A thesis submitted to the Department of Environmental Sciences and Policy of Central European University in part fulfilment of the Degree of Master of Science

PATHWAYS TO IMPLEMENTATION: From policy to practice, a CEU case study

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ABSTRACT OF THESIS submitted by: Jane BAKER

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Higher education has been identified and discussed for many years now as a perfectly placed and ethically obligated societal institution by which the principles of environmental sustainability can be taught, practiced, and integrated to the greater community. Even with the supportive discourse and increasing awareness of environmental responsibility, it has not been an easy road for colleges and universities to implement green campus initiatives. If two integral aspects of higher education, research and literature, are so well developed on 1) the ethical obligation, and 2) the societal positioning of universities and colleges for dissemination and propagation of sustainability, and 3) the barriers that impede and factors that enable success of sustainability integration, the question remains why is sustainability not a commonplace occurrence across university structures?

Central Europe, and particularly Hungary, has been studied and found to have strong environmental values. This finding, combined with CEU's ties to the United States where most of the studies on sustainability in higher education are generated, provides fertile ground for investigating if that value translates to its own campus through its sustainability efforts. This study will explore the processes of implementation at CEU and identify the particular barriers and opportunities that sustainability initiatives encounter.

Keywords: *higher education, institution, implementation, policy, sustainability, challenges, opportunities, stakeholders*

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1 Introduction

1.1 Introduction

Higher education has been identified and discussed for many years now as a perfectly placed and ethically obligated societal institution by which the principles of environmental sustainability can be taught, practiced, and integrated to the greater community (Cortese 2003; Orr 2004). It is an important and well discussed topic among university leaders (Bardaglio and Putnam 2009). The green campus movement has experienced success with this discourse and higher education campuses are effectively becoming models for sustainability to the wider community (Bardaglio and Putnam 2009; Edwards 2010).

Even with the supportive discourse and increasing awareness of environmental responsibility, it has not been an easy road for colleges and universities to implement green campus initiatives. The problem of implementation of sustainability practices into higher education institutions is commonly faced by many universities (Lozano 2006) despite the well developed literature and analysis on both integration across curriculum and into campus physical operations. The studies have been instrumental in identifying the common challenges and the conditions that create opportunities for successful sustainability integration into university structures.

If two integral aspects of higher education, research and literature, are so well developed on 1) the ethical obligation, and 2) the societal positioning of universities and colleges for dissemination and propagation of sustainability, and 3) the barriers that impede and factors that enable success of sustainability integration, the question remains why is sustainability not a commonplace occurrence across university structures? It is acknowledged by the amount of case studies on sustainability in higher education that universities exist in contexts unique to geography, academic focus, size, or stakeholder groups, etc but the findings largely confirm and build on the existing body of research.

A visible slant in the literature exists towards North American and Western European higher education, as the studies stem predominantly from these areas of the world. A gap exists when considering many other cultural and geographical contexts. To date, very few studies exist of higher education institutions seeking to integrate sustainability measures into campus operations in post-socialist Central Europe. Central European University provides a unique context for a case study of how sustainability initiatives are implemented "on the ground."

1.2 Research question

The research question guiding the research is :

How are sustainability initiatives implemented at Central European University and what barriers and opportunities can be identified in the implementation process?

1.3 Thesis outline

This thesis is in total seven chapters. Chapter 1 (Introduction) takes the reader through background information leading to why the current project's research is valuable. The reader is given the problem statement and the research question which guided the project. Chapter 2 (Literature review) contextualizes the research beginning with the emergence of environmental education discourse and the introduction of sustainable development to that discourse. The place of higher education and its particular role in that discourse is discussed with a focus on the opportunities and challenges within these institutions to implement sustainability initiatives. Chapter 3 (Methods) informs the reader of the just how the research was accomplished and justifies the research design and selection of CEU as a case study. Chapters 4 (Case study) and 5 (CEU Initiative Case Studies) describe Central European University, giving background information of the institutional context, and present a detailed description of three sustainability initiatives within CEU. Chapter 6 (Discussion) analyses the Chapter 5 case studies to establish common elements and identify the challenges or opportunities that led to success or failure of each initiative. Chapter 7 (Conclusion) reviews the processes the project undertook to answer the research question and offer final remarks on sustainability at CEU. After the conclusion are four recommendations related to the research with examples of best practices universities who have found success with similar activities.

2 Literature Review

2.1 Evolution of discourse on education as a vehicle for sustainability

Education discourse today is fluent in sustainability, the roots of which can be traced back fortythree years to the United Nation Conference on the Human Environment (UNCHE). The Stockholm Declaration's Principle 19 explicitly list environmental education as essential; further Recommendation 96 calls upon the United Nations bodies and other international organizations to explore and expand the role and use of education both formal and informal, for youth and adult, in settings both urban and rural (1972). In the years immediately after Stockholm, Recommendation 96 was acted on and EE was further developed by many conferences and declarations through the 1970s, 80s, and 90s. During this evolution of discourse and action, three key areas of environmental education (EE) emerged: curricula, green campus (facilities), and student training. Initially, environmental studies were seen as extra-curricular. As integration into school curriculum emerged as the best practice, science education was the primary mode of teaching environmental principles. The discourse has grown and shifted from the earliest form of environmental awareness and appreciation in the 1960s, though this is still commonly sought in younger years education to foster interest and engagement with nature. What can be seen today, decades later, is the focus on education for a future that is ecologically sustainable. Higher education has typically been the level of education with the most success in exploring how to bring the three key areas together.

The 1990s and early 2000s were a veritable explosion of conferences and declarations geared specifically toward sustainability and higher education institutions (HESD). Evolving from the language of several established documents (e.g. Stockholm Declaration, Belgrade Charter, Tbilisi Declaration) that state education at "all levels" must be involved in achieving environmental, now sustainability, goals, higher education institutions entered the discourse. The 1992 United Nations Conference on Environment and Development's (UNCED) Agenda 21, Chapter 26, makes direct references to the role of universities in capacity building of the public to address global environmental goals. The 1998 World Conference on Higher Education adopted the World Declaration on Higher Education for the Twenty-First Century which unambiguously declares sustainable development to be a moral duty of higher education. Since then, the moral imperative has been accepted and expressed in the literature from both spiritual and secular positions

(Bardaglio and Putnam 2009; Bartlett and Chase 2004; Blewitt and Cullingford 2009; Creighton and Rappaport 2007; M'Gonigle and Starke 2006; Orr 2004).

Lozano et al. (2013) compiled and studied university declarations on sustainable development on a timeline with global declarations that explore the role of education. The Talloires Declaration, being the first of its kind (declarations by university leaders on higher education's commitment to sustainability goals) perhaps defined higher education's role best:

"Universities educate most of the people who develop and manage society's institutions. For this reason, universities bear profound responsibilities to increase the awareness, knowledge, technologies, and tools to create an environmentally sustainable future."

This definition does not undergo much change in the literature. The many other declarations serve to form an international consensus on higher education for sustainable development. Dernbach (2002) notes that all of the university declarations reaffirm higher education's role and responsibility as it is defined by Chapter 36 of Agenda 21 in entirety and sums up the consensus:

"The themes, which nearly all international declarations share, include promoting sustainability in all relevant disciplines; research on sustainable development issues; the 'greening' of university operations; engaging in inter-university cooperation; forming partnerships with government, NGOs and industry; and most consistently, the moral obligation of higher education to work for a sustainable future."

Therefore, using the consensus as a point of departure, we look more in depth at university structure as it affects implementation of sustainability practices.

2.2 Institutions

De Groot *et al.* (2012) found similarities between Central European and Western European societal values towards the environment. Marquart-Pyatt (2008) found that awareness of environmental issues is actually higher in Central Europe than in Western Europe. Taking the accepted finding that values shape behaviour, Marqart-Pyatt delved further into the reasons for the differing behaviours of Western and Eastern European societies. She found that education, rather than income levels, made a bigger difference in behaviours (2008). Accepting that HEIs have a critical role in shaping values and behaviours, we look closer at the elements of HEI structure as it relates

to implementation of policies and practices, particularly stakeholders, participatory approaches, and the challenges and opportunities encountered in the implementation process. These three elements are commonly encountered in HEIs by actors for sustainability.

2.2.1 Stakeholders in higher education

Stakeholders are those parties involved in an institution. When considering how to approach an initiative, several questions directly concerning the stakeholders. Bianchi (2001) considers the key questions to be: "*Which individuals or groups are likely to resist change? Who is likely to be adversely affected and needs to be compensated? Who is likely to benefit but does not realize it? What strategies could be used for persuading or isolating groups?*" Considering these questions can help plan stakeholder engagement and communication surrounding an initiative. Stakeholder engagement has two aims, to strengthen an initiative, but also *"to enable stakeholders to learn and change their own positions and perceptions* (GGBP 2014)*"*. This impact on the stakeholders *" is often more significant* as a driver of change than the results of technical analyses (GGBP 2014)*"*.

As important societal institutions (Bleiklie, Høstaker and Vabø 2000), universities are inherently multi-stakeholder environments (Sedlacek 2003). Freeman (1984) defines stakeholders as "groups and individuals who can affect or are affected by the organisation's purpose." Internal and external stakeholders, and the distinction between them, in higher education literature is well discussed (Neave 2002, Burrows 1999, Amaral and Magalhães 2002). Mintzberg 's definitions are sufficient for the basic understanding of who they are: Internal: "The full-employees who use voice, those people charged with making decision and taking the actions on a permanent, regular basis; it is those who determine the outcomes, which express the goals pursued by the organization." External: "nonemployees who use their bases of influence to try to affect the behavior of the employees" (Mintzberg 1983). Cortese elaborates on just who these stakeholders are on a practical level; internal being decision makers and also faculty, operational personnel, and students; external being parents, alumni, local and regional communities, future employees, funders of education and research, and accreditation organizations (Cortese 2003).

Stakeholders in higher education are not entirely dissimilar to stakeholders in business. They are susceptible to many similar, if not the same, external drivers as businesses (Bardaglio and Putman 2009; Lubin and Esty 2010; Wright 2010). However, where business has a triple bottom line to

strive for that sets a specific goal to achieve for the shareholders, universities, though having stakeholders, do not operate in the same way because goals of higher education are inherently different than business, namely research, education, and service. Further, Sedlacek hypothesizes that a university, as a collaborative network at the local, regional, and international level, enables multiple stakeholders to re-orient research agendas and provides access to multiple expertise fields which is "*a prerequisite for finding solutions in inter-and transdisciplinary settings*" (Sedlacek 2003). While communication to various stakeholders by university leadership is what Cortese identifies as vital to achieving sustainability goals (Cortese 2003), Yarime *et al.* rather take Sedlacek's view and evolve this to collaboration of stakeholders in sustainability efforts as a critical success factor (Yarime *et al.* 2012). These internal and external stakeholders, then, are parts of the institutional mechanisms that enable or inhibit institutional change.

2.2.2 Participatory approaches to introducing and implementing change on campus: top-down, bottom-up, and "middle out."

Participatory processes are the are the engagement of stakeholders in a capacity to affect change or maintain the status quo. In an HEI, participatory processes are the means of engaging stakeholders for these ends.

The process of institutional change is multi-leveled and involves many actors, but it is traditionally top-down or bottom-up who are identified as the change makers (Helferty and Clarke 2009). The top is senior administration, who set policies and make budgetary decisions but are not often involved in day to day university and student life. The bottom is the student body, who are involved in student life every day, but have little to do with the daily ins and outs of the university operations. Both traditional methods are on the outside of the daily operations of university structure and both have their own challenges directly related to their position. Brinkhurst *et al.* (2011) have diagrammed these challenges and where they overlap:



Not on this diagram is Brinkhurst et al.'s (2011) third path, the institutional middle. Faculty and staff, who are also identified as a critical dimension of success for institutional change (Viebahn 2002; Clugston and Calder 1999). In the literature this dimension is usually termed faculty and staff involvement or participation. Brinkhurst *et al.*(2011) find that faculty and staff, as the link between the top and bottom, not only see but are an integral part of university daily operations which puts them in a position of affecting change from the inside out, rather than outside in. Faculty and staff are integral because they are comparatively stationary in the university structure; students are short term residents at a university and senior staff face constraints from the stakeholders and they sometimes migrate within the administrative sphere to a role with different responsibilities (Howlett and Ramesh 2003). This inside, long term position lends itself to the faculty and staff being somewhat akin to an "intra-prenuer," what SustainAbility (2008) defines as "someone who works inside major corporations or organizations to develop and promote practical solutions to social or environmental challenges where progress is currently stalled". Within the university, faculty and staff involvement in change can have the same impact. SustainAbility goes on, however, to add that the drawback of this middle position is that it requires authorization from the top and support from the bottom (2008). Brinkhurst et al. enumerate the challenges to the middle out approach including faculty work load, lack of institutional support, and skeptical project partners and/or supervisors which can cause disempowerment as agents of change and can lead to faculty non-identification with the university community on the whole (2011).

2.3 The challenges and opportunities of implementing sustainability

The literature on change in higher education does provide general guides on what is effective, such as a willing president and/or strong leadership, a collaborative process, or rewards (Roberts, Wergin and Adam 1993; Taylor and Koch 1996). But in terms of sustainability implementation the research has explored the factors of success and failure in facilitation of major/institutional change.

Given the proliferation of sustainability declarations and commitments, independent sustainability/environmental organizations partnering with universities, green guides and ratings of green efforts in the higher education sphere to inform prospective students, a lack of progress in global environmental goals is apparent. Although HEIs have been identified as vehicles of social change and thus a method of teaching and spreading sustainability behaviour and goals, the less than vigorous pursuit of sustainability within universities is apparent. If integration of sustainability into a university is an accepted manner of spreading sustainability knowledge and behaviour, it is important to understand what this means on a practical level.

Cortese (2003) supplies two images to illustrate the current model of university structure and operations (Figure 2) and the model that the literature strives for that shows integration of sustainability into all parts of the university (Figure 3).



Higher Education Modeling Sustainability As a Fully Integrated System



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2.3.1 Challenges

Lozano *et al.* (2013) supply some criticism of the profusion of declarations in that they seem to be paper commitments, i.e. they lament "Newtonian and Cartesian mental models," which create a "*lag behind corporations and governments in regards to contributing to making societies more sustainable.*" This lag is at frustrating odds with the moral responsibility to take a leadership role (Wilcox and Ebbs 1992) and with historical evidence of universities in paradigm creation, shift, and break through education of future leaders and decision makers (Cortese 2003; Elton 2003; Lozano 2006). The literature terms these mental models "institutional reluctance," one of the many challenges to implementation.

Velasquez *et al.* (2005) discuss a number of challenges to sustainability initiatives and their permanence in higher education, including the hesitancy in academia to discuss these challenges at all and focus case studies on success, rather than analysis of the many negative experiences that occur when attempting integration of sustainability into higher education. It is important to note that Velasquez *et al.* reviewed literature in the 12 year period through the 1990s ending in 2002. This period, then, is concurrent with the creation and adoption of many of the previously mentioned university declarations and Agenda 21. The current literature now exhibits much discussion of barriers as the case studies of implementation of sustainability measures come to light across the globe to analyse the question of why universities are not embodying their commitment to sustainability. In addition to what Velasquez *et al.* (2005) identified, McIntosh *et al.* (2001) and others have researched further common barriers to institutionalizing sustainability in higher education.

According to Reitveld and Stough (2004), all of the barriers listed in the chart can be categorised into the following six categories: *resource; institutional and policy; social and cultural; legal; side effects and; physical and other barriers.* These categories fall within four areas of failure identified by Smith (2004) as *provision and investment failures; transition failures; lock-in failures and; institutional failures.* Foxon and Pearson (2008) delve further to the source of implementation barriers and find they stem from three sources: *the low priority granted to long-term social and environmental problems; the inter-related nature of these problems leading to uncertainties in projected costs and benefits and; the variety of sustainability goals, and therefore what is needed to achieve them, is often contested.*

Seen here are all the barriers identified in the literature from source to a realized barrier on an HEI campus.



Figure 4 Compiled by author

2.3.2 Opportunities

The challenges to implementing sustainability policies or measures on campus being well stated in the literature, the next logical step is to discuss the opportunities. The research demonstrates that success is not only possible, but through case studies many specific criteria of a successful implementation atmosphere have been identified. Herremans and Allwright (2000) are dissatisfied with the limitations of the case studies to date, mainly because they speak to singular campuses and the initiatives thereon, rather than qualitatively comparing the studies for critical factors of success. Concoran *et al.* (2004) on the other hand, consider the multiple case-study approach to be the best way to identify and evaluate trends and patterns that appear in different contexts. James and Card

(2011) did perform a qualitative comparison of three universities, in different contexts, and identified six contributing factors to a university's environmental sustainability success:

- 1. Green campus operations measures.
- 2. Campus administration, organization, and leadership.
- 3. Teaching research, and service.
- 4. Campus-wide actions and activities.
- 5. Institutional assessment of campus sustainability measures.
- 6. Established methods for overcoming barriers.

Similarly, and with some overlap with and development of the above, the ULSF identified the following seven critical dimensions for a university's sustainability success through their Sustainable Indicators Project (summarized from Clugston and Calder 1999):

- 1. Documented expression of commitment: Institution and units.
- 2. Cross disciplinary teaching on sustainability, including liberal arts and professional requirements.
- 3. Academic paradigm shift: conscious reflection of the institution's role in its social and ecological systems.
- 4. Development of faculty/staff sustainability understanding; reward for faculty contribution of sustainability endeavors.
- 5. Ecological footprint reduction policies and practices integrated in to operational, educational, and scholarly activities.
- 6. Institutional and unit support of new student development; establishment of sustainability Office/Council/Task Force; regular environmental audits; and prominent celebrations of sustainability on campus for public/students/staff.
- 7. Institutional engagement with local and global community in sustainability partnerships.

Within the factors of success, these dimensions point to concrete activities and measures an institution can implement to foster sustainability on campus.

2.4 Pathways to implementation

Considering Cortese's conceptual diagram of a sustainable university structure as the ideal to strive for, HEIs can rarely implement a whole-scale campus and curriculum green make-over. It is more likely to happen on an incremental scale. Cummings (2009) categorizes the initiatives that green an HEI campus into the following: "(*a*) *a general infusion of green concepts throughout the curriculum*, (*b*) *a focus on workforce development and preparation for green jobs,* (*c*) *research and development related to renewable energies, and* (*d*) *promotion of environmental principles in the operation and facilities of the campus.*" There is considerable literature from American HEIs around the development of sustainability initiatives. Bartlett and Chase (2004) compiled viewpoints of sustainability scholars across the United States of efforts on their own campuses. Cummings (2009) clusters the initiatives around the broad themes of a) the foundations of building a culture of sustainability, b) re-structuring of curriculum, c) green buildings on campus, d) the role of student engagement in sustainability, and e) institution-wide commitment which enhances the impact of educators. The challenges and opportunities that enable or inhibit the initiatives fall within these themes as well.

2.4.1 Research gap

The findings of De Groot *et al.* (2012) and Marquart-Pyatt (2008) found that on the fundamental level of societal values and awareness there isn't a great difference between Western and Central Europe. Why then is the majority of the research on sustainable campus initiatives generated from North America or Western Europe (mostly the United Kingdom). There is little study of sustainability in Central European HEIs. Though CEU students have generated theses surrounding aspects of sustainability at CEU thus far none provide a detailed look of sustainability initiatives and process the actors engage in to make the initiative a reality.

3 Methods

After a formal literature review, the research was conducted in three primary ways: interviews, document research, and case study. Focus developed on particular initiatives through coding the interviews for themes that appeared most frequently when the steps of the implementation process were discussed: involvement and commitment of CEU community members, financial support, support of the upper administration. The sustainability initiatives focused on are: CEU campus recycling scheme, the Japanese Garden renovation, and reduction of plastic waste on campus.

3.1 Data collection

Document research

A number of documents were available for analysis including scholarly literature, archival documents produced by the CEU Sustainability Advisory Committee (CSAC), the CEU website, the 2011-2012 Sustainability Report, and the 2010-2011 SCI Handbook.

Interviews

Because secondary data analysis is not sufficient to definitively determine what challenges to implementation sustainability initiatives encounter, exploratory interviews were conducted with several actors of sustainability initiatives at CEU, including Colleen Sharkey, current chair of CEU Sustainability Advisory Committee (CSAC), Logan Strenchock CEU's Sustainability Officer (SO), and Zofia Pazitna of the Campus Redevelopment Office (CREO). The interviews were semi structured to draw out the human perceptions of those involved in the primary data collection: the implementation efforts. Recurring themes in interviews indicated what initiatives were considered successful, unsuccessful, or on-going and from that three were chosen to examine in detail. These initiatives are the rehab of the Japanese Garden, the installation of recycling stations, and the efforts to reduce plastic waste at CEU. The perceptions of those involved are vital to know as the actors are often students, faculty, and staff, three key stakeholders in higher education. The perceptions of stakeholders in HEIs are important because they can differ from each other and from realities of a situation, which affects behaviours. If the university has the responsibility to propagate sustainability, then a common understanding among stakeholders is vital to success (Wright 2010). Interview protocol can be found in Appendix 2.

My advisor, Tamara Steger, is a major actor in sustainability initiatives at CEU but was not interviewed for this thesis because of the amount of information I received already through the Environmental Politics class, the project therein, and the thesis advising process

Participant Observation

My own participation in sustainability at CEU also informed the research. The Environmental Politics class and its semester project focused on institutionalizing sustainability aspects into a large university event. In pursuit of this goal I attended and observed at the Academic Forum, and communicated frequently with the Student Life Office and Student Recruitment Office for research and proposal of sustainable options.

3.2 Research limitation: why case study?

As a single unit, case studies might seem to lack the generalisability that research demands. In defense of the case study, Erickson (1986) points out that the general is within the particular. In

this research project, the case studies that have come before have found the challenges and opportunities that are generalisable to higher education institutions. This project takes those generalisations to analyse mini case studies within CEU to find what particulars are present. The project's value is in accordance with Flyberg's (2006) first restatement of case study myths that "*universals can't be found in the study of human affairs. Context dependent knowledge is more valuable*" (adapted by Merriam 2009). In the context of sustainability initiatives at CEU, this research will add to the growing body of knowledge available to change agents working within this institution. As Stake (2005) points out, the reader can "learn vicariously" from the narrative of the case study.

The central assumption to the research is that environmentally sustainable practices on campus at CEU are both desirable and achievable. As such, this research project does not question the value of any of the environmental policies or initiatives studied and presented here; it explores the process of implementation that actors at CEU engage in to achieve environmentally sustainability in the university's physical operations.

3.3 Audience

The findings and conclusions of this research may be of interest to environmentally interested actors and stakeholders in the university who seek to be change agents in the campus environment, particularly when preparing to "go up against" challenges that have been encountered before and developing strategies to move beyond them. It may also aid in designing those strategies by identifying existing successes that can be used as stepping stones and other allies in the university structure to add voice an initiative. Recommendations that result through this project may also serve to prompt and foster discussion with a view towards stakeholder collaboration.

4 Case Study: Central European University

To analyse how implementation works on CEU's campus it is useful to have a clear picture of the university and current state of campus sustainability. As previously discussed, CEU is in a unique context and actors within have been working for some time to implement various sustainable environmental practices on campus, some of which will be examined in depth in Chapter 5. This chapter provides an overview of CEU's context and sustainability practices.

CEU is a post-graduate institution located in Budapest, Hungary, established in 1991. The Master's and Doctoral student population is currently (2014-2015) 1,234 students (CEU 2015). The campus is located in downtown Budapest and consists of 9 buildings on Nador, Zrinyi, and Oktober 6 streets, and also the School of Public Policy, and Business School located across the Danube. The residence center is located in a separate district approximately 40-50 minutes by public transportation and is included in the total number of campus buildings.

Sustainability in campus operations are researched and advised on by the CSAC and Sustainability Officer (SO) and materialisation is facilitated by the Campus Services Office. Additionally, there is a student group, the Sustainable Campus Initiative (SCI) that has been active in pursuing sustainability goals on campus. The following is a look at CEU's <u>current</u> (in effect or available in the most recent academic year 2014-2015) commitments, institutional bodies, projects, and other aspects of operations with a focus on environmental sustainability.

4.1 International commitments

The following are sustainability focused agreements or partnerships with which CEU has aligned itself, expressing public and international commitment to sustainability goals.

Copernicus Charter

The Copernicus Charter (Appendix 3) was created by the European Council of Rectors in 1994 and CEU became a signatory in 2005. The charter states "[Universities] must therefore commit themselves to an on-going process of informing, educating and mobilizing all the relevant parts of society concerning the consequences of ecological degradation, including its impact on global development and the conditions needed to ensure a sustainable and just world." (Copernicus 1994).

UN-DESD

The International Association of Universities invited universities to showcase their actions towards Education for Sustainable Development (ESD). This was to feed into a showcase of progress that took place over the United Nations Decade of Education for Sustainable Development (2005-2014). The information from each university was made into a portal to be shared with the Global Education Community to gauge the involvement of higher education in the global environmental goals of sustainable development principles.

GUPES

The Global University Partnership for Environment and Sustainability is the flagship program of the UNEP's Environmental Education and Training Unit. Its goal is to support universities in engaging the three pillars of education, training, and applied research. CEU became a network member in 2013.

4.2 Policy framework

In addition to CEU's external commitments above, the university has created a policy to express internal commitment to sustainable development as an institution.

Sustainable Development Policy

CEU has an institutional Sustainable Development Policy (Appendix 1) approved by the Faculty Senate in 2008. The Vision of the policy states that CEU "will promote awareness of and engagement in sustainable development through its learning and teaching, research, community and business engagement activities, and will work towards the principles of sustainable development in all aspects of its own activity." In 2010 the policy was amended to create the CEU Sustainability Advisory Committee (CSAC). The policy outlines particular focus areas for university actions to meet the Vision.

4.3 Institutional bodies

CEU has several established bodies whose goals are to research, advise, and work towards CEU's sustainability commitments.

CEU Sustainability Advisory Committee

The creation of CSAC was proposed as an amendment to the Sustainable Development policy and confirmed by the Faculty Senate in 2010. The purpose of the committee is to "advise on strategy and action towards the achievement of the CEU Sustainable Development Policy and fulfilment of CEU's commitments" (CEUb 2015) as a Copernicus Charter signatory. The CSAC has produced a declaration which outlines nine recommendations to facilitate the implementation of the Sustainable Development Policy and advocates the inclusion of sustainable development principles into CEU's university mission statement.

Sustainability Officer

The necessity, capacity, and benefits of creating this position were researched by the CSAC and proposed to the Senior Administrative Staff in 2010 with detailed justifications including the various benefits and support from figures in the university including Steve Durrant (former head of CREO) and the Student Union. The position and formal job announcement to fill it was created in 2011. The Sustainability Officer coordinates environmental efforts and collaboration between institutional bodies within CEU and with the external community, organises events for Earth Day, lectures, the edible garden and the dorm garden, and researches pathways for CEU to increase its sustainability endeavors.

Sustainability Report

Compiled in 2011-2012 by students of the Environmental Politics class with Tamara Steger (current associate professor, former chair of CSAC) and Richard Fisk (former chair of CSAC) as contributing faculty members and acknowledging the input of several other faculty and staff, this report was the first of its kind for CEU. It investigates sustainability efforts and performance at CEU and establishes a baseline of consumable resources.

Hungarian Sustainable University Network

CEU is part of a network of environmental groups in Hungary supported financially by the United States Embassy. The goal of the network is to facilitate and inspire collaboration between universities to foster environmental stewardship and information exchange on climate change, recycling, energy efficiency, and sustainable development.

4.4 Management & operations

The following are physical and/or visible installations or amenities on the CEU campus available for use by students, faculty, and staff which relate to environmental responsibility.

Recycling

In 2011 selective waste bins were installed as permanent fixtures on campus. Also present are a receptacle for used batteries and glass and metal bins in the courtyard Nador 11.

Water Fountains

Several water fountains are available around campus providing potable water to the university community. The number of water fountains increased in recent years as part of the CSAC, Sustainability Officer, and student groups' efforts to decrease plastic waste produced by the CEU community purchasing bottled water. (Some of the water stations now have hot water available for convenience.)

Green Building

The original buildings at Nador 13 and 15 are now demolished as the campus redevelopment project is underway. The project is managed by the Campus Redevelopment Office (CREO) and will take place over five years, 2015-2020. The new buildings set a precedent in Central Europe as the first university campus to be entirely BREEAM certified.

Bike Sharing

CEU has a bike sharing program which allows the CEU community to borrow a bicycle for up to 72 hours at time. Bike maintenance tools are available from the Sustainability Officer and short term bicycle storage is available in the courtyard of 7 Oktober 6 street.

Recycled Paper

In 2011 CEU adopted the use of recycled paper in all campus printers and paper products, such as paper towels, in campus restrooms.

Japanese Garden

In 2011 the SCI applied for and received a grant from Youth Service America to rehab CEU's Japanese Garden space which in recent years had fallen to disuse because of neglect. It is now a clean outdoor space with more plants, seats, and tables for the use of faculty, staff, and students. It also contains the edible garden, a collection of herbs and some produce for use by the CEU community.

4.5 Student groups

Sustainable Campus Initiative (SCI)

Established in 2010 by a group of students in the Environmental Science Department. The group's goal is to promote sustainability through grass roots efforts on campus and institutionalization of sustainability into the university structure. The group evolved out of continuous sustainable campus efforts by students over several academic years and is open to students of all departments.

4.6 Research, teaching, and learning

Environmental Sciences and Policy Department

CEU established this department in 1994 as a one year Master's program and added a two year program in 2005 (delivered from a consortium in Europe and North America); a PhD program was added in 2002 for five fully funded positions each year. In previous years, various professors of the department have allowed their students to work on campus assessments as part of class assignments, for example in May-June 2006 Diana Ürge-Vorsatz's class Sustainable Energy Policies conducted an Energy Audit of CEU. The following are current course listings of the Environmental Sciences Department that engage students in CEU campus-related experiential learning.

Environmental Politics: Environmental Activism and Communication

A Winter semester course of the Environmental Sciences Department taught by Tamara Steger with the goal of providing students with both theory and practice of communication and activism. The course culminates in the practical application through student projects. Students have produced awareness materials including videos and posters, and organised awareness raising events often coinciding with Earth Day, Water Day, etc.

Environmental Practicum

A Winter semester course of the Environmental Sciences Department organised by Viktor Lagutov designed to give enrolled students practical experience in a professional environmental organisation and/or atmosphere. A variety of placements include international organisations and Hungarian organisations with offices in Budapest, , and CEU's own sustainability office and CREO.

4.7 CEU website

CEU's website has several pages dedicated to efforts in environmental sustainability and the institution expresses recognition of its role in sustainability propagation that "*CEU is well positioned to be an influential innovator in environmental sustainability and justice*" (CEUc 2015). Many links useful links to information are found on the "Sustainable CEU" page such as to student-driven sustainability initiatives, the campus redevelopment project, CSAC and CSAC Declaration, the Copernicus Charter, and CEU's Sustainable Development Policy. Another full page is titled Campus Sustainability which briefly summarizes some current sustainable choices which can be seen on campus, such as the use of recycled paper products including printer paper and paper towels for the restrooms and recycling bins around campus, among others. Separate pages on the website are dedicated the campus redevelopment and CEU's pride in becoming the first university in Central and Eastern Europe to have a BREEAM certified campus.

4.8 Campus Events

Throughout the academic year, several events are organised which center around sustainability themes. These events are organised by faculty, staff, and students and sometimes invite local community members to participate. These events often have tables with displays and information with a representative of the of the particular department or association available for conversation.

Earth Day

Each year on Earth Day the CEU community is encouraged to celebrate environmental responsibility and care through events hosted on the CEU campus. These events have included lectures by visiting scholars on an environmental topic, community participation in the care of the edible gardens in the Japanese Garden and the CEU Residence Center, and bicycle repair workshops.

Sustainability Festival

In 2013 CEU held its first annual Sustainability Festival. A collection of community members and local environmental groups came together to showcase their contributions to a greener Budapest and give festival visitors ideas of of paths they can take to make their own contributions to environmental and social awareness during their time in Budapest.

WasteFest

In 2013 students of the Environmental Politics class and the SCI collaborated with faculty and staff to create this event which raised awareness of the excessive plastic bottle waste on CEU's campus. Students collected all recyclable plastics from campus waste bins and piled them in the Oktogon for a visual presentation of CEU's plastic consumption.

World Water Day

In 2015 students of the Environmental Politics class produced an event on World Water Day designed to increase awareness of water footprints and how to make a more informed and sustainable choice in consumer habits. The event was held in the Laptop Area with student designed posters and interactive displays including a quiz on water consumption and a visual representation of the water footprint for a typical meal in the CEU cafe.

5 Case Studies: CEU Sustainability Initiatives

This chapter presents three sustainability initiatives at CEU as case studies and details the key components of each initiative.

5.1 Japanese Garden Renovation

Introduction: Purpose and Goal(s)

Though the SCI handbook admits that the project did not incorporate all the sustainability ideas contained in the original proposal, the coming together of faculty, staff, and students to work "for student driven change on campus was something that resonated with throughout the university" (2011). This collaboration of stakeholders is one of James and Card's (2011) six critical success factors. The Japanese Garden renovation was identified by all interviewed as a successful initiative because the proposal was accepted and the work was completed achieving the stated goal of increasing the usability and social sustainability of the space. It is even now used for a community edible garden and outdoor space for the CEU community. The SCI handbook notes that though the space is indeed more comfortable and usable it still holds great potential for the project to be continued.

Key Actors: [who was involved and in what capacities]

The SCI and CSAC collaborated on research for the proposal to CREO. The physical work of the renovation was performed by volunteers including SCI and other student volunteers, and also the Environmental Sciences Department's first Organic Gardening Practicum, taught by Guntra Aistara.

Process and Activities:

In February 2011 CSAC delivered recommendations to CREO on how to rehab the Japanese Garden into a pleasant and comfortable outdoor space for the CEU community. The recommendations were a number of detailed sustainable options to be considered.

The 2010-2011 academic year's students in SCI also contacted CREO, then in charge of campus facilities, infrastructure, and operational changes, to propose the Japanese Garden be cleaned and made comfortable for use. The students themselves organised and secured a grant from an external source and also secured "further university funds" to support the endeavor (SCI 2011).

The following months were a collaboration between the SCI and CREO to create renovation plans including clean up, painting, planting, and the installation of a rainwater collector to use for a garden. The project was then advertised to the CEU community by a free breakfast in the garden provided by a local organic vendor. Participants were able to see the space in its current state and were informed of the project and upcoming work day for it and invited to attend and help out. The SCI handbook summarizes the project trajectory as "Fundraising, Planning, Advertising, Action" (2011).

Outcome(s):

Though the SCI handbook admits that the project did not incorporate all the sustainability ideas they originally hoped for, the coming together of faculty, staff, and students to work "for student driven change on campus was something that resonated throughout the university" (2011). This collaboration of stakeholders is one of James and Card's six critical success factors. The Japanese Garden renovation was identified by all interviewed as a successful initiative. It is even now used for a community edible garden and outdoor space for the CEU community. The SCI handbook notes that though the space is indeed more comfortable and usable it still holds great potential for the project to be continued.

Facilitating/Hindering Factors:

Documents do not describe any hindering factors. It can be assumed that the financial resources would have been a limiting factor which the SCI circumvented by applying for an external grant. The grant may have also facilitated the acquiring of further supplemental funds from an office within the university, which office and the amount are unnamed in the SCI Handbook.

Facilitating factors begin with the combination of the CSAC and the SCI's efforts on the same project, i.e. a combination of stakeholders from institutional paths: bottom-up and middle-out (Brinkhurst *et al.* 2011). Next was a receptive audience in the CREO to accept the proposal and give assistance. Zofi Pazitna, to whom the proposal was delivered, describes as the assistance as minimal: "Basically we gave them some paint...we bought some plants and some trees and that became the students' pet project" (Z. Pazitna, personal communication, June 17 2015).

5.2 Recycling Scheme

Introduction: Purpose and Goal(s)

Also in 2011 the CSAC and SCI collaborated on a what the SCI handbook calls "a year's worth of environmental outreach and activism" on the CEU campus (2011). The purpose was to install recycling bins throughout CEU's campus.

Key Actors: [who was involved and in what capacities]

The SCI and CSAC collaborated on research for the proposal to CREO. CREO, then in charge of campus services, had the purchasing power for the initiative.

Process and Activities:

According to the Sustainability Report, simple field observations of recycling receptacles available, and where, throughout the Faculty Tower during normal operating hours was the first step for the students performing the research (2012). In addition, the CEU community was surveyed in a general Environmental Awareness Survey to assess, among other things, community behaviour in regards to attitudes and perceptions towards recycling and the convenience of the current bins and their locations. Survey responses indicated that (in 2011) recycling facilities were generally sufficient but there was still a perceived lack of them in parts of the university, which indicated that recycling would increase if there were more bins throughout the University. Respondents to the survey, when given an open feedback category, mentioned an information gap in recycling behaviour and being "unaware or skeptical of the recycling processes and benefits of waste separation" (2012). The research proposal to CREO included the findings of the Sustainability Report and Environmental Awareness Survey and also prices on specialized segregated waste bins and non-specialized bins that could be identified with separately purchased stickers on each bin. The 2011-2012 academic vear's Environmental Politics students conducted an awareness/education campaign on campus generating mixed media awareness-raising materials such as posters and videos the latter of which can be found on YouTube.

Outcome(s):

This initiative was successful as CREO did purchase bins and they are even now present and used throughout the CEU campus. The first bins installed (more were purchased at a later date) were three in Nador 9 (basement, ground floor, and first floor), two in Nador 11 (reception area and

courtyard), and one each in Nador 13 (ground floor lobby) and Nador 15 (reception area) (Sustainability Report 2012). The bins were revealed as part of 2012's Earth Day celebration at CEU. The recycling scheme on campus being implemented, the SO and CSAC and students have continued their research efforts in this area focusing on institutionalizing recycling in off campus events.

Facilitating/Hindering Factors:

What might be considered a hindering factor simply for the amount of time it took is that the CSAC members were consistently researching every aspect alone, effectively in spare time as membership is not a paid position. Conversely, this can also be considered a facilitating factor as all involved were committed individuals. It is unclear, even in CSAC archival meeting notes where the names of several faculty from separate departments and schools, staff, and students appear, if any upper administration were involved in the process.

Zofia Pazitna of CREO, described the implementation of the recycling scheme as the most meaningful initiative that has happened at CEU. She cited the high visibility of the bins in heavy public traffic areas as a facilitating factor and directly impactful on building user awareness (Z. Pazitna, personal communication, June 17 2015). The results of the Environmental Awareness Survey were facilitating factors for the awareness campaign that the Environmental Politics students conducted who could direct their materials towards the education needs identified through the survey.

5.3 Plastic Waste Reduction on CEU Campus

Introduction: Purpose and Goal(s)

The reduction of plastic waste on the CEU campus can be called an ongoing project. The purpose is to reduce plastic waste generated at CEU and thus decrease CEU's overall impact on its community. This multi-faceted challenge complements the recycling initiative, and extends to reducing consumption of plastic bottles and to the University's responsible procurement of to-go containers in CEU eateries.

Key Actors: [who was involved and in what capacities]

It has been a subject of much study at CEU by several years' students of the Environmental Politics class, the SCI, CSAC, and the Sustainability Officer.

Process and Activities:

What has most commonly been attempted by actors is research into sustainable alternatives for CEU in regards to bottled water purchased by the University for departments, offices, and events. To decrease plastic bottles the initiative has three focuses: to increase the number of water fountains on campus, to provide incoming students with reusable drinking containers and/or stock them in the CEU gift shop, and to have CEU stop purchasing bottled water for employees altogether. To this end, in 2013 a policy proposal was made by students of the Environmental Politics class to the upper administration to make CEU a bottled water free campus. The included campus areas were: vending machines, retail outlets, eating establishments, office/departments including their lounges and kitchens, catered events and conferences, and the CEU residence center. The policy also detailed a three-phased integration of the changes to CEU's infrastructure to support a bottled water free campus, a cost comparison per m³ of tap water and bottled water, a cost analysis of initial installation and upkeep of water fountains, and a strategy to support the distribution of reusable water bottles on campus.

Research has also been done on the differences between still and sparkling water and the cost difference of eliminating the purchase of water in bottles for employees and events. To decrease plastic-to go materials the CEU cafes, there are multiple choices of environmentally friendly alternatives. The research by CSAC and the SO includes pricing on the proposed alternatives. For the reusable water bottles, proposals have been made to separate offices and departments to share

the cost of purchasing. The proposals for the take-away containers, however, must be made to the vendor CEU contracts with for the catering.

Outcome(s):

The student proposal for a plastic water bottle free campus was ultimately turned down by the upper administration. The CEU Student Union also opposed the policy at the time. Consultation among the interested parties led to this proposal transitioning to a Smart Hydration policy which proposed increased access to fresh water through more hydration stands on campus. After access is increased, the issue of the University purchasing of bottled water for employees could be revisited.

Though the water fountains have been increased and will continue to increase later this year, the other aspect of this issue, reusable drinking containers, has faced the greater obstacle in becoming an institutionalized aspect of sustainability at CEU. Some progress was made this year when Tamara Steger approached Alan Watt, head of the Environmental Sciences Department, to purchase and subsidize the bottles for Environmental Sciences students. The Alumni Office also purchased a number of bottles on their own to be sold for a suggested donation at their table on World Philanthropy Day. Proposals for the change from plastic take-away containers have not come to fruition. It is hoped that this will be addressed at the next catering contract renewal period.

Facilitating/Hindering Factors:

One of the most hindering factors for this initiative is that the different aspects of reducing plastic waste have entirely different courses to chart because of external stakeholders, particularly the catering vendors. Consultations with the SO and members of CSAC reveal that the caterers are open to hearing proposals but the answer has invariably been to decline because of the cost involved. Colleen Sharkey, current chair of CSAC, describes the ongoing research and continual proposals, calling them the "white whale" of the CSAC and SO:

"When you go there to order food you get a plastic container for soup, you get a plastic container for the meat, you get a plastic container for the vegetable, you know. And Logan [SO] and I have had at least two meetings with the manager where we have brought with us data, and also Logan has a relationship with some company that produces sustainable take-away containers made of soy and basically we've shown them, I mean we've done all the work

to show them the difference in price and it comes to a matter of say 5 forints difference for some containers. And basically the guy will sit and listen to us and then it's always "Well I have to talk to the owner or whoever holds the contract" and the answer is always "No, we're not going to increase our costs because then we'd have to pass it on to the customer and we're not willing to do that. (C. Sharkey, personal communication, June 11 2015)".

An unfortunate finding of the research into the bottled water issue is that some community members simply prefer bottled water to tap water, in spite of being aware that 1) the tap water is safe and/or 2) the environmentally responsible choice is a reusable drinking container. The bottled water free campus proposal was ultimately rejected by the upper administration and CEU's Student Union. Though "the Student Union didn't support the policy as originally proposed, it did support improving access to fresh water on campus and agreed that providing students with reusable drinking containers would be beneficial" (L. Strenchock, personal communication, July 29 2015).

The provision of reusable drinking containers would be a complementary aspect of promoting the increase in water fountains on campus. Though the SO, CSAC members, and students of the Environmental Politics class have researched types and cost of bottles and, neither the University nor individual offices or departments are keen to front the bill for purchasing the bottles, even for solely their own department. The two aspects of this initiative face the same fundamental challenge of financial support but each is addressed in different ways. The SO discussed some of the complexities of funding aspects of this particular issue, e.g. infrastructural changes such as increasing water fountains throughout campus, "The financial support for an initiative like this usually needs to be pulled out from the standard operational budget which was probably decided a year in advance so there's not a well established portion of CEU's annual operations budget which goes to support on campus investments in sustainability. So that's any update in infrastructure needs to be squeezed into the standard operating budget so if it doesn't have its specific part within the budget well established it is restrictive and things like working spaces and things which are required necessities get priority" (L. Strenchock, personal communication, June 19 2015). James and Card (2011) identified that green practice priorities of an HEI are reflected by internal budget decisions which stems from one of Smith's (2004) four areas of failure, provision and investment failure.

Similar to Zofia Pazitna naming the students commitment to their pet project a driving factor behind the Japanese Garden rehab project, Colleen Sharkey describes the lack of any individual in the upper administration taking this issue on as their own "pet issue" as a hindering factor for this complex plastic bottle issue: "I mean Tamara [Steger] is a huge, obviously a huge advocate or voice for these issues. As well as Logan, as well as myself. The issue is we're not in the upper administration. So, as far as people in the very top of the administration, I don't think it is some sort of pet issue of anyone in the upper administration. I think that literature is probably right. Somebody has to be dedicated to that cause and they have other priorities" (C. Sharkey, personal communication, June 11 2015). This is precisely one of Brinkhurst *et al.'s* (2011) challenges to stakeholders in the top-down placement of an HEI "leading a diverse community can constrain championing of specific causes." In spite of this, she does mention that some members of the upper administration are open to meeting and discussing sustainability efforts but admits *"It's just things move slowly and it's kind of bureaucratic"* (C. Sharkey, personal communication, June 11 2015).

6 Discussion

The aim of this project was to study how sustainability initiatives are implemented at CEU and by doing so the challenges and opportunities encountered in such projects were uncovered. Hungary has been studied and found to place greater societal value on the environment than its Western neighbors who are often thought of as environmentally forward thinking. Yet CEU, though located in Hungary and having close ties to the United States (where the majority of the literature on sustainability in HEIs is generated), in spite of these two facilitating factors, faces a number of the established barriers. Though an HEI's context has layers which impact behaviour and resources, key components remain the same, namely stakeholders, the major areas of the university structure where initiatives are developed, and similitude in the university structure itself. In spite of these similarities, what becomes apparent from the plethora of case studies that appear in the literature concerning sustainability in higher education is that there isn't a one-size-fits-all instruction sheet for HEIs to follow when they seek to operationalise their stated sustainability commitments. Many of the challenges are present at CEU, as are the opportunities, which become visible when comparing the individual initiatives and speaking with actors directly involved. The themes that emerged in the interviews were involvement and commitment of CEU community members, financial support, support of the upper administration. The three initiatives chosen can reduce these themes to two factors that affect initiatives at CEU because they are linked but changeable with each initiative, scale and stakeholders. Within the scale of the initiative, the stakeholders vary. The stakeholders are often decision-makers from proposal acceptance/rejection to financial

support. Furthermore, CEU's own Sustainable Development Policy provides a lens through which to view both the challenges and opportunities CEU encounters.

6.1 Scale

At first glance, one notices the scale of each initiative is different. The scale affects who the initiative is proposed to and what amount of funding might be needed. The Japanese Garden and recycling scheme are aspects of the day-to-day operations of the university. The Japanese Garden being the smallest in terms of scale, e.g. the outdoor space, the low funding involved (compared to the others), and the time of the initiative from research to proposal to work. (The argument can be made that it hasn't reached completion because the edible garden is an on-going project because of the seasonality of what is grown there.) The processes of the recycling scheme took more time from research to campaigning to proposal to physical realisation but there was a definite "end" reached with the installation of the bins. Like the Japanese Garden initiative, the recycling scheme involved campus facilities and as such CREO made the budgetary decision to support the proposal.

The plastic waste reduction initiative is the largest scale as it is a multi-front issue, i.e. the reduction of plastic water bottles on campus and the responsible procurement in CEU eateries. Each separate aim: elimination of CEU purchasing bottled water for employees and events, improving access to fresh water, and sustainable take-away containers involves different decision-makers.

The stages of implementation for each initiative was the same. These are research, campaign, proposal, acceptance or rejection. With the plastic waste reduction initiative the involvement of stakeholders, especially those who didn't support the original proposal, led to a reevaluation and the process began again taking into account the new perspective to formulate the Smart Hydration policy proposal in 2014.

6.2 Stakeholders

The stakeholders common to all the initiatives in this thesis are students, faculty, and staff. They most frequently come together through the CSAC, where all three are present. A significant present of students is seen through the Environmental Politics classes and the SCI. And since 2011, the SO has also acted with the CSAC and also as a individual mechanism. The collaboration of

stakeholders, in these three examples, produces sound research and quality proposals. Other stakeholders that appear, are alumni (Japanese Garden), the SU (student proposed water policy) and the upper administration.

The addition of external stakeholders in the plastic waste reduction initiative increased the complexity because it is the vendors who decide on materials. Revisiting the flow of challenges presented in Chapter 2 (Figure 4), the plastic bottle reduction initiative begins its difficult journey at the source Fox and Pearson (2008) describe as the interrelated nature of the barriers which leads to uncertain cost/benefits. The expression of these interrelated barriers can be seen in several of Velasquez *et al.*'s (2005) identified challenges, e.g.. lack of funding, lack of support from university administrators, resistance to change, and profits mentality, and James and Card's (2011) finding that internal budgetary decisions reflect the non-priority status of green practices and McIntosh *et al.*'s (2001) that initiatives are impacted by the support of committed individuals vs. committed institutions.

6.3 Institutional Commitment Revisited

Though CEU's Sustainable Development Policy can perhaps be termed administrative support, Brinkhurst *et al.* (2011) define the administration as those who make budgetary decisions which would name many more figures in the upper structure of the university as unsupportive. If institutional commitment is embodied by financial support, which is given or denied by decisionmakers in the upper administration then it follows that a lack of support from upper administration, who are individuals, is a cause institutional reluctance (Shriberg 2002). At CEU this is reflected in the lack of a sustainability section in the annual operating budget. If there is a support mechanism for sustainability, i.e. a specific budget, the SO wouldn't "*have to squeeze financial support from the maintenance budget or the campus services budget*" (L. Strenchock, personal communication, June 19 2015). Yet, while CEU lacks a support mechanism such as a sustainability specific budget for its current campus, the university did support the decision to prioritize environmental accreditation and energy efficiency in the campus redevelopment project, a multi-million Euro investment. However, if institutional commitment is embodied by policies to promote a sustainable campus (Velasquez *et al.* 2005), then CEU's own Sustainable Development Policy has been in place for several years as a reference and guide of actions to take for a more sustainable institution. If the policy is to be considered institutional commitment, then by using the policy as a lens to examine the initiatives we can see areas in need of critical attention.

The policy lists several principles in Section 2, some cited in the literature as critical factors for success, as the foundational aspects of the Policy to which CEU is committed. "Prevention of all kinds of pollution" is listed as one of the key principles of the policy as well (2008). Though CEU, through the combined efforts of faculty, staff, and students, has made measureable improvement in reducing its waste with the implementation of the recycling scheme, it still produces a large amount of plastic waste. Section 3.1.3 of the Policy follows up on this with concrete directions: " The University seeks ways to conserve resources and reduce waste. This means developing methods to minimize the energy and material intensity of university activities and reducing waste." It is important to note that the University switching to recycled paper products is a direct action in accordance with this stipulation. However, in Section 2, "continual improvement" is explicitly stated as a foundational principle of the Policy (2008). The recycling scheme is a great example of continual improvement, but focusing on the usage of the word continual, it follows that more should be done. Actors for sustainability at CEU continually express that a campus-wide reduction of plastic waste would be an ideal way to move forward. The complexity is in the "campus-wide" scale of the initiative. Since not all aspects of the initiative fall within the same sectors of the university, the decision-makers for the separate aims are different. Certain stakeholder groups within the University are seeking to fulfill Section 3.1.3 but collaboration of several stakeholder groups does not equate the University, as an institution, adhering to the Policy.

As previously mentioned, the reduction of plastic waste on campus is a prime example of a large initiative complicated by external vendors. The policy addresses this situation in Section 3, which states "The University, including its ancillary operations, is committed to improving its performance in sustainability in all areas of operations" (2008). External vendors are support services to the University's primary operations and by not requiring a sustainability clause in contracts with vendors is incongruous with another principle which states "communicating University commitment to sustainable development across the institution and beyond it." Whether "across the institution" or "beyond," ancillary operations cannot fall anywhere else. The financial ties the University takes on with external vendors who don't hold the same environmentally responsible commitments is a consistent obstacle in the way of any Administration-backed, University-wide change, particularly in the efforts to reduce plastic waste on campus. Research by

the CSAC and SO found that sustainable alternatives are available for minimal increase of cost. "We've done all the work to show them the difference in price and it comes to a matter of like say 5 forints difference for some containers... we need to consider that in the new contracts there should be a commitment, a requirement, when they sign this contract that they will use biodegradable, sustainable, take-away containers. This is like an on-going thing. It's not a policy" (C. Sharkey, personal communication, June 11 2015). However, Zofia Pazitna informed that the finances involved are such an issue for vendors that even a small difference that would be passed on to the consumer, who are mostly CEU students and the most affected by the price increase. "We have in the past done in-school surveys where students could indicate what's the value they would be willing to pay for their food and it always came down to this question that cheap lunch is essential. So the student would be at the side of it where basically you have to pay 200 or 300 extra forints for your lunch where [now] you can have yours for 890 Ft as opposed to 1200 or 1300 and that makes a really big difference for students" (Z. Pazitna, personal communication, June 17 2015). She also noted that there are students willing to pay extra, but for organic, bio food.

Pursuing sustainability in our contracts with vendors doesn't have any negative consequences for CEU. It fulfills CEU's international commitment to COPERNICUS and internal Sustainable Development Policy. *"I don't see it as having any negative effect for CEU. I see it as following, you know we've signed the COPERNICUS, and I see it as following what we say we stand for"* (C. Sharkey, personal communication, June 11 2015).

7 Conclusion

This research was conducted to answer the "How are sustainability initiatives implemented at Central European University and what barriers and opportunities can be identified in the implementation process?" The answer was approached by examining documents from the CSAC archives, the SCI student handbook, and the Sustainability Report. Actors for sustainability were interviewed for their experiences and perceptions of sustainability at CEU. From these interviews three initiatives were chosen to use as a mini case studies for analysis of the implementation process. The researched identified the key elements of each initiative including the initiative's goal, actors, processes, outcome, and facilitating or hindering factors. The initiatives, and the identified hindering and facilitating factors (challenges and opportunities), were then looked against CEU's own institutional Sustainable Development Policy.

What is labeled in the literature as a challenge is also CEU's greatest success factor. Committed individuals are the primary and consistent force behind the majority of sustainability initiatives at CEU. Though some initiatives are small scale and projects are completed, the example of the complex, multi-year span of the plastic waste reduction initiative has not deterred these individuals from pursuing this initiative. The project continues to chip away at the large goal of reducing plastic waste mainly because of the faculty and staff who have long-term presence in the university structure in continual collaboration with each other and the stakeholders above and below. They are the "intra-prenuers" of CEU, working from the inside for practical solutions, and they simply do not give up (SustainAbility 2008). From the literature, it is logical that engagement from top administration would lead this initiative to success, i.e. a "pet issue" (C. Sharkey, personal interview, June 2015). Such a focused interest from an individual in the top administration is a factor that CEU lacks, according to perception of actors for sustainability initiatives. CEU has made a bold and admirable step in pursuing a BREEAM certified campus redevelopment and as such will continue to set a standard of excellence by becoming the first campus to be BREEAM certified in the Central and Eastern European region. A decision that seems in step with De Groot et al.'s (2012) finding that Hungary does have strong societal values about the environment. And while the redevelopment will create opportunities for sustainable practices in new campus operations, making this weighty decision seems a contradiction with the lack of foundational steps for sustainable development in its current daily operations. A significant step towards internal institutional commitment would be action that exhibits and supports a robust pursuit of sustainability in daily operations and thus fosters the "environmentally aware attitudes, skills and behaviour patterns, as well as a sense of ethical responsibility" that Copernicus Charter declares and our own Sustainable Development Policy guides us towards.

Recommendations

1. Develop a mandatory university-wide course on sustainability principles with focus on current practices at CEU.

The results of the Environmental Awareness Survey yielded the conclusions that, according to Clugston and Calder (1999), CEU had not, as of 2012, achieved an "academic paradigm shift" by which awareness is raised across disciplines of the both the sources and endpoints of the University's consumable resources.

CEU has an excellent collection of minds throughout the university, many of which come together in CSAC. With the SO, the CSAC, and the experts of the Environmental Sciences Department, a course can be devised to meet the awareness and sustainability-education needs of CEU students. A member of CSAC described the difficulty in fostering a community of committed individuals as a leading frustration and challenge to achieving even small goals and keep momentum of initiatives strong throughout the year. A mandatory course on sustainability principles which would also highlight and discuss efforts, challenges, and opportunities for involvement at CEU in an academic setting would complement the social gatherings (e.g. Earth Day) where students are taking in new information from many sources. This course needs to be valued by all departments, and not simply an addition to their students' first semester, but an integrated part of the whole schedule. Middlebury College in Vermont incorporates sustainability education into orientation not only for new students, but also for new members of faculty and staff.

2. Redevelop the Environmental Practicum course.

Echoing thoughts from the first two recommendations that 1) sustainability is not the sole responsibility of the environmental field and 2) it is difficult to foster a community of committed individuals, I recommend the current Winter semester course of the Environmental Sciences Department no longer be an elective. Though sustainability is a university wide issue, it is hardly productive to ignore that environmental students and professionals are a ready population at the university with a curriculum that can easily adjust its design to use the campus and campus redevelopment as a living laboratory for students to practice concepts taught, such as environmental assessment and auditing, sustainable business practices, sustainable building design, environmental communication and activism, and more. This course would no longer be one semester for the Environmental Sciences Department but an academic year long course with a group of students per semester in practicum placements throughout the university where work can be done through a sustainability lens. This provides practical experience for students in an institutional setting with a view to achieving long-term goals through daily operations. It would also consistently provide the SO with on campus help even when the SO isn't present (as it is currently a part-time position) and could potentially lead to a Sustainability Office and staff.

Tufts University in Massachusetts organised a program called "Eco-Reps." It is a hybrid of course work and internship which takes place in one semester. A weekly class centers around a certain environmental topic. Tufts University offers this as a university-wide course, which CEU could emulate.

3. Charge for plastic materials at CEU cafes.

I recommend this as an option for exploration without knowing if it has been researched. In keeping with a common European practice of purchasing plastic bags in grocery stores, or putting a deposit down for glass beverage containers at festivals and some bars, CEU could explore three possibilities to decrease the plastic waste from the CEU eateries. 1) Begin to charge a nominal fee for the plastic take-away containers. 2) Offer a discount if customers bring their own take-away containers. 3)This possibility comes from the example set by Eckerd College in Florida. This HEI charges a deposit for a reusable take-away container that the customer must sign out. Upon returning the container the customer signs it in and receives their deposit back. Any of these options, alone or in combination, could provide transitional practice to foster sustainable behaviour when new catering contracts are considered for the new building.

4. Offer reusable drinking containers to students at orientation.

This example comes from an initiative at Brandeis University in Massachusetts, which proposed the banning of plastic bottles on campus in 2008 and implemented it in 2009. This HEI offers reusable aluminum drinking containers to all of the approximately 1,000 freshman students. Considering the financial investment that has been a barrier previously, CEU can modify this for the reusable bottles already researched and purchased, and try offering a limited number to the first <u>x amount</u> of students who arrive at orientation. With the popularity the reusable bottles have already achieved in CEU in the 2014-2015 academic year when they were available, it is logical that providing a certain number free will increase visibility and interest in the bottles and create more opportunity for sales through events or the university gift store.

Appendices

1. Central European University Sustainable Development Policy

Central European University Sustainable Development Policy

Approved by the Senate, January 18, 2008 Amended by the Senate

1. Vision

The Közép-Európai Egyetem (a university duly organized under the laws of the Republic of Hungary, registered under registration number FI 27861, having its registered at 1051 Budapest, Nádor u.9., hereinafter: the **University**) will promote awareness of and engagement in sustainable development through its learning and teaching, research, community and business engagement activities, and will work towards the principles of sustainable development in all aspects of its own activity. The University aims to become a centre of excellence in building sustainability into research and teaching and learning and will work with local, regional, national and global bodies to help build sustainable learning communities and enhance their well being.

The concept of the University is to promote long-term graduate education in the Central and Eastern European region and to facilitate the intellectual collaboration of European nations. The main goal of the University is to offer programs and research opportunities, which are both equally accredited in Hungary as well as in the United States of America, building on the educational and intellectual traditions of the region and to ensure that students receive the highest level of education, to provide them with the opportunity to excel in the creation of new knowledge in the humanities and social sciences, and to help developing the policy implications of both.

2. Definition and principles

2.1 Sustainable Development was defined by the World Commission on Environment and Development within the Brundtland Report (1987), "Development which meets the needs of the present without compromising the ability of future generations to meet their own needs."

2.2 The University's Sustainable Development Policy is integrated with other University processes and is compliant with the relevant legislation and regulations.

2.3 The Policy is based upon commitment to the following principles:

- continual improvement, through setting objectives and targets, continuous monitoring and review;
- complying with, and where appropriate exceeding, the applicable legal and other requirements relevant to our operations;
- close cooperation with the partner education institutions in New York State and Hungary, and other higher education and scientific institutions and organizations;
- prudent use of natural resources and the prevention of all kinds of pollution;
- communicating University commitment to sustainable development across the institution and beyond it.

3. General

3.1. The University, including its ancillary operations, is committed to improving its performance in sustainability in all areas of operations. University will develop appropriate standards for managing sustainability at University. Specific targets, priorities and timetables for achieving these objectives are developed in a consultative process involving faculty, staff and students, as outlined in the procedures of this policy. In the process of meeting the University mandate for teaching and research, efforts focus on the following inter-related areas:

3.1.1. The University contributes to the protection of its environmental life support systems. This means minimizing the pollution of air, water and soil.

3.1.2. The University preserves and enhances the integrity of ecosystems at the University through careful management, and the development and implementation of remediation measures for degraded sites as appropriate.

3.1.3. The University seeks ways to conserve resources and reduce waste. This means developing methods to minimize the energy and material intensity of university activities and reducing waste.

3.1.4. The University encourages recycling in all ways and in all facilities of the University.

3.1.5. The University has information and reporting systems in support of decision making based on sustainable development principles including life cycle, social and environmental costing and accountability to stakeholders.

3.1.6. The University seeks to ensure its long term economic viability through responsible and effective management, the development of a comparative advantage in its educational and research activities, innovative methods to calculate and account for external costs, to identify cost-savings and new sources of revenue and through innovative partnerships with the larger community.

3.1.7. The University works to enhance its capacity to teach, research and practice sustainable development principles, and to increase ecological/social/economic literacy and practices among faculty, staff, students, and the public at large.

- 3.2. The University implements this policy, mindful of the need to balance ecological, social and economic imperatives, in an open and transparent decision-making process with the involvement of all stakeholders.
- 3.2.1. The University establishes a standing 'CEU Sustainability Advisory Committee.' The CEU Sustainability Advisory Committee advises on strategy and actions towards the achievement of the CEU Sustainable Development Policy and fulfillment of CEU's commitments as a signatory to the University Charter for Sustainable Development (COPERNICUS).

4. Monitoring

Key performance indicators will be identified for the areas identified for action. Schools and departments will be encouraged to measure, and improve their use of all resources, including transport fuels, energy, water and paper. All members of the University will be encouraged to continue contributing ideas and concerns through discussion in their departments and Schools.

5. Revision of the Policy

The present Policy shall enter into force after its approval by the Senate of the University. The Policy shall be published by the Rector of the University.

Done in Budapest, January 18, 2008

Yehuda Elkana Rector, Chairman of the Senate

2. Semi structured interview protocol

1. How would you describe your work and experiences related to CEU campus sustainability?

2. Tell me about some of the CEU campus sustainability related projects you worked on. What would you say was the most meaningful project(s), and how?

3. What facilitates and/or hinders the implementation of CEU campus sustainability? Can you give me some examples?

4. How would you describe the role of the CEU community in implementing campus sustainability? (consider, students, faculty, staff, senior administrative staff, board, etc.)

3. Copernicus Charter

COPERNICUS -

THE UNIVERSITY CHARTER FOR SUSTAINABLE DEVELOPMENT

Geneva, May 1994

Preamble

Man's exploitation of the biosphere is now threatening its very existence and delicate balance. Over the last few decades, the pressures on the global environment have become self-evident, leading to a common outcry for sustainable development. In the words of the Brundtland report, we must learn to care for the needs of the present without compromising the ability of future generations everywhere to meet their own needs.

The awareness is there. What is required is a comprehensive strategy for building a sustainable future which is equitable for all human beings, as highlighted by the Rio Conference (UNCED) in 1992. This requires a new frame of mind and new sets of values.

Education is critical for promoting such values and improving people's capacity to address environment and development issues. Education at all levels, especially university education for the training of decision-makers and teachers, should be oriented towards sustainable development and foster environmentally aware attitudes, skills and behavior patterns, as well as a sense of ethical responsibility. Education must become environmental education in the fullest sense of the term.

The role of universities

Universities and equivalent institutions of higher education train the coming generations of citizens and have expertise in all fields of research, both in technology as well as in the natural, human and social sciences. It is consequently their duty to propagate environmental literacy and to promote the practice of environmental ethics in society, in accordance with the principles set out in the Magna Chart of European Universities and subsequent university declarations, and along the lines of the UNCED recommendations for environment and development education.

Indeed, universities are increasingly called upon to play a leading role in developing a multidisciplinary and ethically-oriented form of education in order to devise solutions for the problems linked to sustainable development. They must therefore commit themselves to an ongoing process of informing, educating and mobilizing all the relevant parts of society concerning the consequences of ecological degradation, including its impact on global development and the conditions needed to ensure a sustainable and just world. To achieve these aims and fulfill their basic mission, universities are urged to make every effort to subscribe to and implement the ten principles of actions set out below.

Principles of action

Institutional commitment

Universities shall demonstrate real commitment to the principle and practice of environmental protection and sustainable development within the academic milieu.

• Environmental ethics

Universities shall promote among teaching staff, students and the public at large sustainable consumption patterns and an ecological lifestyle, while fostering programmes to develop the capacities of the academic staff to teach environmental literacy.

Education of university employees

Universities shall provide education, training and encouragement to their employees on environmental issues, so that they can pursue their work in an environmentally responsible manner.

• Programmes in environmental education

Universities shall incorporate an environmental perspective in all their work and set up environmental education programmes involving both teachers and researchers as well as students - all of whom should be exposed to the global challenges of environment and development, irrespective of their field of study.

• Interdisciplinarity

Universities shall encourage interdisciplinary and collaborative education and research programmes related to sustainable development as part of the institution's central mission. Universities shall also seek to overcome competitive instincts between disciplines and departments.

Dissemination of knowledge

Universities shall support efforts to fill in the gaps in the present literature available for students, professionals, decision-makers and the general public by preparing information didactic material, organizing public lectures, and establishing training programmes. They should also be prepared to participate in environmental audits.

• Networking

Universities shall promote interdisciplinary networks of environmental experts at the local, national, regional and international levels, with the aim of collaborating on common environmental projects in both research and education. For this, the mobility of students and scholars should be encouraged.

• Partnerships

Universities shall take the initiative in forging partnerships with other concerned sectors of society, in order to design and implement coordinated approaches, strategies and action plans.

• Continuing education programmes

Universities shall devise environmental educational programmes on these issues for different target groups: e.g. business, governmental agencies, non-governmental organizations, the media.

• Technology transfer

Universities shall contribute to educational programmes designed to transfer educationally sound and innovative technologies and advanced management methods.

This document is a follow-up to a number of university initiatives concerned with environmental awareness and responsibility, recent examples of which include:

- the Magna Charta of European Universities, Bologna, September 1988
- University Presidents for a Sustainable Future, the Talloires Declaration, October 1990
- Urgent Appeal from the CRE, the association of European universities, presented to the Preparatory Committee for the United Nations Conference on Environment and Development (UNCED), Geneva, August 1991
- Creating a Common Future: An Action Plan for Universities, Halifax, December 1991

Principles of action

- Institutional commitment
- Environmental ethics
- Education of university employees
- Programmes in environmental education
- o Interdisciplinarity
- o Dissemination of knowledge
- Networking
- Partnerships
- Continuing education programmes
- Technology transfer

Endorsing the Charter

The CRE Bureau invites university rectors to endorse the Charter on behalf of their institutions. Their signature will constitute a commitment to secure the support of their university, teachers and students alike, in adopting and implementing environmental guidelines which are consistent with the Charter.

The principles of action listed above are general and open-ended. It is left to each individual institution and its students and staff to give them substance compatible with local circumstances. Expressed in terms of specific guidelines, they should form a key element in the mission statement of the university concerned.

CRE

The Conference of European Rectors (CRE) is the association of European universities. Its membership comprises 500 universities or equivalent institutions of higher education in 36 countries. It provides a forum for discussions on academic policy and the institutional development of universities, including their role within European society.

As a non-governmental organization, it represents the universities' point of view in governmental and non-governmental circles concerned with higher education in Europe. CRE organizes biannual conferences, training seminars for newly appointed university heads, and other meetings on issues of interest to its members. It also runs a number of inter-university cooperation programmes.

Copernicus

COPERNICUS (CO-operation Programme in Europe for Research on Nature and Industry through Coordinated University Studies) is a programme of CRE designed to bring together universities and other concerned sectors of society from all parts of Europe to promote a better understanding of the interaction between man and the environment and to collaborate on common environmental issues. The aims of the programme are:

- to incorporate an environmental perspective into all university education and to help develop teaching materials as necessary;
- to stimulate and coordinate integrated, multidisciplinary and collaborative research projects;
- to disseminate the research and empirical findings widely to economic and political decision-makers.

Priority areas for the time being are comparative environmental law, resource economics, and public health. To encourage the bridging of former divisions between eastern and western Europe, COPERNICUS has set up trans-national projects involving institutions from the Baltic and Danube regions. Future plans involve launching environmental networks in other regions of Europe.

References:

- Amaral, A., & Magalhaes, A. (2002). The emergent role of external stakeholders in European higher education governance. *Governing higher education: National perspectives on institutional governance* (pp. 1-21). Springer Netherlands.
- Bardaglio, P. and Putman, A. (2009). *Boldly Sustainable: Hope and opportunity for higher education in the age of climate change.* National Association of College and University Business Officers (NACUBO), Washington, DC.
- Bartlett, P., and Chase, G. (2004). Sustainability on campus: Stories and strategies for change. Cambridge, MA: The MIT Press.
- Bianchi, R. (2001). Interest Groups and Organisations as Stakeholders. Washington: The World Bank.
- Bleiklie, I., Høstaker, R. and Vabø, A. (2000). *Policy and Practice in Higher Education: Reforming Norwegian Universities*. Jessica Kingsley Publishers: London.
- Blewitt, J., and Cullingford, C. (Eds.). (2009). *The sustainability curriculum: The challenge for higher education*. Sterling, VA: Earthscan.
- Brinkhurst, M., Rose, P., Maurice, G., and Ackerman, J. D. (2011). Achieving campus sustainability: topdown, bottom-up, or neither? *International Journal of Sustainability in Higher Education*, 12(4), 338-354.
- Burrows, J. (1999) Going Beyond Labels: A Framework for Profiling Institutional Stakeholders. *Contemporary Education*, 70(4), 5-10.
- Central European University (CEU). (2015). Facts and Figures. <u>http://www.ceu.edu/node/9035</u> (Accessed 7 June 2015).

_ (CEU). (2015b). Sustainability Advisory Committee.

http://www.ceu.edu/administration/committees/sustainability-advisory (Accessed 7 July 2015).

______ (CEU). (2015c). Sustainable CEU. http://www.ceu.edu/campus/sustainable (Accessed 7 July 2015).

CEU Sustainability Advisory Committee (CSAC). (2011). CSAC Declaration.

- Christensen, L. J., Peirce, E., Hartman, L. P., Hoffman, W. M., and Carrier, J. (2007). Ethics, CSR, and sustainability education in the Financial Times top 50 global business schools: Baseline data and future research directions. *Journal of Business Ethics*, 73(4), 347-368.
- Clugston, R. M., and Calder, W. (1999). Critical dimensions of sustainability in higher education. Sustainability and university life, 5, 31-46.
- Copernicus Campus (Copernicus). (1994). Copernicus-guidelines for sustainable development in the European Higher Education Area.

- Corcoran, P. B., Walker, K. E., and Wals, A. E. (2004). Case studies, make-your-case studies, and case stories: a critique of case-study methodology in sustainability in higher education. *Environmental Education Research*, 10(1), 7-21.
- Cortese, A.D. (2003). The critical role of higher education in creating a sustainable future. *Planning for Higher Education*, 31 (3), 15-22
- Creighton, S. H., and Rappaport, A. (2007). Degrees that matter: Climate change and the university. Cambridge, MA : MIT Press.
- Cummings, G.A. (2009). Turning higher education green from the inside out: a qualitative study of four universities that made green happen. Dissertation. University of Pennsylvania.
- Dahle, M., and Neumayer, E. (2001). Overcoming barriers to campus greening: A survey among higher educational institutions in London, UK. *International Journal of Sustainability in Higher Education*, 2(2), 139-160.
- De Groot, J. I. M., Steg, L., Farsang, A., Keizer, M., & Watt, A. (2012). Environmental values in postsocialist Hungary: Is it useful to distinguish egoistic, altruistic and biospheric values?. *Journal title Czech Sociological Review*, 421-440.
- Dernbach, J. C. (Ed.). (2002). Stumbling toward sustainability. Environmental Law Institute.
- Edwards, A. R. (2010). *Thriving beyond sustainability: Pathways to a resilient society*. New Society Publishers.
- Elton, L. (2003). Dissemination of innovations in higher education: A change theory approach. *Tertiary Education & Management*, *9*(3), 199-214.
- Erickson, F. (1986). Qualitative methods in research on teaching. In M.C. Whittrock (Ed.), Handbook of research on teaching. (3rd ed.) (pp. 119-161). Old Tappan, NJ: Macmillan.
- Freeman, R. E. (1984). *Stakeholder management: A strategic approach.* Marchfield, MA: Pitman Publishing.
- Foxon T., and Pearson P. (2008). Overcoming barriers to innovation and diffusion of cleaner technologies: some features of a sustainable innovation policy regime. *Journal of Cleaner Production* 16: 148-161.
- Flyvberg, B. (2006). Five misunderstanding about case-study research. Qualitative Inquiry, 12(2), 219-245.
- Green Growth Best Practice (GGBP). (2014). Green growth in practice: Lessons from country experiences. Available at http://www.ggbp.org/ (Accessed 27 July 2015).
- Helferty, A. and Clarke, A. (2009). Student-led campus climate change initiatives in Canada. International *Journal of Sustainability in Higher Education*, 10(3), 287-300.
- Herremans, I., and Allwright, D. E. (2000). Environmental management systems at North American universities: what drives good performance?. *International Journal of Sustainability in Higher Education*, 1(2), 168-181.

- Howlett, M. and Ramesh, M. (2003), Studying Public Policy: Policy Cycles and Policy Subsystems, 2nd ed., Oxford University Press, Oxford.
- Hungerford, H., Peyton, R. B., and Wilke, R. J. (1980). Goals for curriculum development in environmental education. *The Journal of Environmental Education*, 11(3), 42-47.
- James, M., and Card, K. (2012). Factors contributing to institutions achieving environmental sustainability. *International Journal of Sustainability in Higher Education*, 13(2), 166-176.
- Lozano, R. (2006). Incorporation and institutionalization of SD into universities: breaking through barriers to change. *Journal of Cleaner Production*, 14(9), 787-796.
- Lozano, R., Lukman, R., Lozano, F. J., Huisingh, D., and Lambrechts, W. (2013). Declarations for sustainability in higher education: becoming better leaders, through addressing the university system. *Journal of Cleaner Production*, *48*, 10-19.
- Lubin, D. A., and Esty, D. C. (2010). The sustainability imperative. Harvard business review, 88(5), 42-50.
- Marquart-Pyatt, S. T. (2008). Are there similar sources of environmental concern? Comparing industrialized countries. *Social Science Quarterly*, *89*(5), 1312-1335.
- McCrea, E. J. (2006). The Roots of Environmental Education: How the Past Supports the Future. *Environmental Education and Training Partnership (EETAP)*.
- M'Gonigle, M., and Starke, J. (2006). Planet U: Sustaining the world, reinventing the university. Gabriola Island, BC: New Society.
- McIntosh, M. (2001). State of the campus environment: A national report card on environmental performance and sustainability in higher education. National Wildlife Federation.
- Merriam, S. B. (2009). Qualitative case study research. In *Qualitative research: a guide to design and implementation* (pp 39-54). San Francisco, California: John Wiley & Sons.
- Mintzberg, H. (1983). Power in and around organizations (Vol. 142). Englewood Cliffs, NJ: Prentice-Hall.
- Neave, G. (2002). The stakeholder perspective historically explored. *Higher education in a globalising world* (pp. 17-37). Springer Netherlands.
- Orr, D. (2004). Earth in mind: On education, environment, and the human prospect. Washington, DC: Island Press.
- Rietveld P., and Stough R.R. (2004). *Barriers to sustainable transport: institutions, regulation and sustainability* Routledge, London
- Roberts, A. O., Wergin, J. F., and Adam, B. E. (1993). Institutional approaches to the issues of reward and scholarship. *New directions for higher education*, *1993*(81), 63-86.
- Rusinko, C. A. (2010). Integrating sustainability in higher education: a generic matrix. *International Journal of Sustainability in Higher Education*, 11(3), 250-259.
- Sammalisto, K., and Lindhqvist, T. (2008). Integration of sustainability in higher education: a study with international perspectives. *Innovative Higher Education*, *32*(4), 221-233.

- Savelyeva, T., and McKenna, J. R. (2011). Campus sustainability: emerging curricula models in higher education. *International Journal of Sustainability in Higher Education*, 12(1), 55-66.
- Sedlacek, S. (2013). The role of universities in fostering sustainable development at the regional level. *Journal of Cleaner Production, 48,* 74-84.
- Shriberg, M. (2002). Institutional assessment tools for sustainability in higher education: strengths, weaknesses, and implications for practice and theory. *Higher Education Policy*, *15*(2), 153-167.
- Smith K. (2000). Innovation as a systemic phenomenon: rethinking the role of policy *Enterprise and Innovation Management Studies* 1: 73-102.
- Stake, R.E. (2005). Qualitative case studies. In N.K. Denzin & Y.S. Lincoln (Eds.) The Sage handbook of qualitative research (3rd ed.) (pp. 443-466). Thousand Oaks, CA: Sage.
- Stewart, M. (2010). Transforming higher education: a practical plan for integrating sustainability education into the student experience. Journal of Sustainability Education, 1, 195-203.
- St. Michael's College (SMC). (2015). Fast Facts. <u>http://www.smcvt.edu/about-smc/fast-facts.aspx</u> (Accessed 7 June 2015).
- SustainAbility (2008). The Social Intrapreneur: A Field Guide for Corporate Changemakers, Skoll Program Report, available at: www.sustainability.com (Accessed 7 June 2015).

Sustainable Campus Initiative (SCI). (2011). SCI Handbook version 1.0.

Sustainability Report. (2012). 2011-2012 Sustainability report: Central European university.

- Taylor, A. L., and Koch, A. M. (1996). The cultural context for effective strategy. *New Directions for Higher Education*, 1996(94), 83-86.
- Tilbury, D. (1995). Environmental education for sustainability: Defining the new focus of environmental education in the 1990s. *Environmental education research*, 1(2), 195-212.
- Tilbury, D., Crawley, C., and Berry, F. (2004). *Education about and for sustainability in Australian business schools*. Australian Research Institute in Education for Sustainability, Macquarie University.
- United Nations Conference on Environment and Development. (1992). *Agenda 21, Rio Declaration, Forest Principles.* New York: United Nations.
- University of British Columbia (UBC). (2015). Facts and Figures. <u>http://news.ubc.ca/media-resources/ubc-facts-and-figures/</u> (Accessed 7 June 2015).
- Velazquez, L., Munguia, N., and Sanchez, M. (2005). Deterring sustainability in higher education institutions: An appraisal of the factors which influence sustainability in higher education institutions. *International Journal of Sustainability in Higher Education*, 6(4), 383-391.
- Viebahn, P. (2002), "An environmental management model for universities: from environmental guidelines to staff involvement", Journal of Cleaner Production, 10(1), 3-12.

- Watson, M. K., Lozano, R., Noyes, C., and Rodgers, M. (2013). Assessing curricula contribution to sustainability more holistically: Experiences from the integration of curricula assessment and students' perceptions at the Georgia Institute of Technology. *Journal of Cleaner Production*, *61*, 106-116.
- Wilcox, J. R., and Ebbs, S. L. (1992). *The Leadership Compass: Values and Ethics in Higher Education.* ASHE-ERIC Higher Education Report No. 1, 1992
- Wright, T. (2010), University presidents' conceptualizations of sustainability in higher education. *International Journal of Sustainability in Higher Education*, 11(1), 61-73.
- Yarime, M., Trencher, G., Mino, T., Scholz, R. W., Olsson, L., Ness, B., Frantzeskaki, N. and Rotmans, J. (2012). Establishing sustainability science in higher education institutions: towards an integration of academic development, institutionalization, and stakeholder collaborations. *Sustainability Science*, 7(1), 101-113.