Iceland – Integrating Technology, Needs, and Responsibility For Sustainable Living

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Dedicated to Team Daedalian
And 1 car 1
Overview of Topics:

- Iceland’s Identity
- Industries
- Land Development
- Iceland’s Resources
- Biota – plants, animals, and fish
- Image – tourism and the economy
- The Government and Energy Plan
- Pollution
- Iceland – Today and Tomorrow
Iceland’s Identity:

- Energy Independence
- International acceptance of venture
  - Money
  - Infrastructure
- Ministry of the Environment
- Tradeoffs
  - Power Plants
Industry

- Fishing
- Natural Resources
- Land
- Encourage Business Investment
Besides

- Aluminum Smelting
- Ferrosilicon
- Renewable Energy
- Software, Biotech
Land Development

- Birth to death ratio ~ 2+
- Alcoa and the East
- Job Creation
- Maintain clean image
Iceland’s Resources:

- Iceland is a geologically young land mass
  - 2 million years old.
  - Lacks conventional resources
- Oil issues
  - 90% of citizens live on the coast
  - High monetary cost
  - Economic fishing zone
- Abandoning oil
Iceland’s Past:

- Clean and Untouched
  - Current reputation that transcends all sectors

- Dirty Past
  - Answered to “The Man” at one time

- Willingness to change
  - Vulnerability
Biota

Destructive past

- Birch Forests
- Wetlands
- Red listed
  - 51 / 458 vascular plants types
  - 32 / 75 birds types
Mammals

- Arctic Fox
- American Mink
- Water Rail (mink and wetland draining)
Fish

- Most important resource
- “For the fish”

Land

- Land pollution affects marine environment
- Untouched to save what remains
- Rewetting the “Dry lands”
- National Parks, pride, and aluminum
Iceland’s Image:

- Tourism
  - Clean and unspoiled
  - Outnumbering

- Fishing
  - Before geothermal there was fishing...
    - VALUABLE RESOURCE
  - 70% of exported goods
  - Stringent regulations
    - Cod, haddock, saithe, redfish, herring, and capelin.
Iceland’s Image:

- High Standard of Living
  - Decoupling of economics and environmental degradation
  - Virtually no poverty
- Street Interviews
  - Government Agencies
  - Citizens
    - Willingness to pay! Can you believe it?
Iceland’s Image:

- The Blue Lagoon
  - “Hottest” tourist attraction
  - Geothermal power plant affluent
    - Compare to U.S.A.
  - Not in the master plan
    - Profits in the end.
Government:

- Not of U.S. tradition
- Althingi – 930.
- Thingvellir
- Mid Atlantic Ridge
- 1944 – Republic of Iceland
- Dissolved relations with the Danish Monarchy
Government – fishing rights:

- Transitions
  - Trade monopolies, natural disasters, and pollution

- 1952
  - Extent of fishing rights were 4 miles off the coast

- Today
  - 200 miles off the coast
Government:

- Still not a part of the European Union
  - Fishing right impingement fears
- Part of the European Economic Area
  - Allowed to trade and sell in the European arena
Energy Plan:

- Government regulates the energy industry
- 90% of heat
  - Thorsteinn Jonsson
- Clean and Price Competitive
  - 5-6 Kronas 1 Krona = .01318 USD
  - Equivalent to 6.6 to 7.8 cents per kWh
  - U.S. pays 4 to 9.5 cents
- ISO 14000
Energy Plan:

- Hydrogen Economy is coming!
  - 15,470 barrels of oil
  - Time
  - Infrastructure
  - Embracing
    - Transition in recent memory
Environmental Plans:

- Reykjavik Conference on Responsible Fisheries in the Marine Ecosystem
- United Nations Global Program of Action
Pollution

Marine pollution comes from the land
– Sewage → Low commitment

– Persistent Organic Pollutants ***
  - PCB, DDT, HCH
  - Industry, agriculture
  - Stockholm Convention, PCB, dioxins
Pollution

Heavy Metals
- Pb, Cd, Cu, Zn
- Cod, mussels

Radioactive Substances
- Testing
- Sellafield nuclear reprocessing
- Chernobyl
- Medicine
Pollution

- Oil
  - Unreported

- Utilize renewable Energy
Hydrogen Economy

- Transportation ~ 80% oil
- Icelandic Hydrogen and Fuel Cell Co.
  - 3 buses ....... 80
- $\text{H}_2$ generation $\rightarrow$ Electricity can supply 22% needs
- Plenty of room to expand
Hydrogen Economy

- Cleaner image
- Small population + lots of cars
- Lower Greenhouse emissions

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Iceland Today and Tomorrow:

- Taking away subsidies
- Kyoto Protocol
  - Eliminate transportation emissions
- U.N. Convention on Bio-Diversity
  - BIOICE
- OECD
  - Sustainable development
Iceland Today and Tomorrow:

- Geothermal Training Program
- Leader in environmental conservation
- Is Iceland ahead of its time, or is the rest of the world just really behind?