

The view from another side: developing nation contexts

What and where is the information?
The ethical-epistemic problem



At the 2016 Adaptation Futures conference, a CS exhibiter proclaimed
“We take care of the [data] hassle... Transparently. Spatial and temporal grids of climate projections are harmonized. Biases on variables are corrected to make the data directly useable.”

Thinking about fundamentals

To discuss CS in developing nations, one must first ask: What are climate services?

CSP definition:

“Climate services involve the production, translation, transfer, and use of climate knowledge and information in climate-informed decision making and climate-smart policy and planning.”

This evokes a linear process of progressive authorities: knowledge creates a power relationship

Who really has the knowledge?

In reality, the “recipient” is the one who is knowledgeable about context, while the CS practitioner is the one operating with a narrow vision.

Knowledge can be defined as understanding information in context

CS presumes: Information → yet we have multiple contrasting and contradictory data

CS assumes: Context → yet the decision-scale context is mostly poorly integrated

Developing nation landscape in which CS sits

Foundations

Local, regional, and international researchers, with mixed relationships to global facilitation and coordination organizations (GFCS, WCRP, Future Earth, etc)

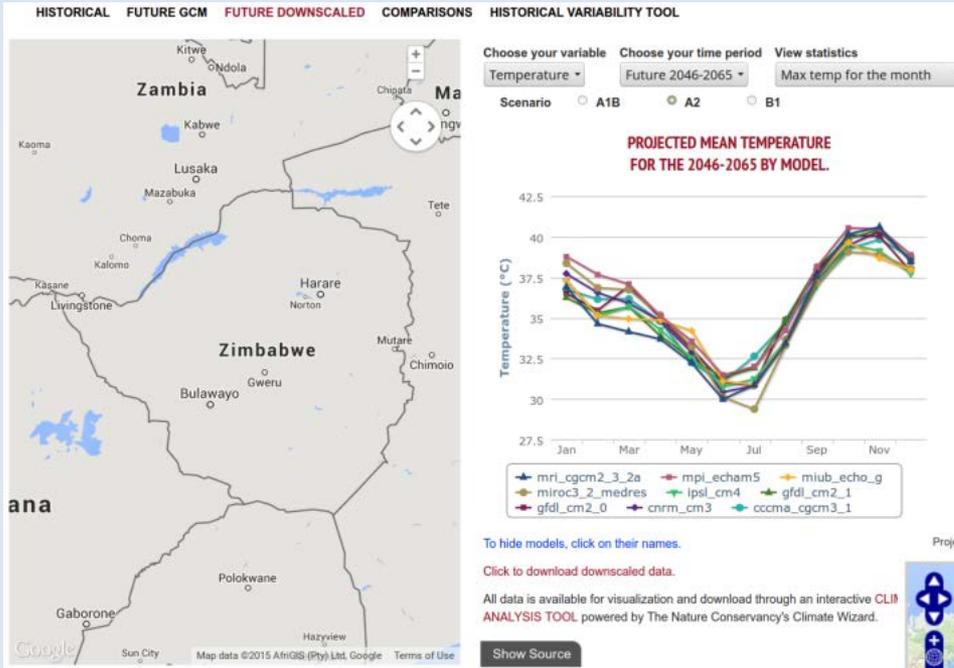
National and regional research capacity
(WEAK)

International climate change product providers
(STRONG)

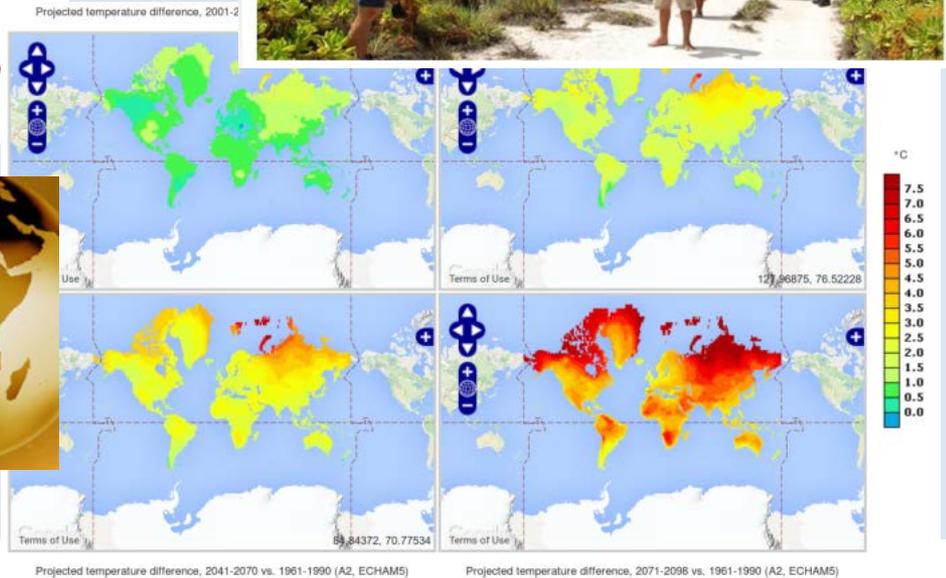
Boundary organizations, IAV, decision support structures
(CONTESTED)

A extreme diversity of users, cultures, values, decision makers, mandates, motivations, policy, risk management, strategy

"The past/future cannot affect us, but we can be affected by conceptions of the past/future."



We need credible facts and figures to meet the challenge that climate change is putting on farming world over. The [Climate Wizard](#) portal provides users with vigorous, high-resolution climate data that can help assess the impacts of climate change on agriculture.



RISK AND VULNERABILITY ATLAS

Equipping decision-makers with information on the impact and risk of global change in the region

Fire return period Population growth Sea level increase Temperature increase

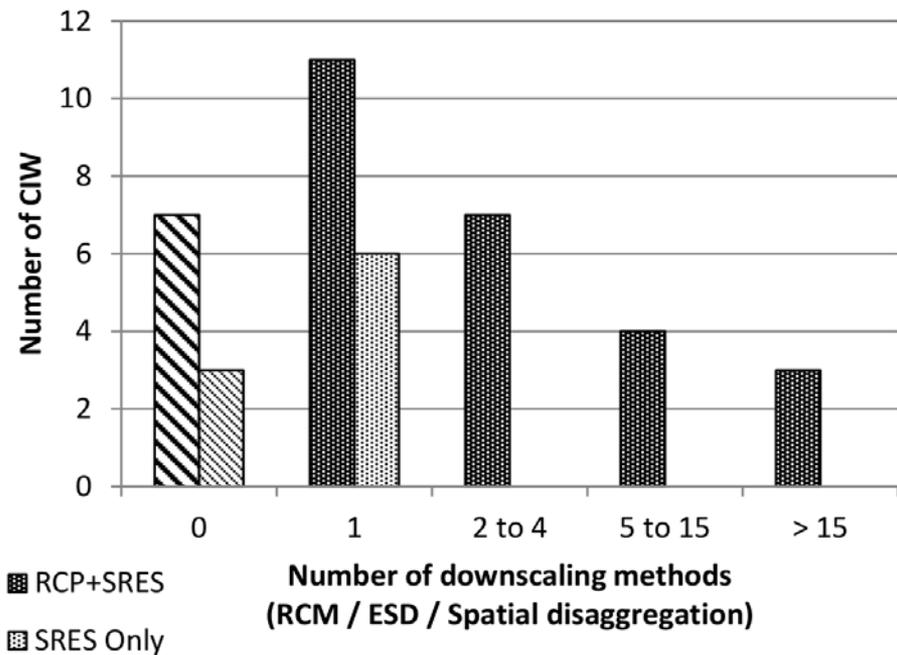
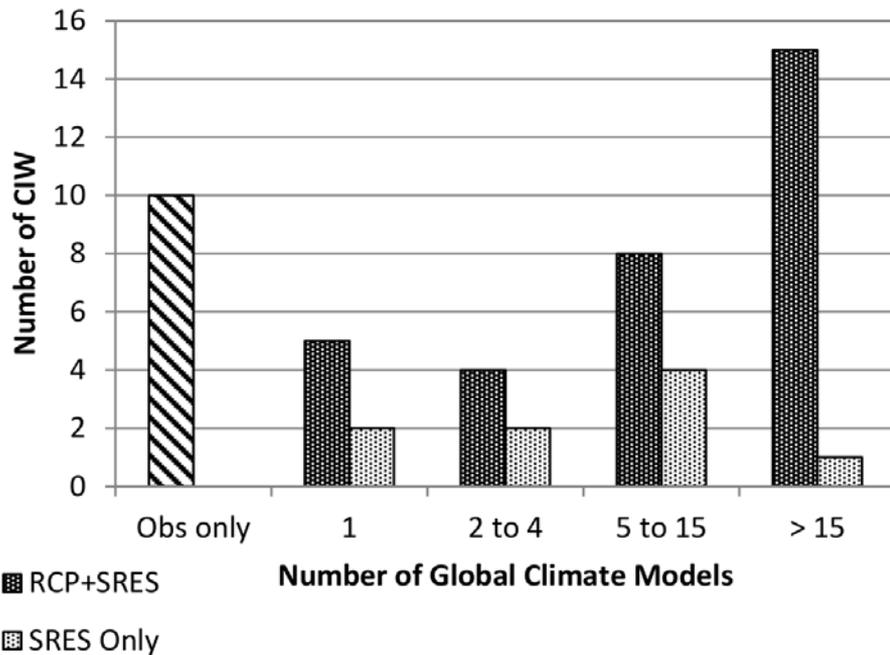
select map 3: GCM: MPI ECHAM5 scenario: A2 temporal reference: 2041-2070

select map 4: GCM: MPI ECHAM5 scenario: A2 temporal reference: 2071-2098

Critical considerations in CS for developing nations

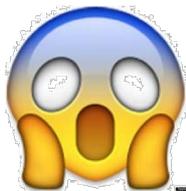
- The provider is in a position of power, with little or zero accountability
- The context of the decision scale is one of cross-cultural complexity and differing values
- CS services often emanates from a developed nation ecosystem, with presumed translation into the developing nation context
- Climate “information” recipients commonly have little input into the construction of “information” products
- Presumption of need can lead to unquestioned adoption of one information stream based on issues of loyalty, perceived authority, urgency of need, ease of access, availability, etc.
- Limited experiential knowledge and skills to evaluate a CS service allows for data to be treated as information which is presumed to be knowledge, while contradictions go unconsidered, which would otherwise lead to alternate consequences.
- System thresholds of failure are easily reached (thresholds of degradation are often normative), and so decision consequences can be substantial.

By the numbers ... what about online services?



Lots of GCMs, competing downscalings = recipe for contradictions

From a 2015 WCRP survey: the majority of IAV practitioners use one GCM, and if higher resolution needed, do their own “downscaling”



Lessons emerging from narratives

Use case experiences: “I give up ...”

a) *“Without intimate knowledge of climate terminology and modelling slang, accessing data is a guessing game.”*

b) *“It turns out there are several entry points to climate data, each of which displays the data differently.”*

c) *“ There is a lack of clear guidance on how to robustly choose among the various options. I therefore randomly select a file set and an image pops up. After some exploration and trial and error I end up getting some quite specific messages, based on one model, one future scenario. There are no guidelines with regards to the extent to which these are robust messages.”*

d) *“I am overwhelmed with the amount of options I must choose to be able to get the climate data.”*

Lessons emerging from the narratives

e) **“Supporting materials are of little support.** Having skimmed through the different pages, all of which are under the Spatial Downscaling Section, I am afraid I am none the wiser with regards to what file sets to look at.”

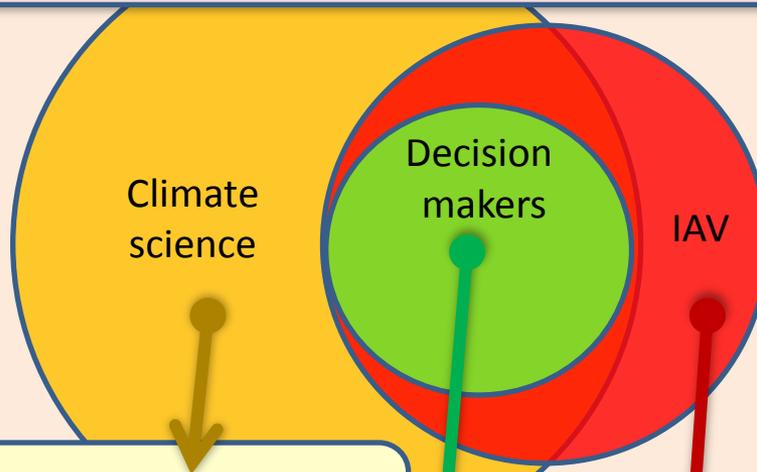
f) “Again there is a map and graphs, though here it does not seem possible to engage with the map at all, and **the interface and options provided are different** from those provided for the historical and GCM data.”

g) “When the computer finally downloads the data **the download provides me with file formats that I do not know how to use ... I give up.**”

h) “Seeing that they are providing projections from six models I should probably download the maps for each of the models (annual and for each season), and compare them to see the extent to which they agree. This means comparing six maps for annual projections and six maps for each season, a total of 30 maps. If I am to do this with the 5 climate variables that are provided, this would mean looking through a total of 150 maps! Being uncertain about the extent to which it is responsible to draw out local scale projections from the maps, **it does not seem worth the effort.**”

Breaking the “information chain” mentality

- Co-produce
- Co-explore
- Co-design
- Co-define
- Co-refine



Advancing understanding of change in regional climates

Integration in the stakeholder-scale of decision, risk management, and policy

Integrate climate science in the IAV communities

Informs the activities of the other two

Concluding context

The underlying questions are:

- a) What constitutes information in the context of developing nation risk thresholds?
- b) How to construct decision information from multi-model multi-method sources?

This reframes CS priorities for developing nations to include:

- a) **Distillation** to manage information contrasts and contradictions in multiple data sources
- b) **Co-exploration** that recognized the authority of the decision context (Steynor et al.)
- c) **Honest and transparent communication** of what is **Credible, Defensible, Actionable**
- d) **Develop accountability**, and explore ethical responsibility
- e) **Experiential knowledge** needs to be intrinsic to capacity development

The limits to added value from CS is as much a function of the ecosystem of operational practices, as it is a function of the tools, data and methods.