SUSTAINABILITY LABOUR MARKET TRENDS:

AN EMPLOYER, INDUSTRY AND THOUGHT LEADER PERSPECTIVE

REPORT FOR

UBCv WORKING GROUP ON ACADEMIC PROGRAMS OF THE PRESIDENT'S ADVISORY COUNCIL ON SUSTAINABILITY

and the

UBC SUSTAINABILITY OFFICE

UNIVERSITY OF BRITISH COLUMBIA

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REPORT FOR UBC

Executive Summary

This report is a summary of 24 interviews conducted with 25 key informants in February, 2009, on sustainability labour market trends from the perspective of employers, industry representatives and thought leaders primarily in BC, but also across Canada and internationally. The purpose of the study – along with two companion reports on literature trends and student perspectives – is to inform UBC's efforts to develop an academic sustainability plan and identify potential course and degree options at UBCv on sustainability. Because of the limitations of the study (only 24 interviews conducted across a range of professions, mostly providing a regional or Canadian perspective), the study can be considered a snap shot. A larger more diverse sample would afford greater insights and, presumably, generate more definitive outcomes.

Highlights of the employer/industry/thought leader report include a common view that sustainability will be embedded into every discipline in future; climate change and business sustainability were frequently mentioned trends impacting the labour market. Climate change and energy management related jobs also topped the list of sustainability jobs named as being important in the transition to a sustainable future, followed by community development related jobs. These trends are perceived to be global for the most part, at least with respect to developed countries. There was no clear view on whether or not a "generalist sustainability professional" would exist in the future labour market, although a slight majority (two-thirds including all the thought leaders) thought there would be demand for such a position.

Most agreed that general education in sustainability concepts and issues was important for incoming employees, though there was less consensus on the top sustainability attributes required of most incoming employees. Responses were very diverse, with life cycle and systems thinking and community-based development aspects out-ranking other responses, both of which share a holistic, integrative orientation.

Finally, interviewees were asked for their advice to UBC in its aspirations to be an academic leader in sustainability. Responses to this question were also very diverse, although a common area of feedback was to embed sustainability throughout all the professions, even to the point of requiring completion of a sustainability course to qualify for graduation.

Background

UBC has established a Working Group on Academic Programs of the President's Advisory Council on Sustainability to develop an academic sustainability plan and identify potential course and degree options at UBCv on sustainability. To this end, they and the Sustainability Office have engaged Strandberg Consulting to conduct employer, industry and thought leader interviews on emergent sustainability labour market trends

which is the subject of this report. They have also commissioned a student survey to determine priority student sustainability education interests and a literature review of key trends in the Canadian and international sustainability labour market.

Together, the three research components will be compiled into a Sustainability Labour Market Research Report, which will be used to inform the Working Group's discussion and priority-setting on new courses and programs on sustainability at the undergraduate and graduate level.

The following is a compilation of the key informant interviews with 25 Canadian and international employers, industry representatives and thought leaders conducted during February, 2009.

Focus and Methodology

UBC developed a list of 25 key informants and industry areas they identified for the purposes of conducting thought leader, industry and employer interviews during February, 2009. Of this list 24 interviews were conducted, the list of which is included in Appendix A. (The pharmaceutical industry representatives were non-responsive to a number of overtures.) Interviews lasted up to 30 minutes and were held over the phone. Interviewees were given the interview guide in advance (Appendix B). 19 interviews were conducted with employer and industry representatives and 5 were conducted with thought leaders. Four interviews were based in the US or Europe, the balance of the interviews were based in Canada, 16 in BC, 2 in Ottawa and 1 in Alberta. One interview included two representatives, which brings the total number of interviewees to 25. However, the results discount the second interviewee as they both represented the same point of view.

By design, the interviewees represent diverse professional occupations, covering off many of UBC's educational programs, Appendix A provides the list of perspectives reflected in the study. Given the resource limitations of the study, it was intentional not to interview anyone with an explicit energy or climate change background as this perspective was deemed more common and fairly well understood. As well, due to scope limitations, it was intentional not to interview any of UBC's current faculty.

All the interviewees were told that UBC is interested in the social, environmental and economic aspects of sustainability – not just the environmental dimension – however, most focused their comments on the environmental aspects of sustainability.

As there were only four interviewees from outside Canada, the global perspective of this study is limited, albeit interviewees were asked their views on whether the trends they were describing were applicable outside of Canada.

While in some instances interviews lasted 30 minutes, many were shorter, a function of the fact that interviews were with senior people who had limited availability. In the survey results below if detail is missing, this is because detail was missing from the interview responses.

The structure of this report does not completely align with the structure of the questions in the interview guide. In the interests of simplicity, the following presentation format is used for the benefit of the reader.

The following analysis represents the general themes, commenting in each instance on how many times each item was mentioned, including the number of thought leaders who addressed a particular issue. (Note that the first number is the total number of respondents, including thought leader responses.)

FINDINGS

1. Key sustainability labour market trends over the next 10 years

The following are the key general (1.1) and specific (1.2) sustainability labour market trends identified by the 24 employer, industry and thought leader interviewees, organized thematically. Regarding general labour market trends many commented they thought sustainability will be embedded within every discipline. Climate change and business sustainability were the top two specific trends impacting the labour market identified most frequently.

1.1 General Labour Market Trends

Discipline + *(6 mentions, 3 thought leaders)*
Sustainability will become a set of principles that become customized in different fields of study. The total scale of demand for people with sustainability skill sets will explode for people where sustainability is integrated in their training. A basic literacy (knowledge, understanding) of the terminology will be expected and important for new hires. Increasingly it should be part of new employee vocabulary in any position, role, etc. It will no longer be considered a special interest by industry leaders, but will be integrated throughout industry. For example, people in finance or engineering will have a background in sociology or philosophy.

Move toward specialization *(4 mentions, 1 thought leader)*
There will be a major trend towards having technical sustainability knowledge in key areas. There will be sub-specialties and increased specialization, tasks and job descriptions in water, energy and natural resources, for example. With any new agenda you go through a period where you need specialists, people who understand the new requirements in the public, private and civil sectors.

General and strategic *(3 mentions)*
Employees will be expected to have a general knowledge of sustainability at a strategic level. There will be a trend towards more or new occupations which have increased sustainability knowledge at a general level. People will need to be conversant and have some general education and experience in this area.

Sustainability managers *(2 mentions)*
Employers will be looking for managers who understand what sustainability means in all aspects of society. This includes deputy ministers and ADMs and feeder groups. There is a need for top management positions.

Global perspective *(1 mention)*
There will be a demand for employees with a global perspective on sustainability, whether in business, engineering, accounting, management or construction.

Move away from specialization *(1 mention)*
In the future employees will not be so specialized – they will do one kind of work in the morning and another kind of work in the afternoon. There will be a consolidation of offices and more sharing of staff. Mining and forestry will have an integrated workforce and there will be generalists in that field.

1.2 Specific Labour Market Trends

Climate change and energy *(8 mentions, 2 thought leaders)*
Carbon will be a critical issue and a defining sustainability issue for all sectors. There will be a number of sub-specialties, especially around climate change, including the development of alternative fuels and new means of generating energy. A number of new occupations will be required in renewables and in the development of smart grids, for example energy engineers. There will be a need for 3rd party auditors, accountants and engineers to measure greenhouse gas emissions. There will be staffing increases in reporting on sustainability and verifying and reporting on GHG emissions; this will require people with auditing, finance and engineering backgrounds to understand how information flows and meters are read. There will be a need for people who understand the IT systems that collect data that gets reported. There will be a convergence of IT and energy systems. There is a convergence that is taking place among energy, information, building and transportation technologies resulting in hundreds and thousands of new jobs, some of which are low level while others are high level.

Business sustainability *(7 mentions, 2 thought leaders)*
There will be a need for people who understand how to embed sustainability into the day to day operations of a business, including people who can quantify and measure the economic value of sustainability and those who can implement a sustainability program, involving setting goals, measuring performance and translating this into the bottomline. There will be workplace auditors who act as consultants for small organizations and large firms will have sustainability offices. Senior managers will need an understanding of some of the new and more innovative approaches to addressing sustainability in the workplace in terms of the organization's overall footprint.

There will be a demand for sustainability practitioners to be involved in all facets of a business. This includes accountants, professional engineers and people with MBAs who have sustainability backgrounds.

There will be a need for supply chain and procurement managers who understand sustainability issues in purchasing, and for expertise in international business as it relates to sustainability, for example the Millenium Development Goals, Equator Principles, etc. Employers will be looking for people who understand risk management from a sustainability point of view.

Natural resources and sciences *(5 mentions)*
There will be a demand for employees with a background in environmental stewardship of natural resource industries, e.g. mines. Ocean sciences, value-added forestry products, sustainable resource development, water management, forestry and biodiversity were some of the specific mentions. There will be a need for technologies to access less accessible resources which increases the environmental footprint. Future

R&D scientists, engineers and technical officers will be needed who understand the science and the technology required for footprint reduction.

Buildings *(4 mentions)*
There will be a big demand for people who know how to design sustainable buildings and engineer sustainable processes. There will be a need for technology development with respect to buildings and building materials that are environmentally friendly and energy efficient. It will not be possible to do architecture and building sciences without having a decent knowledge of sustainable design.

Community engagement and development *(3 mentions, 1 thought leader)*
There will be employer demand for employees with a background and training in community development, both those who specialize in community development and those from geology, engineering and business who should have some level of curriculum training in community dynamics. They need to have a capacity to develop relationships with governments, NGOs, and community members. This is the case for both the natural resource industries and development and construction industries. Community facilitation skills, stakeholder mapping, and other community development skills will be needed.

Measurement and reporting *(3 mentions, 1 thought leader)*
People with skills in sustainability auditing, measuring and reporting will be important as there is a significant trend to measuring and reporting on sustainability impacts and performance management. Part of this trend is the need for people to quantify and measure the bottom-line value of sustainability.

Sustainable manufacturing and green design *(3 mentions)*
There will be a trend to green design and to materials and processes that are more benign. This will affect engineering, architectural, chemical and manufacturing processes. Scientists and engineers will be needed to figure out how waste can become revenue streams and production processes can reduce their environmental impacts. In future there will be a price on every form of pollution and this will affect design. There will be a need for specialists and consultants in this area. R&D will be important and there will be a focus on cradle to cradle thinking.

Urban development *(2 mentions)*
There will be a demand for employees who understand how we live our lives in urban areas and how to create more livable cities going forward. The following are the areas where demand will be greatest:

- Roads, streets, transportation mobility
- Green building
- By-laws and covenants
- Landscape
- Social issues
- Food
- Green economic development
- First Nations

Communications *(2 mentions)*

There will be a trend to hiring people who are sustainability communicators and people who are problem solvers who can deal with a lot of different perspectives, with skills in dialogue and dispute resolution.

Public policy *(2 mentions)*
A demand for people in the policy field with sustainability policy development expertise is predicted, including policy analysts.

Global health *(1 mention)*

A significant increase in demand for health care professionals is predicted in OECD countries and the developing world. In North America the demand for chronic care services will be increasing and there is a need to update the nursing curriculum to reflect the current model of health care, not health care of 10 – 15 years ago. The need is to consider how hospitals will be functioning a decade from now and prepare students for the new health care models.

2. Top sustainability jobs important in future

Interviewees were asked to identify the top 2 – 3 sustainability jobs they see as being important in the transition to a sustainable future commenting from the perspective of their firm or organization, industry or sector and more generally. The following is a list of their responses. The predominant jobs are predicted to be as a result of climate change and energy management with 19 mentions, including all the thought leaders. The next most frequently mentioned was in the area of community development with 8 mentions including 1 thought leader.

A number of interviewees commented generally on the exercise to identify sustainability jobs although this was not a specific question. Their comments follow.

General Comments

Five respondents commented that sustainability will be embedded in all job descriptions and it will become part of existing professions. All professions will have an increased awareness of sustainability with less and less specialization and more general knowledge. Three commented that the future professional employee will be trained to move between the economy, social sciences and natural sciences so they can understand how sustainable development functions in the world – these employees will be generalists and won't have deep expertise but competency across a wide range of issues.

Thought leaders commented that:

- Sustainability expertise will evolve from existing skill sets, though there will be new job titles
- Future jobs are not likely to have sustainability in their titles
- There will be a growing sustainability awareness across all positions and new specific jobs will be created

- There will be a need for people to build a whole new industry focused on sustainability considerations, including IT and marketing people, sales and finance.

The following are the specific job titles and areas mentioned by the 24 interviewees in order of number of mentions.

Jobs

Climate change and energy managers / specialists and energy engineers *(19 mentions, 5 thought leaders)*
Nearly all the interviewees predict there will be emergent jobs addressing climate change mitigation and adaptation, including energy efficiency and clean and renewable energy. Industry sectors mentioned in the interviews included solar, biomass, geo-exchange, hybrids and wind. Specific positions mentioned included:

- Energy managers (5 mentions)
- Energy engineers (3 mentions)
- Energy modeling specialists
- Energy business advisors
- GHG emissions verifiers, carbon offset verifiers
- Carbon economists
- Municipal climate change managers

The new jobs will be in public policy, legal services, technology and accounting and will be generated through the following developments:

- Carbon markets and exchanges
- Cap and trade systems
- Carbon taxes
- Carbon accounting
- Carbon finance

A few interviewees commented that there will be jobs addressing the impacts of climate change, for example, development NGOs will be hiring climate change experts. Depending on the significance of climate change impacts (i.e. floods, droughts, storms, etc.), there may be numerous jobs created in cleaning up, rebuilding and public policy.

Strategic community development, community economic development and partnership development and stakeholder relations specialists *(8 mentions, 1 thought leader)*
A third of respondents commented on the trend towards strategic community development, community economic development, partnership development and stakeholder engagement positions in the years ahead. They spoke to the need for stakeholder mapping, stakeholder collaborations (e.g. government, NGOs, communities, First Nations, suppliers), consensus building, community relations and engagement, NGO and community partnership development, multi-stakeholder engagement, and conflict resolution and problem solving skills.

There was a specific call for community development training of geologists, engineers and MBAs, including a capacity to develop relationships at the community level and for

an ability to develop health and wellness and maternal health programs, local energy systems, micro-finance programs, community economic development initiatives, and infrastructure projects. This was referred to as “social capital development”.

A few spoke to the need for solutions managers who would coordinate multi-stakeholder initiatives and dialogues at the local or regional level, people who can connect the pieces and mobilize people and institutions in the community or region to advance solutions to local or regional problems, from a strategic point of view. (Strategic community development is distinguished from community development, the latter which is a bottom up participatory community process for the community members to tackle their own issues. “Strategic” community development is where there is an “agenda” which is being managed to a particular (beneficial) outcome.)

A number of positions were mentioned, as follows:

- Community development officer
- Anthropologist
- Applied sociologist
- Stakeholder relations managers
- Aboriginal coordinators
- Community organizers
- Solutions managers
- Mediators, facilitators and conflict resolution managers

Sustainable supply chain managers (*6 mentions, 2 thought leaders)*
About one-quarter of interviewees mentioned sustainable supply chain management as an emergent job position and skill-set, positions that will be held in the private sector, in consultancies and in NGOs. This includes both ethical (human rights and working conditions) and environmental aspects. There will be environmental and ethical specialists in procurement departments and campaigning NGOs who will be raising ethical and environmental issues in the supply chain.

Sustainability marketers, communicators and behaviouralists *(6 mentions, 1 thought leader)*
A future demand is predicted for people who can communicate and market sustainability. Social scientists, psychologists, marketers and communicators will be needed to work on shifts to customer, corporate and household behaviour.

Environmental / sustainability engineer *(5 mentions, 1 thought leader)*
There were a number of mentions of the trend towards more positions for engineers who take a broad systems view and can understand heating, water, utility and materials systems from a sustainability perspective. The future engineer will need to be sustainability educated at a technical level. The focus in future will be on life cycle engineering.

Sustainability manager / environmental coordinator *(4 mentions, 2 thought leaders)*
Many firms will be hiring VPs of sustainability, CSR or possibly a chief environmental officer, depending on their particular orientation. There will also be more junior level, environmental coordinator positions.

Materials development innovators *(4 mentions, 1 thought leader)*
R&D experts will be needed who specialize in materials technology, including organics, recyclable, reused and recycled materials and synthetics. The future focus on cradle to cradle production processes will generate a need for innovations managers familiar with the new technologies – people who can apply the sustainability trends to the business model. Interdisciplinary scientists are needed such as biologists, chemists, ecologists and environmental scientists who work with other disciplines particularly in materials design.

Waste management innovators *(3 mentions)*
There will be positions available in future for waste management specialists focused on waste reduction and cradle to cradle manufacturing processes. This is also expected to be a demand in health care and other services which generate waste.

Wildlife management and ecological specialists *(3 mentions)*
There will be a continuing need for professionals such as conservation biologists and foresters with a balanced approach to forestry management.

Sustainability educators and trainers *(3 mentions, 1 thought leader)*
Sustainability educators and trainers will be needed who know how to integrate sustainability across the different disciplinary silos, within academia and the firm and who are training and educating employees and students about key trends and issues in sustainability and how to manage or resolve them.

Sustainability accounting and reporting managers and assurers *(3 mentions)*
The future focus on sustainability performance management and reporting will generate a need for finance and accounting skills focused on sustainability accounting, measuring and reporting. Sustainability data managers will be working with IT managers to develop data capture systems to support sustainability reporting. There will be a requirement for people in these positions to be certified because they are addressing issues of public trust and corporate accountability and transparency. Chartered accountants, certified public accountants or professional engineers are expected to be playing these roles. There will also be auditors verifying and certifying environmental management systems.

Sustainability campaigners *(2 mentions, 1 thought leader)*
There was some mention of a trend to hiring sustainability campaigners: people who understand social movement theory, public relations, advocacy, government policy and lobbying and will be involved in developing and launching social change campaign strategies.

Sustainable / social finance *(2 mentions, 1 thought leader)*
A few commented on the emergence of social venture finance, including micro-finance as an emerging specialty within banking. Social purpose finance will grow in future requiring an understanding of financing green technologies, clean technology, home-based business financing, along with community-based lending to marginal communities.

Sustainability workplace auditors *(2 mentions)*
Some predict the emergence of a workplace auditor who can conduct a sustainability audit of business practices, including energy, water, waste and emissions, for the

purposes of informing and advising the business owner on a sustainability workplan that will reduce the firm's environmental footprint.

Urban planners *(2 mentions)*
Some mentioned urban design professionals and planners with a sustainability background will grow in demand, including those with specialization in eco-industrial networks.

Food and agricultural systems planners *(2 mentions)*
There will be some need for people with an understanding of agriculture and agrifood systems, and land and food systems and how to design and implement urban food systems.

Single mentions include the following job positions:

- Sustainable transportation specialists
- Life cycle scientists
- Life cycle policy analysts
- Resource stewardship managers in geology, mining, engineering, and materials
- Sustainability journalists
- Holistic economists
- Political science specialists in globalization, trade agreements and local and global governance
- Sustainable design architects
- Lawyers who understand sustainability and clean tech, including environmental lawyers who understand the emerging regulatory regimes and carbon market systems
- Water specialists who understand the impact of climate change on water systems
- Footprint analysts, for example people who understand climate change, smart energy and other corporate and human impacts on the environment
- Social entrepreneurs and non-profit enterprise managers
- Medical tourism positions, including surgeons trained in several languages and cultures
- Nurse practitioners, licensed practical nurses, and outreach and community level health workers
- Remote health care workers, using technology such as mobile phones and video facilities in remote areas
- Viral and internet marketers and fund-raisers and relationship fund-raisers

3. International trends

Interviewees were asked if they thought the foregoing trends were national only or had an international / global dimension. The vast majority commented that it was a global phenomenon (20), while some didn't know and a few others thought it likely didn't apply to developing countries.

4. Importance of education in sustainability concepts and issues for incoming employees

Interviewees were asked if they thought education in sustainability concepts and issues was important for incoming employees. Most agreed with this statement (19 mentions) while a few (5) thought it depended on the field of practice. Responses ranged from "of paramount importance" (non-negotiable) to "for key jobs in our sector" to "it depends on whether it is critical to the performance of job functions". One thought leader thought a general understanding of energy might be important, but otherwise the demand will be for smart professionals who can adapt and innovate. Understanding global and national resource trends is not essential, though it could make an employee more competitive in 1 – 2% of job opportunities.

5. Top sustainability attributes

Interviewees were asked to identify the top sustainability attributes required of most incoming employees. Their responses were very diverse, with few common areas of agreement, the top being life cycle and systems thinking and community development aspects, both which share an orientation to holistic perspectives.

Some respondents were reluctant to specify top sustainability attributes, preferring to comment more generally, as follows.

5.1 General comments

- Sector relevant sustainability knowledge will be key *(2 mentions)*
- Employees will need a general awareness of innovation *(2 mentions)*
- It will be important to generate a questioning approach
- Need to instill a common knowledge of what sustainability entails, how to measure it, how to integrate it into the business models, etc.
- Knowledge areas are a moving target, and evolve over 5 – 10 year periods, so it is difficult to pin this down
- Employees don't need a wikipedia-like understanding of sustainability, but a general interest in and knowledge of issues and involvement in networks, alliances and clubs that expose them to suppliers, investors, etc. It is such a big field, if we educate people to understand it all we will turn out huge numbers of people who think they know what they need to know. We need to give them a hunger for updates. The issues will go through intense morphing and evolution over the next 15 – 20 years. It is at the inflection point where it will start to take off. It is dangerous to claim at any stage we know what the answers need to be. People need to be sensitized to the issues and prepared *(thought leader)*
- The educational process needs to provide the context before it provides the tools to deal with the context. It is important to set the wider context to understand the nature of our collective evolution and the cycles we have evolved through. Students need a cultural perspective *(thought leader)*

5.2 Sustainability knowledge areas

Life cycle and systems thinking *(7 mentions, 4 thought leaders)*
Apart from community based issues below, this was the most frequently mentioned knowledge area and the one most mentioned by the thought leaders (4 of 5). It was commented that future employees will need some basic understanding of systems and how they are applied in their respective area of specialty. A knowledge of the full life cycle and social, environmental and economic impacts will be key. Once students have a basic grounding on what sustainability means and its objectives, they will have an integrated understanding of their role. Professionals will understand symbiotic and win-win relationships. Employees will need to understand how systems affect their industry and where the company fits in the system. Particularly it will be important to have knowledge of the inter-relationships of systems – financial, social and environmental – and how they can be impacted by climate change. Part of this knowledge needs to include awareness of our collective evolution through cycles and new systems. This requires a cultural and systems perspective. People need to think in levels of complexity in ways that are practical and pragmatic.

Community-based perspectives *(8 mentions)*
The following community-based development issues were identified by roughly one third of respondents:

- Awareness of resource dependent communities and social aspects
- Community development
- International community development
- Community engagement
- Social capital development in the community and in the organization
- Neighbourhood development that promotes living, working and playing

Climate change, energy management, GHGs *(6 mentions, 1 thought leader)*
About one-quarter of respondents identified energy, climate change and carbon management as important knowledge areas for future employees.

Stakeholder relations *(5 mentions, 1 thought leader)*
A number of respondents suggested that stakeholder issues should be included in sustainability education – who they are, their issues and how to manage them. This includes knowledge of how to run stakeholder processes, how to reach consensus and how to deal with and communicate dilemmas. Partnership development, people skills, engagement, collaboration and conflict resolution skills were also included as important knowledge areas, along with inclusive thinking skills and problem solving, consultation models, collaborative decision-making models and consensus building approaches.

Ecology and conservation policy *(4 mentions, 1 thought leader)*
A few respondents mentioned the importance of general knowledge in understanding biodiversity, conservation policy and strategy, ecological risk and basic knowledge of how the planet works from an ecosystem point of view.

Economic systems and models *(3 mentions, 1 thought leader)*
Some respondents mentioned the importance of understanding economic systems and models and how markets work, including understanding globalization and its impacts.

Water and waste water management *(3 mentions)*
Some respondents commented that general knowledge of water systems, including water recycling, water treatment, gray water use and water demand management were important knowledge areas.

Sustainable business practices *(3 mentions)*
Some interest was expressed in future employees having an awareness of best practices in sustainable business models, as well as having a general knowledge of how business works in the context of sustainability. Employees should understand the significant impacts of the company in terms of its positive or negative sustainability impacts.

Performance measurement and reporting *(3 mentions)*
Some respondents identified sustainability performance measurement and reporting as being a key knowledge area. Employees should be aware of the need for measurable data and of quality data management reporting.

Public policy *(3 mentions)*
Public policy development and knowledge of the impact of regulatory developments and public policy on industry along with advocacy to influence public policy were mentioned by three respondents.

Risk management (*2 mentions, 2 thought leaders*)
Two thought leaders commented that risk management and the impact on strategic decision-making are important knowledge areas.

Sustainable purchasing *(2 mentions, 1 thought leader)*
Best practice in environmental and sustainable procurement was identified as an important knowledge area.

Urban planning *(2 mentions)*
Two respondents mentioned urban planning and the systems that support habitation, including plumbing, water supply, roads, transit, railways, sewage treatment, and architecture as important areas of sustainability knowledge.

The following is a list of single mention knowledge areas:

- Toxins (thought leader)
- Materials knowledge as it relates to carbon, pollutants, toxins in the environment
- Food systems
- Project management
- How to work in a multi-disciplinary way
- Sustainable building practices
- Aboriginal engagement and relations
- Alternative transportation systems
- Rural and remote medicine, community-based medicine and technology delivery services
- Business management in the social sector

- Integrated pest management, sustainable production practices, organic and urban agriculture and rural-urban connections; world agriculture trends and the role of co-operatives and food sovereignty in sustainability
- Environmental, international and business law as affected by sustainability issues

6. Generalist sustainability professional trends

Interviewees were asked for their views on whether a "generalist sustainability professional" would exist in the future labour market. About two-thirds (16, including all five thought leaders) believe there will be a demand for a generalist sustainability professional. Six were adamant there would not be the need for such a position and the remainder didn't know or thought there might be a mixed model. Some of their comments follow.

There will be a generalist sustainability professional

- They will be drawing the thinking together for change; they can understand the issue from the standpoint of different audiences and can encourage changes in thinking within all organizations
- There should be practitioners who are cross-disciplinary and link across fields and silos. Not likely to be new graduates
- There will be a whole industry of generalist sustainability professionals, including social aspects such as health and safety, community development, ethical sourcing
- They will be catalysts and integrators
- They will build strategies for organizations and will need the skills and experience to implement the plans across organizations; they will conduct strategic reviews at all levels of the reporting system
- It is important to have someone who specializes in taking a broad picture, with an analytical and strategic approach to help companies position themselves in a changing environment from an opportunity perspective. Professionals helping a company move through sustainability stages will be very useful, they will engage across all the company departments including law
- We see the trend moving away from the specialist and moving into the sustainability professional. You don't need depth, e.g. someone with a PhD level in water and energy; you need significant knowledge, but not a specialist – breadth rather than depth
- We can't afford to have specialists any more; ideal to have employees trained with a triple bottomline analytical view
- Generalists could help integrate sustainability across departments
- These positions exist today; they are at a fairly high level and usually evolve from areas of technical expertise; unlikely for graduates to enter at this level *(thought leader)*
- There already is a generic sustainability professional and we expect to see a proliferation in that area. They need credentialing and standardization so they can be "trusted". There is need for someone to track trends and be a guide, a pathfinder. They need a degree to demonstrate basic competency, though there are few degrees in this area *(thought leader)*
- Organizations should have a generalist sustainability position with responsibility in reporting and influence over operations, whether business or government agency. If they are in a private sector organization they need to understand business strategy

and operations; if they are in a government agency they need domain expertise in the service of that organization. The generalist needs competency in strategy and management in their sector, whether business or government. The generalist understands strategy and management and applies this perspective to their sector *(thought leader)*

- By definition because you are looking at it from a systems point of view you have to be a generalist – though you will come up through the company *(thought leader)*
- To some degree there will be a generalist sustainability professional because it is a set of disciplines and silos that need to be mediated across an organization and with external stakeholders including journalists, investors, etc. The basic challenge is an integration one rather than branching off a new area of education *(thought leader)*
- Because the nature of education is in silos, there will always be a need for generalists to cut across the academic and professional silos *(thought leader)*
- Over time this trend is likely to die down because people will have a better understanding

There will not be a generalist sustainability professional

- If a professional is solely focused on sustainability they won't have the respect or the influence
- Different disciplines like engineering, architecture and planning will have their own sustainability way of thinking, but a sustainability generalist will be at a very high level and not have practical relevance
- There isn't a generic skill set – you still need to know a particular industry
- We look for employees with specific knowledge related to our sustainability priorities in engineering, science and architecture
- We don't predict a generalist because we expect a team approach will cut across the departments, disciplines and silos

One interviewee thought some companies might have specialists while others might have generalists and that the demand for generalist positions will be cyclical.

One interviewee was not sure; they would prefer that the trend would move away from sustainability departments which coordinate the overall sustainability agenda, preferring sustainability was embedded in the business model. However, they were not certain of the overall trend.

7. Advice for UBC in its aspirations to be an academic leader in sustainability

Interviewees were asked for their advice to UBC in its aspirations to be an academic leader in sustainability. The most common feedback was to embed sustainability throughout all UBC degree programs even to the point of requiring completion of a sustainability course to qualify for graduation. The other responses were very diverse and are listed below.

Embed sustainability throughout all programs *(10 mentions, 3 thought leaders)*

- UBC needs to embed in a cross cutting way that the pursuit of sustainability is the ethical imperative of all professions
- Make sustainability education a condition of graduation: "an understanding of the impact of their job on the world"

- Infuse it in every faculty and in every course – it permeates everything
- UBC should edict that each and every faculty has to have a sustainability component in order to graduate; you should have to pass a sustainability test to qualify for a degree in any faculty
- Train students to have a triple bottomline lens

Multi-disciplinary course work and collaborative research and dialogue *(6 mentions, 2 thought leaders)*

- Encourage multidisciplinary course work; offer sustainability 101 to a broad cross section of students from all disciplines
- Foster collaboration across faculties, including collaborative research
- Create cross-functional programs; e.g. engineering school gives courses in conjunction with the business school and law; put sustainability in the mix
- Have a transition team or department responsible for making this happen and making connections, but designed so that its role diminishes over time; draw in lots of different departments, broker between them, catalyze job projects

Partner and engage with the external community*(5 mentions, 2 thought leaders)*

- Find ways to integrate leading edge practitioners and projects into the curriculum
- Create partnerships with leading agencies, industries and practitioners
- Foster exchange of knowledge and experience with outside agencies
- Establish relationships with opinion leaders in sectors grappling with sustainability
- Establish an interactive membrane between the university and the business community or other sector
- Conduct stakeholder mapping, establish a network of leaders who work in partnership for research and dialogue; collaborate with stakeholders
- Academic thinking should find its way into government and business

Walk the talk *(4 mentions, 2 thought leaders)*

- Undertake aggressive campus initiatives
- Integrate operational practices with teaching; model sustainability practices in the classroom – ensure you are teaching and demonstrating a sustainability perspective
- People will choose schools which are solving problems and have innovative exploratory systems in place
- Model and report on the university's sustainability performance
- Analyze best practice and share lessons learned
- UBC needs to be an authentic centre of excellence, walking its talk
- Experiment in the back yard and engage students in practical experiences
- Become a campus laboratory for resource efficiency, water use, etc.
- Execute on walking the talk or won't be seen as a leader

Coop programs with industry, government and civil sector in Canada and globally *(3 mentions)*

- Establish co-op programs with links to industry, government and the voluntary sector; work experience should include opportunities to work in the different sectors to get exposure and understand imperatives of the different sectors and their respective approaches to sustainability
- Co-op experiences should include social, environmental and economic/ finance/business dimensions

- Integrate an international work experience component, to help foster business connections and cultural and political competency

Take a stand; engage in public policy debate *(2 mentions, 1 thought leader)*
- Take a position of bold leadership
- Engage in the public forum, engage with government and corporate decision-making
- The institution as an advocate
- Take a stand on climate change, procurement (e.g. FSC) and asset management/investment (e.g. SRI)

Foster radical professors; incentivize professors to pursue sustainability in their coursework *(2 mentions)*

Global collaboration with other universities *(2 mentions)*
- Collaborate with other universities around the world, developing best practices in how to achieve sustainability goals in a globalized world
- Create opportunities for degrees to be completed at other universities, e.g. in China

Have a pure play green degree in business and in engineering *(thought leader)*
- It will be important to have degrees focused on business and engineering but taught through the lens of sustainability

Define sustainability *(thought leader)*
- Define what sustainability means to industry. This will be important for branding and marketing purposes

Conduct ongoing labour market analysis to match graduates to demand *(thought leader)*

Involve students in developing the sustainability business case
- Create work experiences for students to develop the business case in an industry setting; demonstrate how to save money; quantify the value; create funding to generate a job post-graduation

Focus on the global labour market
- Engage global partners such as APEC or the ILO; understand global trade developments and how this will impact labour mobility
- People are more willing to move, the costs of moving have fallen dramatically, cultural attitudes have changed, young people who grow up with technology know their culture is all over the world, skills are marketable the world over – these are big trends that are affecting labour mobility. Monitor where UBC graduates are going and what they are saying; identify to what degree they were prepared for the international labour market

Pick areas not served by other universities
- Focus on BC and pacific coast opportunities and export this expertise; become a regional local leader and leverage off this to become a world leader; be relevant locally and regionally – apply the experience at the local level first to monitor and then export the results

Listen to and engage students in sustainability direction

Leverage Canada's brand

Establish centers and thinktanks; develop thoughtleadership

Create a sustainability degree program

Demonstrate commitment from the top

- incorporate consistent sustainability messaging throughout university communications; demonstrate sustainability at the governance level

Each department to have sustainability priorities

Focus on extractive industries or other unique positions and develop strategy to be the sustainability leader in BC

Become a centre of excellence in achieving the MDGs

Export campus expertise; be a resource in the community

Continue focus on strong technical knowledge and layer in sustainability in 3rd and 4th years

Set bold goals

8. Conclusion

The 25 interviewees held some common and some diverse views regarding sustainability trends in the labour market, the latter likely a function of the diverse nature of the professions represented in the study. Areas with high degrees of agreement include the common view that sustainability will be embedded into every discipline in future with climate change and business sustainability frequently mentioned trends impacting the labour market. Climate change and energy management related jobs were also frequently mentioned as key job trends important in the transition to a sustainable future. Community development was another job trend that was mentioned with some frequency.

Whether or not a "generalist sustainability professional" would exist in the future labour market was somewhat debated, although a majority agreed this trend would play out; however, those opposed were strongly of the view that generalist sustainability positions would not exist in the future.

There was considerable agreement with the idea that a general education in sustainability concepts and issues was important for incoming employees, though less agreement on the top sustainability attributes required of them. Responses were diverse, albeit life cycle / systems thinking and community-based development aspects received top mentions, both of which share a holistic and integrating orientation.

As for UBC becoming an academic leader in sustainability – most pointed to the need for UBC to embed sustainability throughout all its programs/departments/Faculties. To do less than this is to under-prepare for the sustainability challenges and opportunities which await students and their employers.

APPENDIX A

LIST OF INTERVIEWS

Employer and Industry Representatives			
Sector	**Name**	**Title**	**Organization**
Accounting/Consultancy	Alastair Nimmons & Benjamin Miller	Director & Senior Associate Advisory Services, Sustainable Business Solutions Group	Pricewaterhouse Coopers
ENGO	Peter Robinson	CEO	David Suzuki Foundation
	Chris Hutton	VP, Human Resources	WWF International
Global Health	Marko Vujicic	Economist, Human Development Network	The World Bank
Social and Community Services	Michael McKnight	President and CEO	United Way of the Lower Mainla
Local Government	Johnny Carline	Commissioner and Chief Administrative Officer	Metro Vancouver
Provincial Government	Kim Henderson	Head of Workforce Planning and Leadership Secretariat	BC Government
Federal Government	François Faucher	Director General, Strategic Knowledge and Evidence Branch Natural Resources Canada	Federal Government
Media	Gary Mason	Reporter	Globe and Mail
Mining	David Parker	VP, Sustainability	Teck Cominco
Retail	Amy Curry	Manager, Sustainability	LuluLemon
Finance	Lee Davis	CEO	Vancity Capital Corporation
Legal	Chris Gora	Lawyer	Farris, Vaughan, Wills & Murph
Property Development	Brian McCauley	Executive Vice President	Concert Properties
Architecture	Peter Busby	Managing Director	Busby Perkins Will
Agriculture	Wendy Holm	Agrologist	Independent
Forestry	Jean-Pierre Martel	SVP, Sustainability	Forest Products Association of Canada
Manufacturing	Craig Williams	VP, BC Division	Canadian Manufacturers and Exporters Association
Land Use Planning	Mark Holland	Partner	HB Lanarc
Thought Leaders			
John Elkington		CEO	SustainAbility
Joel Makower		CEO	Greenbiz.com
Ann Duffy		Corporate Sustainability Officer	VANOC
Tzeporah Berman		Co-founder	Forest Ethics
Michael Kerford		VP	ECO Canada

APPENDIX B

INTERVIEW GUIDES

EMPLOYER/INDUSTRY SUSTAINABILITY LABOUR MARKET TRENDS SURVEY
Interview Guide for Employers and Industry Associations

Context*:*

The University of British Columbia (UBC), based in Vancouver, BC, is conducting a study in sustainability labour market trends regionally and globally to inform a review and revision to its current academic programming. The goal of the study is to identify key professional labour market trends in sustainability (environmental, social and economic) to help position UBC as a leading university in the education of students for sustainability leadership.

Strandberg Consulting has been engaged to conduct the study on behalf of UBC. The university has identified you as a key employer or industry association to include in the study because of your organization's role in advancing sustainability.

Study findings will be shared with the UBC Working Group on Academic Programs to inform their recommendations on changes to academic programming.

We would like to schedule an occasion to speak with you, or an alternate representative. Interviews are expected to last about 15 minutes and will be conducted by telephone, following the questions as outlined below.

Interview Questions:

1. ***What are the key sustainability labour market trends over the next 10 years?***

2. ***What are the top 3 – 5 sustainability jobs you see as being important going forward as society transitions to a sustainable future? Please comment from the perspective of:***
    - ***Your firm or organization***
    - ***Your industry or sector***
    - ***Generally***

3. To what degree do your answers to 2 above apply in Canada? Apply internationally?

4. How important is education in sustainability concepts and issues for incoming employees in your firm/industry/sector? If it is important, what are the top three attributes new employees should have in relation to sustainability concepts and issues (i.e. their knowledge in sustainability)? Do you anticipate the emergence of a generalist sustainability professional?

5. What advice would you have for UBC in its aspirations to be an academic leader in sustainability?

Thank you for participating in this study.
Your perspectives are greatly appreciated.

Context:

The University of British Columbia (UBC), based in Vancouver, BC, is conducting a study of sustainability labour market trends regionally and globally to inform a review and revision to its current academic programming. The goal of the study is to identify key professional labour market trends in sustainability (environmental, social and economic) to help position UBC as a leading university in the education of students for sustainability leadership.

Strandberg Consulting has been engaged to conduct the study on behalf of UBC. The university has identified you as a key thought leader to include in the study because of your recognized role in advancing sustainable development globally.

Study findings will be shared with the UBC Working Group on Academic Programs to inform their recommendations on changes to academic programming.

We would like to schedule an occasion to speak with you. Interviews are expected to last 15 minutes and will be conducted by telephone, following the questions as outlined below.

Interview Questions:

3. What are the key sustainability labour market trends over the next 10 years?

4. What are the top 3 – 5 sustainability jobs you see as being important going forward as society transitions to a sustainable future?

3. To what degree do your answers to 2 above apply in Canada? Apply internationally?

4. How important is education in sustainability concepts and issues for incoming employees in your firm/industry/sector? If it is important, what are the top three attributes new employees should have in relation to sustainability concepts and issues (i.e. their knowledge in sustainability)? Do you anticipate the emergence of a generalist sustainability professional?

5. What advice would you have for UBC in its aspirations to be an academic leader in sustainability?

Thank you for participating in this study.
Your perspectives are greatly appreciated.