



The dynamic and ever-changing volcanic nature of Iceland -An outdoor laboratory for education on natural processes and the human impacts on them-

Thorunn Petursdottir (1) and David Finger (2)

(1) Soil Conservation Service,Iceland, (2) University of Reykjavik, Iceland

“Tell me and I will forget, show me and I may remember, involve me and I will understand” (Chinese Proverb).

Throughout the global history fundamental knowledge on utilizing natural resources, nowadays known as ecoliteracy, was passed on to next generations by our ancestors. Nevertheless, their practices were often unsustainable and lead directly or indirectly to severe ecosystem degradation. Nowadays, overexploitation of natural resources is still a global main driver for ecological degradation, water quality decrease and climate change.

While ecoliteracy is still an essential knowledge, the societal structures required to maintain the knowledge have diminished. Today, about 80% of the population in Western countries lives in urban areas dominated by concrete structures with frequently only isolated green spaces. Environmental education is dominated by theoretical concepts taught using a wide range of multimedia technologies to simulate direct experiences of natural processes. Nevertheless, these technologies can only provide a superficial insight into the functioning of natural processes. Only direct on-sight investigations can provide a thorough experience of the dynamic, ever-changing environmental processes.

Iceland is a 103,000 km² large island, located on the Mid Atlantic Ridge just south of the Arctic Circle. In that area the earth crust is only a few km thick, leading to frequent volcanic eruptions and seismic activity. Due to the long winter and the wet climate glaciers formed on all major peaks and cover 11% of the island. Most riverbeds are in their pristine state and water quality is in general excellent.

The Icelandic nature may look pristine but is indeed severely degraded. Unsustainable landuse, namely deforestation and overgrazing, in an environment characterized by harsh winters and volcanic activities had devastating effects on the nature. Since settlement 1100 years ago 40% of its vegetation and soil have been lost. Soil conservation and restoration has been a governmental objective for over a century. Iceland has thus gained tremendous knowledge on ecosystem degradation and restoration. This knowledge is highly valuable for educational purposes, particularly to demonstrate the interactions of natural processes within functional and dysfunctional ecosystems.

Iceland has a population of roughly 325'000 whereof only 6% live in rural areas. Although fishing and agriculture are predominant industries in rural areas, in recent years tourism and heavy industry have become increasingly important drivers for economic development. Iceland is a representative democracy with a governmental structure similar to other North European countries.

All these factors make Iceland an ideal place to study ecoliteracy and learn about social and ecological systems. In this presentation we will present examples of training schools where the Icelandic nature is used as an outdoor laboratory for environmental education. We will also discuss how the interaction between human and nature in Iceland can be used to demonstrate the importance of linking geoscience to relevant social and ecological systems and how it can feed in to build up resilience-based management of natural resources.