



SASI “Higher Education in a Carbon-Constrained World” Summary Outcome

I. Session Overview:

On March 12th, 2010, the St Andrews Sustainability Institute sponsored a working session entitled “Higher Education in a Carbon-Constrained World,” which was intended to serve as the starting point for an ongoing dialogue on how Higher Education in Scotland could and should respond to the demands for a transition to a low-carbon economy. The objectives for the session were to:

- Develop a collective vision for the role of sustainability in the Higher Education sector in Scotland
- Explore new models for academic research and collaboration that will help address global challenges
- Identify the primary risks and opportunities for higher education in a carbon-constrained world
- Develop a starting roadmap to help Scottish HEIs establish sustainability leadership for key stakeholders over the next 40 years

Insights from the working session will be synthesized and circulated to attendees for feedback, and this may lead to further collective action as appropriate.

II. Summary of Output:

Overall Findings:

- Significant opportunities exist for the Higher Education sector in Scotland to play a leadership role in the transition to a low-carbon world
- Although low-carbon estates management is important to establish legitimacy and ‘lead by example,’ most Universities in Scotland are already engaged on this front and have sustainable plans or practices in place
- The greatest impact that HEIs can have on climate change rests in the ability of the sector to encourage cross-sectoral and interdisciplinary problem-solving, as well as to provide education on climate change and catalyze the behavior change needed for a low-carbon world
- However, for Higher Education to achieve optimum success in this arena, the sector will need to re-examine traditional operating and address existing structural barriers, including:
 - Incentive models that prioritize research performance over teaching
 - Siloed, discipline-specific approaches to research
 - Competition between institutions for funding, staff, and students preventing more cross-sectoral approaches
 - Lower value (and prestige) placed on applied research
 - Risk-averse approach to research (and underlying funding models that encourage this)



- Role descriptions and funding for academics that de-prioritize the synthesis and communication of research findings outside of academic domain (so that academics do this on their own time, or not at all)
 - Variability in awareness of the need for change in academic institutions to address climate change pressures (i.e. higher awareness at very senior and junior levels, lower amongst mid-level practitioners)
 - Academic structures that encourage specialization and discourage cross-discipline skill sets
- Therefore, to establish leadership in a low-carbon world, the Higher Education sector will need to question the role of academia and research, and explore the cultural changes within HEIs that may be needed to enable a low-carbon future
 - Specifically, the discussions suggested that a successful future model for HEIs in a low-carbon world will incorporate the following critical components:
 - Collaboration across institutions to build a Scottish Brand for all Higher Education and increase coordination of research, teaching, and advocacy efforts
 - Culture of research and teaching that allows room for failure and encourages learning from these mistakes
 - Issues-oriented teaching and research (inter-disciplinary) that complements specialized knowledge
 - Development of perceptions of academics as knowledgeable and legitimized, yet accessible to the broader public
 - Democratization of knowledge beyond the ‘ivory towers’ of academia (access for public, policymakers, etc., with knowledge quality maintained)

Opportunities: The afternoon’s discussions yielded a set of specific opportunities for Scotland’s Higher Education sector to pursue over the next 5-10 year, although most were recommended as being relevant immediately. The specific opportunities identified included:

1. Increase resource levels to meet the growing demand for education on low-carbon and sustainability issues
2. Tap into third-stream income from executive education programs (i.e. for mid or senior-level professionals already in the workforce)
3. Emphasize collaboration across HEIs in Scotland (“Brand Scotland”) to market excellence in low carbon/sustainability education
4. Utilize climate change/sustainability issues as an opportunity to re-examine the role of universities in Scotland (i.e. traditionally has been to legitimize students and knowledge ... new global issues may require this role to change or evolve)
5. Develop a profile for low-carbon graduates, including critical skills and content knowledge needed, which can help inform teaching curriculum, staff training, and standard setting processes
6. Build capacity in staff to be excellent interdisciplinary thinkers and collaborators



7. Expand engagement with other sectors (government, media, businesses, etc.) to address global carbon/sustainability challenges and creating the space to fail/learn from failures
8. Develop international cooperation models and promote knowledge exchange outside of Scotland/UK
9. Explore new funding sources (i.e. private sector, foundations, etc) for investment in cross-sectoral initiatives on climate change and sustainability, and develop a clear value proposition for the role of academia in this field
10. Support the democratization of academia, in order to facilitate the transition of knowledge from HEIs into the outside world (improve transparency of data, maintain quality assurance but recognize uncertainty inherent in issues like climate change research)
11. Explore new models of operating that emphasize the following:
 - a. Cross-discipline approaches that maintain and leverage depth of knowledge/specialization in content areas
 - b. Culture of acceptance that anticipates policy failure and encourages new approaches beyond failure
 - c. Engaging with complex issues without clear answers
 - d. Incorporating new content into research or projects (i.e. adaptability as science and understanding evolves)
12. Work together to change the traditional perception of academics as 'superior and inaccessible' and encourage engagement with broad variety of public and community groups



Workshop and Discussion Notes:

Attendees:

- Nick Barter
- Jan Bebbington
- Elana Bulman
- Alex Gnanapragasam
- Chris Hawkesworth
- Andy Kerr
- Rebecca Petford
- Colin Reid
- Chelsea Reinhardt
- Ian Thompson
- David Somervell
- Janette Webb

Summary of Discussion

Exercise #1: Opportunities for HE to help meet Scotland's Climate Change targets

- **Group #1: Electricity**
 - Learning and teaching:
 - Developing skills (worldwide impact/diffusion of knowledge)
 - Social as well as technical teaching
 - Non-political issue
 - “Problematize” carbon – make it real
 - Research:
 - Social technology –challenge the role of markets
 - Cultural – what makes people change behavior and values?
 - Diffusion of academic research into society – expedite and facilitate
 - HE community involvement and student engagement
 - Energy efficiency and demand management (awareness and behavior change strategies)
 - Procurement –power of sector to push sustainability standards across all suppliers
 - Knowledge sharing and best practices for sustainable sourcing for universities
- **Group #2: Transport**
 - Knowledge development:
 - R&D for behavior change
 - CO2 accounts for transport integrated networks
 - Scientific data on carbon impacts, fuel sources, etc. made available to policymakers to inform better transit policies
 - Technology:
 - Integrated smart cards
 - Greater use and awareness of IT to enable “smart transport” and reduce emissions
 - Electric transport and automated systems



- Public Education
 - Public awareness campaign (similar to smoking campaign) about carbon impacts of transport
 - Leading by example – universities setting example of responsible transport (demand management, offsetting, carbon charging schemes, etc)
- Cultural and value changes
 - Price incentives to support public transit and low-carbon options
 - Localization of production and consumption
 - HEIs – local sourcing, CO2 impacts assessed for procurement
 - Economic and political conceptualization of road transport – re-direct public funds
 - HE sector lobbying for evidence-based policy making

Exercise #2: Identifying needs and opportunities for core stakeholder groups

● **The World: Needs**

- Dematerialized economy (service based)
- Local production, skills etc (with carbon lens)
- Understanding of “good carbon vs bad carbon”
- Shared learning on how to address sustainability issues, but localized context
- Sustainable values embedded into society
- Greater equity across the world
- Economic motivation for low carbon/sustainable behavior and businesses
- Knowledge exchange and shared learnings on transformative economic models that have worked
- Reconciliation of commercial viability and long-term economic viability
- Basic human needs are met and poverty eradicated
- Supranational governance body
- Political will to address sustainability challenges
- Pervasive awareness and broader engagement of sustainability/climate change issues
- Understanding of the complexity of climate change and how to approach complex problems
- Cross-sectoral participation
- For HEIs in general:
 - Collaboration across universities to work on climate change issues (not competitive universities, as in traditional structure)
 - New funding schemes for higher education to help encourage collaborative efforts in academia
 - Better internal communication and awareness across University departments
 - New incentives to encourage results-based academia (making knowledge applicable to real-world) and reward academics for knowledge exchange, rather than publishing

● **The World: Opportunities**

- Issue-based academic models
 - Cross-disciplines, but still allow for specialization
- Teaching expertise regarded as highly as research expertise by HEIs
 - Address academic “tiers” and incentivize for strong teaching performance



- Encourage external input (society/community) into curriculum
 - Currently, academics “prescribe” what is taught
 - Look at models of law school/ business school curriculum development process, where professional organizations can influence curriculum
- Accessibility of universities – overcome perception that academics are on a ‘high-horse’ or intellectually superior
- Translation role between science and public/communities etc.
- Allow space for failure within academia
 - HEIs can raise the awareness of this need in the political space (especially with regards to carbon management plans), and can set a model for others to follow
- New models for framing challenges from academia to the media
 - Currently, academics are very focused on individual research projects and will tend to view all issues from their own lens
 - May want to explore more integrated, balanced ways of communicating complex sustainability challenges to the media
- Reflective science/Research wikis –making knowledge public domain
 - Would need to address risks and information management issues
 - Traditionally, role of HEI has been to ‘legitimize’ students and knowledge (e.g. peer review process for academic journals) –but, this model may need to change to help address pressing global issues
 - Transparency for core data – using universities as a communication channel to enable access to raw data for various groups
- HEIs to teach how to accept and engage with complex issues
- New models for community engagement; opportunity for HEIs to overcome traditional resistance to academia
 - This varies by location and culture
 - May help to establish legitimacy and accessibility by partnering with established and trusted community groups first to engage with issues
- **Students: Needs and Opportunities:**
 - Big question – what are universities for?
 - Education/training for jobs and vocation to support low carbon economy
 - Skills for collaboration (uniting instead of dividing students)
 - “Teaching via practice” model for universities – trust, collaboration, low-carbon estates management, etc.),
 - Reduce barriers to collaboration
 - Develop “Scotland Brand” for HEIs – encourage specialization of schools/programs, but leverage all universities to provide a destination of excellence in sustainability education
 - Inter-disciplinary capacity building for staff
 - Research-driven teaching programs (lead by excellence of staff)
 - Student needs taken into account, especially with developing countries (e.g., adaptation and mitigation)
 - Backfill knowledge needs (third stream income)
 - Graduate attributes for a low-carbon world

Exercise #3: Final Roadmap of opportunities

- Students:



- Huge untapped needs for low-carbon and SD education → how do we resource this?
 - Third stream income from need for ‘backfilling’ education (i.e. of those out there already in the workforce) [mid-term]
 - Define graduate attributes for low-carbon skills [Immediate]
 - Build capacity in staff to be excellent interdisciplinary
 - Collaboration for cross-Scotland excellence in sustainable education (“Brand Scotland”)
 - Collaboration to support/develop excellence in individual institutions
 - Re-examine role of universities in Society (need and oppty)
- The world:
 - Working with others (government, media, businesses) to address global sustainability challenges, and creating the space to fail/learn from failures
 - Cooperation (international) and transferability of knowledge
 - Breaking granularity and insularity of institutions
 - Democratizing Academia
 - Maintain quality assurance but recognize uncertainty
 - High degree of transparency
 - Accountability of HE – address “high horse” perception
 - Legitimize academia, eg local community participation and cooperation)
 - New models of operating (breaking disciplines but not depth of knowledge)
 - Problem solving
 - Incorporating new content
 - Approaching complex issues without clear answers
 - Democratizing academia