Tourism planning support of disappearing landscapes in Iceland

Hans Welling, Ph.D.
Iceland Tourism Research Centre

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ICELANDIC TOURISM RESEARCH CENTRE

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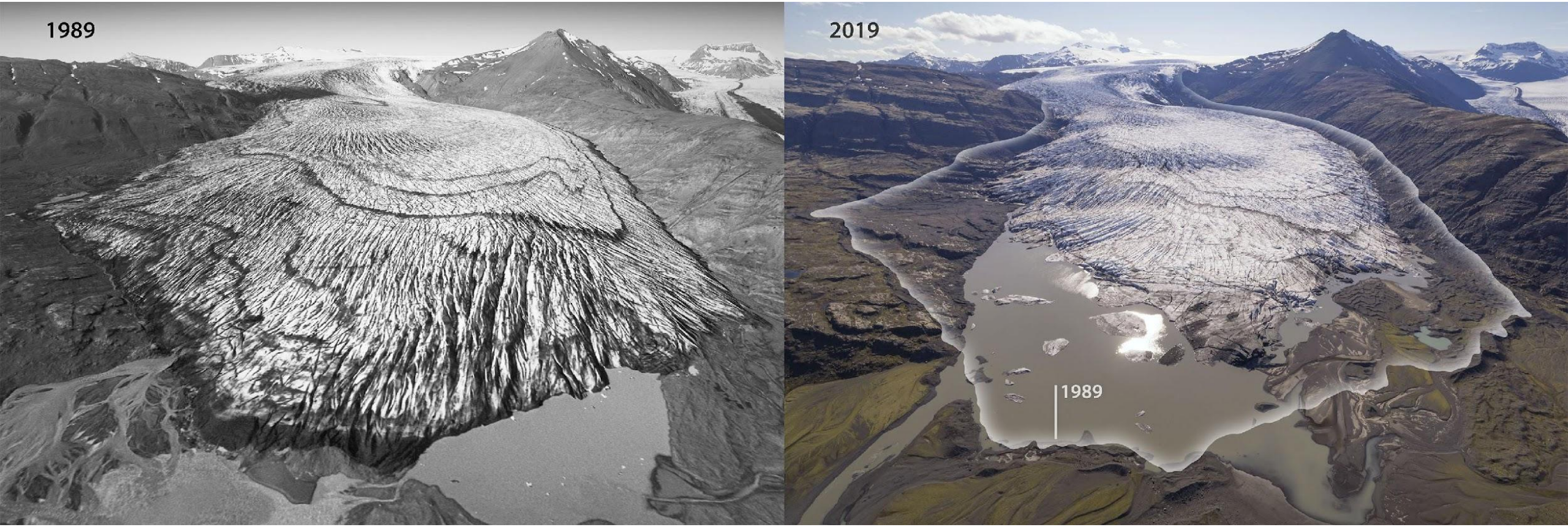
Shrinking glaciers



Skálafellsjökull 1989-2019 (Image from Kieran Baxter, 2020)

Glacier tourism

Implications for tourism

A. Reduced accessibility to and within glacier sites

B. Increased occurance of hazards

C. Change of scenery

D. New tourism opportunities

Adaptation actions of glacier tour companies

	Unintended adaptation	**Planned** adaptation	
		Reactive	*Anticipated*
Implemented adaptation means	54%	43%	**1%**

Source: Welling and Abegg, 2021

Adaptation strategy:

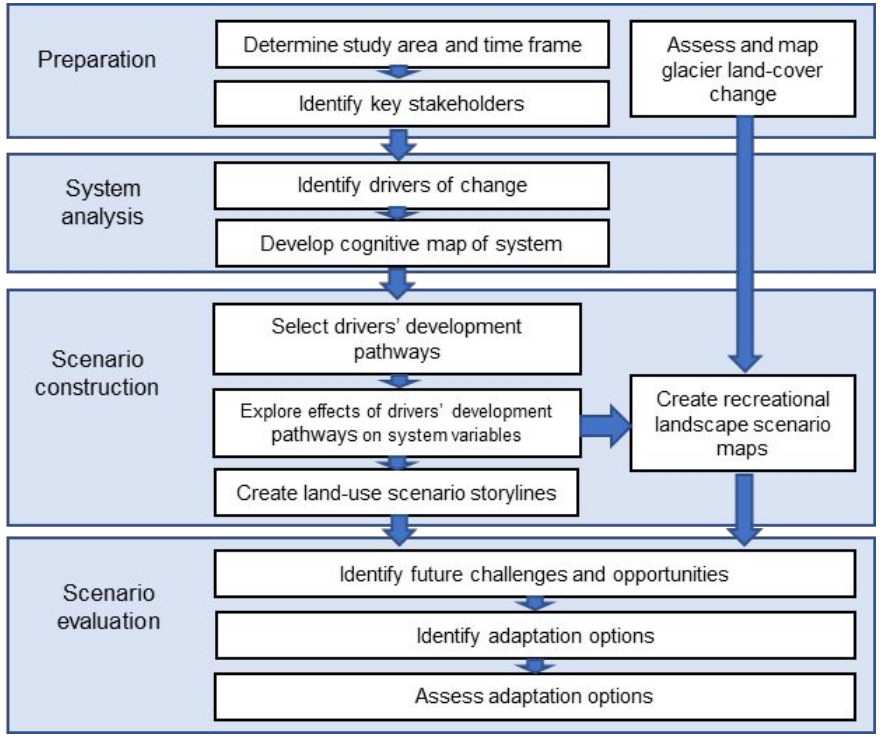
Wait, see and react – A business as usual strategy where the implementation of planned adaptation measures is postponed or has not been envisioned, and emerging risks and opportunities are managed reactively.

Why is there hardly any pro-active adaptation?

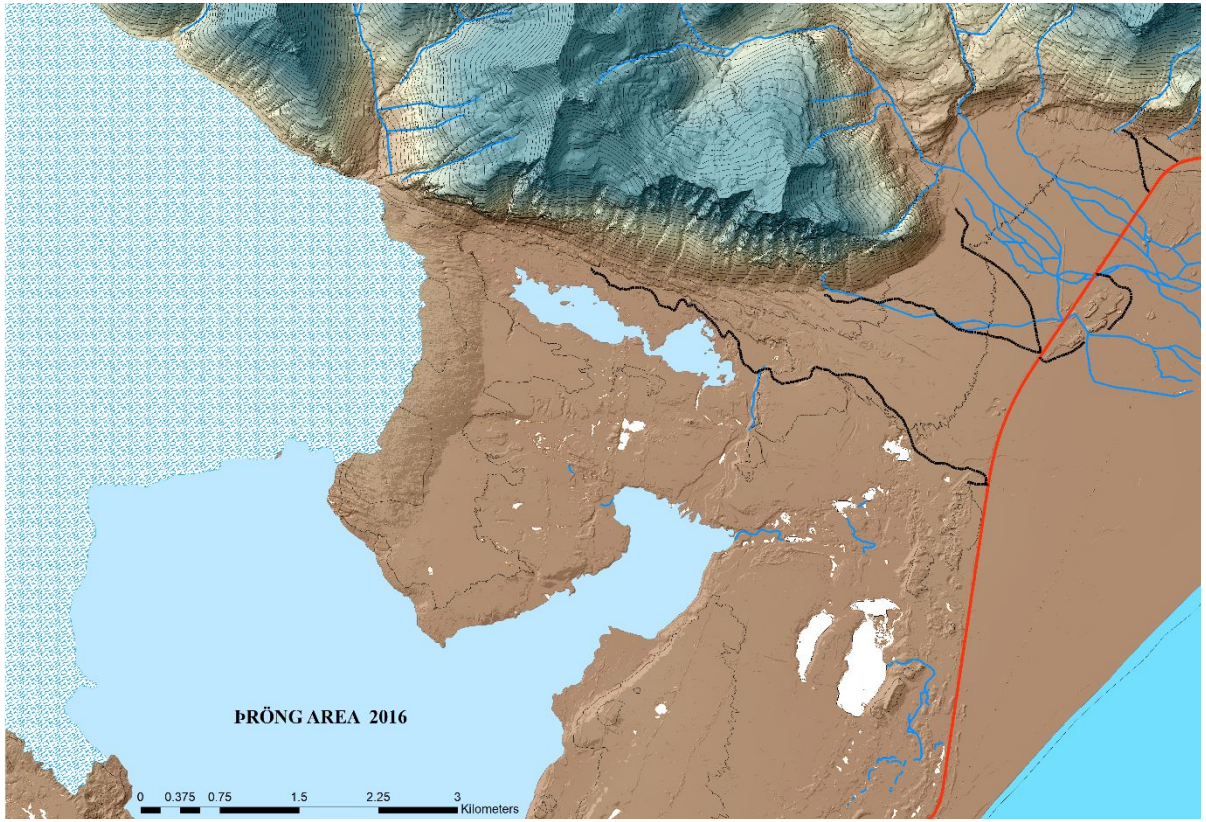
- Info gap between science – policies - practices
  - Lack CCA strategies
  - Mismatch between info demand and supply: scales, language, urgency
- Risk awareness fueled by personal experience of ´stable but uncertain´ landscape
  - High self-efficacy due to ´erratic but gradual retreat´
  - Low belief pro-active adaptation due to ´dynamism of environment´
- Competing concerns
  - Climate change ´just another´ issue to deal with

How to deal?

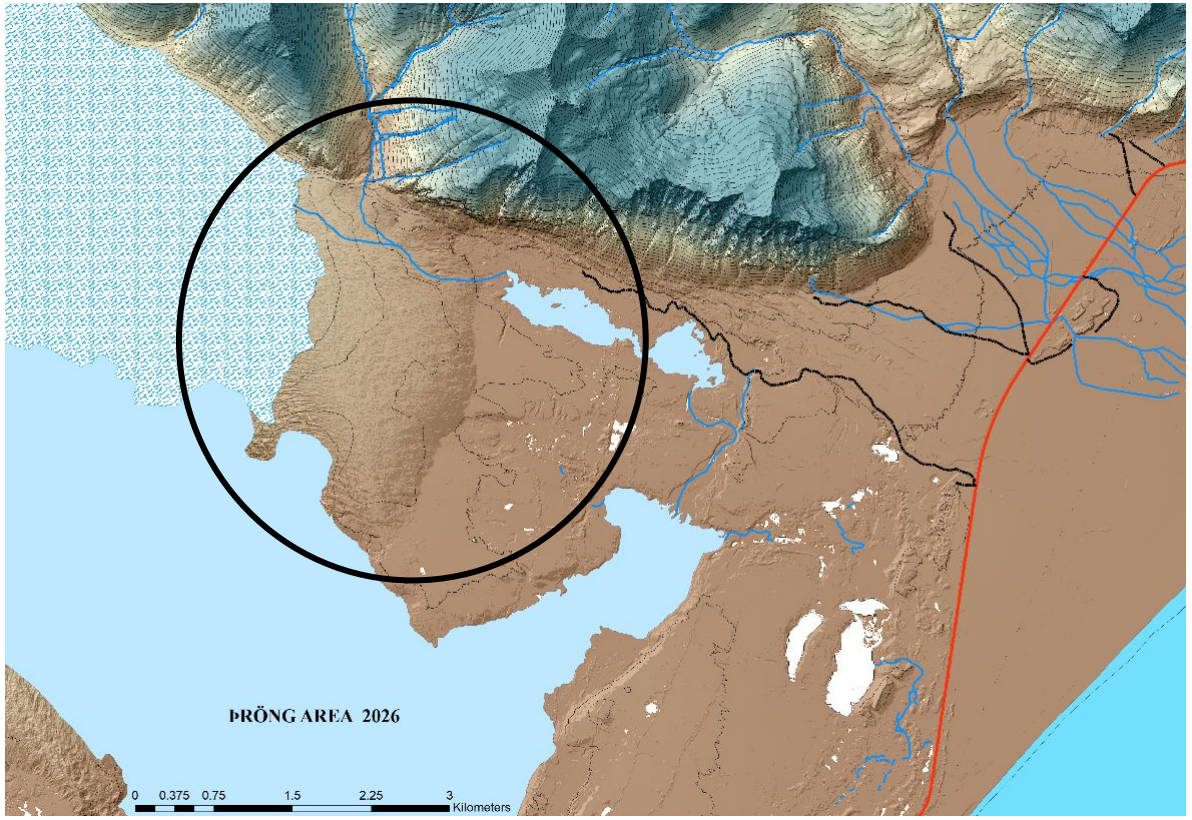
- Participatory scenario development:
  - a process that involves the participation of stakeholders to explore the future in a creative and policy-relevant way (Bizikova,2011)
- Addressing uncertainty, include multiple interests and salient (climate) information
- Land use/cover change scenario maps and stories of glacier tourist site in southeast Iceland: Þröng
- Stakeholder meetings to construct and evaluate scenarios



Development of future land cover map: changes in glacier volume and pro-glacial zone on basis land cover modelling

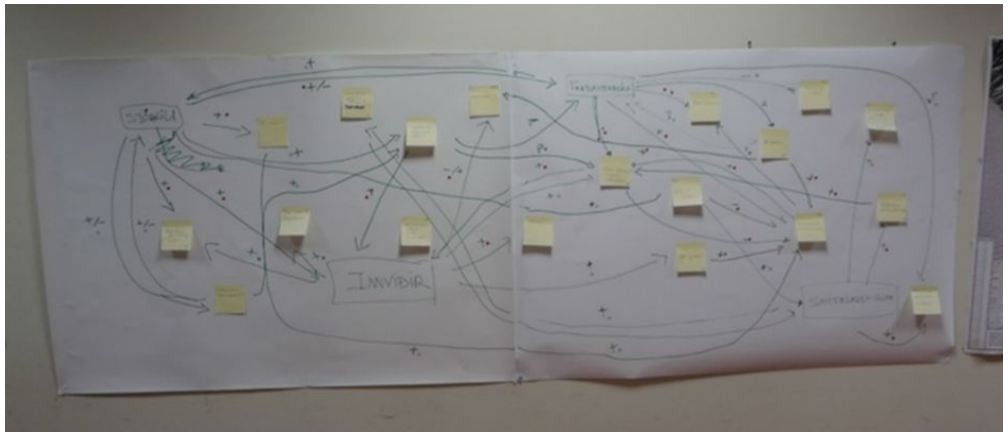


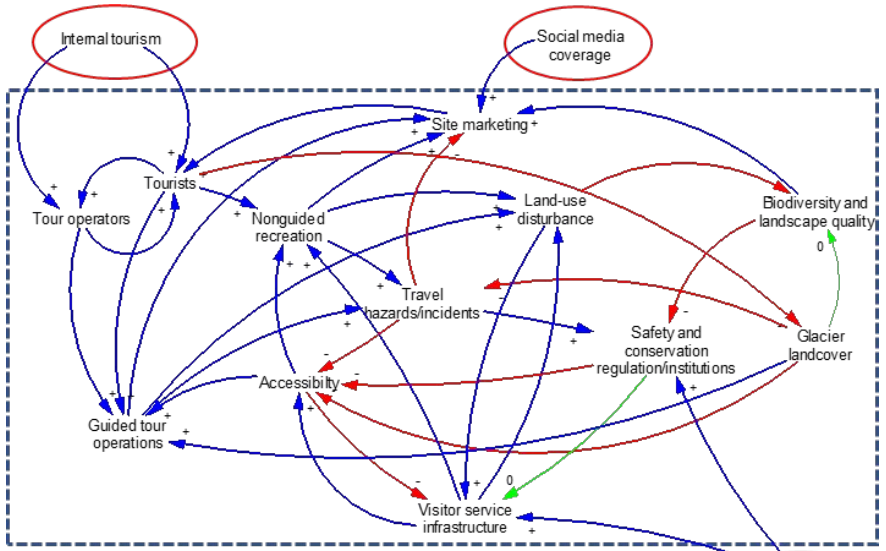
Þröng site **2016**



Þröng site **2026**

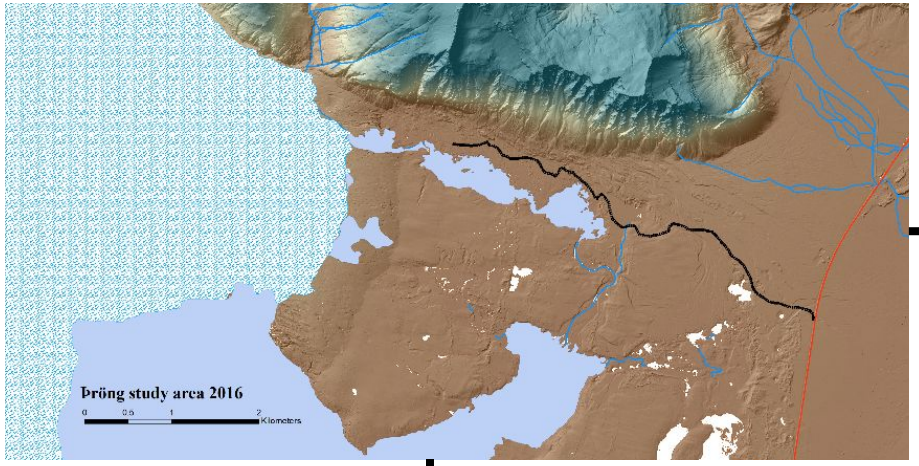
Construct tourism land-use scenarios using cognitive mapping and scenario matrix (workshop).



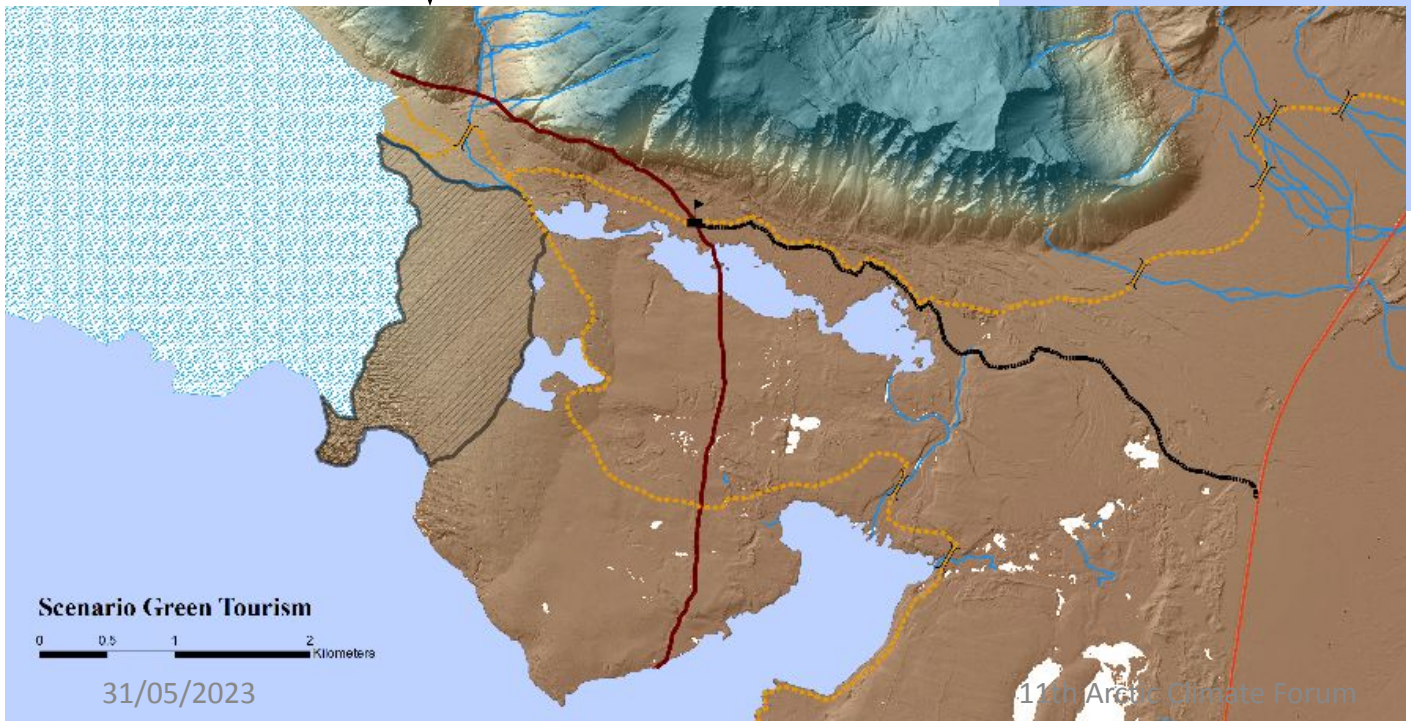


Drivers and pressures						
Drivers of change	National land management policy		Inbound tourism development	Social media area coverage	Climate change	
Local pressures	Land-use restrictions	Visitor Infrastructure	Demand (visitors)	Supply (tour operations)	Glacier volume	Pro-glacial zone
Scenarios						
Business as usual	0	0	+	+	- -	+ +
Hot spot	+	+ +	+ + +	+ + +	- -	+ +
Green tourism	+ + +	+ +	++	+	- -	+ +

Study area 2016



Scenario Hot Spot (2026)



Legend

- Glacier
- Parking Lot
- Cafeteria
- Hotel
- Hut
- Non Motorized Border
- Non Recreation Zone
- Hiking Trail long distance
- Hiking Trail short distance
- Build-Up Gravel Road
- Þröng track extension
- River
- Ring road

Scenario Green Tourism (2026)

Addressing impacts, and assess adaptation options (workshop 2)

Conclusion and the way forward

- PSD is valuable tool for planning complex socio-ecological systems such as nature tourist destination:
  - Forces stakeholders to look into future
  - Contribute to awareness different climate change implications
  - Increase understanding and trust between stakeholders
  - Social learning and empowerment

- Improve the dynamic land use/cover change model
  - Multiple climate change scenarios (RCP)
  - Agent based modelling of tourism actors
  - Adding other climate services: extreme weather data, hazard mapping on destination level
  - 3D visualization and VR to engage stakeholders to move in future landscapes

Thank you for your attention

Questions and Remarks: hwelling@hi.is

Sources:

Welling, J., & Abegg, B. (2021). Following the ice: Adaptation processes of glacier tour operators in Southeast Iceland. International Journal of Biometeorology, 65, 703-715.

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