RESTORATION OF DEGRADED AND DESERTIFIED LANDS:

EXPERIENCES FROM ICELAND

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“Help the people heal our land”

A century of soil conservation in Iceland
1. Soil erosion in Iceland
   • Climate change and human influence
2. Establishment of Soil Conservation Service of Iceland
3. Success in restoration based on legislation, policy, grassroots approach and peoples attitude ...
103 km²  Nearly 2/3 vegetated

At least 25% of country wooded - now 1%

A fertile country
  Great prosperity
The woodlands were burned, cut, grazed etc.
- Recovery hampered

Interaction
- Unsustainable land use
- Climatic fluctuations
- Volcanic eruptions

Marked the beginning of dramatic ecosystem destruction
- Lasting 1100 years
THE DESTRUCTION IN A NUTSHELL

Glacial pavement
Volcanic ash
Charcoal pit

The “rofabard”
The erosion front

Desertification in a humid environment

Same area 16 years later
Mean increase of 0.4°C compared to 1961-1990 average
Widespread changes in extreme temperatures
Cold days, cold nights and frost less frequent
Hot days, hot nights, and heat waves more frequent
Warming in the Arctic is double that of the globe over past 200 years

Pictures from http://www.ipcc.ch/graphics
CLIMATE ...or temperature since Iceland was settled in 874 AD

Temperature deviation \( \text{˚C} \)

Year

Temperature deviation

\( \text{˚C} \)

Mann og Jones 2003

Year
November 22nd 1907:

“In connection therewith, protective measures shall be taken to prevent soil erosion and blowing sand wherever practicable. The Government Offices shall be ultimately responsible for forestry and soil erosion matters.”

Is the Icelandic SCS the oldest soil protection institute in the world?
GUNNARSHOLT 60 YEARS LATER
HEADQUARTERS OF THE ISCS
STILL ... THERE ARE MILLIONS OF HECTARES OF SEVERLY DEGRADED LAND
THREE MAIN GOALS TODAY

- Halt ongoing erosion
- Restore lost resources
- Promote sustainable land use
CONSERVATION AND RESTORATION OF BIOLOGICAL DIVERSITY

Mitigating climate change by carbon storage

Food production / food security

Improved water budget

Increasing profitability of agriculture
Iceland needs to:
1. Provide a legal framework harmonizing all law affecting land condition
2. Link governmental service better to goals of sustainability
GRAZING IN AN AREA OF DESERTIFICATION

Protected

Grazed
A MAJOR BREAKTHROUGH: CONTRACT: GOVERNMENT-SHEEP FARMERS

- Up to 35% additional support based on verification of “quality” of land use
- Shift grazing from damaged to good condition land
- A great incentive
RESEARCH AND DEVELOPMENT: LINK WITH POLICY AND DEVELOPE KNOWLEDGE ABOUT PROBLEMS AND SOLUTIONS
A BREAKTHROUGH: FIRST NATIONAL SOIL EROSION SURVEY 1997

- Led to problem acceptance at the public level –
- Slower at agricultural level
- Basis for action plans and prioritization of conservation and restoration work
EDUCATION, AWARENESS AND ENCOURAGEMENT
Participation in Stewardship

- Top down approaches deliver less
- Instead: Get farmers together to recognise problems & identify solutions and
- Develop action plans using local advisors as facilitators
  - Reach, involve, educate
Examples of this direct and indirect incentive:

“FARMERS HEAL THE LAND”

- Support for fertilizers, seed and advice

- Multiple goals:
  - Land improvements for agriculture
  - Improve grazing management
  - Cultivating co-operation
  - New links with agricultural support

- Participation is a main characteristic of soil conservation in Iceland
  - A real trigger for change
A new SCS fund to increase participation at the community level

A further step in grass-roots approaches

Finally - we are gaining more land than loosing
The goal of soil conservation in Iceland:

Preventing further ecosystem damage and restoring lost resources. We look forward to sharing our experience.
Co-operation with many countries

Iceland Ministry of Foreign Affair is supporting via University of United Nations, a 3 year pilot training program in land restoration and sustainable land management.

Co-operation and collaboration with mutual benefits.
IT PAYS TO STOP TREATING SOIL LIKE DIRT!
Soil is the vital but missing link between the Conventions and the MDG´s
Iceland lost 1.6 billion tons CO2
300 times current emissions
Reduce emissions +
Store carbon in soil and vegetation
Make Iceland carbon neutral!
DON'T FORGET THE SOIL!

A key to Global Sustainability

Linking Landcare with Climate, Biodiversity, Water, Food Security, Poverty Reduction and Peace
Every country has its own sets of problems and solutions.
Main lessons from Iceland’s 100 years of healing the land may be the importance of participatory approaches, and
The synergic role of soil conservation and land restoration in reaching environmental, economic and social goals.
... ultimately, the underlying basis for achieving goals of sustainable land use
Thank you for your attention