



NORTHERN ENVIRONMENTAL  
EDUCATION DEVELOPMENT

# NEED Iceland

The Icelandic projects

Hornafjörður rural research centre  
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Innovatively investing  
in Europe's Northern  
Periphery for a sustainable  
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## Contents

NEED in Iceland .....	3
East Region .....	4
Brúarásskóli – elementary school.....	4
East Iceland nature centre.....	4
Hiking routes in Vatnajökull national park.....	4
Möðrudalur – The highlands north of Vatnajökull glacier .....	4
Skriðuklaustur – culture and research centre .....	4
Upper secondary school of Egilsstaðir .....	4
North region .....	4
Kiðagil school camp.....	4
National park school .....	5
North east development agency.....	5
North east nature centre .....	5
Vatnajökull national park – Jökulsárgljúfur canyon .....	5
South region .....	5
Bird watching in the south east coast.....	5
Brunnhóll – Geological path next to Fláajökull glacier.....	6
Convention about Environmental matters in Hornafjörður municipality .....	6
Geographical information system (GIS) .....	6
Geological map for Vatnajökull region.....	6
Glacier world – Hoffell tour operator.....	6
Hornafjörður elementary school .....	6
Interview with tourists in Vatnajökull national park .....	6
Krakkakot kindergarten.....	6
Mountain group of the Vatnajökull region WOW .....	7
Ode to reindeers .....	7
Outdoor photographic exhibition in Hoffell – Regression of the glaciers.....	7
Practical cultural dissemination .....	7
Sustainable policy of Vatnajökull region WOW .....	7
Upper secondary school of East Skaftafell County .....	7
Vatnajökull national park – Skaftafell.....	8
West region.....	8
Educational conference about nature interpretation and outdoor teaching.....	8
Educational footpath at Klausturheiði .....	8
Educational meetings .....	9
Geopark application.....	9
Sea trout centre .....	9
Outdoor life for the oldest children at elementary school .....	9
Summary .....	10

## **NEED in Iceland**

NEED stands for Northern Environmental Education Development which is a multinational project between Finland, Norway, Ireland and Iceland. The project is funded by the Northern Periphery Program 2007-2013.

Main goals of the project are to develop new and innovative ways to share knowledge about the environment and nature of protected areas. Target markets are tourists, students of all age and people who live near by the protected areas.

The focus point of the project in Iceland is Vatnajökull national park which is divided into four regions. A cluster has been formed in every region and a partner organization maintains each cluster. The Hornafjörður rural research centre is the lead partner in Iceland, Húsavík academic centre maintains the Northern cluster, East Iceland knowledge network maintains the East cluster, Upper secondary school of East Skautafell county runs the South cluster and finally Kirkjubæjarstofa culture and research centre maintains the West cluster.

## East Region

### *Brúarásskóli – elementary school*

Outdoor recreation and revegetation within Vatnajökull national park are the main focus of the Brúarárskóli project. Students will be educated about vegetation and how to stop erosion with revegetation. The students will also work on comparison projects. The intention is to make a 1-2 days long course / fieldtrip into the national park.

The project will be held out in collaboration with inhabitants in Möðrudalur and the Soil conservation Service of Iceland.

### *East Iceland nature centre*

The project of the nature centre is called *Reindeers in Vatnajökull national park* and consists of gathering information about reindeers such as age ratings and research of the reindeer's lifestyle. The information will be introduced for tourists in the form of a brochure and on the internet.

### *Hiking routs in Vatnajökull national park*

In 2008 the East Iceland knowledge network held a course about regional guiding. The idea is to evolve this course further for individuals who want to be educated about their region and how to guide tourists in short trips.

The project will be held out in collaboration with specialists in educational material making and the first course will be held in the summer 2010.

### *Möðrudalur – The highlands north of Vatnajökull glacier*

The inhabitants of Möðrudalur are willing to develop educational tourism. Emphasis is placed on the use of nature in tourism e.g. in Möðrudalur and Kverkfjöll. Educational material will be made and the service advertised and marketed with that in mind. The project is held out with the assistance of Vatnajökull national park, Development centre of East Iceland and the municipality of Fljótsdalshérað.

### *Skriðuklaustur – culture and research centre*

The employs of Skriðuklaustur intend to build up the knowledge of local inhabitants by gathering information about the area with emphasis on saga trails. This information will be made accessible for those who are interested.

### *Upper secondary school of Egilsstaðir*

In the fall of 2009 a course about environmental education in Vatnajökull national park was held in the upper secondary school of Egilsstaðir. A part of the course was a field trip to the north region of Vatnajökull national park. Emphasis was placed on the geology of the area such as volcanic activity, glaciology, quaternary geology, glacial relics, water conditions and other things. In the end of the course students held a conference where they introduced the outcome of their field work and researches.

It is intended to repeat this course in the fall of 2010 with some improvements such as collaboration with other upper secondary schools in Iceland.

A study module about this course can be found on the NEED webpage.

## North region

### *Kiðagil school camp*

At the Kiðagil School camp students and teachers will be working on an environmental project. The project focuses mostly on highland and mountain travel, outdoor life and nature.

A week long course is now in preparation where the children will learn about the basic elements of geology, geography and the history of the area where folk stories will be told among other stories. The children will learn to work with a compass and maps among other necessary things in the mountains. After this the group will dwell one night in the mountains in Vatnajökull national park and learn in practice how to associate with nature and huts in the mountains. The project will be carried out in collaboration with Svartárkot educational and research centre.

It is also intended to host a course for tour operators from all around Iceland about educational tourism. This course will take place in the fall 2010.

### ***National park school***

The national park school is an environmental project of Öxafjörður elementary school and is based on geology of Jökulsárgljúfur canyon and Öxafjörður with emphasis on continental drift and earthquakes. This project needs to be evolved further and teaching material about geology needs to be prepared. It is possible that students will prepare some promotion material that can be used at the visitor centre at Jökulsárgljúfur canyon, Kópasker earthquake centre and other locations.

The national park school will be responsible for the project but cooperators will be the Nature school Man and Earth, Vatnajökull national park and Kópasker earthquake museum.

### ***North east development agency***

The development agency will host a seminar and a field trip for tour operators about the geology of Jökulsárgljúfur canyon and Öxafjörður. Tour operators will gain more knowledge which they can share with their guests. It is also possible an abstract will be created that tour operators can use while introducing the area. The seminar will take place in Vatnajökull national park where presentations will be offered before lunch and guided field trips with specialists in the afternoon.

This project is collaboration between the development agency, Húsavík academic centre, North east Iceland nature centre, Vatnajökull national park and other tour operators in the area.

The development agency also held a national conference about Geou tourism in September 2009. The Australian David Newsome held a speech about geotourism among other specialists from Iceland.

### ***North east nature centre***

In the fall 2007 the representatives of this project went to Czech Republic and participated in a course about outdoor education for teachers. After that they wanted to evolve a similar course here in Iceland.

That course was held in the fall 2009. It was a 20 hour course about outdoor education for teachers in elementary and upper secondary schools. The course could come to use for others who work on education for children outside as well, e.g. rangers in the national park. Ten teachers and three rangers participated in the course and the goal was to get them to dedicate themselves to teaching outside. The theme of the course was the formation of the environment and nature experience.

Study module for this project can be found on the NEED webpage.

### ***Vatnajökull national park – Jökulsárgljúfur canyon***

Vatnajökull national park is preparing three projects in the north region. The first one is intended to increase the geological knowledge of tourists. That can be done by developing orienteering and theme walking trails with emphasis on geology. The project will be held out with the assistance of North east development agency, Kópasker earthquake museum and tour operators in the area.

Project number two focuses on children in elementary and upper secondary schools. Teaching material with focus on geology is going to be developed and made accessible on the web. Some materials already exist but needs to be evolved further. Öxafjörður elementary school, Kópasker earthquake museum and experts in geology of the area will be the supporting partners in this project.

The last project is collaboration between the Earthquake Centre at Kópasker and the Visitor Centre (Gljúfrastofa) of Vatnajökull National Park in Ásbyrgi, with the assistance of teachers from Öxafjarðarskóli. These partners have made an Earthquake educational project for Elementary Schools. The project involves a visit to both of these Centres, with the main emphasis on earthquakes and especially on the earthquake that struck Kópasker on January 13th 1976. In addition, there will be education about other geological phenomena in the vicinity of Kópasker and Ásbyrgi.

Study module for this project can be found on the NEED webpage.

## **South region**

### ***Bird watching in the south east coast***

Cooperation about bird watching has been founded between the municipality of Hornafjörður and the municipality of Djúpivogur. The approach of the NEED project is first and foremost involved in cartography, where the primary bird watching sites are mapped down. The makings of educational sight at these destinations are also possible. The Hornafjörður rural research centre is responsible for this part of the bird watching project along with several interested parties at Djúpivogur, Hornafjörður, the Vatnajökull region WOW and Hornafjörður Cultural centre.

The map is now available and accessible on the Icelandic NEED webpage [www.need.is](http://www.need.is).

### ***Brunnhóll – Geological path next to Fláajökull glacier***

In the NEST project a geological path was made next to Fláajökull glacier in Southeast Iceland. Brunnhóll tour operator wants to evolve this path further and put up signposts about geology and glaciology. This will be done in the fall 2010.

### ***Convention about Environmental matters in Hornafjörður municipality***

The convention was held in October 2009 and lasted for two days. Tourism in the whole island was the subject of the previous day where the quality of environmental tourism was the main emphasis. Speakers had different backgrounds, e.g. from the Icelandic Food and Biotech R&D institute, Icelandic farm holidays and the Icelandic Travel Industry Association.

The latter day two workgroups were formed. One group discussed environmental, economical and sociological goals for sustainable tourism in the Vatnajökull region WOW. The other group discussed the relationship and cooperation between the Vatnajökull region WOW and Vatnajökull National Park. This convention is collaboration between the Vatnajökull region WOW, Hornafjörður rural research centre and Hornafjörður municipality.

### ***Geographical information system (GIS)***

Emphasis will be placed on creating a geographical information system for the municipality of Hornafjörður where geology will be the main theme. Hornafjörður rural research centre is now working on this project along with relevant experts. A proto-webpage has now been made and can be found under the link [www.need.is/iceland](http://www.need.is/iceland). The webpage is now being evolved further and made more user-friendly under the link [www.need.is/jardvefur](http://www.need.is/jardvefur).

### ***Geological map for Vatnajökull region***

In the spring 2010 a map about interesting geological places in Hornafjörður municipality will be created and thereby made accessible to tourists. The map will be similar to the Birdwatching map that was made in the spring 2009.

### ***Glacier world – Hoffell tour operator***

The intention is to make an exhibition about geology and glaciology at Hoffell. Preparation has already started and the first phase in this project will open in the spring 2010.

It is also intended to make a geological footpath close to the glacier at Hoffell where geology will be the main theme.

Glacier world will work with the Hornafjörður rural research centre and other specialists in this project.

### ***Hornafjörður elementary school***

At the elementary school work has began with standardization of the field trips for all age groups. The school is now divided between two buildings. The intention is to create a clear vision of the field trips so that one builds on the other. The trips will there for be more systematic. The students will visit interesting areas of Vatnajökull national park and better knowledge will be emphasized i.e. in geology.

The oldest students have already gone on one fieldtrip to Lónsöræfi. The trip took place in September 2009 and the intention is to repeat the trip next fall with some minor changes.

The masters student Guðlaug Úlfarsdóttir is working on a thesis about outdoor education and her work will be used in this NEED project.

### ***Interview with tourists in Vatnajökull national park***

In the summer 2010 a research will be preformed among tourists in Vatnajökull national park. Specialists from Hornafjörður Rural Research Centre will interview tourists at four locations within the national park. The research will be both qualitative and quantitavie and tourists will be asked about quality and economical matters.

### ***Krakkakot kindergarten***

The kindergarten Krakkakot works with the health policy of Urðarhóll where emphasis is placed on physical exercise, nourishment and art. Krakkakot also places emphasis on the environment and nature. The children learn to sort garbage and to take care of kitchen garden.

Two different NEED projects are in preparation at Krakkakot. Firstly the children will go on a field trip to analyze plants. Work with the plants will continue through the winter. This project will be in cooperation with the South east Skaftafell county forestry association and the company Náttúrulega.

It is also intended to take the graduation children on a fieldtrip to Kvísker in Öræfi in the spring 2010. Kvísker is about one hour drive from Höfn and the children will learn about many different environmental things with the farmer at Kvísker.

#### ***Mountain group of the Vatnajökull region WOW***

The goals of the mountain group are to make municipality of Hornafjörður one of the most popular mountaineering regions in north Europe, i.e. with systematic education for the inhabitants and good marketing. First on the agenda is to list down all rock climbing, ice climbing and hiking routes in the area. The idea is to note down the gps spots, the difficulty ranking and make this information accessible on the internet. There for good and correct information are given to the visitors and tourist safety is promoted.

This part of the mountain group project is collaboration between the Vatnajökull region WOW, Hornafjörður rural research centre, From coast to mountain travel service, Icelandic mountain guides and the Icelandic alpine club.

#### ***Ode to reindeers***

A symposium was held at Höfn in connection with the festival *Winter the Vatnajökull region WOW*. The symposium was called *Ode to Reindeers* and was held in March 2010. Emphasis was placed on education about the reindeers in general and to analyze the opportunities involved in this resource, e.g. tourism handcrafts local food, hunting and accessibility. Awakening of the public was therefore the main focus.

This project was collaboration between the Vatnajökull region WOW, Hornafjörður rural research centre and others.

#### ***Outdoor photographic exhibition in Hoffell – Regression of the glaciers***

An outdoor photographic exhibition was put up at Hoffell in mid March 2010. The exhibition showed how the Hoffell glacier has changed through seasons and years and therefore shows the influence of climate change in the world today.

The exhibition was a part of the festival Winter in the Vatnajökull region WOW and the photographer was Þorvarður Árnason.

#### ***Practical cultural dissemination***

A course was held at Höfn for master students at the University of Iceland in practical cultural dissemination in February 2009. Different kinds of cultures were introduced to the students, e.g. culinary tourism, mountaineering and other clusters in the area. The students also discussed the connection to sustainable tourism and how that connects with the other types of tourism. Emphasis was placed on education connected with culture and history and also nature and environment.

In continuation of this course the students choose a project to evolve further. With these projects new visions in cultural tourism will possibly be created. This course was collaboration between Hornafjörður rural research centre, University of Iceland and several tour operators in Hornafjörður.

#### ***Sustainable policy of Vatnajökull region WOW***

After the convention about Environmental matters which was held in October 2009 a decision was made to evolve a sustainable policy for Vatnajökull region WOW. The cluster consists of most of the tour operators in Southeast Iceland. The policy will be evolved in the fall 2010.

#### ***Upper secondary school of East Skaftafell County***

The upper secondary school is going to work on different projects within the NEED project.

In the first project students will receive basic instruction in mountaineering. The students will there for extend their knowledge of the area and the course will also be a good foundation for further education in this field. The course will be evolved in cooperation with Icelandic mountain guides.

The second project is about Plant succession on Skeiðarársandur in Iceland. Biology teachers in cooperation with the University of Iceland have developed a course where students research and monitor the vegetation development (primary plant succession) at Skeiðarársandur, a ca. 1000 km<sup>2</sup> floodplain south of Vatnajökull glacier. Skeiðarársandur is a glacial outwash plain (*sandur*), formed by meltwater at the terminus of Vatnajökull; it is the largest of its kind in Iceland and, indeed, in the whole world. The formation of Skeiðarársandur has been characterized by periodic glacial bursts (*jökulhlaup*), some of great size, caused by geothermal and/or volcanic activity under Vatnajökull glacier. Glacial recession and other factors due to climate change have altered the floodplain considerably in recent years and now vegetation, mainly birch, is growing slowly but steadily on the previously barren sand. This course took place in the fall 2009.

The third project of the upper secondary school is a course about environmental studies and further development of the courses that already exist. What is in issue here is cooperation with the masters' student Hildur Þórsdóttir who focuses on the environment in her studies. The students will gain environmental awareness and good foundation for further education in this field.

The upper secondary school also took a group of students to Lón where the students counted and performed researches about swans in that area. This course took place in the spring 2010.

The last project has been called *Social life and tourism* and consists of students getting acquainted with the work of the tour operators in the area and there for add to their knowledge of the area. The Vatnajökull region WOW will be in cooperation with the upper secondary school in this project.

This project consists of two field trips within the Hornafjörður municipality. The first trip is called a *weekend in Hofsnæs* and took place in November 2009. The purpose of the trip was to take 15 students to an ice climbing course, where they learned to manage in difficult situations and possibly natural hazards. Guides and teachers in this course came from Icelandic mountain guides. The students learned to climb both in rocks and glaciers and are there for very aware of the environment they live in and are much more likely to respect the nature we live in here in Iceland and maybe make a living of this kind of work in the future.

The other trip is called *Trip to Öræfi*, it will take one day and the students will go by bus to Ingólfshöfði and learn about birdlife and history. The student will also go on a boat trip around the Glacier lagoon and learn about the history and glaciology.

### ***Vatnajökull national park – Skaftafell***

Three different projects are intended at Skaftafell. The park manager is interested in hosting a local condition course for rangers at Skaftafell and thus increases their knowledge of the area. All rangers must take a course where they learn about the field of work of a ranger along with nature interpretation and first aid. However there is no difference in courses for rangers in different national parks even though the landscape is not comparable. This can be improved by giving a course about local conditions. Rangers will there for be able to give good and correct information to tourists.

Educational footpath is intended in Skaftafell along with educational signposts. The idea is to put up a sign beside the "Water dragon" to explain its importance before bridges were built over the Glacier Rivers. The dragon is a tank that helped people to cross the rivers. Another sign will be placed close to Skaftafell glacier and the history and geography explained. The educational footpath will explain the history and culture of the area.

The last project in Skaftafell is development of educational material for children who visit the park, both summer visitors and school groups that dwell for longer periods. It is possible to work with student teachers in this project

## **West region**

### ***Educational conference about nature interpretation and outdoor teaching***

The aim of the conference is to educate teachers in kindergartens, elementary schools and other interested parties. Participants will gain the opportunity to talk together about various projects along with increasing their knowledge in nature interpretation. Hornafjörður rural research centre will host the conference in cooperation with the educational department of University of Iceland and it will be held in the fall 2010.

### ***Educational footpath at Klausturheiði***

Educational footpath will be built from Hunkubakkar in the west to Bjarnarklifur in the east. From there to Hæðargarðsland and Landsbrotshólar until the circle is closed.

The main theme is geology; this area is like a big classroom which covers considerable part of Icelandic geology. Four different focuses will be placed on the path, each one connected to the curriculum of a certain age group. Interactive projects will be placed at the post stops that are intended to interest tourists. Focus will be placed on land formation, lava flow, and pseudo crater and so on.

The distance will be about 15 km and hikers will be able to start walking where ever they choose, thus the path will come in use for all the hotels and guesthouses at the area. The path will be designed so that hikers can walk a small part of it or the whole circle.

A new curriculum for upper secondary schools will be published in 2011. Presumably there will be opportunity to take a few days field trip in a certain subject. The idea is to create geological courses about the footpath along with field trips to Lakagigar and other geological destinations. The students

will finish a whole course in geology by taking this field trip. This can also support the tourism industry at shoulder seasons.

Kirkjubæjarstofa will be responsible for this NEED project in cooperation with interested parties.

#### *Educational meetings*

Four to six different meetings will be held about the interplay of man and nature and the main topic will emphasize on philosophy. After that the topics will vary, e.g. the effect of Glacier Rivers on the biosphere of the sea and vegetation.

The aim of the meetings will be to educate the inhabitants of the West Skafthafell County about the nature in its widest context with Vatnajökull national park in mind. The South Iceland environmental association will host these meetings.

#### *Geopark application*

In the west region of the NEED project specialists are working on an application to the European Geopark network. Infrastructure needs to be improved and Kirkjubæjarstofa culture and research centre participates in the ground work for the application.

In August 2009 a conference was held in the west region where Patrick McKeever visited the area and gave comments about the application to the European Geopark network.

#### *Sea trout centre*

Educational tourism will be the emphasis of the sea trout centre at Tungulækur. Guests will receive education about the water, food chain, characteristics of the species and so on. The aim of the centre is to educate guests about the sea trout in an informative way. Jóhannes Sturlaugsson will be in charge of this project.

#### *Outdoor life for the oldest children at elementary school*

Four educational meetings will be held in June (preferably outside) where emphasis will be placed on the basics of tourism and geology i.e. eruptions, fissure eruption, glacier rivers, palagonite tuff, central volcano and hot springs. In continuation the students will take a two day hike around the highland pasture. Three different hikes will be taken, one each year, so that each class will be introduced to different areas in their local area.

Studies have shown that education of this sort makes children connect better to their local areas and therefore they are more willing to live there. The tourism knowledge can also be of use, i.e. in guiding tourist at the highlands.

## Summary

The NEED project will continue until December 2010 and all the projects will therefor end before that time. It is preferred that the projects have certain and measurable aims that will be reviewed in the end of the project.

The projects are quite many and different, yet they have two things in common and that is to increase environmental knowledge in Iceland and are all connected with Vatnajokull national park. Some of the projects have a parallel in other regions so cooperation will be sought and in continuation cooperation with other NEED counties.

In addition to all the projects mentioned, the NEED project as a whole is working on a few assignments. Geo review, popularized scientific geo-information of the target sites, curriculum analyses and researches among teachers and tour operators have all been made or are in progress in the four NEED countries. With cooperation like this one can learn from other peoples experience and do even better.