Encouraging Investments to Reduce Risks and Build Resilience

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CONTENT - Focus

● Improve understanding of best practice for resilient, climate smart investments in the Arctic – Challenges – Cross media

● Substantially increase private sector investments supporting resilient communities – Investment > USD 10 B by 2022 (Llyod)

● Expand use of innovative financial mechanism improving resilience Example – IFI - NEFCO instruments, others micro-financing

● Encourage identification of specific funding gaps and resilience priorities as a way to improve guidance to donors and catalyse new investments. Governance, stability, flexibility
World Population (in Billions): 1950-2050

4 million Arctic
375k indigenous

Population in Less Developed Countries

Population in More Developed Countries

The lower the stabilisation level, the earlier emissions must go down.
**Sectoral Challenges - Vary**

- Currently SE 7-8 [10] ton CO2-eq per cap-yr.
- A 2 degree goal = reduction by 90 % i.e. 0,5 – 1 ton CO2-e by 2050.
- 80 % private consumption. 20 % public
- Transport, housing, food, major areas.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Global</th>
<th>EU</th>
<th>Sweden</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy supply</td>
<td>25%</td>
<td>25%</td>
<td>13%</td>
</tr>
<tr>
<td>Transport</td>
<td>13%</td>
<td>21%</td>
<td>31%</td>
</tr>
<tr>
<td>Housing</td>
<td>8%</td>
<td>16%</td>
<td>8%</td>
</tr>
<tr>
<td>Industry</td>
<td>14%</td>
<td>26%</td>
<td>32%</td>
</tr>
<tr>
<td>Agriculture</td>
<td>14%</td>
<td>9%</td>
<td>13%</td>
</tr>
<tr>
<td>Forestry</td>
<td>17%</td>
<td>Uptake</td>
<td>Uptake</td>
</tr>
<tr>
<td>Waste</td>
<td>3%</td>
<td>3%</td>
<td>3%</td>
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</tbody>
</table>
Some Industrial Activity in the Arctic – Hot spots Application of BAT-BEP
Best Practice and Private Sector Investment

Some Industrial Activity in the Arctic
Large Marine Ecosystems of the World with Linked Watersheds

1. East Bering Sea
2. Gulf of Alaska
3. California Current
4. Gulf of California
5. Gulf of Mexico
6. Southeast U.S. Continental Shelf
7. Northeast U.S. Continental Shelf
8. Scotian Shelf
9. Newfoundland-Labrador Shelf
10. Insular Pacific-Hawaiian
11. Pacific Central-American
12. Caribbean Sea
13. Humboldt Current
14. Patagonian Shelf
15. South Brazil Shelf
16. East Brazil Shelf
17. North Brazil Shelf
18. West Greenland Shelf
19. East Greenland Shelf
20. Barents Sea
21. Norwegian Sea
22. North Sea
23. Baltic Sea
24. Celtic-Rosay Shelf
25. Iberian Coastal
26. Mediterranean
27. Canary Current
28. Guinea Current
29. Benguela Current
30. Agulhas Current
31. Somali Coastal Current
32. Arabian Sea
33. Red Sea
34. Bay of Bengal
35. Gulf of Thailand
36. South China Sea
37. South Celebes Sea
38. Indonesian Sea
39. North Australia
40. Northeast Australia
41. East-Central Australia
42. Southwest Australia
43. West-Central Australia
44. Northwest Australia
45. Kara Sea
46. New Zealand Shelf
47. East China Sea
48. Yellow Sea
49. Kuroshio Current
50. Sea of Japan
51. Oyashio Current
52. Sea of Okhotsk
53. West Bering Sea
54. Chukchi Sea
55. Beaufort Sea
56. East Siberian Sea
57. Laptev Sea
58. Kara Sea
59. Iceland Shelf
60. Faroe Plateau
61. Antarctic
62. Black Sea
63. Hudson Bay
64. Arctic Ocean

95% of Marine Productivity from 64 LMEs. 16-17 in the Arctic
Inputs to the Arctic Region

Four major rivers drain RF (Yenisei, Ob, and Lena rivers) and Canada (Mackenzie River). A total of 3,300 km$^3$ per year of freshwater to the Arctic Ocean. Flow onto the world’s largest continental shelf. Discharge nearly 10 per cent of the river discharge to the world oceans.
Regional/Global Perspectives

The Arctic: a breeding ground for birds.

During the summer, the sun never or nearly never sets, resulting in a short but intense breeding season where millions of migratory birds arrive in the Arctic to breed. The majority of these birds seek the wetlands and coastal shores of the tundra plains. No other place on Earth receives so many migratory species from nearly all corners of the planet. The Arctic coastal regions therefore hold a very special global conservation value.

Figure 6. Major global bird migration routes to the Arctic. Bird species that migrate to the Arctic coasts and wetlands arrive from nearly every corner of the planet.
Impact Hg-Global
Stratospheric Ozone Protection and Climate
Proposals and agreement

Surface temperatures by HFCs

- Baselines
- Proposals:
  - North America
  - Pacific Island States
  - India
  - EU

- Temperature change (°C)
- Year:
  - 2000
  - 2020
  - 2040
  - 2060
  - 2080
  - 2100

- Surface temperature change by HFCs

- Business as usual (Velders et al. 2015)
- Kigali amendment (2016)

- Temperature change (°C)
- Year:
  - 2000
  - 2020
  - 2040
  - 2060
  - 2080
  - 2100

“A” = pre-investment production,
“B” = increased production vis-à-vis the pre-investment production during the expected remaining lifetime of the pre-investment facility
“C” = production beyond the pre-investment facility lifetime.
Barriers - Subsidies – IMF (2013)

Total pre-tax subsidies: $480 billion

Share of total subsidies

- Petroleum products: $212 billion
- Electricity: $150 billion
- Natural gas: $112 billion
- Coal: $6 billion

Sub-Saharan Adv. Africa

CEE-CIS

E.D. Asia

MENA

LAC
Incentives

- Policy - Governance – transparency
- Legislation – agreements, conventions, stability
- Financial incentives
- Capacity Building
- Private-Public partnerships
- Designing short, medium and long term engagement
- Cross media issues. TRIAGE
NEFCO Methodology

1) The Project, Process, Responsibility
   ● Investment Costs, Operation Costs
   ● Performance (Financial, technical, economical, energy and environmental (EEE), ROI etc.)
   ● Environmental Guidelines (Categories, Impact Assessment (EIA), Audits (EA), CSR)
   ● Monitoring and Reporting (Indicators, Proj. Env. Report (PER))

2) Cost effectivity, Unit Abatement Costs

3) Cross Media Issues
CONCLUSION

For sustainable investments projects there is merit in addressing transparent and good governance which include:

- Structuring of investment size – Large, medium, small
- Managing Environmental, Energy and Economic (3E) Performance; Social Responsibility – eco-system services, traditional knowledge
- IFI (e.g. NEFCO), public-private engagement brings additional benefits and risk reduction to the client
- Address Grievance, Monitoring and Reporting
- Designing an exit strategy
- Gaining from lessons learnt
Example

- The tailings pond in Sillamäe, Estonia

- 8 million cubic metres of uranium waste mixed with oil shale ash. Radioactivity, heavy metals, chemicals, nitrogen

- NEFCO Funding manager; financiers: Finland, Sweden, Norway, Denmark, Estonia, EU/PHARE

- Total project cost: EUR 21.6 million

- Port and infra investment currently ca EUR 500 million. 20 y transformation
Sillamäe in 1995
Sillamäe in 2002
Sillamäe in 2006
Sillamäe in 2017