

Transforming Higher Education Institutions to Serve as Laboratories for Informing Decision Making on Climate Risk

Climate change presents a cascading and increasingly dramatic set of impacts that will require an all-hands-on-deck approach to reconceiving how communities are designed, businesses operate and individuals consume natural resources. In the workplace, organizations will be challenged to anticipate and proactively address the implications of a changing environment upon their operations.

As climate change impacts accelerate, our current systems of governance, management, education and training will be overwhelmed with challenges unless we rapidly deploy a workforce in large scale to redesign all of the systems and structures that are foundational to developed nations.

Understanding How the Workforce Intersects with Climate Change

As the magnitude of climate impacts increases, the cascading implications will increase in scope and number. Metaphorically speaking, ripples will turn into waves, and in time, into tsunamis. The design challenge facing mankind is to redesign its communities in ways that slow the acceleration of climate change while ensuring that climate change does not disrupt the lifestyle to which it has either become accustomed or aspires to enjoy.

All societies are built upon the foundations that the environment is either static or mostly predictable. In the instances of exception (extreme events such as hurricanes, droughts, floods), our societies have responded by managing risk based on sets of assumptions as to the magnitude or likelihood of those extreme events. Some examples include:

- **Water Availability:** Climate change will increasingly strain availability of clean water while creating an increased demand for water as temperatures rise. Nearly one-third of the world's population does not currently have access to clean water. The resulting impacts will be increased competition for water, escalating conflicts and border disputes.
- **Public Health:** In the context of public health, climate change will have increasingly dramatic impacts. These include heat stress, injuries and illnesses related to extreme events, heightened allergies due to elevated pollens, accelerated rates and expanded ranges of infectious diseases carried by insects or in food and water, decreased safety and availability of essential food and water, and greater levels of mental and emotional stress.
- **Coastal Communities:** Since sea level has not risen significantly over the past 5,000 years, coastal communities tend to assume that sea level will not rise dramatically. With nearly 650 million people living in communities that are projected to be at risk by the end of the century, a substantial effort to make those communities adaptive to long-term rises in sea level and resilient to extreme events such as hurricanes, flooding and tsunamis will require incredible innovation, public will, and a different approach to master planning for coastal areas.

- **Critical Infrastructure:** As was recently reported in the National Climate Assessment, “sea level rise, storm surge, and heavy downpours, in combination with the pattern of continued development in coastal areas, are increasing damage to U.S. infrastructure including roads, buildings, and industrial facilities, and are also increasing risks to ports and coastal military installations. Flooding along rivers, lakes, and in cities following heavy downpours, prolonged rains, and rapid melting of snowpack is exceeding the limits of flood protection infrastructure designed for historical conditions. Extreme heat is damaging transportation infrastructure such as roads, rail lines, and airport runways.”ⁱ

Developing a Climate Savvy Workforce

If all aspects of our societies and communities are built upon the perception that natural systems will act for the next hundred years as they have in the past, then the only way we can adapt to the challenges lying before us is to change those assumptions. Taken together, the implications of a changing climate on mankind are enormous. It is difficult to think of a large corporation, government entity or university that is not dramatically impacted by this issue.

This transformation is urgently needed and would require a complete reconstruction of the workforce through which our societies are designed and supported.

While climate change officers and professionals will play a key role in leading and coordinating a critical transformation to operations and governance across all sectors and geographic regions, it is imperative that individuals in other roles and functions in the workplace are educated and trained to successfully address climate change and related impacts.

Rewriting the Job Description

Over the next few years, the Association of Climate Change Officers will conduct a review of a large number of professional roles and functions with the intent to assess how they intersect with climate change. The analysis will result in an identification of competencies, skills and knowledge areas that need to be established, improved and/or incorporated into existing job descriptions. Examples of these include:

- Supply chain professionals will be faced with an incredible challenge of identifying climate hazards in their procurement and sourcing decisions.
 - Nearly one-third of the world’s computer hard drives are produced in Thailand, which was dramatically impacted by a tsunami in 2011. Electronics sector companies that were unprepared for this extreme event were severely compromised as a result.
 - Bangladesh is the second largest exporter of textiles to western apparel brands employing more than 4 million people and generating more than \$19 billion per year.ⁱⁱ By 2050, scientists expect that 17 percent of the country’s land will be affected by sea level rise, resulting in a population displacement of 50 million people (approximately one-third of its

ⁱ <http://nca2014.globalchange.gov/highlights/report-findings/infrastructure>

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http://www.ifc.org/wps/wcm/connect/f8968f8043a64b51a4f2bc869243d457/AM2014_IFC_Issue_Brief_Bangladeshi+Garment+Sector.pdf?MOD=AJPERES

population)ⁱⁱⁱ. Western apparel brands face a significant challenge in ensuring stable sourcing while protecting their current investments.

- Chipotle recently disclosed in its SEC filings that it may no longer serve guacamole as a result of drought impacts on avocado availability. Scientists at Lawrence Livermore National Lab recently projected that climate change would cause a 40% drop in California avocado production over the next 30 years^{iv}.
- Facilities managers
 - Nearly 40% of greenhouse gas emissions are attributed to the design, construction and operation of buildings.^v The urgent need to reduce energy and water consumption in the built environment will require a profession of facilities managers that can oversee modernized facilities, renovate older facilities, and change behavior and usage in those facilities. While green building and facilities management practices are rapidly being integrated into this profession, this will need to become the foundation of practice rather than an example of good behavior.
 - The UK Committee on Climate Change recently projected that 90% of hospital wards are already prone to overheating, and that by 2050, premature deaths in the UK from overheating could triple. The committee found that improvements to ventilation, tinted windows, external insulation and other steps would be critical to limiting the health impacts of a changing climate upon the built environment.^{vi}
 - The rate of environmental change, and in particular, increasing frequency and magnitude of extreme events, will put strains on existing buildings and complexes. Facilities managers will be required to develop innovative and proactive resilience strategies to those extreme events.

Other professions and functions that will face significant challenges in incorporating climate risk assessment and mitigation into day-to-day decision-making include:

- Long-term investors
- Energy managers
- Architects and engineers
- Insurers
- Regional/city planners
- Public health professionals
- Risk managers & business continuity professionals
- Defense & national security professionals
- Government employees
- Public policy and administration professionals
- Educators

ⁱⁱⁱ http://www.nytimes.com/2014/03/29/world/asia/facing-rising-seas-bangladesh-confronts-the-consequences-of-climate-change.html?_r=0

^{iv} <http://www.ksdk.com/story/news/nation/2014/03/05/avocado-shortage-coming-in-future-guacamole/6069749/>

^v <http://www.wbdg.org/resources/greenhousegasemissions.php>

^{vi} <http://www.theccc.org.uk/news-stories/buildings-and-infrastructure-ill-prepared-for-changing-climate/>

Integrating Climate Change Across Operations in Institutions of Higher Education – The Pillars of Transformation

In order to effectively adapt and become resilient to the impacts of a changing climate, we will need to conduct an overhaul of education and training across professional functions such as those listed above. Most higher education institutions are not currently equipped to integrate and deploy these competencies across the disciplines in which they teach. The following pillars are critical to the transformation of today's academic institutions into the leadership institutions that will serve as laboratories driving the design of future communities and yielding a workforce well-positioned to tackle the challenges, risks and opportunities imposed by climate change:

- **Training Faculty to Incorporate Climate Change into Curriculum**
- **Human Resources**
- **Enterprise Leadership**
- **Student Community as an Agent of Culture Change and Developer of Solutions**

Training Faculty

Most professors were not trained or educated to incorporate climate change into their respective disciplines. Consequently, it is imperative that academic programs are prioritized based on magnitude of climate implications upon their graduates and designated for an overhaul that will seek to incorporate climate change understanding into curriculum.

For example, professors and researchers in architecture and engineering programs will need to have a fundamental understanding of how climate change and the need to dramatically reduce manmade emissions of greenhouse gases relates to that function. Additionally, those programs will need to be revamped to account for the stresses, vulnerabilities and opportunities created by a changing environment upon that professional function. Since most professors and researchers in those roles do not have the appropriate foundational knowledge and competencies to do so, academics from climate change and environmental management programs would need to develop curriculum designed to educate the architecture/engineering professors and researchers.

Key Considerations

- Lack of clearly defined continuing education requirements;
- Organizational structures are frequently based upon a stove-pipe model, preventing inter-disciplinary planning, curriculum and resources.
- Need to develop a structure that enables training of educators on how climate change intersects with their respective disciplines.
- Disconnect between administration and curriculum offered.

Interest in addressing climate change does not necessarily translate into the capacity to do so. A university could accomplish the goal of enhancing the capacity of its staff and faculty in a relatively short period of time by employing a small group of climate savvy academics to develop curriculum specifically oriented toward key administration officials, faculty and deans across the institution. Doing so would increase awareness of the institution's climate-related efforts and emphasize prioritization of a mandate to meaningfully address climate change across operations, curriculum and research.

Human Resources

As in government agencies, a university President that signs a pact to undertake a suite of climate change response measures, but that does not look at embedding these responsibilities into job descriptions, will find that there is unlikely to be a legacy of this work when leadership at the institution changes. However, if job descriptions are amended to incorporate a responsibility to address climate change in the context of each individual's responsibilities, a continuous and constructive environment for climate change planning and implementation will be established.

In particular, individuals in roles such as dean, provost, facilities manager and professor should have a meaningful competence in addressing how climate change impacts their day-to-day decision making. This would engrain a preference for job applicants with climate related credentials versus applicants who have lesser or no capacity to address climate change (or no experience in doing so).

Additionally, universities could choose specifically to hire individuals with credentials and/or academic backgrounds that specifically reflect a fundamental understanding of and/or expertise in climate change as it pertains to the individuals' role or job function.

Enterprise Leadership

Since 2007, nearly 700 signatories to the American College and University Presidents' Climate Commitment committed to initiating the development of a comprehensive plan to achieve climate neutrality as soon as possible. In doing so, these signatories stated that colleges and universities must exercise leadership in their communities and throughout society by modeling ways to minimize global warming, and by providing the knowledge and the educated graduates to achieve climate neutrality and to address the critical, systemic challenges faced as a result of climate change.

In order to effectively address climate impacts upon the university's physical operations and financial investments, as well as its curriculum and research across disciplines, a leadership structure needs to be established that has the enterprise-wide authority to convene across the university's faculty, administrative leadership and operations management. This leadership entity should have visibility of all aspects of the university's activities and operations, and capacity to drive the integration of climate change into decision making and planning. In effect, this calls for senior executives with broad-ranging understanding of the university's physical operations and academics to be responsible

Key Considerations

- Job descriptions do not require permanent employees of the university to incorporate climate change into their responsibilities and day-to-day activities.
- Compensation and performance reviews based on attributes, benchmarks and quantifiers that don't account for addressing climate change.

Key Considerations

- Enterprise understanding and strategy for addressing climate change throughout the university's operations, curriculum and research activities.
- Establish executive leadership with authority to engage senior administration and faculty cross the university.
- Boards of directors and trustees drive decision making at the highest levels of institutions, but those stakeholders frequently do not understand how climate change is affecting and will affect the university, its operations and its surrounding community.

for overseeing these efforts. While these institutions may employ mechanisms such as committees and working groups, an empowered decision-making authority is critical to this leadership function.

Engaging and Leveraging the Student Community

Student bodies represent a significant opportunity to address a change in mindset with respect to climate change in our communities. A recent Gallup poll indicated that individuals surveyed between ages 18 and 29 were least likely to be skeptical of climate science (only 10% as compared to 23-34% in older age groups).^{vii} 65% of respondents to that same poll indicated that they thought that climate change would pose a “serious treat to [their] way of life during [their] lifetime.”

This data reflects a sense of urgency likely felt by students. This urgency creates the opportunity to inform lively and important debate in the community, as well as create a motivation to work toward developing solutions that will dramatically improve their lives.

Key Considerations

- Increase the awareness of students through programs inside and outside of the classroom.
- Opportunities to leverage students to develop ideas, innovate solutions and test pilot projects.
- Drive change in the community and future employers through better-informed students.

As communities struggle to bring together the resources that will be required to transform master planning, overhaul infrastructure and ensure both adaptive capacity and resilience to extreme events, students and faculty in higher education institutions represent a meaningful workforce that can be leveraged to conceive ideas, develop solutions and test pilot projects.

Universities also have the capability outside the classroom to increase the awareness of their student bodies by leveraging appearances from cultural icons and renowned experts, screenings of films and documentaries, and driving campus campaigns in which students can participate in the campus’ efforts to respond to climate change.

A more informed student body, both in formal education and in understanding of their surrounding community, will ensure that adapting to climate change, mitigating its acceleration and developing resilience to extreme events become a higher priority for public officials and employers seeking to recruit graduates.

Transforming Governance

In order to affect the transformation detailed above, academic institutions need to consider alternative approaches to governance and management that facilitate collaboration across the university’s stakeholder groups and employees while empowering change agents. Universities should explore a governance structure where a senior official with access to the university’s president, provost, key operations executives and faculty is empowered to both convene and drive implementation of climate related initiatives.

^{vii} <http://www.gallup.com/poll/168620/one-four-solidly-skeptical-global-warming.aspx>

Key Measures

University leaders should consider implementing the following steps in order to establish the critical decision making infrastructure and develop the human capital that will be required to transform their institutions into leadership models for climate change response:

- Establish an executive office or leadership function with a visible mandate to convene and engage the pillars referenced above, as well as university boards and external stakeholders. This capacity should reside at the highest level of authority within the university, should report directly to a C-suite figure in the institution and be easily recognized as the leadership entity within the institution on its efforts to address climate change.
- Conduct an assessment of all operational positions and determine appropriate inclusion of climate change related responsibilities into job descriptions and performance evaluation. Benchmarks and goals should be established for key areas of the university, to include, at a minimum: facilities, procurement, transportation, curriculum, student engagement, community relations and government affairs.
- Establish a continuing education requirement for new faculty that enables the university to incorporate appropriate climate change content into curriculum. Additionally, university leaders could link requests for university resources from existing tenured faculty (that otherwise would not be subject to the continuing education requirement referenced above) in order to incentivize their participation.
- Bring together faculty and researchers whose current work already intersects with or focuses upon climate change in order to better leverage the resources within the institution, develop a plan for educating and training other faculty within the institution on their respective intersections with climate change, and establish a plan for advancing curriculum across disciplines to better incorporate climate change.
- Convene community leaders to pursue opportunities for development of climate change adaptation and mitigation measures that can be scaled up and leveraged for the community/region surrounding the university.

Universities adapting to this challenge will enjoy a competitive advantage, and position themselves as thought leaders driving climate solutions for their own communities and that can also be replicated elsewhere. These steps will ensure that higher education institutions become the laboratories and partners critical to ensuring that communities and workforce evolve quickly enough to adapt to the escalating impacts of climate change.

About ACCO

The Association of Climate Change Officers (ACCO) is a 501(c)(3) non-profit membership organization that defines, develops and supports the functions, resources and communities necessary for effective organizational leadership in addressing climate-related risks and opportunities. An industry leader in producing education and training events for climate change and sustainability professionals, ACCO's members include a broad range of organizations and executives in industry, government, academia and non-profit organizations worldwide. For more information about ACCO, please visit www.ACCOonline.org.

1900 K Street NW • Washington, DC 20006 • 202-496-7390 • www.ACCOonline.org

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