

Final Report: Senior Research Stay at UBC Kelowna

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Sustainable and long-living landscapes

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The Kelowna Campus of the UBC

In the year 2004 the former university college at Kelowna, a town in British Columbia, about 250 km eastwards of Vancouver, became official part of the University of British Columbia (UBC). Today this campus hosts around 8000 students, graduating in different programs, which have a strong focus on arts and engineering and also earth- and environmental sciences. The campus and the university identify themselves as sustainable and sustainability as one of their major concepts and modes of operation, reflecting “a balance in its environmental, economic, and socially responsible values across campus operations, teaching, learning, and research”

(<http://sustain.ok.ubc.ca/sustcamp.html>). This idea of matching a sustainable campus with teaching and especially with applied research was the main reasons for me to apply here for a senior research stay about sustainable landscapes in the first place.

Research Topic

The second reason for me to come to the Okanagan Campus of the UBC in Kelowna was its natural environment. The scenic Okanagan valley itself being a touristic hotspot is a 4-19 km wide valley, which provides smoothly sloping hillslope areas, with dark fertile soils, suitable for the cultivation of several crops. Among these are fruits like apples, cherries or peaches and grapes, here the Okanagan valley is the only place in whole Canada, in which vine is cultivated.

The valley is located in the southern lowlands of British Columbia, resembling the only dry-subhumid to semi-arid climates in Canada, with high temperatures during summer months and mild winters. The prevailing climatic properties are also accountable for the special character of land- and

water management in this area. To identify and resolve problems of water shortages and droughts or water quality issues, several institutions, stakeholders and powers of the area are organized below the water governance body of the Okanagan Basin Water Board (<https://www.obwb.ca/>). This authority combines the knowledge and involves people to cope with any land- and water problems in an integrated and sustainable matter. One special feature surely being the involvement of the local first nation citizens (Indians, indigenous people) and their non-western perspective on nature. Beside all the persons professionally involved with water management issues, I have never experienced before a community so open and well informed about water issues within their environment. The willingness of people here to cooperate with the authorities, to be informed and to protect and keep natural environments clean, seem to be a basic life-style. I would think that the integrative idea of a sustainable and watershed-based water management is on a very high level here.

The described environmental character of the Okanagan valley (the climate, land- and water management and fruit- and grape cultivation) perfectly matches with the characteristics one would also expect for many typical south European, i.e. Mediterranean, landscapes, say of: Greece, Italy or Iberia. However one technical feature, which is in focus of my research agenda, the *agricultural terrace*, is completely missing in the Okanagan Valley. In contrary in southern Europe, terraces are widespread and play a vital role in the creation of fertile areas, because they form step-like hill-slope fixations, which stabilize hillsides and improve respective sediments and soil waters. Why agricultural terraces are missing in the Okanagan valley, shall be a focal point for my ongoing research. Preliminary and tentative answers that evolved throughout my stay and communication within the area and the local scholars include three possible ways of explanation:

- (i) the relative pristine landscapes of the Okanagan valley, where agricultural endeavors started only 100 years ago, do not yet necessitate the construction of any hill-slope fixation measures, since soil erosion is not (yet) a problem
- (ii) the know-how and historical background on agricultural terracing is lacking or unincisive
- (iii) the lithological and morphological setting of the hillslopes are unpractical for terracing, since they are too vast, wide or too shallow in respect to its underlying bedrock.

During my stay, I got in touch with various people from the University, the water authorities and local government authorities. The communication and accessibility to many of the University and local people was quite uncomplicated and comfortable. I got an invitation to stay at the BRAES institute for environmental sustainability research (<http://braes.ok.ubc.ca/>) and was kindly hosted by the BRAES director, Prof. Leal Parrot (<http://complexity.ok.ubc.ca/people/parrott/>). During my stay, I got the chance to hold a lecture in front of many researchers from this institute and students (who showed up even though it was trimester break). Among the most important activities were the possibility to follow an invitation from the mayor of Lake Country (a small city with the Okanagan Valley) to visit their irrigation system and upper catchment hydrological set up. Moreover I got the chance to meet with members with of the Department of Earth Sciences, which also host a Watershed Management Research and Cooperation network (<http://blogs.ubc.ca/ubcowatershed/>). Though a personal contact did not come off during my stay, the Summerland Research and Development Centre is a highly recommended address in the context of sustainable agricultural praxis and field experiments (<http://www.agr.gc.ca/eng/science-and-innovation/research-centres/british-columbia/summerland-research-and-development-centre/?id=1180620561099>). One of the highlights during my stay, probably was the invitation to the annual water forum that bring together natives, stakeholders and experts to exchange knowledge on a responsible way to handle natural environments and water (<https://www.syilx.org/events/water-forum/>).

Whether out of the several communications any future collaborations will arise is not yet sure, one reason surly being the local perspective of many research activities.

I encourage everybody interested in topics of sustainable environments and a convincing research setting to visit the UBC in Kelowna, I would be glad to help anybody interested to this in future.

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