



Institute for Advanced Sustainability Studies  
IASS in Potsdam Germany

# Researching Pathways To Sustainable Futures With And For Stakeholders

How research can strengthen the processes of making meaning to make informed decisions

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# Outline

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Core missions of RIHN and IASS

What kind of science do we need for sustainable futures?

Output and outcomes: crucial distinctions

Science is a social contract

Mutual learning across disciplines and with stakeholder groups

- bridging disciplinary barriers and mindsets
- from data focused to conceptual, contextual, interpreted knowledge

Collaborative process with stakeholders: IASS SMART example

Changing collective behavior for sustainable futures: KLASICA

Toward a new practice of science in research and education

# Mission Statements

**RIHN:** “establishment and development of global environmental studies that contribute to finding solutions to environmental problems.

...environmental studies that elucidate the interactions between nature and humanity and critically examine the future potential of human culture”

**IASS:** “to develop transformative knowledge ...needed to pave the way towards sustainable societies. Our research is transdisciplinary, conducted together with scientific, political and societal partners, in order to develop solutions for urgent sustainability challenges and to support ... decision-making processes”

# Fulfilling Our Missions

Research **output** - what do we produce?

- Appropriate methods for high quality data, careful analysis
- Conceptual framing and interpretation is critical
- Widely accessed professional journals, books, reports
- Social and print media: visibility, engagement, scalability
- Conferences, workshops, public events, images, art forms

Societal **outcomes** - what are the impacts and effects?

- Participation - new actors, mechanisms, transparency
- Perception and expectations of science-society interface
- Policy - multiple levels of governance, setting responsibilities
- Practice - new norms, capacities, agency

# Ways Of Doing Science I

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## **Disciplinary:**

- reductionist focus on separate components of a system; depth with narrow focus;
- fundamental or applied; driven by curiosity or problem solving

## **Interdisciplinary:**

- focus on multiple, interacting components of complex systems
- combine depth of knowledge from different disciplines
- establishing a shared language is essential for collaboration
- use different methods, theories, and concepts
- include qualitative and quantitative approaches

# Ways Of Doing Science II

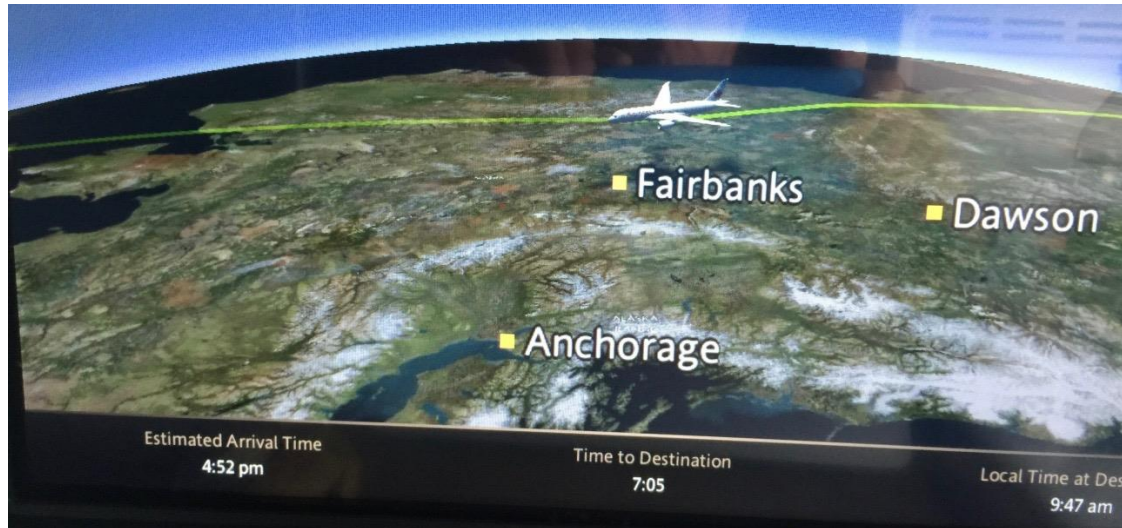
## Transdisciplinary:

- a process of mutual learning that requires humility, trust, and both disciplinary depth and interdisciplinary breadth
- research driven by the needs and visions of stakeholders for sustainable futures in their particular context, i.e., physical, ecological, cultural, political, economic conditions
- conducted with and for stakeholders by engaging them from project design through collection and interpretation of information to communication and use of new knowledge

Need **necessary** and **sufficient** science for society

The social contract of science implies **inescapably normative and ethically subjective research**

# Example: IASS Arctic Research



## **S**ustainable **M**odes of **A**rctic **R**esource-driven **T**ransformations: **SMART**

Led by Dr. Kathrin Keil and Professor Ilan Chabay

Rapid, profound changes in the Arctic are symptoms of complex regional & global biophysical and societal interactions

- enable increasing access to abundant natural resources - oil, gas, minerals, fishing, tourism
- create opportunities for development and livelihoods
- drive development in Norway, Russia, and Greenland



# IASS SMART Project II



**Goals** are to improve:

- pathways toward sustainable futures in the Arctic
- informed, effective participatory governance at multiple levels

**Objectives:**

- Understand local & global drivers of change in the Arctic
- Understand the impacts of changes in the Arctic, including:
  - air pollution sources and transport of pollutants
  - laws and regulations
  - economics of global resource demand
  - cultures, politics, demographics
- TD design and use of composite scenarios for decision-making
- Evaluate decision making and governance processes
- Improve our TD research process

# Rights-holders and Stakeholders

- Workshops and meetings in Potsdam, Moscow, St. Petersburg, Reykjavik, Ottawa, Toyama
- SDWG meetings of Arctic Council in Whitehorse, Yukon 2015 and Barrow, Alaska 2016
- Working with SDWG through US Dept. of State and German foreign ministry
- Dialogues with Observer States colleagues
- Planning meetings with IIASA Arctic Futures Initiative (2017-)

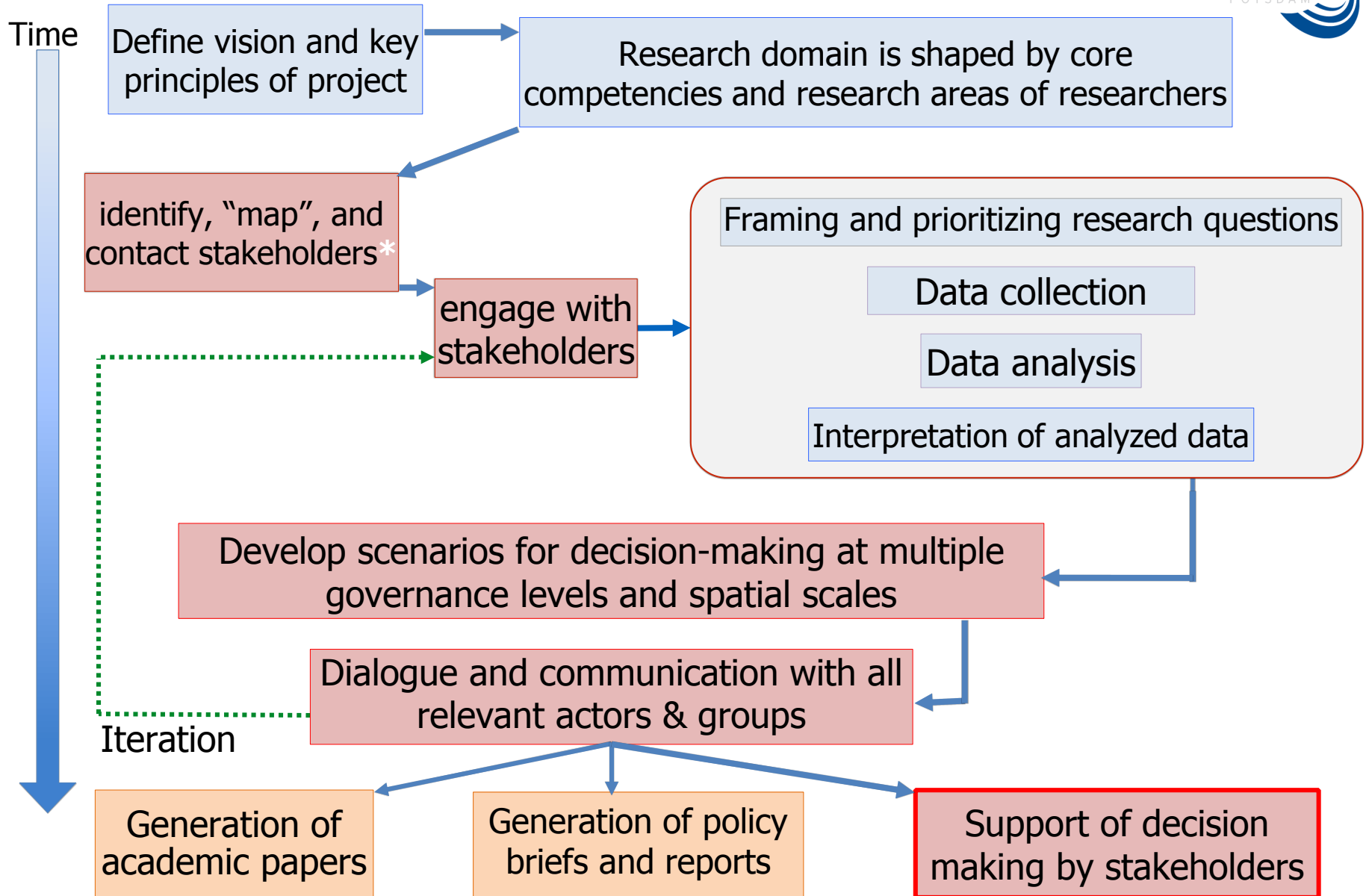


# Collaboration With Alfred Wegener Institute And Jade Hochschule

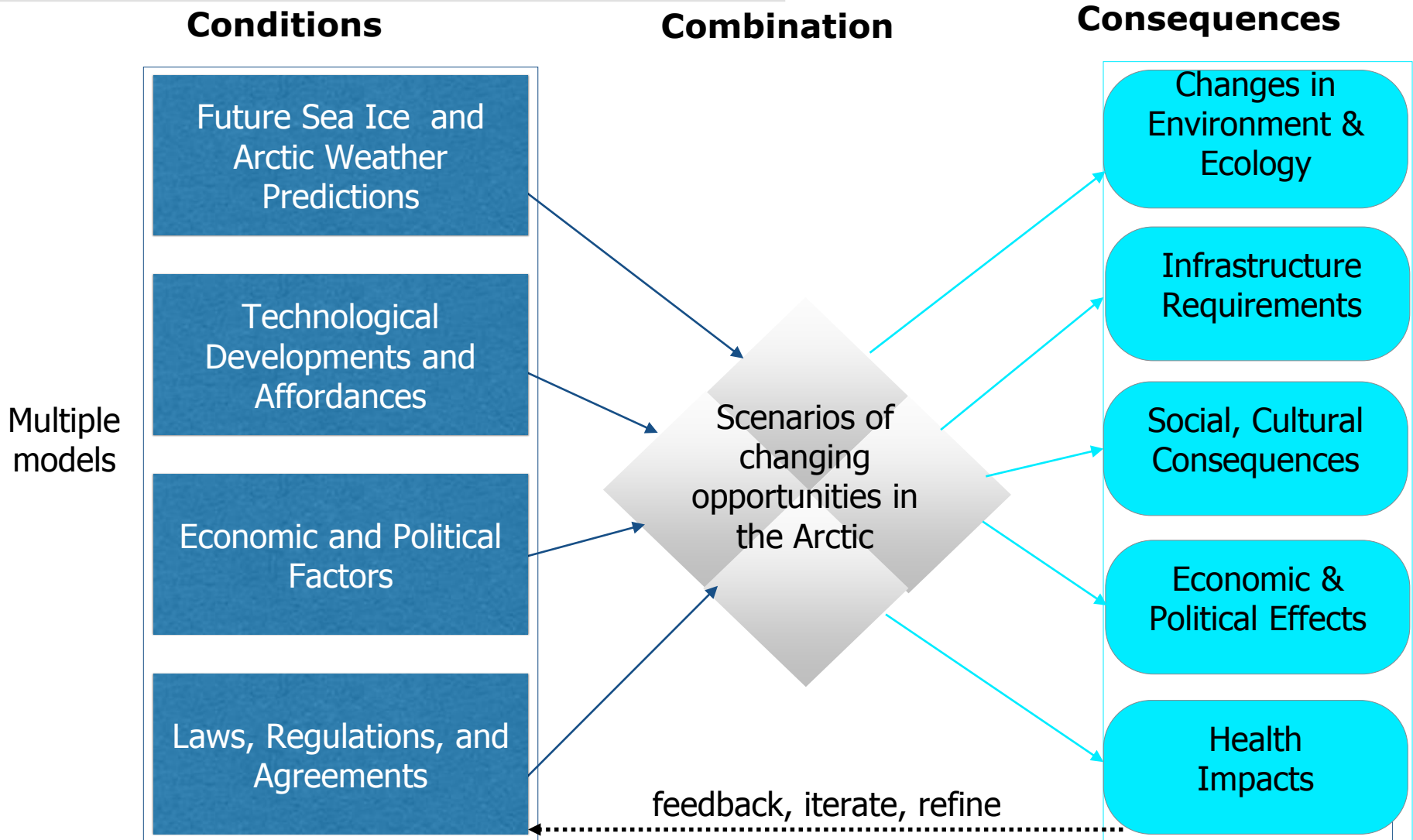


- **CRYOSPHERE**
  - ✦ Characterize sea ice conditions and developing better predictive models
- **SHORT-LIVED CLIMATE-FORCING POLLUTANTS (SLCPs)**
  - ✦ Modeling Arctic & local emissions vs. long-range transport
- **SHIPPING & MARINE POLLUTION**
  - ✦ Institutional, legal, regulatory, safety conditions
- **ARCTIC RESOURCES**
  - ✦ Oil and gas exploration and extraction, transport, infrastructure
- **CONCEPTS, CONTEXTS OF SUSTAINABLE DEVELOPMENT**
  - ✦ Power relations, regional differences, histories & cultures
- **GOVERNANCE AT MULTIPLE LEVELS AND SCALES**
  - ✦ Making meaning to make informed and effective decisions

# Engaging With Stakeholders



# Scenarios In The IASS SMART Project



# Schema For Scenario Building & Use

## primarily by researchers

Identify and contact key stakeholders who need and want scenarios as tools for decision making

Build a dynamic (interactive) scenario representation under chosen set of boundary conditions

Link dynamic scenario output values to tradeoff matrix (consequences)

Refine scenario construction, boundary conditions, tradeoffs, and representations, as needed

## stakeholders and researchers

Determine core questions to model, as well as types of boundary conditions to use

Explore, discuss scenarios and decisions and their consequences

Explore, discuss refined scenarios and consequences

Evaluate process of scenario construction and use



Time

# Mission and Vision of KLASICA



## **Mission:**

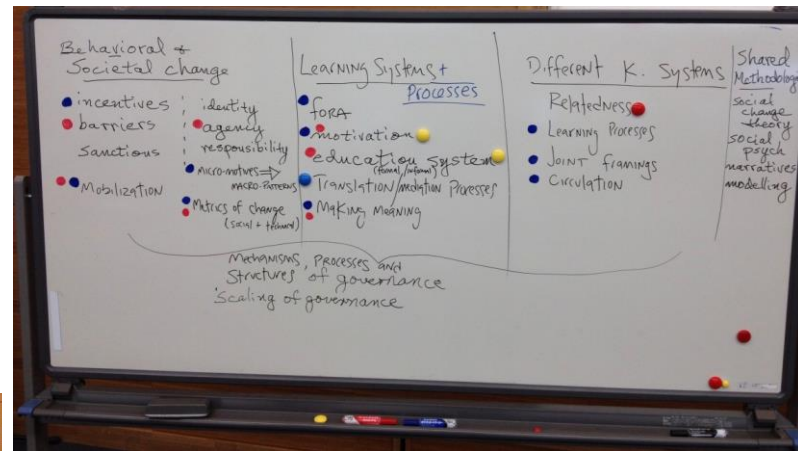
To understand, enable, and encourage processes of collective behavior change toward just and equitable sustainable futures

## **Approach:**

Use interdisciplinary and transdisciplinary research and actions:

- to improve understanding of the interplay between knowledge production, learning processes, and collective behavior change,
- use that understanding to improve the capacity of stakeholders to make informed and effective decisions on policy and practice for their sustainable futures

# Berlin 2007 to Nanjing 2011





# KLASICA Science Plan: Grindelwald Switzerland, April 2011



# KLASICA Collective Behavior Change Workshop February 2016



# Conclusions From The Workshop



KLASICA will identify sufficient conditions for collective behavior change toward sustainable futures in different cultural and temporal settings and consider

- both spontaneous and intentional processes,
- both fast and slow transitions,
- the possibility of unintended consequences and secondary effects

“It’s not enough to adopt policies or negotiate agreements (e.g. the Paris Agreement) and hope for the best. What we need is CBC or shifts in actual social practices. So, the question then becomes a matter of directing attention to identifying the conditions that can generate or produce CBC in response to situations of the sort we now confront.”

Oran Young, UC Santa Barbara

# KLASICA Workshop Outputs



- Produced a preliminary **portfolio** of concepts, terminology, methods, examples of relevant case studies
- Formed an excellent **core group** to help to develop case study symposia and other events and publications
- Writing a paper on core ideas for **major journal**
- Launched planning for **case study symposia**
- Reached agreement for first case study symposium on November 3-6 in Taipei on “**Collective Behavior Change For Sustainable Futures In Island and Isolated Communities**”

# Conclusion

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We are at the beginning of an adventure into new conditions, new knowledge, new science, and new ways of learning for sustainable futures

I welcome the opportunity to join with colleagues and institutions worldwide in undertaking that adventure for the futures of humanity

**Thank you for your attention and thoughts!**