

Paradigm Shifts, Coastal Zones, and Adaptation to Fast-Paced Change:

Lessons from Senegal, India (Kerala and Tamil Nadu), Vietnam (Saigon and Dong Nai watersheds including Ho Chi Minh City), Canada (New Brunswick), France (Britany), Russia (Sakha Republic) and the USA (Alaska).

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This was made possible through extensive fieldwork

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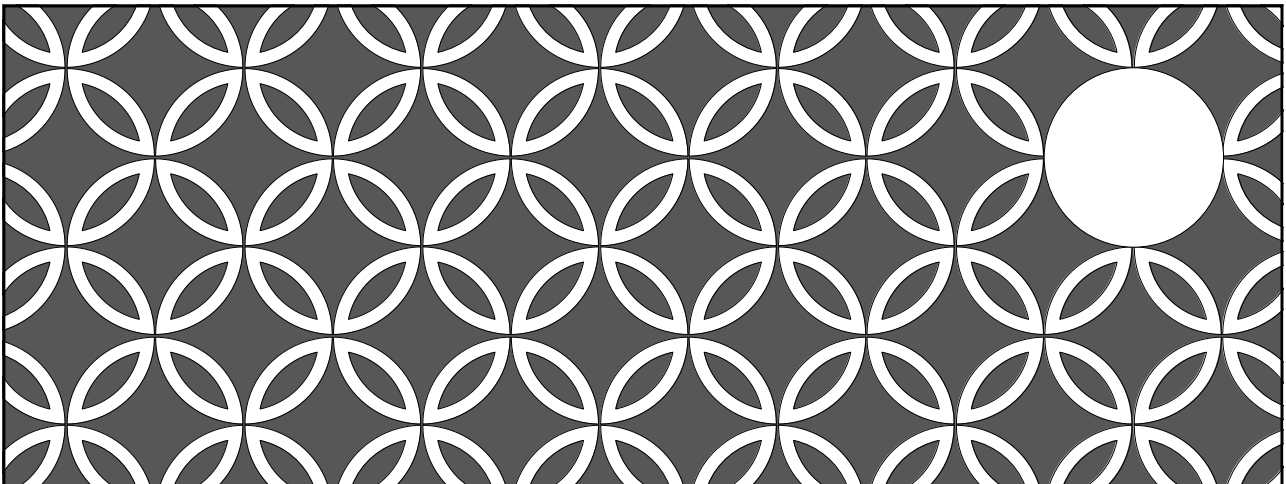
Outline

Introduction

Conceptual framing and methods

Lessons form the field sites and discussion

Conclusion



Introduction

Where one takes a look at the "transdisciplinary turn," and the interest of analyzing this turn as it is occurring within coastal areas.

Things have changed!

1969:

"Although scientists generally consider **fashion**, which they define as **the selection of problems on the basis of non-scientific criteria, as a form of deviance...**" (Crane, 1969)

vs Pedagogy of the oppressed 1968

1999:

"A **new contract must now ensure that scientific knowledge is 'socially robust'**, and that its production is seen by society to be both transparent and participative." (Gibbons 1999)

vs Participatory action research

2016:

"There **are times when science can seem to lose its connection to society and its needs**, and sometimes its objectives are not fully understood, even if they are well intended. [...] But science cannot work in isolation, and **advances in science and technology are not an objective in their own right.**" (EC, 2016)

vs Citizen science and/or extended peer review

Belmont Challenge

" which is a "fundlers' vision for the priority knowledge and capabilities derived from **environmental research that society needs**, and the underpinning research challenges over the next decade to deliver them." (Belmont Forum 2016)

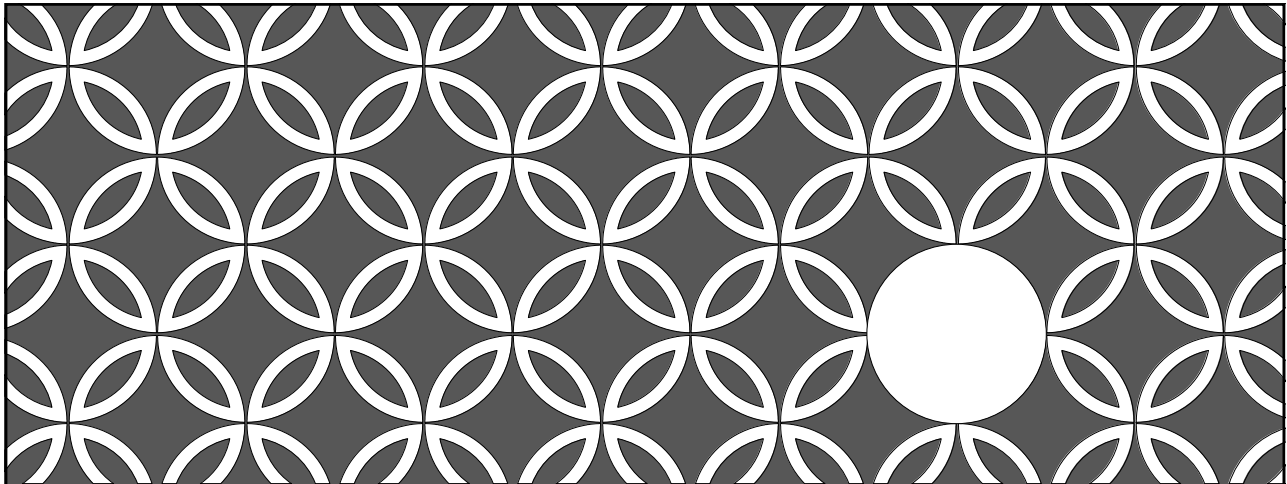
Coastal vulnerability call

" , **coastal environments may be degraded by multiple stresses arising from local to global scale drivers [...]** difficult because of **the complex interactions between these drivers and competing concerns [...]** **what science based knowledge enables people (e.g., individuals, communities, businesses, etc.) to change their habits and practices.**" (Belmont Forum 2012)

ARTtisticc project

"**what are the coastal community-level challenges to be taken into account in view of the definition and implementation of scientifically robust, evidence-based adaptation policies.**"

"**how is this transdisciplinary turn taking shape locally?"**

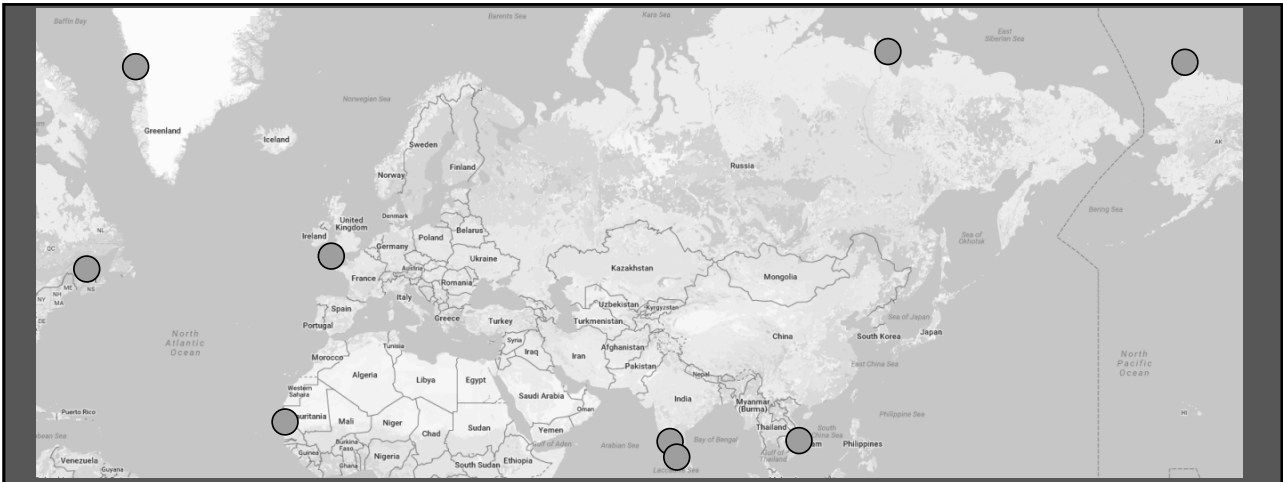


Conceptual framing and methods

Where one discovers how we went about observing the “transdisciplinary turn” as it deploys itself within coastal communities

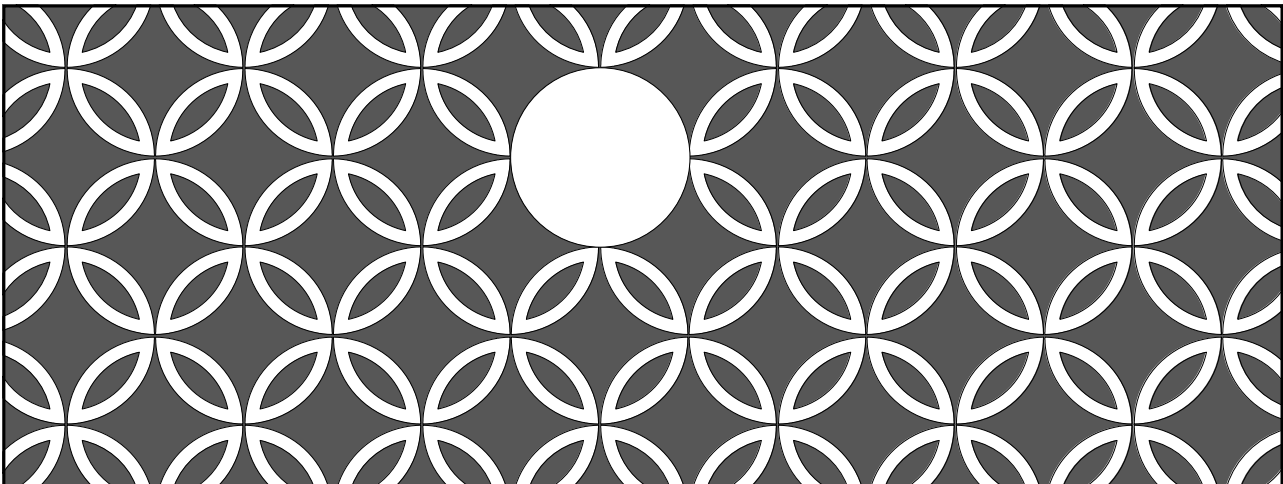
Exploratory, inductive approach

- • Generation of a series of local corpuses
 1. Past instance(s) of adaptation
 2. Current adaptation practices
 3. Framing of anticipatory adaptation
 4. Art-science experiments
- • Situated within the continuum between **grounded theory and Actor-Network-Theory**
- • **An explicit desire to explore how to operationalize Latour’s “attempt at a compositionist manifesto.”**



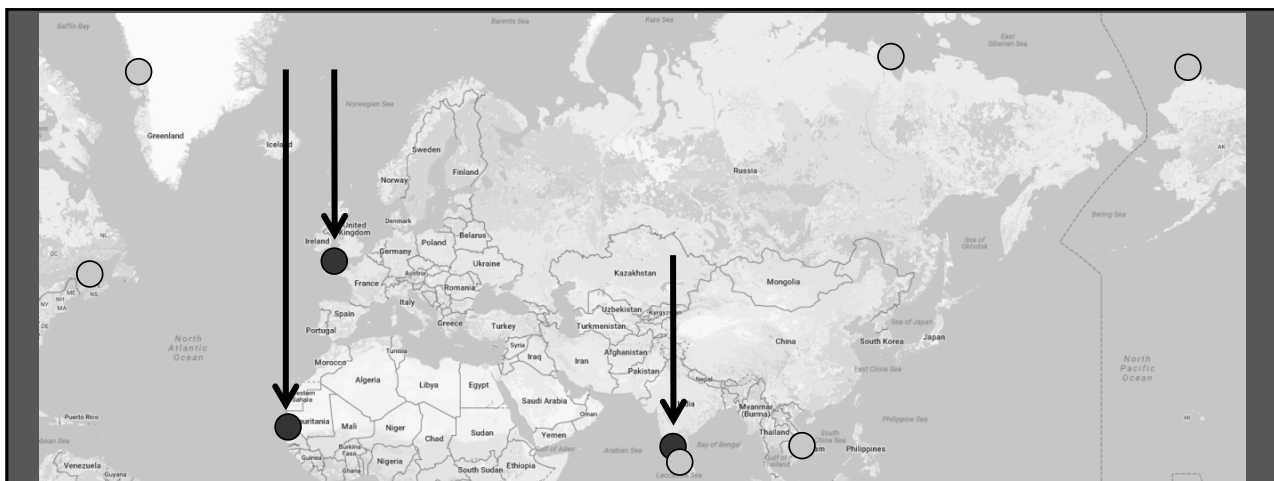
Field visits and training by coordinator (when needed)
A series of 9-monthly retreats for harmonization/interpretation.

Not a comparative approach *stricto sensu*, yet comparisons were made.



Lessons form the field sites (a sampler) and discussion

When one finds out that current agency and local environmental history and intertwined, that power is discreetly are all over the place – like super blinkers and that art has a role to play – when scientists are ready.



Type 1: Science is somehow utilized to solve interpretative tensions associated to a “local communities vs external forces” power play.

Stitching science and policy back together:

Science for robust local policy making is turned into a political tool to reinforce or contest current power relations.



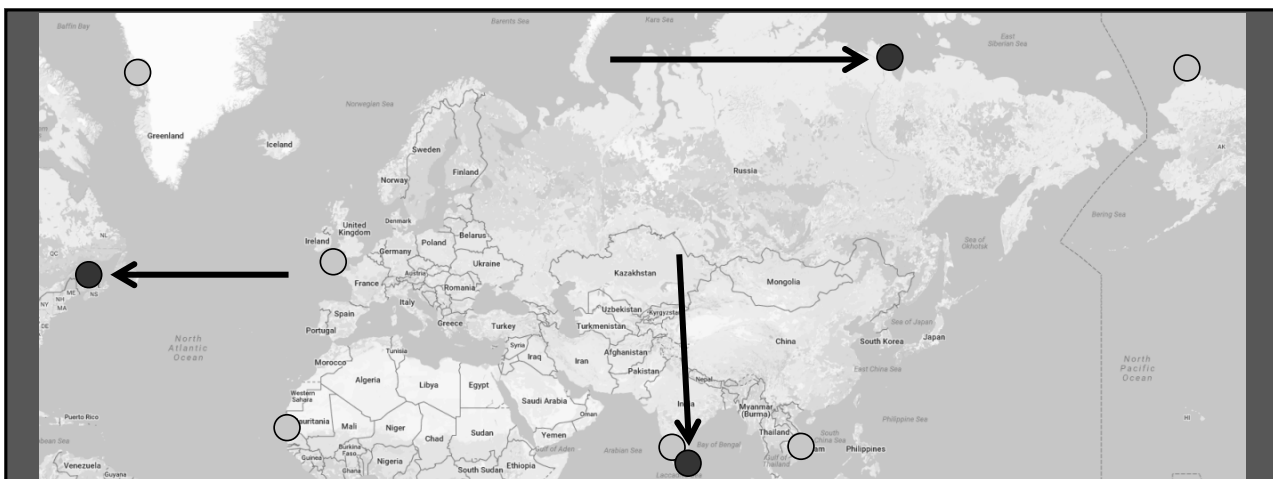
DWINDLING FISHLANDINGS
 One causal chain, associated overfishing, is within intervention reach of national authorities. The other, starting with climate change shifts the burdens elsewhere, even outside of Senegal – and generates potential “opportunities” through the confiscation of funds earmarked for adaptation.

The local deployment of science has bearing on an extremely sensitive power play.



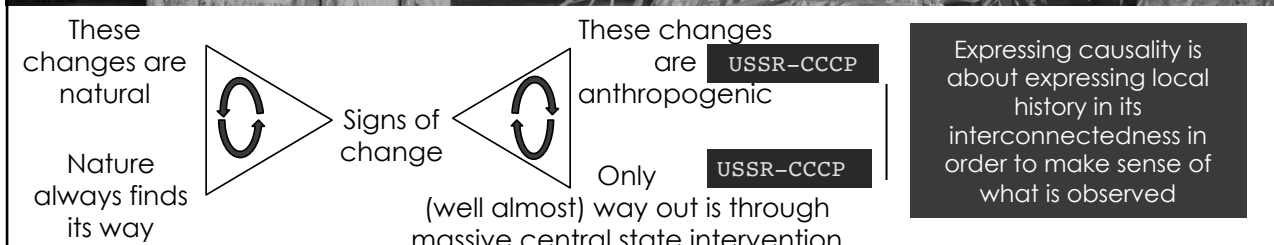
ANTICIPATORY ADAPTATION AND TOXIC ALGAE BLOOM
 Inclusion of anticipatory adaptation techniques within a stakeholder based water management body.
 Who sets the ground rule?
 An (extremely cautious) professional facilitator.
 The most powerful players who, "chemin faisant", annihilate the process

The local and collective practice of science was quickly identified by a dominant group as a threat – that group rendered the process meaning less.



Type 2: Science is deployed to make sense of what is observed, to connect the past, the present, and the future.

Stitching science and policy back together:
 Adds legitimacy to current action or lack thereof



Science used as a way to associate meaning to local citizen science.

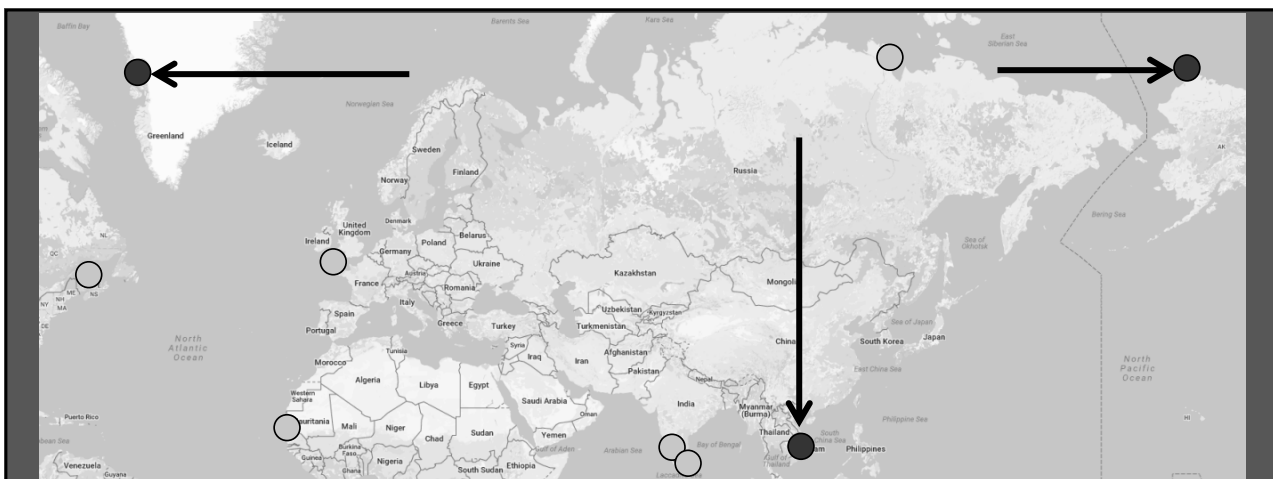
A focus is on the understanding of the communities' watersheds environmental history and historical environmental status.

Transdisciplinary turn may have occurred a long time ago, yet here it has been limited to policy and regulatory salient issues



Increasing occurrence of fisherfolks falling victim of local organized crime or being imprisoned abroad. Negotiation of boundaries are under way. Legitimacy, and reasons for disempowerment, found in climate science -> is this just contributing to justification regime? Is this just a relatively passive opportunistic move?

Potential use of externally driven science as leverage for much needed action.



Type 3: Science deploys as if business as usual prevail, this in spite of a radically shifting risk envelope..

Stitching science and policy back together:
Pretending or acknowledging that there is no need for this.



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Science is mobilized proactively to design a (gigantic) plan, in order to simultaneously manage flood risk while not interfering with the unexpected (?) consequences of a progressive transition to a market based economy.

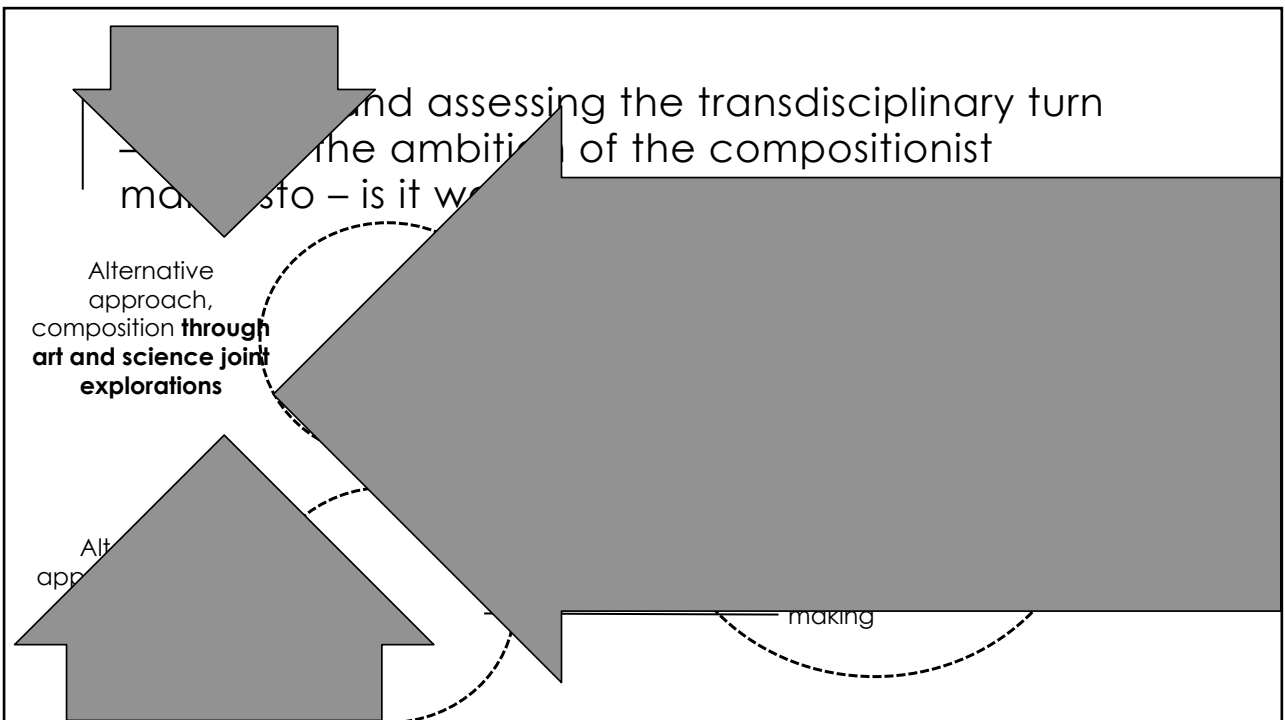
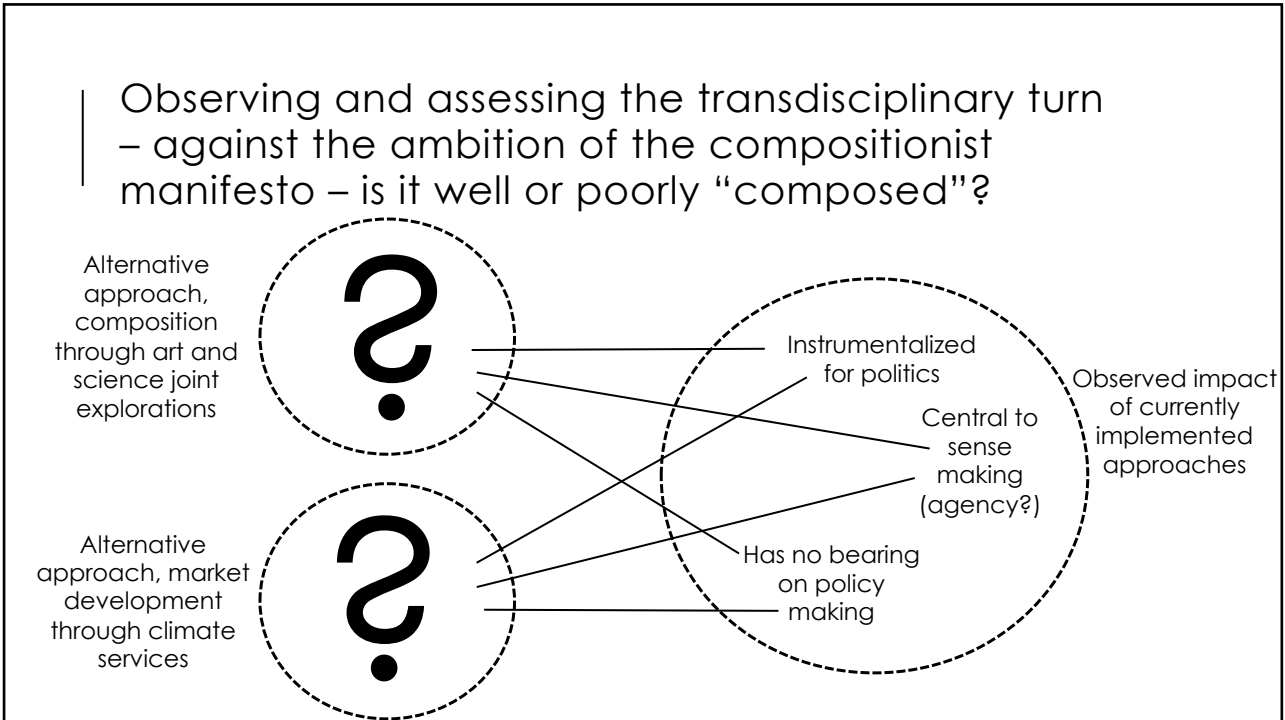
Science is mobilized as mean to adapt to political and economic forces at work – ... – that themselves are threatened by climate change



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Local knowledge, embedded into local practices, qualifies change with a rather high resolution. Connecting science, and its lower resolution, to local observation is challenging at best.

Sense making, is bidirectional, local practices may shed a quite crude light on science as scientists practice it . What is needed is a stitching of knowledges, not policy with science.





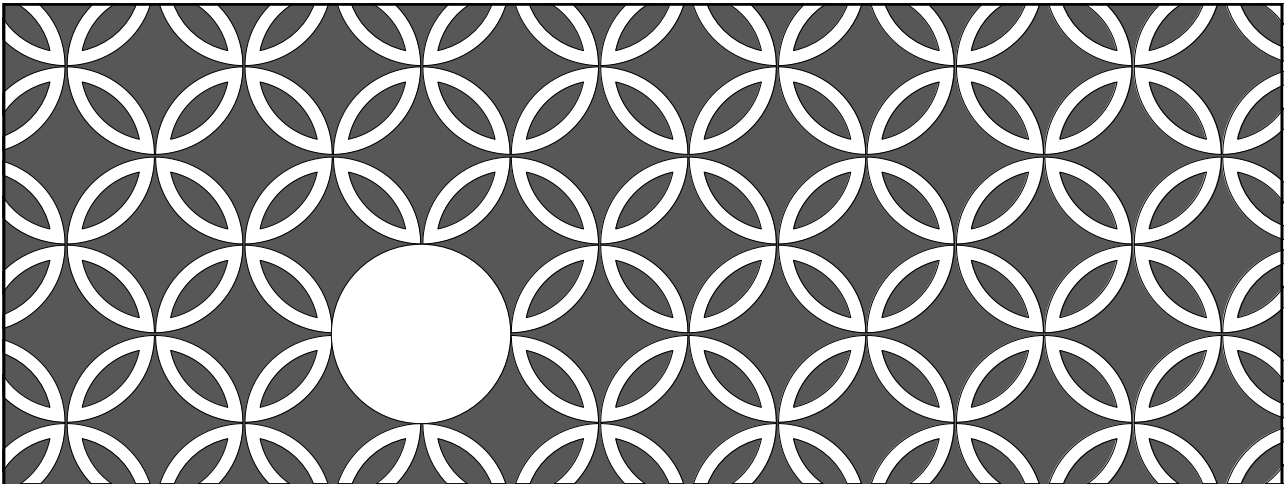
Can we stitch things together - science is about making the world intelligible, politics about making the world actionable, and arts might be about making the world rearticulated.
 Results 1: there is resistance! Result 2 : the stitching may bring in more than expected (in particular scale wise)

Art and science integration experiments – operationalizing “compositionism”



On resistance: the separation of matter of fact and matter of concerns may be eroding, yet the joint exploration of an issue by artists and scientists remain somehow complicated – alternate routes are explored - yet one must not forget that technocracy is not an option.

The stitching is possible, much work remain to be done to clarify the concepts, operations, and results.



Conclusion

Where we see old meaningful categories resuscitate and where we see other categories facing their demons.

The transdisciplinary turn, as seen through science and technology studies analysis.

Who is in the driver seat?

- Not yet stabilized, there may be a struggle going on.

With what aim?

- Power, legitimacy, over things, maybe, over people for sure.

How are the command and control organized?

- Indirectly, still needs to be invented

Who assesses

- Saliency, credibility, legitimacy – no one, or more precisely pseudo assessment are used in order to pursue other agenda

Disciplinary science as seen through the looking glass of transdisciplinary work

Environmental history

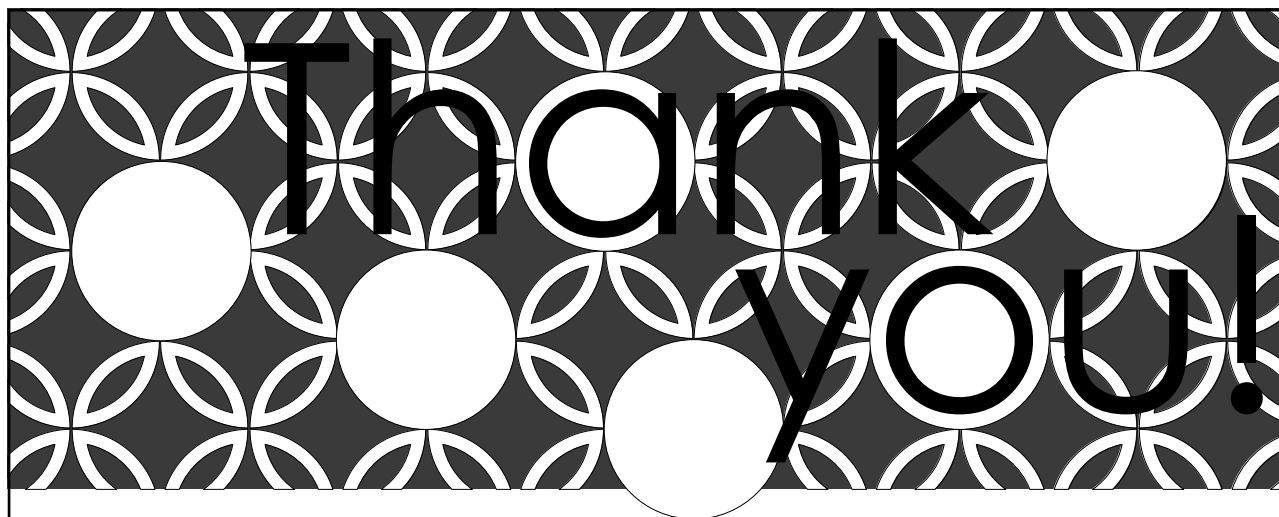
- History extended to the history of interactions between human and non human (and between human). -> "en route" for ANT. (Latour 2005)

Political economy of knowledge

- Knowledge is just a manifestation of larger "rapport force". -> are we stumbling on critical theory (Horkheimer 1982), in spite of our initial commitment?

This boils down to (a) making the world intelligible; (b) making the world actionable; and (c) recomposed

- Much work remain to be done, and... If there is a longing to dump critical theory lets be careful!!!



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Sources

- Belmont Forum (2012). Belmont Forum International Opportunity Fund first call for proposal, Theme 2, Coastal Vulnerability, accessed online on may 23, 2017 at <https://www.belmontforum.org/coastal-vulnerability-call>
- Belmont Forum (2016). The Belmont Challenge: a global environmental research mission for sustainability. Revision adopted following the 2016 Belmont Forum Annual Meeting (Doha, 31 October – 2 November 2016), White Paper, Belmont Forum.
- Cash, D. W., Clark, W. C., Alcock, F., Dickson, N. M., Eckley, N., Guston, D. H., . . . Mitchell, R. B. (2003). Knowledge systems for sustainable development. *PNAS*, *100*(14), 8086-8091.
- Crane, D. (1969). Fashion in science: does it exist? *Social Problems*, *16*(4), 433-441.
- European Commission (2016). *Science with and for Society (SwafS) across Horizon 2020*, accessed online on may 23, 2017 at <https://ec.europa.eu/research/swafs/index.cfm?pg=about>
- Gibbons, M. (1999). Science's new social contract with society. *Nature*, *402*, C81-C84.
- Horkheimer, M. (1982). *Critical theory*: Continuum New York, NY.
- Latour, B. (2005). *Reassembling the Social An Introduction to Actor-Network-Theory*. Oxford: Oxford University Press.
- Latour, B. (2010). An attempt at a "Compositionist Manifesto". *New Literary History*, *41*(3), 471-490.
- Latour, B. (2011). *Waiting for Gaia. Composing the common world through art and politics*. Paper presented at the Lecture given for the launching of SPEAP, French Institute, London.