BONUS RETURN
SCIENCE FOR A BETTER FUTURE OF THE BALTIC SEA REGION

Using serious game systems (SGS) to mediate learning and transformation in situations characterized by controversy and uncertainty in a changing climate

Neil Powell, Thao Do and Steven Bachelder
SWEDESD & The Department of Game Design
Uppsala University
Neil.Powell@swedesd.uu.se

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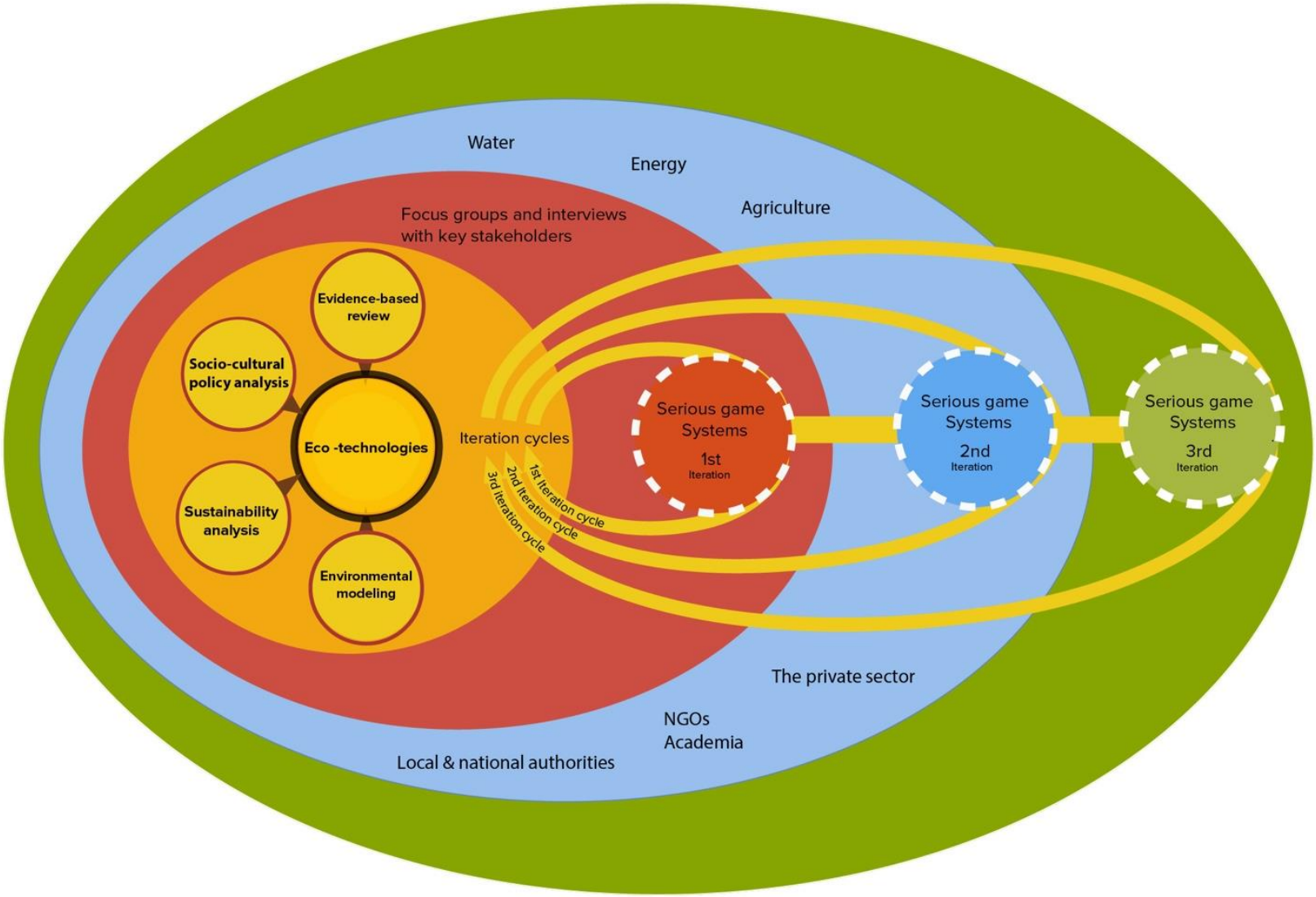
Process design for the serious game system in the BONUS RETURN project



The “normal” narrative: our role as scientists in communicating the risks associated with climate change adaptation

- Our practice enables us to identify CCA issues.
- We can set boundaries around the systems where these issues are manifest.
- There is an ideal state for any system
- We can define this state.
- We can determine how to transform towards this state

The global sustainable development narrative

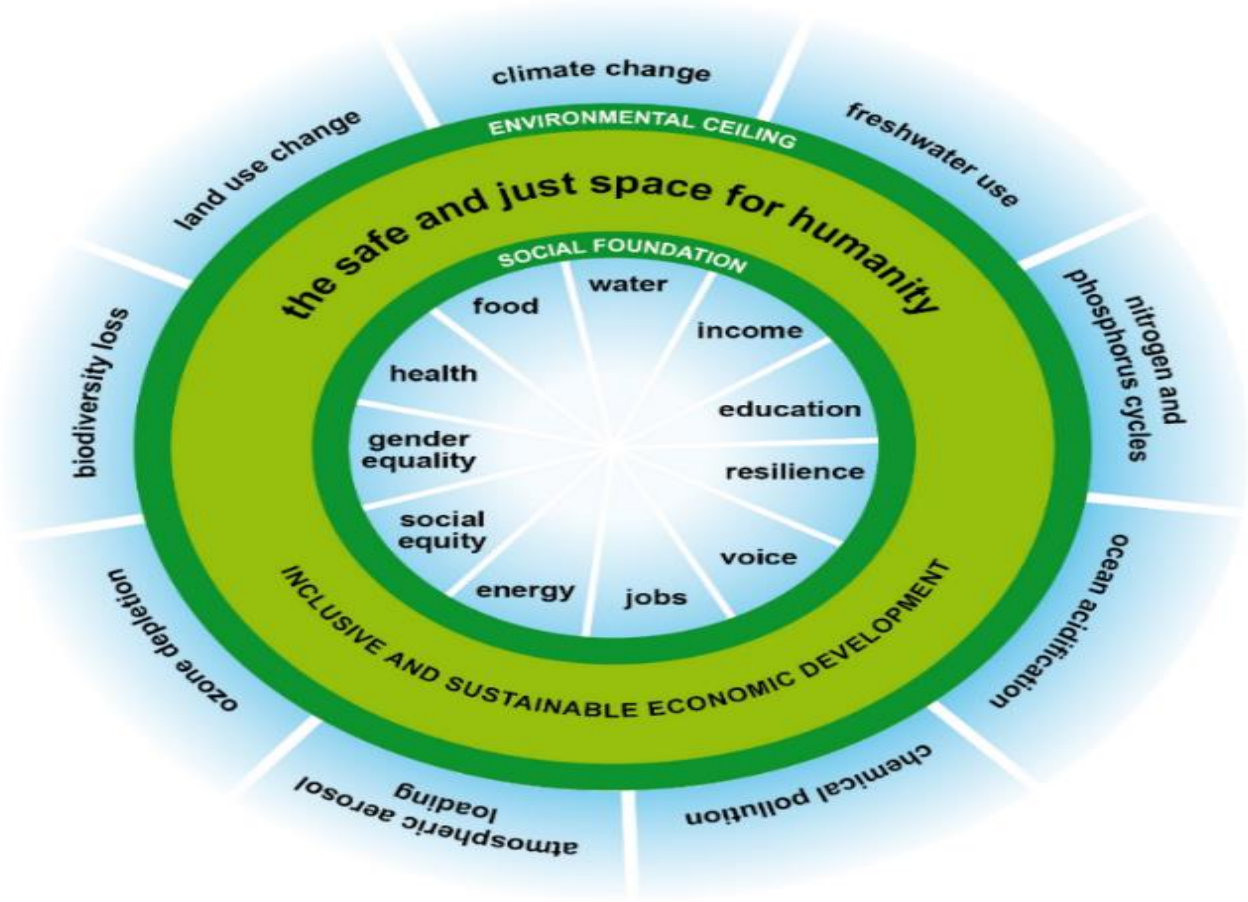


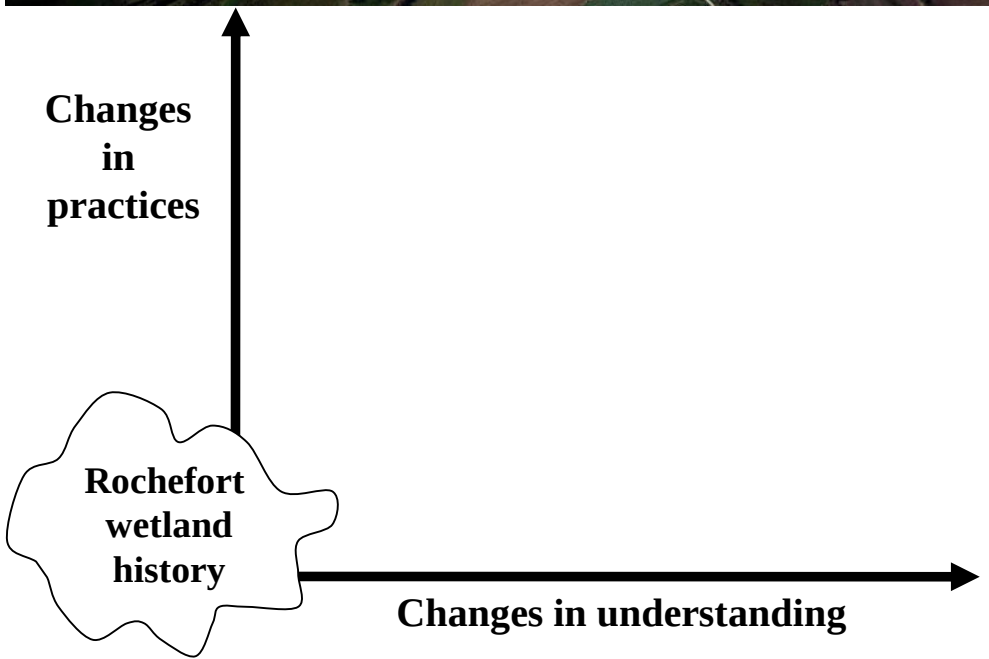
Figure: The doughnut of social and planetary boundaries (Raworth, 2012, p.4)

The Local Narrative

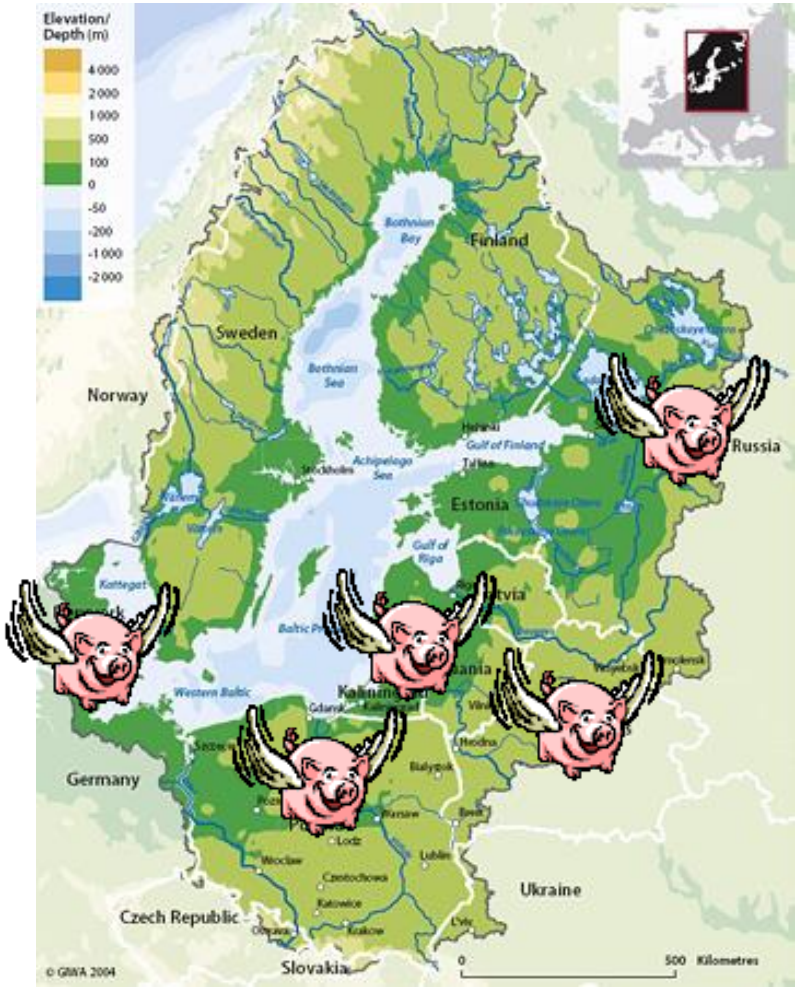
Two different ways of understanding wetland management of Atlantic Marshes :

1. One of these is centered on the high agronomic potential of the wetland

2. The other one is centered on the wetland's high biological potential



A regional sustainability narrative



Map 1. Translocation of the Danish Pig Industry to less regulated BSR contexts (Source: data from Baltic Compass)

A trans-regional Sustainability narrative

The Implementation of the Renewable Energy Directive in the BSR and Palm Oil Production in West Kalimantan

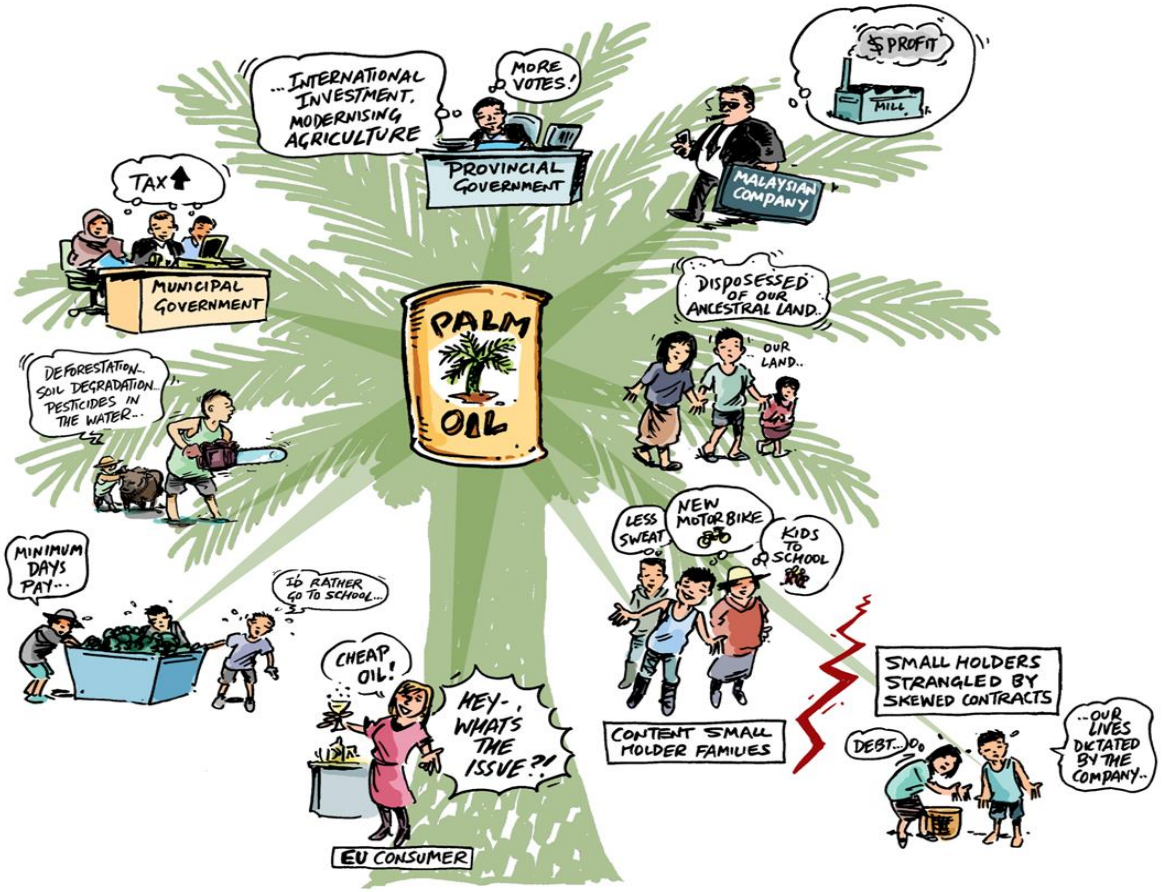
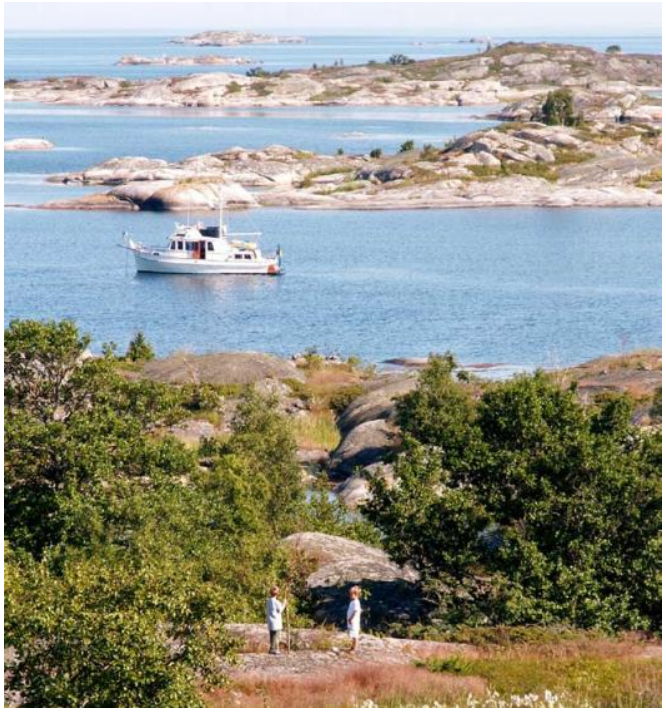


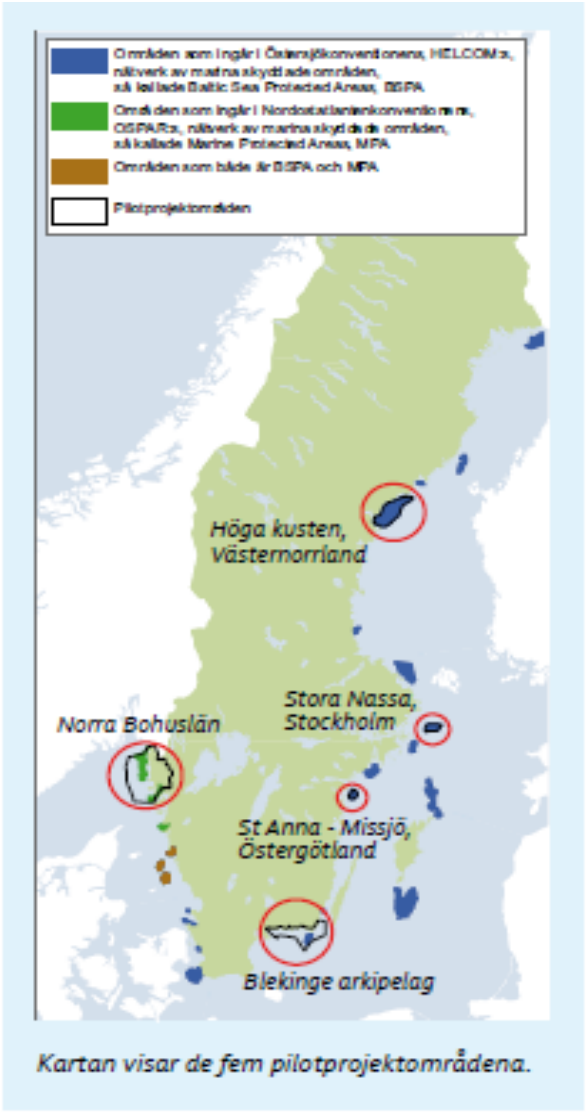
Figure 1. Depicts the impact of the Renewable Energy Directive on the water and food security for smallholder palm oil producers in West Kalimantan (Source CADWAGO project).

The Intersectional Narrative

Gender perspectives on the Role of Municipalities as Implementers of the WFD in Coastal Sweden – Acknowledging the Presence of Power



WFD has been an attempt to transcend a 'fragmented' environmental legislative approach through the introduction of context-specific and stakeholder-defined targets, manifest 'good ecological status' and 'good chemical status.



Kartan visar de fem pilotprojektområdena.

'Framing' matters in Adaptation

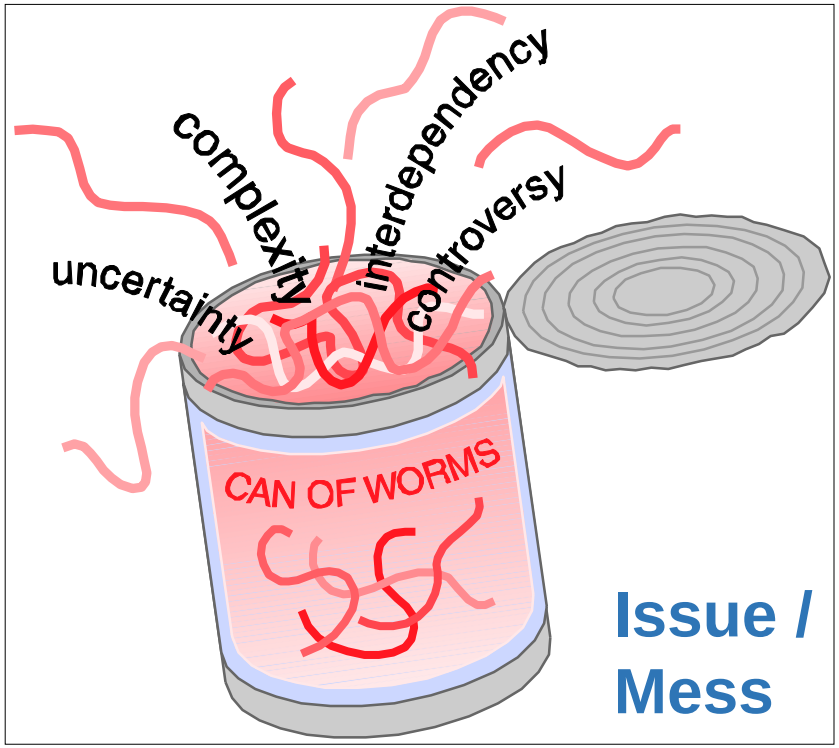
Interdependencies

Complexity

? Uncertainty

Controversy

Agency



After: Ackoff, (1974) – messes and difficulties; Schön (1995) - the 'real-life swamp'; Rittel and Webber, (1973) - 'wicked' and 'tame' problems

The Post Normal Narrative

- Different stakeholders see different *systems*, with different constraints.
- As scientists we need to transcend the role of *stateholders* that promotes the world view underpinning particular constellation of stakeholders.
- *Power* is present in these systems and this distorts the praxis of adaptation
- As scientists working in different institutional settings, when tackling sustainable development we are always faced with social dilemmas and or wicked problems.

Co-inquiry and co-creation with stakeholders

3 case study contexts

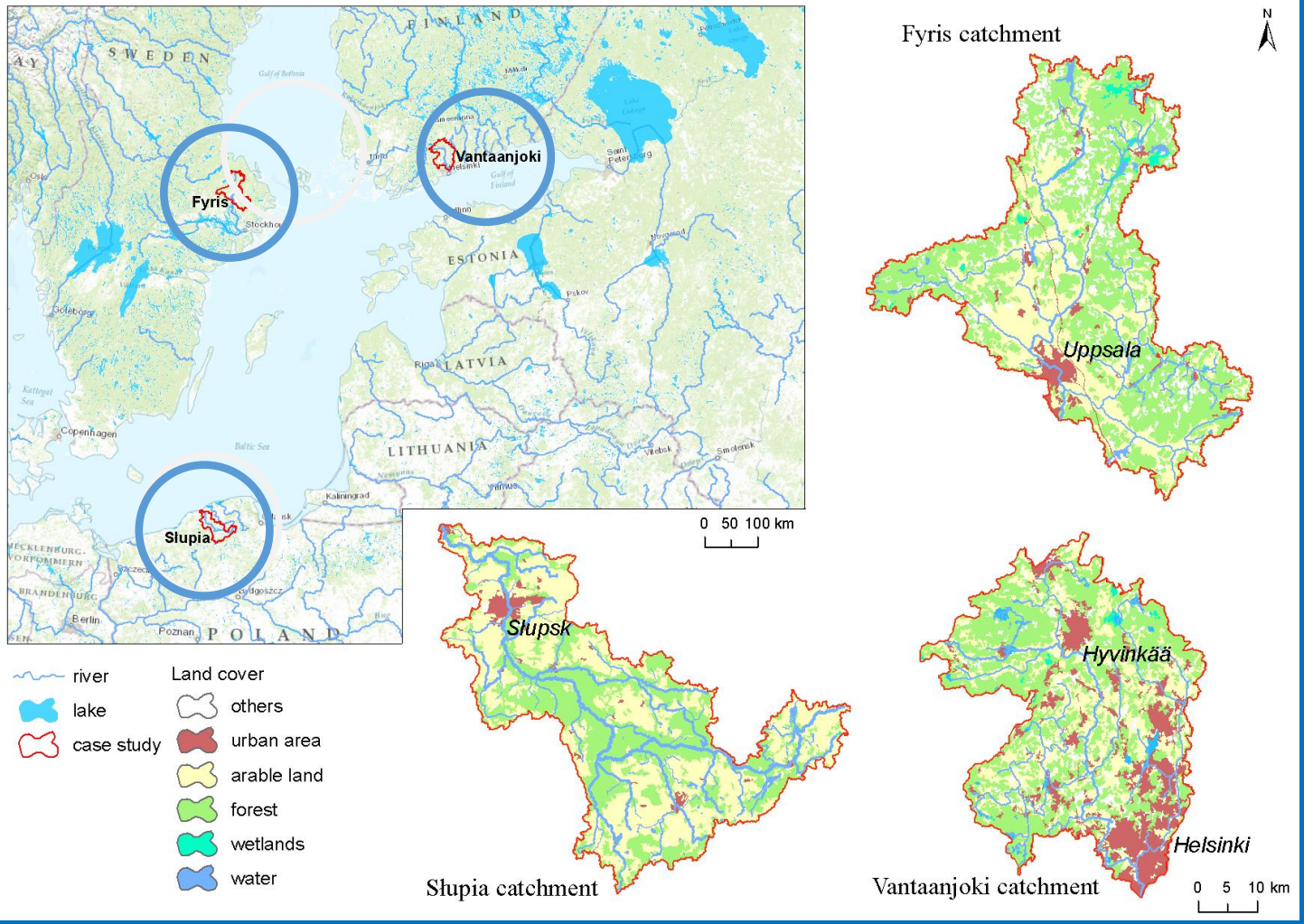
Fyrisån

Vantaanjoki

Slupia

"Map and data"

Playing field



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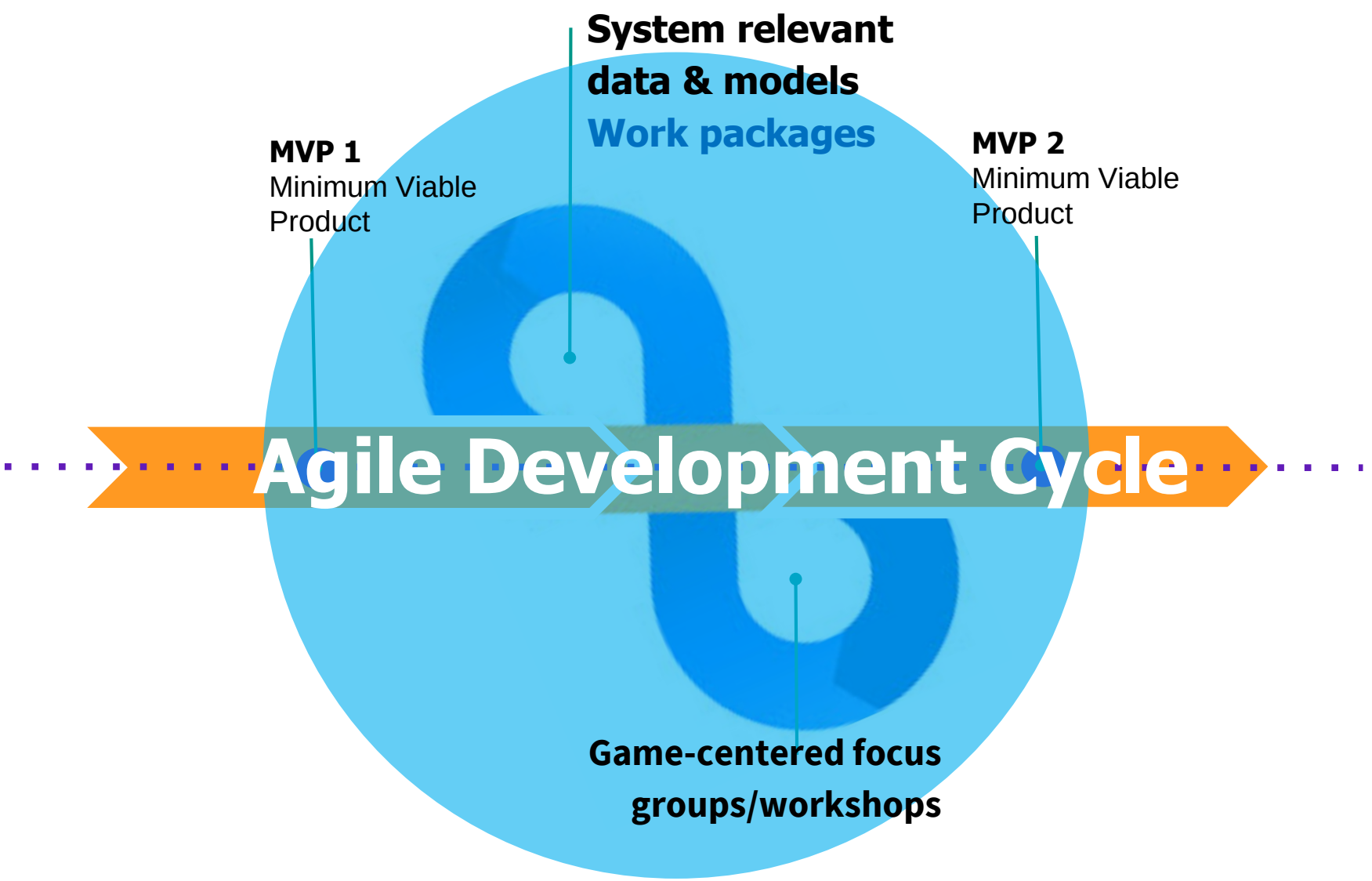
Co-inquiry and co-creation with stakeholders



Scientists and Researchers

Inclusion of peer reviewed and validated scientific data

Not just the dissemination of findings…
But a collaborative process of co-inquiry

Aspects of Interpretative phenomenological analysis (IPA)

Stakeholders and Public

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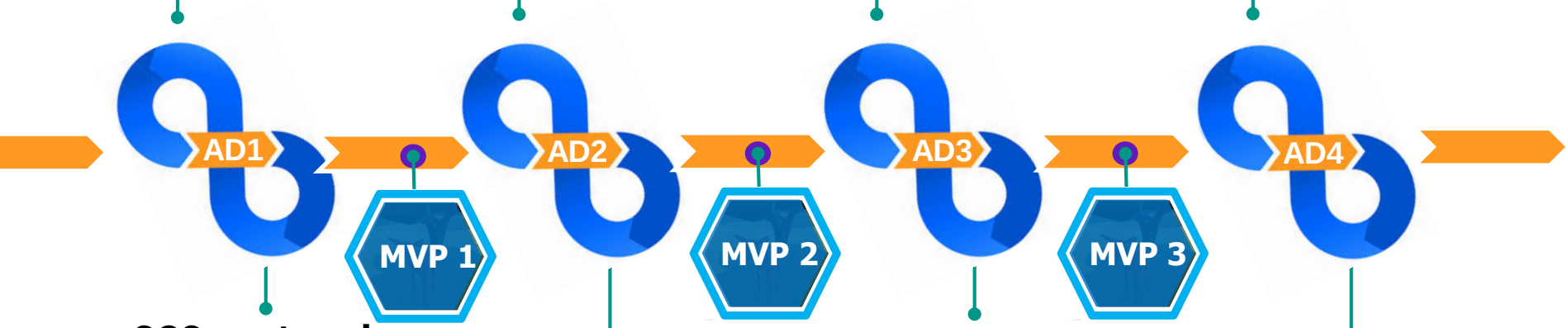
Co-inquiry and co-creation with stakeholders

System relevant data & models WP 2, 4
June - July 2018

System relevant data & models WP 2, 3, 4
Aug & Dec 2018

System relevant data & models WP 3, 4, 5
Feb & Mar 2019

System relevant data & models WP 3, 4, 5
May & June 2019



SGS-centered Local focus groups
August-September 2018

SGS-centered focus groups/workshops
January-Feb 2019

SGS to mediate co-inquiry into policy barriers and opportunities in policy environment
April 2019

2nd regional SGS mediated learning & exchange event
May 2019

Co-inquiry and co-creation with stakeholders

System relevant data & models

Work packages

MVP 1
Minimum Viable Product

MVP 2
Minimum Viable Product

Game-centered focus groups/workshops

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Co-inquiry and co-creation with stakeholders

System relevant data & models

Work packages

MVP 1
March 2018

Game-centered focus groups/workshops

August-September 2018

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Co-inquiry and co-creation with stakeholders

System relevant data & models

Work packages

MVP 2
Jan 2019

Game-centered focus groups/workshops

May- Sept 2019

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Co-inquiry and co-creation with stakeholders

System relevant data & models

Work packages

MVP 3
March 2019

Game-centered focus groups/workshops

Jan- April 2019

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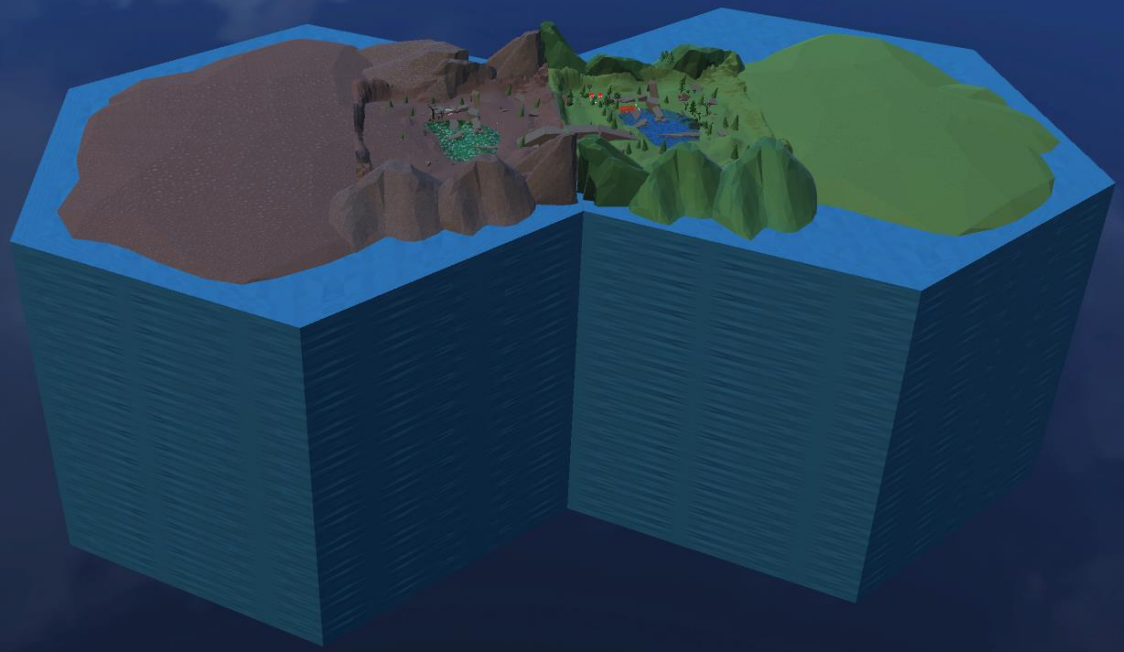
"Hexagon game system"

The serious game system platform to foster a learning environment for stakeholders to support the identification, assessment and implementation of eco-technologies.



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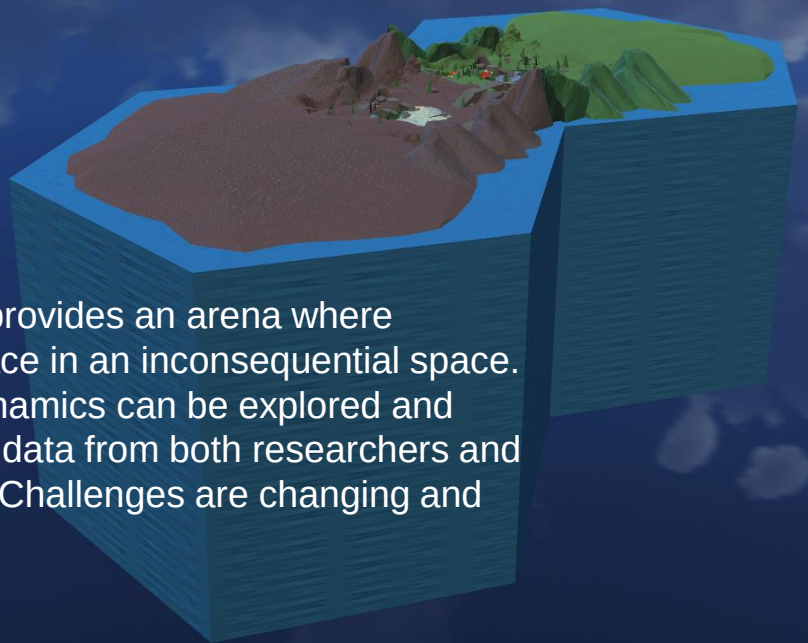
"Hexagon game system"

The environment of the SGS provides an arena where consequential actions take place in an inconsequential space.



The environment of the SGS provides an arena where consequential actions take place in an inconsequential space. And where complexity and dynamics can be explored and negotiated as informed by the data from both researchers and locally situated stakeholders Challenges are changing and constant

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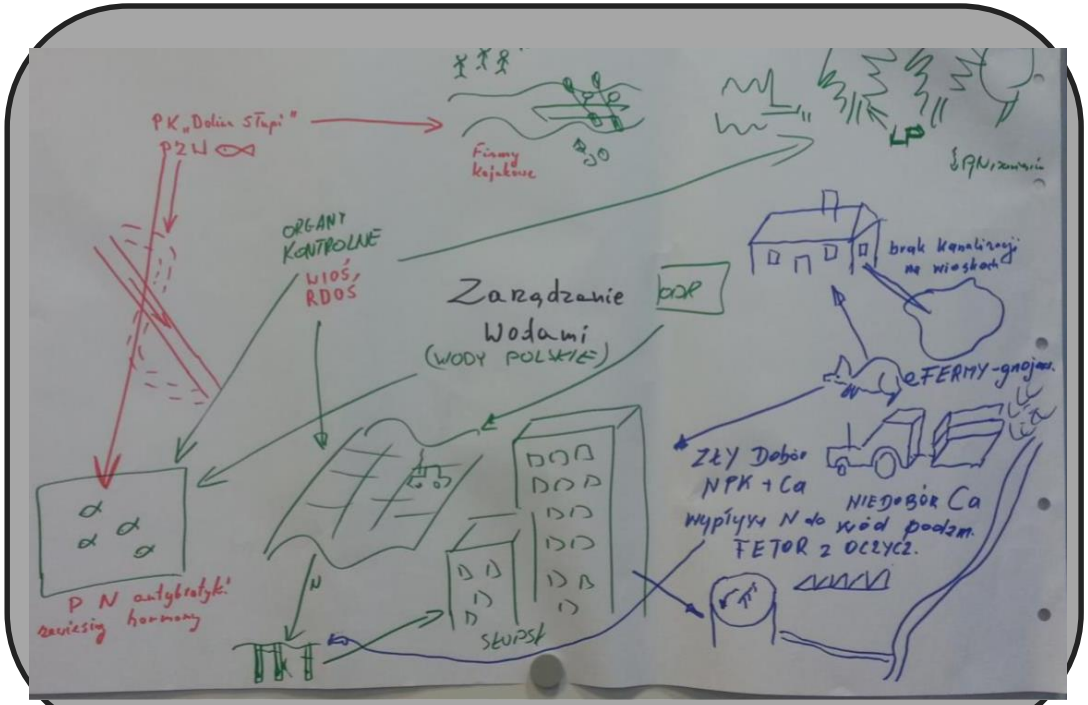
Systemic representatio



"Rich Picture"

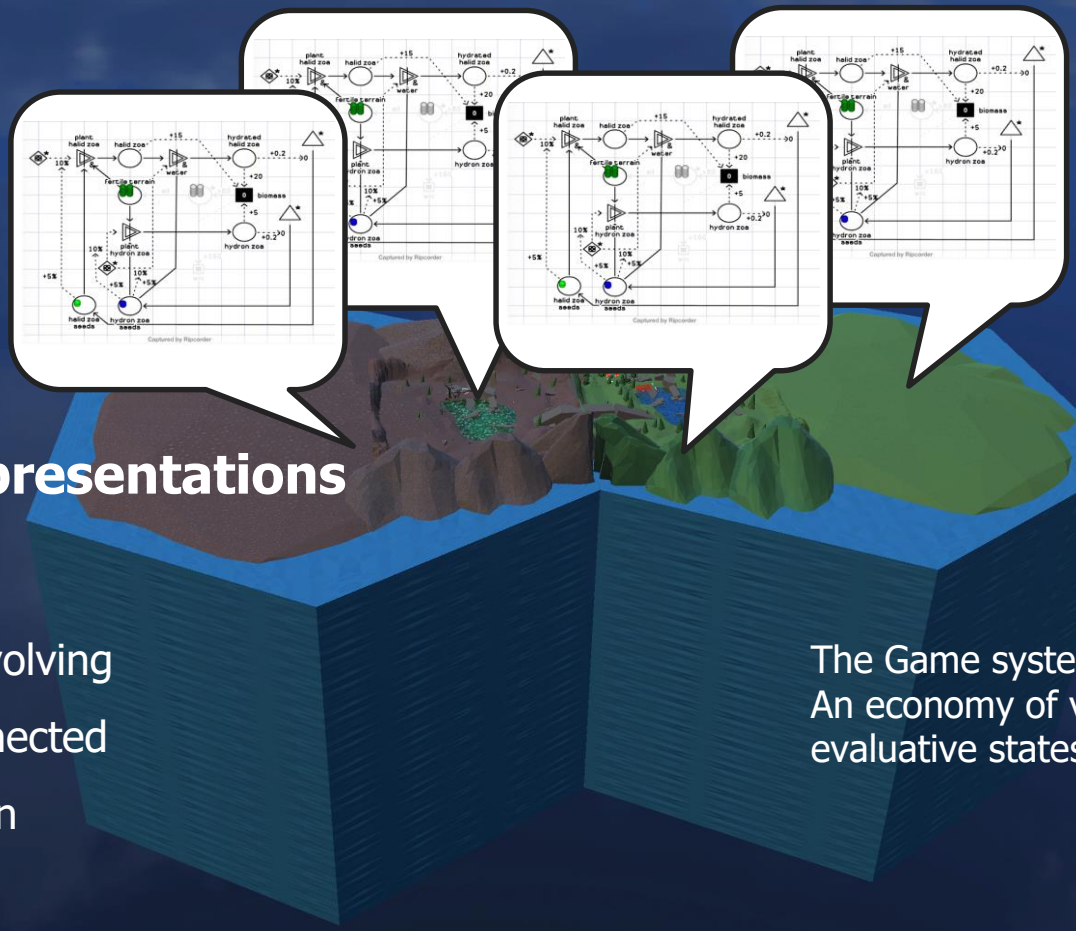
An arena for discussion

"Rich Pictures"

"Rich Picture"
Even Richer

With dynamics and contextual dialogue

"Machinations"



Systemic representations

Agile

Approximate & evolving

Attributive & connected

Stakeholder driven

The Game system operates
An economy of values toward
evaluative states: "Win-states"

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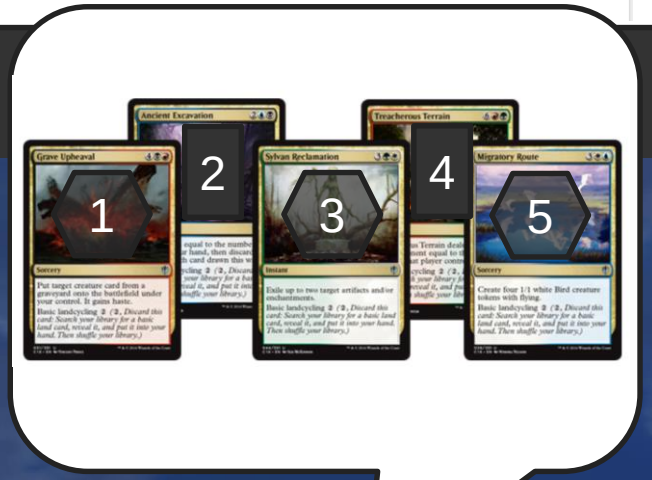
Cyclical variations
Adaptive variability



Unexpected situations impacting the system

-Climate change

-Natural disasters

-Rapid shifts in governance

The gaming system will also introduce risks growing out of the uncertainties and controversies connected to the BSR's marine environment. The capacity of the player to navigate these will determine their overall performance within in the game system and generate questions and insights that can be implemented back into the system.

New constellations of stakeholders pave the way for real transformation

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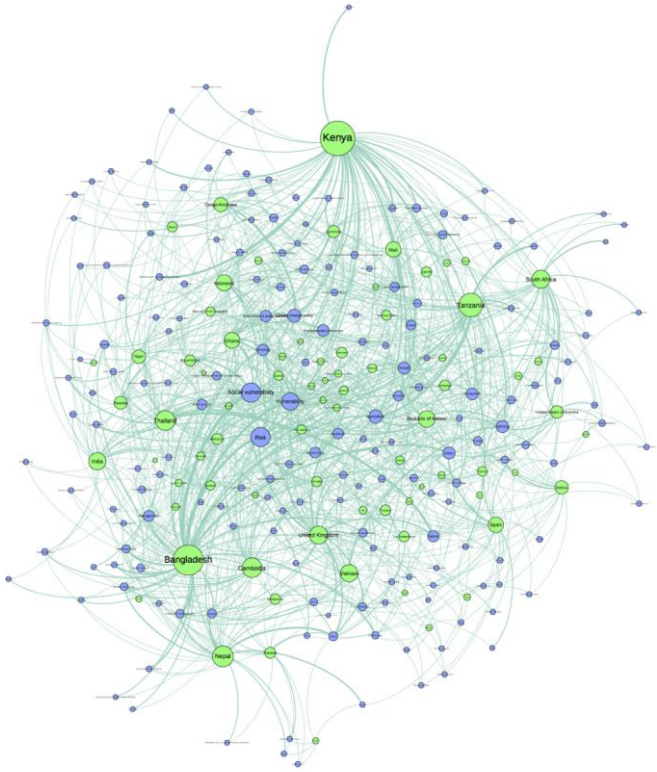

Geographic coverage of issues by country on weADAPT, 2013
http://www.sei-international.org/mediamanager/documents/Publications/Climate/SEI-WP-2015-08-CAMA-weADAPT-visualization.pdf