

# Scenarios as a tool for the improvement of stakeholders' capacity for adapting effectively to multiple changes in the Arctic: The case of the Yamal region

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[www.blue-action.eu](http://www.blue-action.eu)

Photo credit: SAMS

# Brief introduction

**Yamal 2040** is a case study within the international Blue-Action research project

## Goals

- Build, use, and assess scenarios for the future of the Yamal region in the Russian Arctic in collaboration with stakeholders

## In order to

- Develop greater capacity among stakeholders to adapt to multiple changes and
- proactively prepare for alternative and uncertain futures of the Yamal region

# The Yamal region

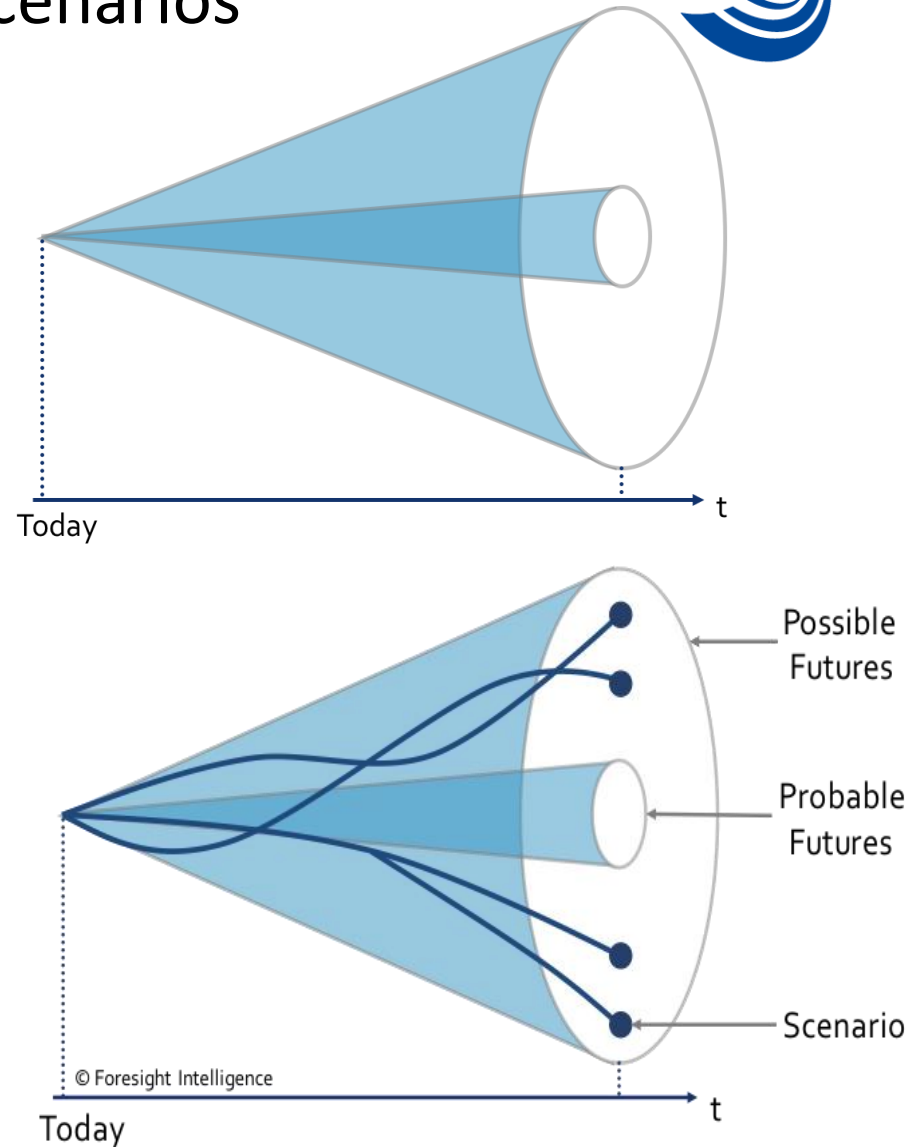
- Yamal is considerably affected by climate change
- Yamal region is at the core of petroleum development in Arctic Russia and produces more than 80% of Russia's natural gas
- Population of the Yamal region is 534.000 people. 8% of them are indigenous (Nenets, Khanty, Selkup)
- The future of Yamal is highly uncertain due to substantial climatic, environmental, economic, social, political, and legal changes in the years and decades to come



Map by Stasyan117/Wikipedia

# Scenario methodology: On Foresight, Strategic Foresight, and Scenarios

- Foresight is systematic thinking about uncertain futures.
- Strategic foresight is action-oriented foresight.
- Scenarios are (strategic) foresight tools.
- A scenario is a comprehensive description of:
  - a possible future situation, composed of consistent parts.
  - a plausible trajectory that leads to a certain situation.



# On scenario construction as communication platform

	Forecasts	Scenarios
Epistemology	Predicting, explaining a future state	Thought experiments about future developments
Lense	Focused	Broader environment, comprehensive picture
Criteria	Probability	Plausibility
Change	Incremental	Structural/fundamental
Goal	Foreknowing the future, creating knowledge about the future	Better understanding of complex environments, making sense of uncertain futures, avoiding surprise
Approach	Context independent information gathering	<b>Structured group process</b>

The scenario process provides a communication platform for diverse groups



# Creating scenarios is a structured group process



Credits: Kathrin Stephen (IASS)

# Participants

## Participants:

- Environmental NGOs
- Indigenous peoples rights NGOs
- Oil and gas business
- Consulting
- Local community
- Scientific community
- Media





# Second workshop in Potsdam, March 2018



Credits: Julia Baronina (IMEMO)

# Scenario frameworks (raw scenarios)

	<b>Scenario Blue (Reinventing)</b>	<b>Scenario Orange (LNG)</b>	<b>Scenario Purple</b>
<b>Oil and Gas Prices</b>	Correlated, low prices (20-70\$, 1.5-3\$)	Low price for oil (20-70\$), high price for gas (3-7.5\$)	Correlated, high prices (70-120\$, 3-7.5\$)
<b>Russia's Economic Development</b>	O/G: high; other sectors: low øGDP growth: 1%-2%	O/G: high; other sectors: low øGDP growth: 2%-5%	O/G: high; other sectors: high øGDP growth: >5%
<b>Sanctions</b>	persists	abandoned	persists
<b>Inclusion of Indigenous People</b>	Joint decision making	Government under pressure	Civil society and indigenous peoples excluded
<b>CC Impacts on YNAO</b>	Medium to high	Low	More ice and less permafrost thawing
<b>Global energy transition</b>	Breakthrough(s)	On the way	Stalled
<b>Environmental damages from O&amp;G industry</b>	High production, low regulation	High production, high regulation	High production, high regulation
<b>Investment Climate</b>	Not good	Good	Good

# Scenario descriptions

## Three scenarios:

- Yamal 2040: Reinventing itself
- Yamal 2040: Gas Boom
- Yamal 2040: Snow Queen



Credits: Julia Baronina (IMEMO)

Institute for Advanced Sustainability Studies e.V.



# Scenario descriptions

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2 1 1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

**Scenario 3 Yamal 2040: Snow Queen**

In 2040, prices for oil and gas are high due to a stalemate in the global energy transition and higher global consumption rates. Russia has enjoyed high growth rates not only originating from the energy resource sector but from the development of other sectors as well. The YNAO is a key region for expanding oil and gas production; however, also other sectors such as infrastructure and chemistry flourish. The continuing sanction regime imposed by Western states has promoted industrial diversification and home-grown innovation in Russia (and Yamal). The regional climate impacts have been rather unexpected. Permafrost is stable and the Kara Sea is covered with ice flows even in the summer. This impacts shipping activities and the LNG industry. LNG from Yamal LNG and Arctic LNG 2 are shipped out solely in the direction of Europe. Decision-making in the YNAO excludes indigenous communities as the energy lobby is strong and indigenous participation in ecological surveys and audits are considered to be sufficient.

Starting in 2018, a series of extremely cold winters in particular in Europe put demand for Yamal gas and its price tag on an upward trend. Already by 2020, there is a noticeable global cooling that scientists expect to be rather stable for the years to come. The rising demand and continuing high prices for oil and gas between 2018 and 2023 put the Yamal LNG project at full capacity. By 2021, all Yamal Gazprom projects supply Nord Stream 2, while less profitable projects are revised, leading to a more homogeneously successful business landscape. Within 2022, nuclear energy projects in Europe are revisited, new oil and gas projects are being developed, and a regional program to further the development of the gas chemistry is started in Yamal. The success of these efforts in the nuclear, petroleum, and chemistry sectors prompt the Russian government to abandon alternative energy programs. Industry diversification is therefore promoted, yet the focus on nuclear, petroleum, and chemistry sectors neglects the development of both renewable energy as well as entirely new sectors, such as tourism, services, or education.

After the homegrown efforts in innovation and the deliberate strengthening of the industry and with Arctic LNG approaching full capacity, the Altai Pipeline at full capacity, and Yamal-EU about to be extended in 2024, sanctions on Russia persist. In order to be able to supply the ever increasing demand from Europe and East Asia despite western sanctions, the Russian government fosters even more investments in research and development. Furthermore, new



# Third workshop, September 2018, Potsdam



Credits: Kathrin Stephen (IASS)

# Challenges

- Get stakeholders to come at all
  - Lacking resources, lacking interest, lacking trust, political issues
- Choose stakeholders carefully since spots at workshop are limited
- Get stakeholders to participate in a whole process
- Differing response rate from different groups
- English language capabilities
- Get workshop participants in real “workshop mode”

# Weaknesses

- Full representation not possible
  - of stakeholder groups
  - of uncertainty factors
- Simplification
- Exclusion, elitist

# Strengths

- Iterative process
- Clear guidance for all involved
- No preparation necessary
- Stakeholders see early on that concrete output will be produced
- Stakeholders take away a concrete output, which will even be tailored to their specific needs (strategic foresight element)
- Suitable for complex and uncertain environments
- Completely stakeholder driven and owned



**Thank you very much for your attention!**

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Photo credit:  
Kathryn  
Hansen/NASA

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