

Climate Change Adaptation

Research Group

McGill University

Melanie Flynn¹, Dr James D.
Ford¹, Jolène Labbé¹

¹Dept. of Geography, McGill
University, Montreal,
Canada

How to evaluate effective climate change adaptation in a permafrost environment

A pilot study using the Terrain Analysis in
Nunavut (TAN) Project in Arviat, Canada



www.jamesford.ca
Twitter: @ccadapt

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Background: Why is Monitoring & Evaluation key?

WHAT DOES M&E GIVE US?



Provides
accountability¹



Adaptive learning and
management¹



Reduces vulnerability¹
& maladaptation²

SO... WHY AREN'T WE DOING IT?



Long timeframes³

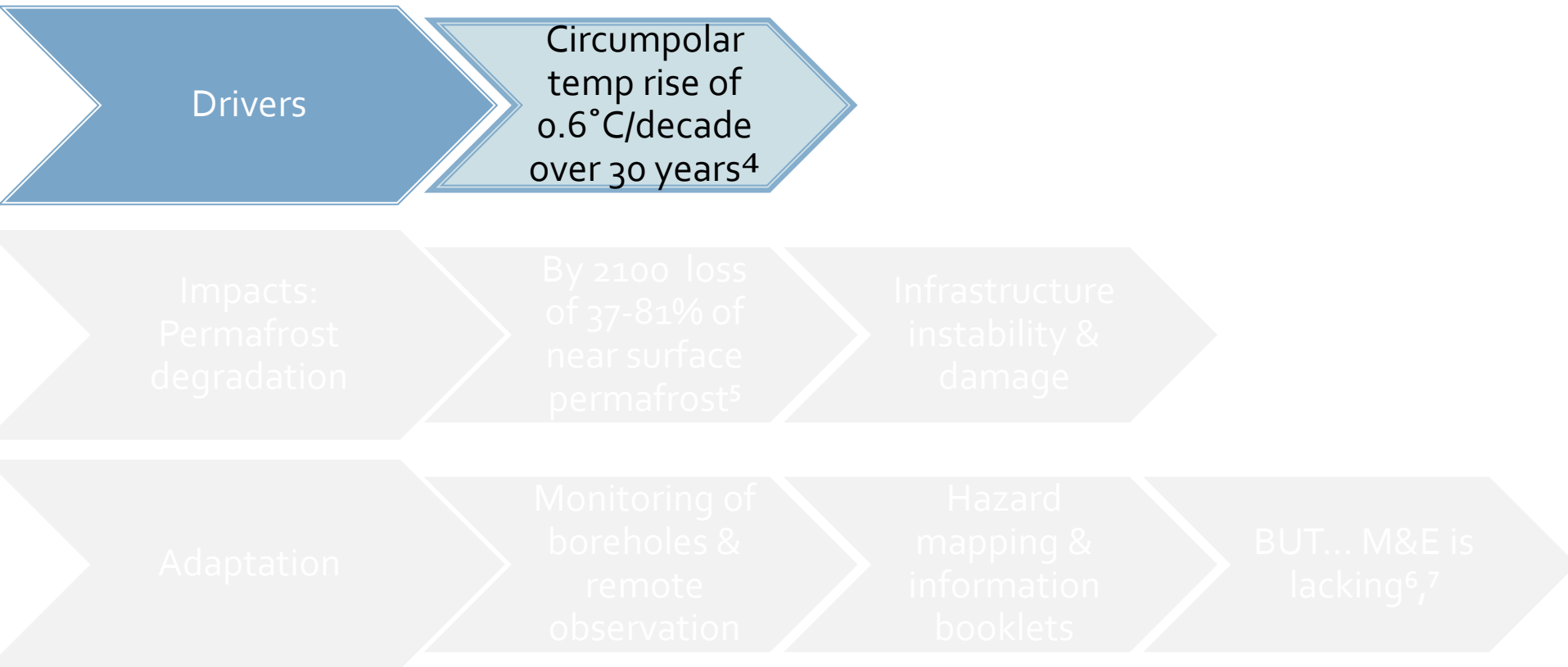


Shifting baselines and
context³

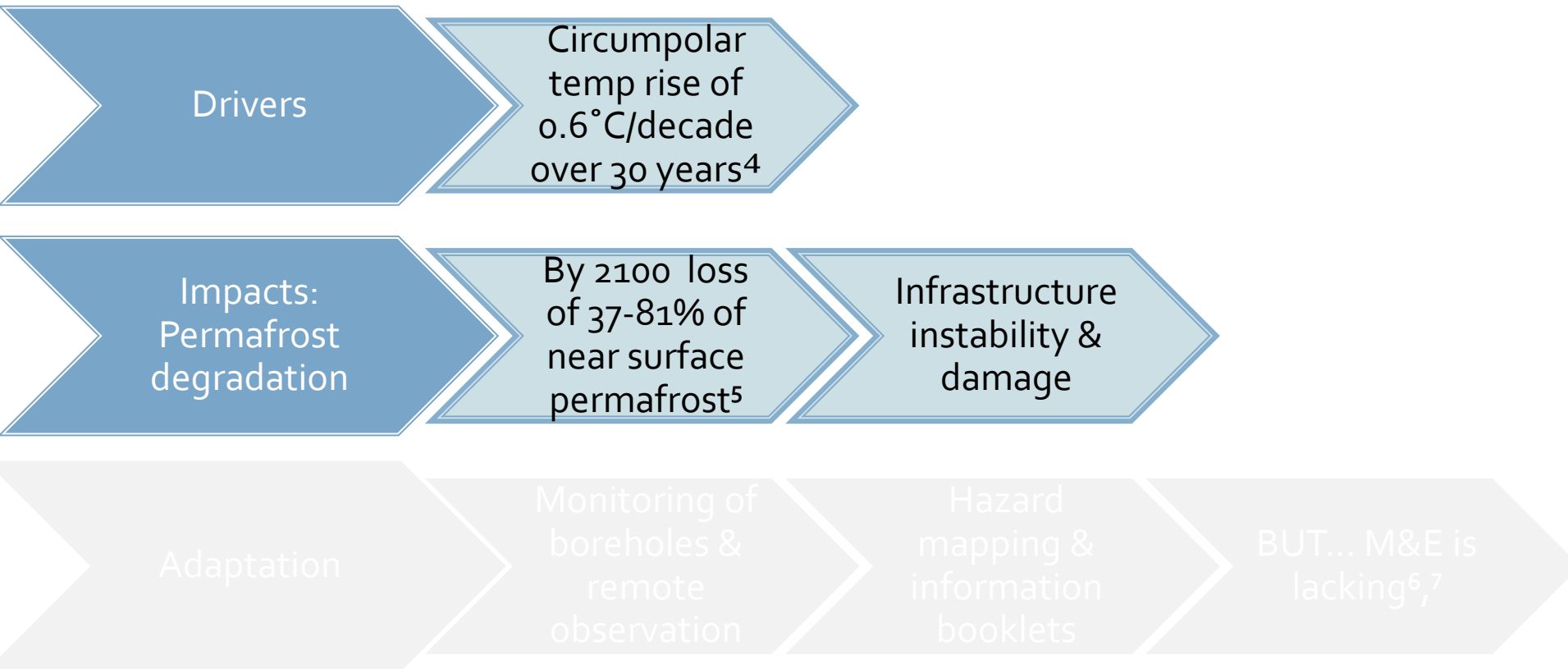


What is "good"
adaptation? ³

Research gap: Arctic adaptation is happening and M&E needs to catch up



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Research gap: Arctic adaptation is happening and M&E needs to catch up

Drivers

Circumpolar
temp rise of
 $0.6^{\circ}\text{C}/\text{decade}$
over 30 years⁴

Impacts: Permafrost degradation

By 2100 loss
of 37-81% of
near surface
permafrost⁵

Infrastructure
instability &
damage

Adaptation

Monitoring of
boreholes &
remote
observation

Hazard
mapping &
information
booklets

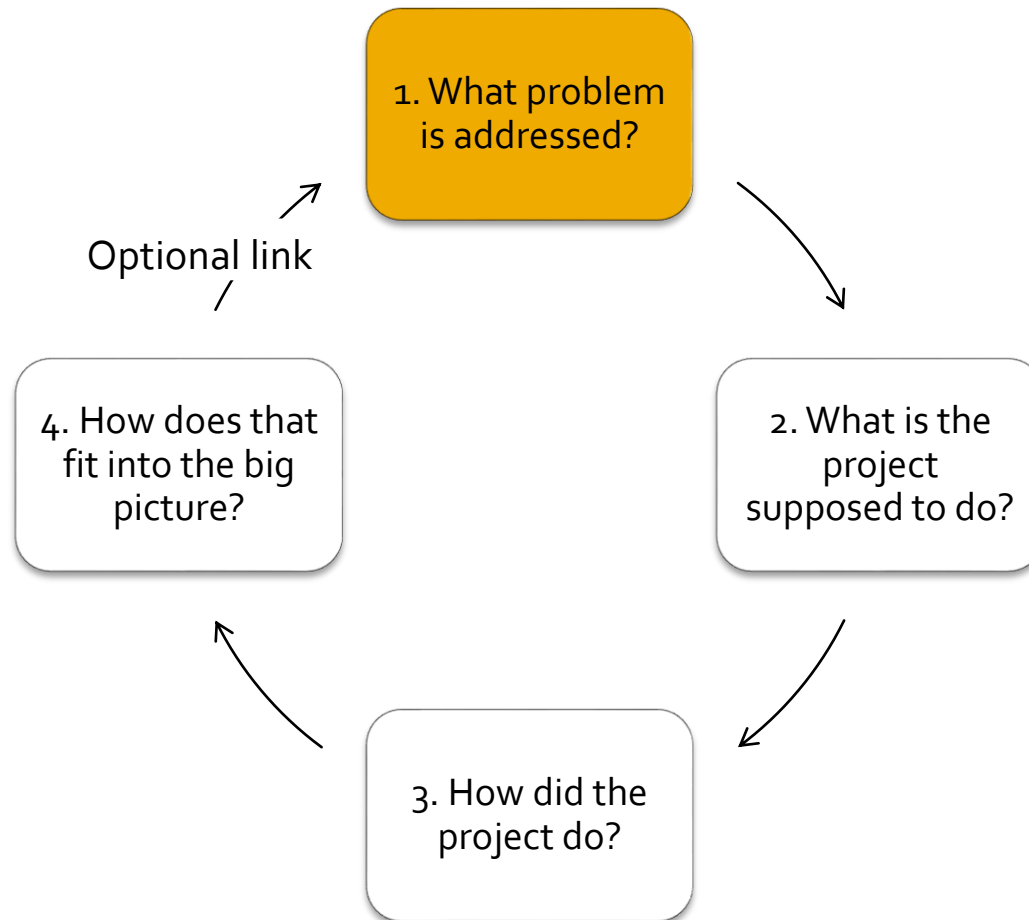
BUT... M&E is
lacking^{6,7}

Research gap: Arctic adaptation is happening and M&E needs to catch up

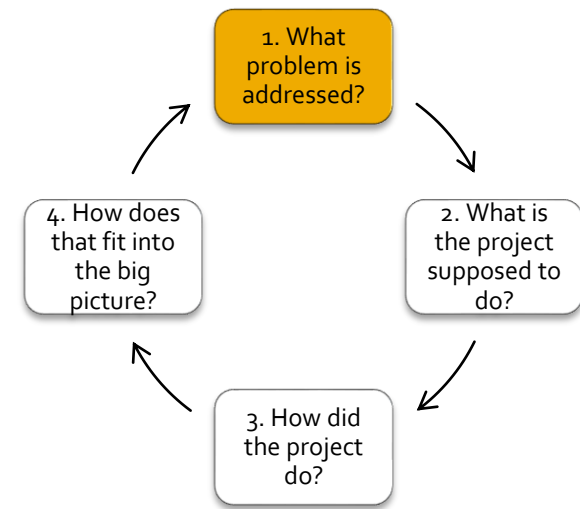
Aim

Create an evaluation framework for climate change adaptation in a permafrost environment: A pilot study using the 'Terrain Analysis in Nunavut' project in Arviat, Canada.

Method: A community based adaptation evaluation framework



Method: Baseline literature review



How?

Previous literature & Stakeholder interviews

Why?

To determine if the project had added anything new

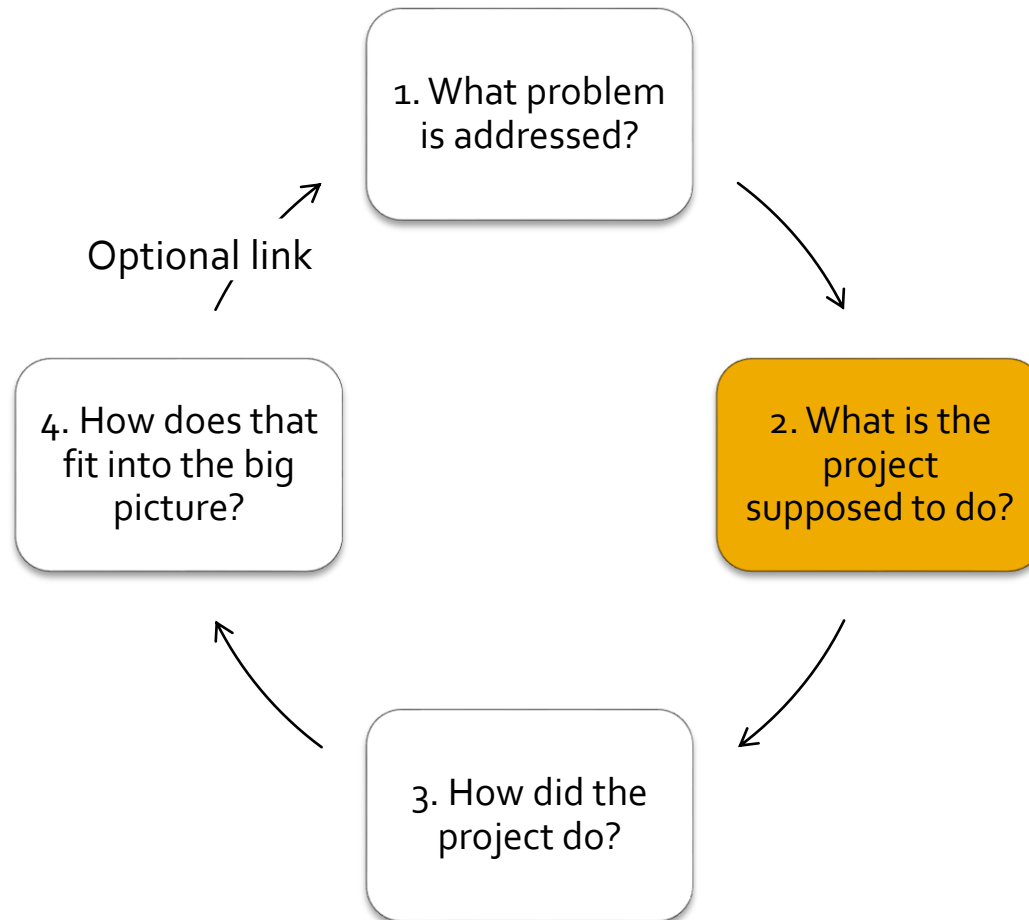
E.g. results:

Limited permafrost monitoring in the region

Desk studies from the 90's

Data not at appropriate scale for community decisions

Method: A community based adaptation evaluation framework



Method: Logic model⁸

Activities

- The specific tasks to be undertaken

Outputs

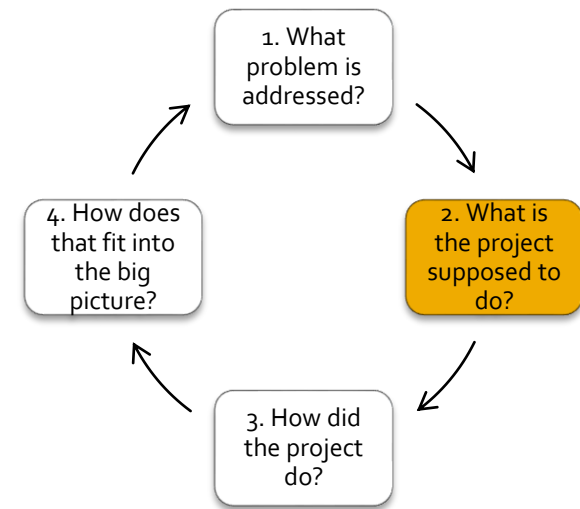
- The tangible products produced

Outcomes

- What the project is expected to achieve

Impact

- The macro-level objectives which the project contributes to



Method: Logic model⁸

Activities

- The specific tasks to be undertaken

Outputs

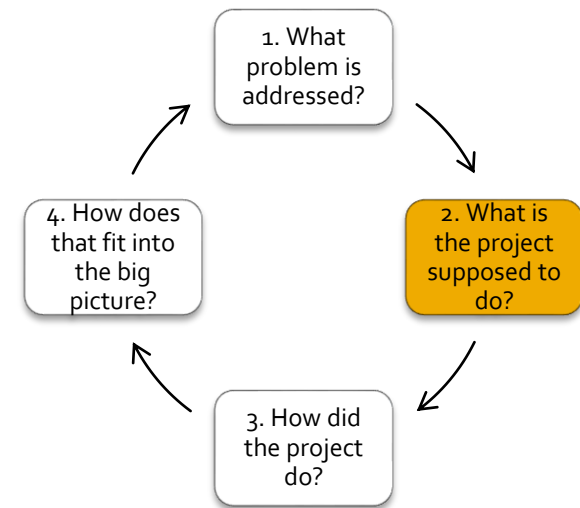
- The tangible products produced

Outcomes

- What the project is expected to achieve

Impact

- The macro-level objectives which the project contributes to



How?

Review project proposals

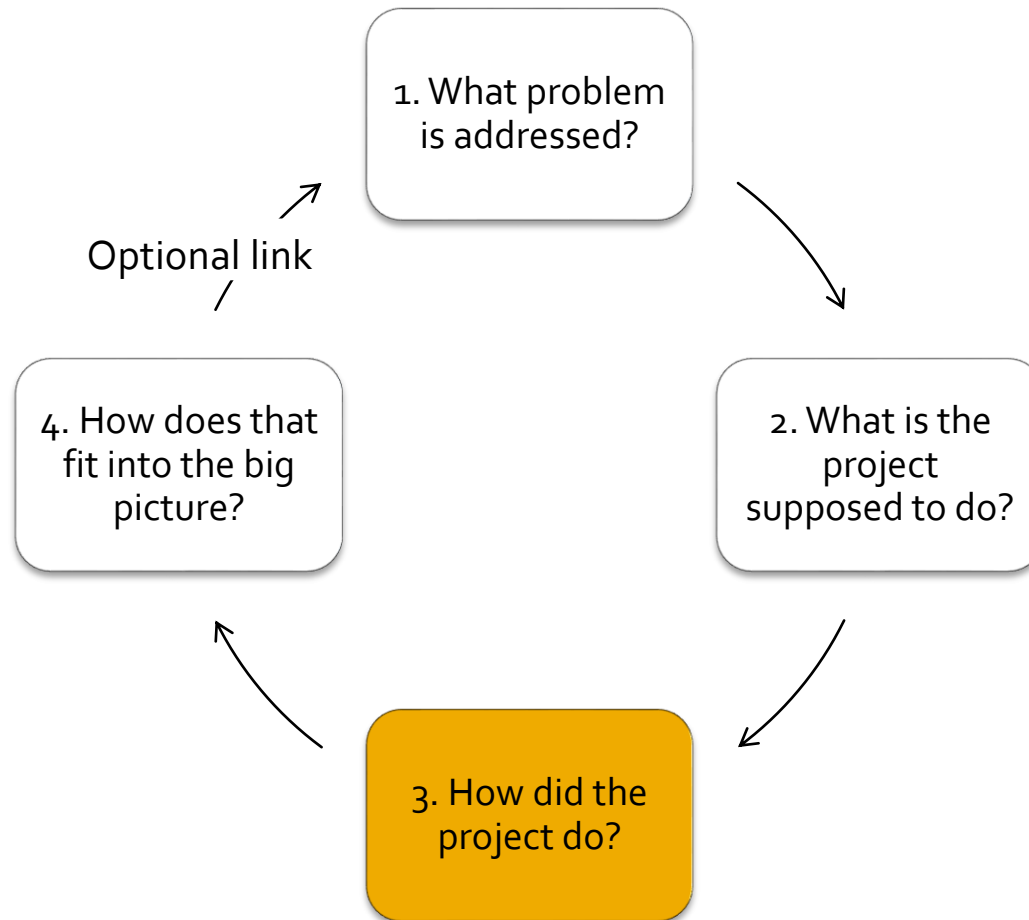
Why?

To define success

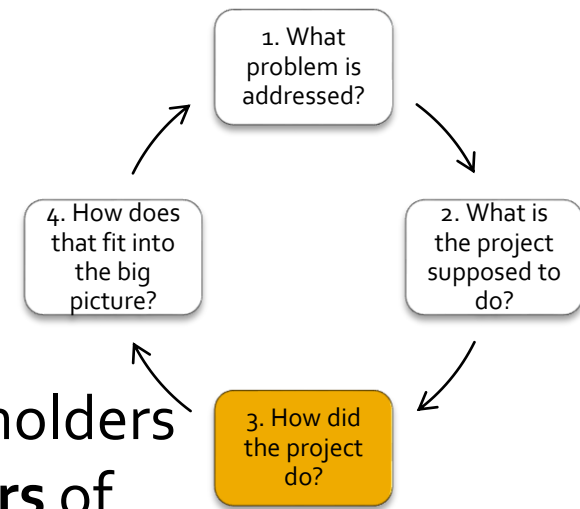
To identify key assumptions

⁸Adapted from AUSAID, 2005.

Method: A community based adaptation evaluation framework



Methods: Interviews



N=19 semi-structured interviews with key stakeholders
Interviewees were divided into **creators** and **users** of the project

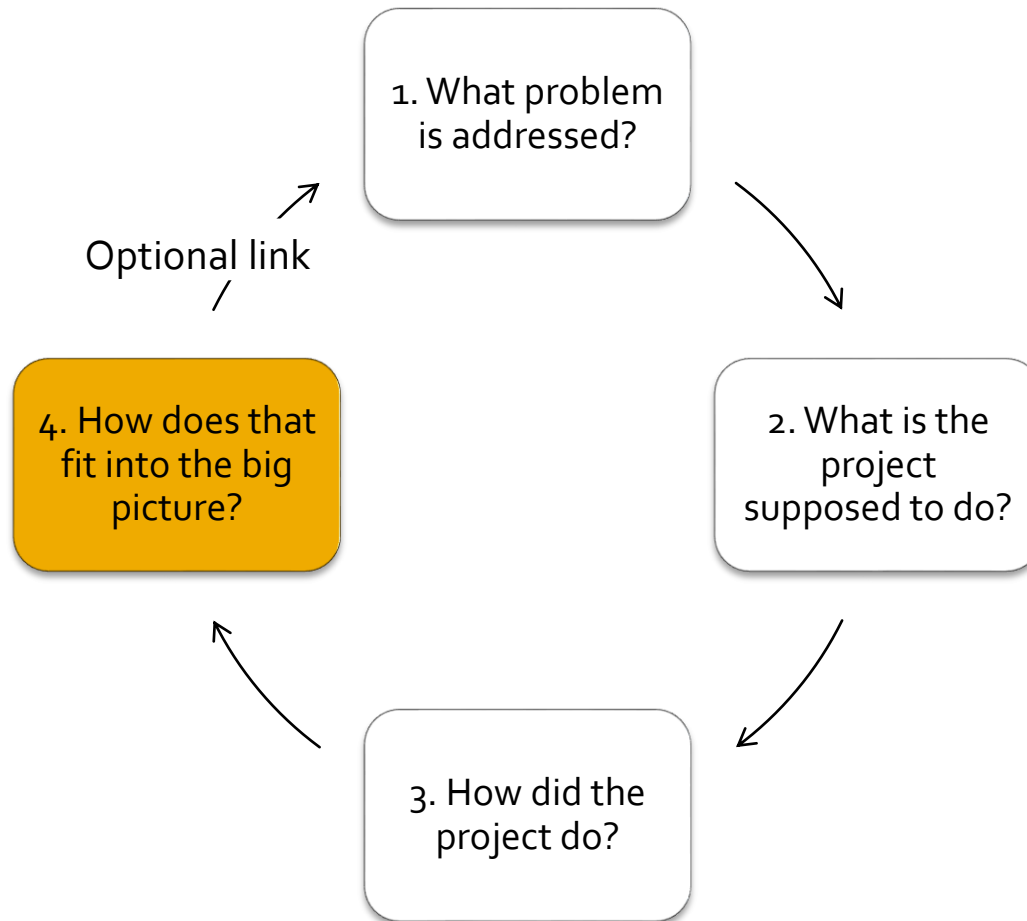
E.g. questions:

What data was available for this area prior to this project?

How do you plan to use the maps?

Feedback	Positive	Negative	Recommendations
Creators	Considered the local context	Lack of communication between project stakeholders	Include more oral and/or engaging activities
Users	Increased knowledge sharing	Local knowledge contradicts data	Don't build near water

Method: A community based adaptation evaluation framework



Method: Adaptation Readiness Framework⁹

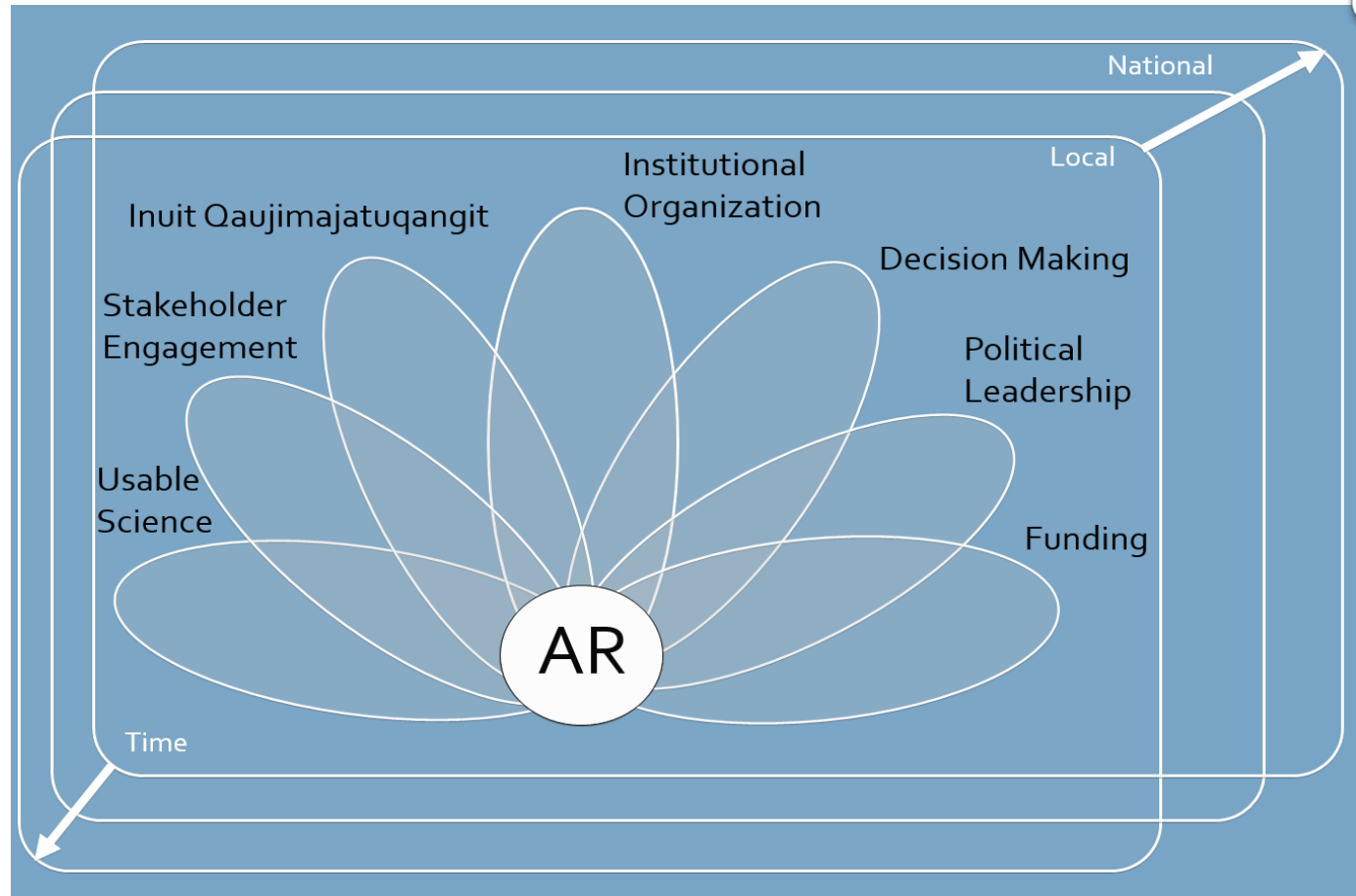
The overarching factors critical for adaptation to occur⁹

1. What problem is addressed?

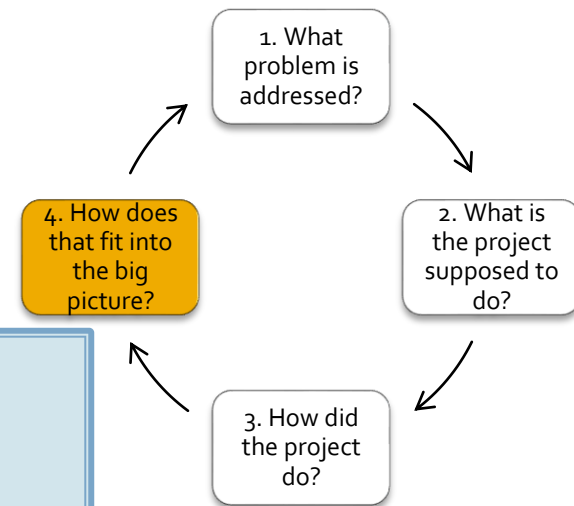
2. What is the project supposed to do?

3. How did the project do?

4. How does that fit into the big picture?



Method: Readiness ratings⁹



How? 8 readiness factors
16 indicators (2 per factor)
Scoring (0-2)

Why? To consider if an enabling environment for adaptation exists

INSTITUTIONAL ORGANIZATION

Reduces ad hoc adaptation and allows effective climate adaptation planning

INDICATORS

- Presence of boundary organisations working on climate change adaptation¹²
- Stakeholders were involved in the decision making process¹²

RATING (SCORE)

Yes (2)
Somewhat (1)
No (0)

Findings: How does this add to understanding of Arctic adaptation?

The application of the evaluation framework

- Facilitates adaptive learning through in-depth stakeholder feedback
- Allows for longitudinal evaluations
- Readiness ratings identify key linkages and barriers to help improve adaptation in a northern context

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