

Report from

Nordic Sustainable Universities Conference

From campus planning to learning outcomes

27-28 October 2016, Faroe Islands

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Background: This conference is co-organised by the University of the Faroe Islands and NSCN – Nordic Sustainable Campus Network. The network is targeted sustainability/environmental staff working in the Nordic higher education institutions – both in administration and teaching. NSCN was created in 2012 to strengthen the sustainability efforts already in action in the Nordic higher education institutions.

The conference will concentrate these three themes:

- Creating a new sustainable campus area
- Campus and city life – Collaboration between university, city, and other public and private stakeholders
- Student engagement and learning outcomes in relation to a sustainable campus

The University of the Faroe Islands is dispersed in many locations, and is currently in the planning phase of a new big campus area for all staff and students. One of the main purposes of this conference is learning and sharing about Nordic experiences and exploring the connections between the built environment, teaching, and learning outcomes.

Join us to discuss and share how to create a new campus that is socially and ecologically sustainable! How to influence students' learning outcomes on sustainability? What opportunities can be found when universities collaborate with municipalities and companies?

27. og 28. oktober verður Setrið vertur fyri norðurlandskari ráðstevnu um burðardygg universitets-umhvørvi ella sokallað kampus. Ráðstevnan leggur serliga dent á fyrireikingar í samband við uppbygging av nýggjum kampus-øki, eitt nú hvussu Fróðskaparsetrið, almennir stovnar og vinnuligir aktørar kunnu ganga á odda við menning av grønnari bygging og grønum rakstri.

Lau Øfjorð Blaxekjær, sum er ein av fyrireikarunum sigur, at veðurlagsbroytingarnar seta alt meiri spurningin um burðardygd á dagsskránna innan øll samfelagsøki, eitt nú í universitetshøpi. Hugtakið um burðardygd byggir eisini á ta fatan, at tað er umráðandi, at hava brúkararnar og onnur viðkomandi við, t.d. tá ið bygt verður.

Saman við áhugaðum og umboðum frá lærustovnum úr Norðurlondum miðar Fróðskaparsetrið eftir, at ráðstevnan verður karmur um eitt konstruktivt orðaskifti um framtíðarmøguleikar, burðardygd, læring og samstarv.

PROGRAMME

THURSDAY 27 OCTOBER

VENUE: University Hall

9.00 – 9.30	Coffee and registration of participants
9.30 – 9.45	Welcome and introduction to the University of the Faroe Islands, by Sigurð í Jákupsstovu, Rector of the University of the Faroe Islands
9.45 – 10.00	Introduction to the conference and the programme, by Lau Blaxekjær, Assistant Professor, University of the Faroe Islands
10.00 – 10.25	Introduction to the Nordic Sustainability Campus Network and project on Sustainability Literacy Test (SULITE), by Meeri Karvinen, Network Coordinator, Aalto University, Finland
10.25 – 10.35	Coffee break
10.35 – 11.00	Introduction to University of the Faroe Islands' Campus plans, by Sigurð í Jákupsstovu, Chairman of the Campus Committee
11.00 – 12.30	Part 1: Lessons from Nordic universities <ul style="list-style-type: none"> • Planning a new campus is about city planning too, John E. Hermansen, Associate professor, NTNU – Norwegian University of Science and Technology. • Greening the University of Iceland, Sigurlaug I. Lövdahl, Director, Division of Operations and Resources. • Sustainability in learning at School of Business, Economics and Law, Ullika Lundgren, Sustainability Controller, University of Gothenburg, Sweden. • Experimenting with sustainability (research, education and public-private partnership), KTH, Stockholm, David Bohn Stoltz, PhD candidate and leader of KTH Live-In Lab (www.liveinlab.kth.se/en/om-labbet)
12.30 – 13.30	LUNCH
13.30 – 15.30	Part 2: Workshops <ol style="list-style-type: none"> 1. Building and planning a sustainable campus – what is sustainability 2. University, Government, and Municipality cooperation – a functioning and sustainable city campus 3. Sustainability and learning
15.30 – 16.30	Plenary: What is a sustainable campus? Closing of day 1.
16.30-18.00	Optional city walk.
19.00	Conference dinner

FRIDAY 28 OCTOBER

9.00 – 13.00	Introduction to the Green Student-House Student projects Workshop and Nordic collaboration
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Summaries from workshop and group work, 27 October

Participants were students, researchers, environmental coordinators/controllers, Tórshavn Municipality, Faroese Building Agency, Faroese Housing Association, and MAP Architects.

Group 1: Building and planning a sustainable campus

1) What is sustainability?

- Sustainability is a system property that must be defined relative to specific boundaries and contexts and at different scales: e.g. an ecosystem, a specific business, etc.
- The common Brundtland definition from 1987 can be interpreted in an anthropocentric way. It does not specifically make reference to ecological conditions, but focuses rather on social and economic aspects. A more recent definition refers to safeguard Earth's ecosystems that support all life. Sustainable development involves respecting planetary boundaries.
- The common goal is to build a sustainable society; buildings and other institutions must facilitate this wider scale.
- Resiliency is a relevant aspect: the ability of a system to recover from sporadic changes and to maintain beneficial conditions through them.
- Sustainability involves long-term thinking.
- A challenge is to deal with poor past decisions! Individual buildings last a long time; existing street networks can be difficult to change.

2) Universities as ecosystems

- The ecosystem model is useful for designing university areas. Ecological sustainability is the basis of social and economic sustainability.
- Differences between university areas that are integrated with existing city context and university areas that are relatively concentrated and closed:
 - Universities that are integrated with existing city activities constitute important qualities.
 - A university can become integrated with a city especially through social activities
 - A university should serve a social and community purpose
 - Integration with the existing city and society is an important consideration for the new campus area in Tórshavn.
- Closed loops and ecological cycles: Self-sufficiency in energy and food is an ideal condition; permaculture can be used as a design approach.
- This implies though a definition of boundaries where they might not exist: a university cannot become a self-contained system within a wider city if it is to be integrated with it.

3) The purpose of a university campus:

- The University and its campus can be a leader and example to follow.

- Universities are big energy and resource intensive buildings (construction and lifetime) and need to be legitimate in a wider sense than just research and education.
- To foster an understanding of the relevant aspects of sustainability and ecology
- To become a model itself of proper environmental design.
- Innovative and integrated knowledge system.
- A learning environment that offers opportunities for informal meetings and activities
 - These qualities must be maintained in the existing university buildings in Tórshavn
- The university must be an attractive place to be and work for all age groups.
- An identity must be created, and the university should be designed thus that students feel at home.
- Social activities should make the university a place rather than neutral surroundings.
- Human scale as opposed to mechanical imposition.
- Deep values and psychological shifts should be fostered and promoted through the university's environment and activities. It represents an opportunity to include an entire society.

4) Concrete aspects:

- Environmental standards for university buildings regarding emissions and energy use.
 - It is often necessary to justify the large investments of resources that go in to larger university projects.
- Reducing and eliminating non-renewable energy use for transport requires proper placement within the existing city.
- Design for promotion of alternative transport methods > this requires one to provide facilities such as showers.
- Student housing near the university should give students the option of living near where they study. They can thereby take responsibility for their environment.

5) Methods and practical issues:

- Restrictions are necessary to achieve sustainability-related goals, but they must be balanced with more "bottom-up" approaches that seek to foster new ways of thinking.
- It must be made "normal" to act responsibly in an ecological understanding.
- It can be a good strategy to explain the irrationalities of existing practices! People can understand how silly certain current practices are in an ecological perspective.

6) Common mistakes:

- The urgency and short time frame of many ecological problems is ignored.
- It is common to confuse economic and ecological sustainability.

7) Comments/further debate:

- In many cases some top-down initiatives are necessary to begin positive transformations.
- Many people do not see themselves in discussions of technical aspects of campus planning:
 - They want only a nice office space!

- They have to be helped to realise that they indeed have a role to play in forming the details of their near-environment.
- Use the UN Sustainable Development Goals as a tool to get involvement from stakeholders and government, because the SDGs cover all areas – and need coordination between them
- Use procurement actively.
- Getting sustainability closer to the university leadership and as a top priority in the University Strategy. Sustainability doesn't exist in society today. University is the one organisation that can do this.

Group 2: University, Government, and Municipality cooperation

1) Problems/questions and some solutions identified:

- Projects (in the Faroe Islands) are decided without much dialogue with others / stakeholders.
 - Identify the geography of an area, where the campus is going to be. Get all stakeholders to identify what they would like to get out of that area in terms of functions and services. Compare and see where you can work together.
 - Learn from Trondheim Municipality and the Harbour, which would never plan anything without bringing in the University
- How can the University Campus connect with the new harbour being planned?
 - Which facilities and areas should be next to each other?
- How should the University Campus connect with existing and planned city infrastructure?
 - Streets
 - Busses
 - Bikes
 - Paths
 - People / residents / residential areas
- Downtown Torshavn city centre
 - Blue pathways
 - Green pathways
 - A vibrant city
 - Building dormitories and student facilities
 - Cultural centres / areas
- Smart cities are about ICT and urban planning whereas eco-cities are about the organic organism and flows

2) Based on our discussion we propose a VISION for a new Green University Campus:

- Mixing the uses of new buildings
 - Shops and office space in residence buildings (also as a way of financing the building)
- A city centre with shops (food, toy, restaurants, café, appliances)
- Easy access for people with no car
- More spaces for open activities

- Incubator space – university’s office but next to the municipality to get advice
- Mixed people
- Families/residents are included in the development and living
- Pathways between campus functions/areas and city functions/areas – like city theatre, the art school, and Department of Humanities (and future Art/Design programmes)
- Develop and define “points of gravity” in the city (Environmental, social, economic, sustainability)
- Flows in and out of the city and campus should be clean and neutral
- Support new green habits and lifestyles through smart planning
- Keep the connection with animals, agriculture, and coastal fishing downtown
 - But connect much more with research and learning
 - One of the attractions of coming here as a foreign student
 - This is what makes Tórshavn different/unique compared to other Nordic university cities.
- Continual innovation as part of the campus, programmes, and courses.

3) Comments/further debate:

- How do you foster better cooperation in the Faroe Islands?
 - Set up a think tank using in house competencies.
 - Set up an “innovation space” at university for people to meet, exchange ideas, hear the latest research, and brainstorm.

Group 3: Sustainability and learning

1) Discussions:

Implementing sustainability

- Ensuring participatory sustainability – get as many as possible to engage, participate, through ownership
- Collaboration between university and actors like the municipality
 - outreach and usage of scientific knowledge in practice
- Challenge with expenses and environmental/sustainability profits
 - More sustainable option usually costs more
 - Comment from the organisers: For the University of the Faroe Islands there are huge economic savings to be made through energy efficiency, better insulation, and replacing oil with renewables.
- Conflicting targets
- Following the legislation, monitoring the legislation
 - Top-down external steering → backup support in implementing sustainability
 - How to define sustainability in the monitoring process?

Commitment, benefits

- Using the ecosystem services to attract people and convince people on sustainability benefits

- Clean water, nature, recreation, natural heritage
- Committing the staff
 - Support for the staff, toolbox for the teachers

Learning sustainability

- Defining sustainability
- Purpose of buildings – frame activities or to be sustainable
 - Arts and beauty are an important part of social sustainability, too → combinations
- Specialties in the Faroes: knowledge leak, birth rate, young moving to Denmark
- Informal learning
- Learning environment
- Local solutions on heating, drinking water etc could be used in teaching sustainability
 - Rainwater, global pollution
- Global, closed resources that are recycled, everything is connected

2) Comments/further debate:

- Use local examples of human-earth relations in teaching and learning activities.

Summary of Green Student-House workshop

The University of the Faroe Islands has begun restoring an old house to a Green Student-House: a Living Learning Lab focused on climate and environment friendly lifestyles and active student participation in developing and testing green solutions. The Green Student-House will function as a dormitory for students and guest lecturers participating in the West Nordic Studies programme. The pilot project will serve to identify, develop, and connect similar houses/dormitories in other West Nordic university cities.

Since 2002, the University of the Faroe Islands has owned a family house in Tórshavn called Lindberg's House. The house is part of an inheritance and must be used according to a set of principles.¹ Over the years it has been used to house guest researchers, guest students, and other guests of the university, but the house is now in need of renovation. The University has a sum of money as part of the inheritance, which can only be used for renovation. The University would like to use this opportunity to transform the house into a *Green Student-House*; a zero-emission and environmentally friendly dormitory, guest-house, and centre of practical learning activities in collaboration with public and private partners.

¹ setur.fo/fileadmin/user_upload/documents/Regluverk/Vidtokur_Lindbergs_Hus_2002.pdf



Lindberg's House, front view

Purposes

There are three overall purposes of the Green Student-House:

- 1) To transform Lindberg's House to a CO₂-neutral green student-house through a project involving students and relevant public and private actors. The Green Student-House will not only serve as dormitory, but will be a pilot project of zero-emissions building in collaboration with relevant stakeholders.
- 2) The Green Student-House will function as a learning lab connected with the university and potentially other educational institutions. Student residents will give lectures to visitors (school children and tourists alike) and take part in community sustainability projects.
- 3) To connect Lindberg's House with other Green Student-Houses in a virtual IT-based network. The student-houses will also serve to alleviate a common problem of few affordable student residencies. It is envisaged that the houses can act as local drivers of transformative change to a sustainable future. To begin with, a project will identify and establish a West Nordic network of Green Student-Houses. A later stage will expand the network to Arctic partners.

A network of Green Student-Houses has many benefits and uses. The Green Student-Houses will be centres of new practical learning activities, e.g. university courses on green IT, sustainable city planning, renewable energy, and communication – all through learning by doing approaches. The

house will be a *Living Learning Lab* inspired by University of Vermont's "Greenhouse Residential Learning Community"², which has ten years' experience with combining student housing focused on sustainable living and learning and actual university courses (with credits). Both during the transformation and redesign phase and afterward, students could get involved and gain practical experience through this project as a case study.

See also Evan Alexander Adamic's proposal for remaking Lindberg's House into an ecological Green Student-House.

Student projects

Students from the West Nordic Studies, Governance and Sustainable Management programme presented three projects from the Autumn semester 2016 (10 ECTS points); 1) growing mushrooms in the basement, 2) Composting and developing a green neighbourhood (see photos below), and 3) Creating an aquaponics system in the basement. The projects will be presented on the house webpage: www.greenstudenthouse.org in due time. Below is a description of the aquaponics project.



Composting project

² www.uvm.edu/~ghrlc/?Page=default.html

Aquaponics student project

By Jón Kragesteen and Luis Pellerer, West Nordic Studies students.

See this TV coverage (in Faroese) from 20 January 2017 of how far the project has come.

<http://kvf.fo/netvarp/sv/2017/01/20/20170120greenhouse>

One of the greatest threats of the future, due to the uncertainties brought forth by climate change, will be food security. The Faroe Islands has access to a vast amount of ocean resources such as wild fish, and food from newer endeavors like aquaculture and seaweed farming. Considering the dangers facing the ocean such as increasing acidification, overfishing, and others, it would be prudent to prepare other, sustainable food sources. We decided to experiment with Aquaponics as a possible means for sustainably sourced food in the future.

In short aquaponics is a “marriage” of aquaculture (raising fish/fish farming) and hydroponics (the soil-less growing of plants) that grows fish and plants together in one closed-loop system. The fish waste provides an organic food source for the growing plants and the plants provide a natural filter for the water the fish live in. This creates a sustainable system which produces both organic vegetables and fish.

Furthermore, owners of such a system could also save considerable amounts of money. When compared to the price of imported, organic goods, a household could make back the investment of constructing such a system within a short amount of time, leading to years of future savings.

We were fortunate enough to secure a species of trout which was introduced to the Faroe Islands in the 1960s. The family company Røkt has kept the fishes alive in a river basin in Vestmanna. We were given 100 younglings, weighing approximately 15 grams each. Once placed in the tanks at the house, we could begin feeding, and pumping the water to our grow beds. We selected a variety of vegetables and herbs currently not grown in the Faroes. This includes: lemongrass, cauliflower, celery, parsley, sweet pepper, pak choy, and others.

Our project has experienced many setbacks. Two different pumps have failed, which stops the ongoing oxygenation of the water- a necessary process for the fish to breathe. Each pump failure has resulted in several fish dying. The weight of the gravel we chose as a medium has also posed structural challenges to the weight-bearing capacity of our containers, so on more than one occasion, we have needed to reinforce them with wooden planks. Perhaps future aquaponics projects could first spend some time making Faroese sourced clay pellets as a medium instead of the heavier gravel we utilized. Furthermore, we hypothesize that our light source is not sufficient. We currently utilize the natural daylight from the basement window as the only light source for the plants. With so many plants, and with so few hours of sunlight during this time of year (winter), perhaps we should have invested in proper UV light bulbs and multiple fixtures to provide ample light.



Example of 400 x 400 metres in Tórshavn

Aquaponics is very effective. For every kilo of fish produced 30 to 50 kilo of vegetable can be grown. Therefore only 3.2 square metres is enough to feed one person with vegetables for a whole year. To feed the whole population of Faroe Islands a square area 400x400 metres would be sufficient, see picture of how much such a space would fill in a green area in Tórshavn.

Even though the first Faroese settlements were built using materials from abroad, from imported wood, tools, and even animals, the locals have a long established tradition of trade and some degree of dependency on the outside. There was a long period, however, of self-sufficiency on the islands. Up until the 1960's, people would commonly grow their own potatoes along with some variety of beets and herbs/vegetables such as Angelica (hvonni). Grass was carefully maintained to feed the family cow, which was housed in the basement during harsh weather- another commonplace method to ensure a supply of milk. The Faroese would also hunt birds, fish, whales, while maintaining the most resourceful animal in the land- sheep, which provide wool and meat."

The fact is that the Faroe Islands produces as much food as around 8 ton of fish per person a year or about 8 times more than a human being can possibly eat in a year. But the problem is that almost all this food is exported and a huge part all food that is eaten in the Faroe Islands is imported. We even import fish that we originally have exported. Prior to the prominent commercialized culture of today, nearly all sustenance came from ocean life, or domesticated animals.



Faroese traditional hunter

Once commercial fishing became popular amongst Faroese men, a new consumerist culture began to grow alongside to accommodate the newfound disposable income. Fast forward to modern times and we find entirely new norms amongst the islanders. Today, most of the food in the Faroe Islands is imported. The society has become dependent on regional and global food supply systems to meet their consumption demands. But what of the new climate change reality in which carbon miles, geopolitics, and the very ability of ecosystems to continue to provide food is under threat? These new and urgent considerations demand preparation in the event of a collapse, especially as a small, nation of islands so reliant on foreign resources.

Aquaponics works. It is happening in many places all over the world. With the right expertise, an aquaponics system could mean sustainable food production for produce unable to grow locally. We think this to be an important tool to fill in the gaps in local food production, leading to greater food security and resilience.