
Environmental Design, Governance, & Policy:
Environmental policy, governance and politics address the laws, regulations, policy mechanisms and politics that motivate and guide social behavior and decision making relevant to the environment, as well as the institutions that facilitate more sustainable and just human-environment interactions. Environmental design and engineering encompass the design, engagement, development, assessment and stewardship of resilient communities and landscapes. Environmental design brings together art, science, technology, facilitation techniques, and policymaking to create buildings, cities and regions that are ecologically sustainable, responsive to human needs, and socially just.

Environment and Society: Environmental history, culture, arts, values, justice, and communication includes inquiry into the ethics, morals, histories, and cultural meanings that shape human understanding of and interaction with the environment, the culturally, historically, and geographically constituted ways in which people understand the natural world, the role of language and media in the representation of the society-nature relationships, and the consequences of these representations.

Groups of faculty within each of the three domains of inquiry (Fig. 1) was charged with addressing a list of eight questions focused on undergraduate education, graduate
education, research and creative work, and future goals (see Appendix 1 for the list of specific questions). The “environmental sciences” and “environment and society” groups organized four separate meetings over several weeks to address components of these questions. The “environmental design, governance and policy” group hosted a two hour, “World Café” meeting in April to discuss and integrate responses to these questions. Over 50 faculty members drawn from more than a dozen units across campus attended these meetings. Many of the specific points raised in this report are drawn from notes and reports generated from these meetings.

**Section IV: Summary and recommendations**

The meetings held in April provided diverse groups of faculty the opportunities to discuss ideas and plans for integrating research, education, and outreach in a new school focused on environment and sustainability themes. The discussions raised key issues and recommendations that converged with many of the ideas put forward by the ESVC in their March 2013 report. These four issues and recommendations are summarized below.

**Issue #1: Structural diversity and reorganization.** The process of reorganization of units or individual faculty into a new school is complex and could have implications for the flow of resources into existing and new units. Over the IC meeting period from January to April 2014, there was considerable effort spent (both inside and outside the implementation committee) determining which units would be in the new school and which would be out. Although understandable, this ongoing discussion was also counterproductive because it limited flexibility in discussions regarding the composition and function of the new school. A commonly expressed reservation was that there is not an obvious need for any structural reorganization.

The implementation committee recognizes that faculty capabilities in the environmental enterprise are broadly distributed across campus. Given this breadth, there is currently a general lack of understanding and recognition of what the school will encompass, and so many faculty are hesitant to participate until more details are articulated. At CU-Boulder, the research institutes are the focal point for interdisciplinary environmental research, but many of the science-focused academic units have individual faculty with primary research interests in these areas and some have relatively large cohorts of faculty focused primarily on these areas. The latter category includes ANTH, ATOC, EBIO, ENVS, GEOG and GEOL. In the social sciences and humanities there are units with groups of faculty focused on environment and sustainability themes in ANTH, ECON, ENGL, ENVS, GEOG, HIST, PSCI, SOCY, and in the IBS. Faculty in the Schools of Business and Law, and in the College of Engineering and Applied Sciences also have deep interests and great capabilities in these areas. Despite the many units with large groups of environmentally oriented faculty, there are few units that are exclusively environmental in focus and this remains one of the most vexing structural issues on campus.

During the January-April 2014 discussions, many faculty expressed an interest in being affiliated with a new school. However, in some cases, the faculty expressing these views are
part of units that have come out unambiguously against structural change or realignment. At this stage in the process of formation of a new school, it is simply impossible to know how many faculty would prefer a new ‘home’, how many would be willing or able to move, or what reaction this would provoke in existing units. It is also clear that there are divergent opinions about what this school should be and what its mission should include. Moving forward, it will be critical to maintain an intentionally broad and inclusive vision for the school, recognizing that the nurturing of a diverse array of fields from the humanities to the physical sciences requires a deliberately nuanced statement of goals.

**Recommendation #1:** Begin the next phase of the implementation process by clearly identifying and articulating what the School will do rather than who will be in it – e.g., what research, education, and outreach programs will be at the core of the school. Move forward with organizing activities and degree programs with participation from faculty who see benefit and will voluntarily take part (e.g., a “coalition of the willing”). From the beginning, the new school’s programs should explicitly carve out space for the sciences, social sciences, and humanities. There is support from individual faculty across units for initiating this process with an AY 2014-15 interdisciplinary lecture series and seed grant program (see action items and timeline in Appendix 2, p. 11).

**Issue #2:** Research communication and coordination. The research and educational enterprises related to environment and sustainability at CU-Boulder are diverse, widely distributed, and complex. Environmental research is a distinct area of excellence for the CU Boulder campus and is one of the major contributors to the national prominence of this university. Very few faculty expressed the sense that there are any substantial or structural barriers to interdisciplinary research on this campus (beyond resource limitations). However, there was a strong sentiment that campus coordination of the diverse research efforts in this area was poor and that this negatively impacts the ability of CU Boulder to project strength in this area. Further, the fact that the focus of interdisciplinary research capacity is in the research institutes means that efforts to coordinate and communicate the research excellence of this institution will necessarily need to be undertaken at the campus level, beyond any individual school or college. These efforts are necessarily broader than the conversations regarding the creation of a new school but are important and clearly related.

**Recommendation #2:** Develop a campus-level administrative capacity or a shared governance group (e.g., an “environment working group”) that is tasked with building bridges between the many entities engaged in environmental research on campus, communicating ongoing campus research efforts to internal and external constituencies, and developing a highly visible online campus portal for environment and sustainability scholarship, education, and outreach on campus.

**Issue #3:** Educational Change. Of all the areas that were discussed during the January-April 2014 period, the topic of educational change generated the most passionate and inclusive set of recommendations. Across each of the domains of inquiry, faculty expressed
frustration with the inability to innovate in teaching, the lack of coordination of teaching across units, and the slow pace of (and outright resistance to) institutional change. In our recommendation list below, we highlight several specific recommendations but we note that many of these changes are not possible within existing structures on campus.

The barriers to educational change run deep and include many of the core structural underpinnings of the campus. For example, the core curriculum of the College of Arts and Sciences, the historical allocation of teaching assistant positions to departments, and departmental control of teaching resources all conspire to make it challenging to break out of existing curricula. There are simply too many embedded incentives that support the status quo and too few incentives to break free of it. These issues are most acute (although by no means unique to) interdisciplinary programs. At present, there is not a clearly viable mechanism to ensure that departments support the teaching of interdisciplinary courses in support of external degree programs (such as ENVS). A more rational approach would be to build degree programs that are deliberately shared across units and provide control of resources to interdisciplinary programs in order to commission the courses that are needed for degree completion. The following is an abbreviated list of topics that engendered considerable support from a wide range of faculty.

**Recommendation #3:** Consider a new set of educational initiatives associated with a new school. Areas of particular interest include the following:

A) Service and experiential learning (of high value across all groups)
B) Alternative course structures including more co-teaching
C) Development of a new STEM oriented Environmental Science major
D) Development of a new certificate in Environment and Society
E) Use of faculty coordination groups to ensure curricular integrity and balance across multiple units
F) Exploration of new educational approaches such as ‘cluster semesters’ where faculty across multiple units focus on a common theme such as food or energy for a specific cohort of students
G) Development of a new cross disciplinary graduate program in environmental science and shared application portals for related areas
H) Improved coordination of graduate curricula and course offerings and more opportunities for professional development

Resources are required for the successful development of all of these programs and it will be essential to develop a new resource flow model that will support interdisciplinary programs and use the new school as the venue to initiate new interdisciplinary degrees (e.g., environmental science, environmental planning, environmental history & culture undergraduate and graduate degrees) that are administered by the school rather than by a single unit within the school. This resource flow model will need to compensate faculty and units for contributing curriculum and coordinating course delivery (beyond crude SCH metrics). In this way the new school can become a laboratory for the experimentation on new approaches for resource allocation to undergraduate teaching activities.
Issue #4: Incorporation of the Program in Environmental Design. The Environmental design program has a great deal to offer the Boulder campus both in content and in approach to education. There are clearly numerous synergies between ENVD and many other programs on the CU Boulder campus. However, it is also clear that the ENVD program is structurally distinct from many other academic programs on campus and there are many challenges to the integration of ENVD into the College of Arts and Sciences.

Recommendation #4: There are several issues that need to be addressed quickly to help transition ENVD into the College of Arts and Sciences. These include the relationship between ENVD and the A&S core curriculum and personnel structures and student service activities that differ between these two entities. It is critical to ENVD to begin these discussions quickly and so we recommend addressing the integration of ENVD into A&S on a faster track than other issues that are embedded in the broader discussions related to the new school. This can be done through the creation of a committee focused solely on the future of ENVD within A&S and this committee can work closely with Director Sharon Collinge to ensure that the direction of ENVD is well aligned with the overall direction of the new school, yet retains the distinctive features of the ENVD major and program.
Appendix 1. Eight questions addressed by three domain area groups during April 2014 group meetings.

1. What are the existing programs in this focus area and what are their strengths and weaknesses?

2. What are unmet *undergraduate* educational opportunities in this area? How could we best satisfy these needs on campus (e.g. certificates, degrees, better coordination of existing curricula, research opportunities for undergraduates)?

3. Where are the gaps and redundancies in existing *undergraduate* courses/instructors on campus? What would need to be done to address these issues?

4. What steps can be taken to create a more effective and efficient educational experience for students in this area? What could be done to increase student recruitment and retention in this area?

5. What are the unmet *graduate* educational opportunities in this area? How could we best satisfy these needs on campus (e.g. certificates, degrees, better coordination of existing curricula)?

6. Where are the gaps and redundancies in existing *graduate* courses/instructors on campus? What would need to be done to address these issues?

7. What could be done to facilitate new research and interdisciplinary collaboration in this area? What incentives or opportunities would best stimulate new work in this area?

8. What should the undergraduate, graduate, and research programs in this area look like in 1 year, 5 years, and 10 years? What institutional change is required to achieve these goals?
Appendix 2. Action items and timeline (Summer 2014) for continued development of implementation plans for new school.

June 1-July 1: Develop plans for activities to be funded during AY 2014-15 (Collinge):

- High profile, interdisciplinary lecture series that reaches across domains
- Seed grants for interdisciplinary research proposals on themes
- Environmental portal web design: Determine content focus areas, staff assignments and allocate funding

July 1- August 1: Develop action plan for AY 2014-15 implementation tasks (Collinge):

- Identify set of working groups that will begin in September 2014
- Articulate specific tasks for working groups
- Draft resource flow model
- Determine core committee to discuss integration of ENVD into A&S

August 1-25 (start of Fall 2014 semester): Establish and charge working groups (Collinge):

- Invite working group members
- Set timelines for completion of working group tasks
- Announce lecture series and seed grant competition