



Towards systemic governance in the Anthropocene

IASA/IASCYS Joint meeting, Monday 10th July 2017

in conjunction with

61st Annual Meeting of the International Society for the Systems Sciences:

From Science to Systemic Solutions

Systems Thinking for Everyone

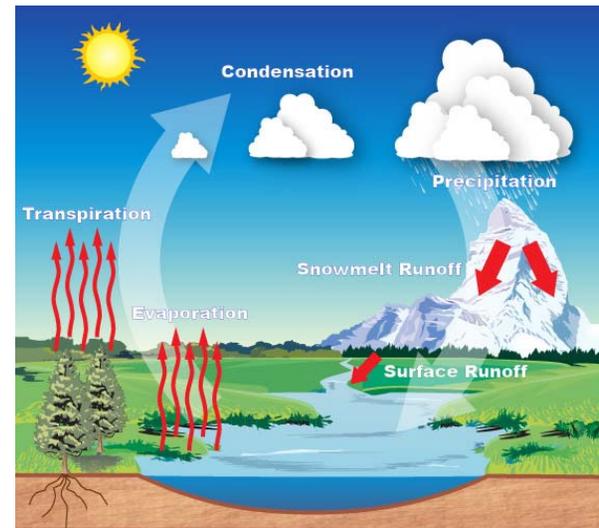
The Jordan River and the Dead Sea - the cradle of Abrahamic-based civilisations (Jewish, Christian, Islamic). There is a real prospect of a dead, Dead Sea !!!



The “Anthropocene” a term formulated by Earth scientists to claim that we have entered a new geological epoch: human influences have become so great that they are affecting “whole Earth dynamics”



Global systemic processes or cycles are changing



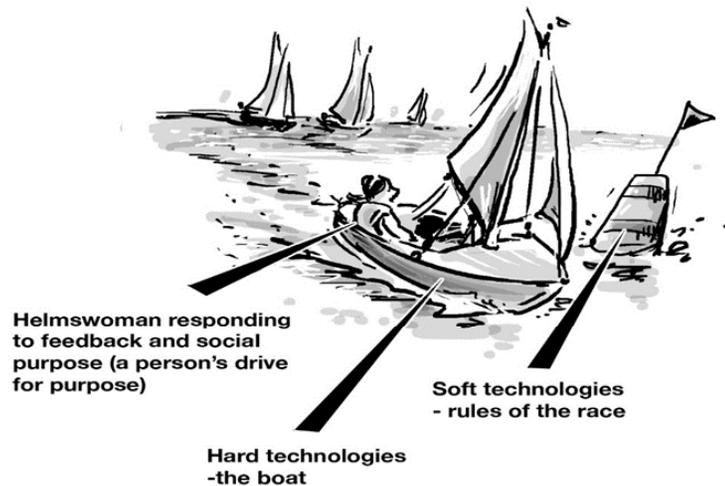
- Water cycle
- Carbon cycle
- Nitrogen cycle
- Phosphorous cycle
- Oxygen – or ‘clean air’?

Clarifying some terminology: governance



Governance or governing praxis (theory-informed practical action)

- Responding to feedback
- Cybernetics, from Greek 'kybernetes' meaning helmswoman or steersman
- Governing – responding to feedback; charting a course (purpose)
- Integrating feedback from the social and the biophysical
- The social-biophysical relationship mediated by technology – a boat – or institution – e.g. the rules of the race



“like government, the word governance derives, ultimately, from the Greek verb *κυβερνάω* [kubernáo] meaning to steer”

Ampère (1834) used the word ... to describe the science of civil government.

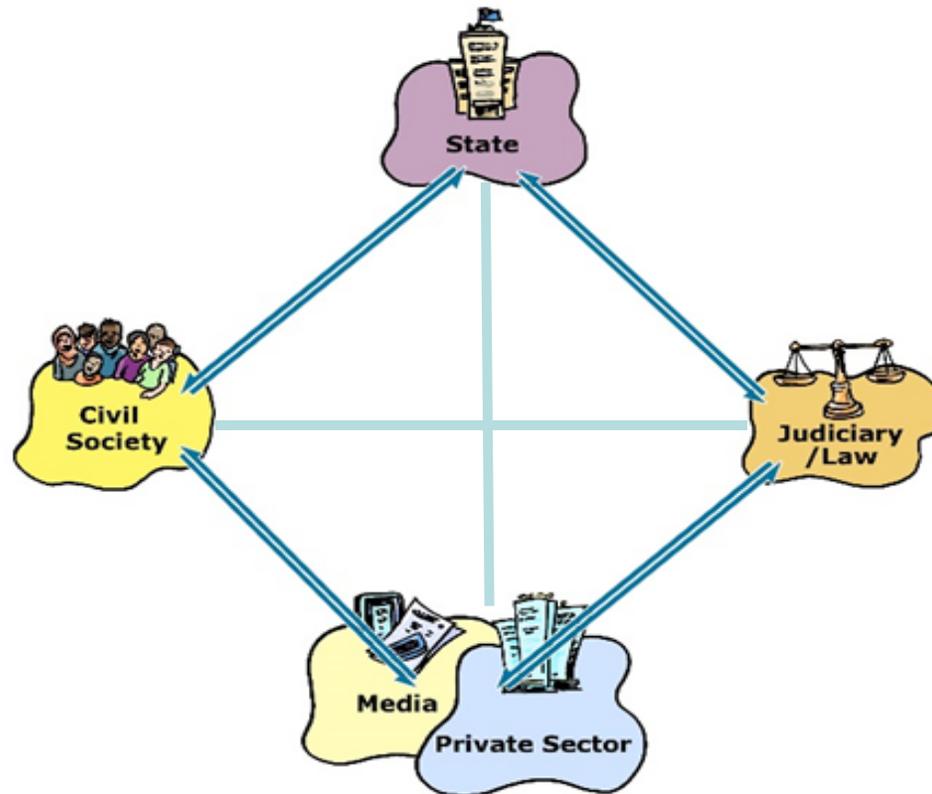
Norbert Wiener reintroduced the term – but it was not taken up in its verb form i.e., governing

Exploring the failing, historical, two-dimensional, “governance diamond”



What is your own experience?

Think of whether the relationships between these elements are systemic or not?

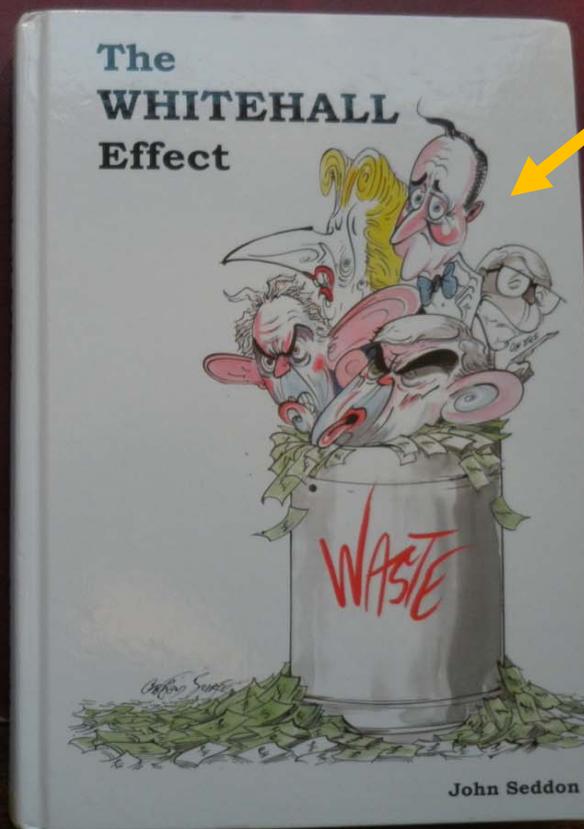
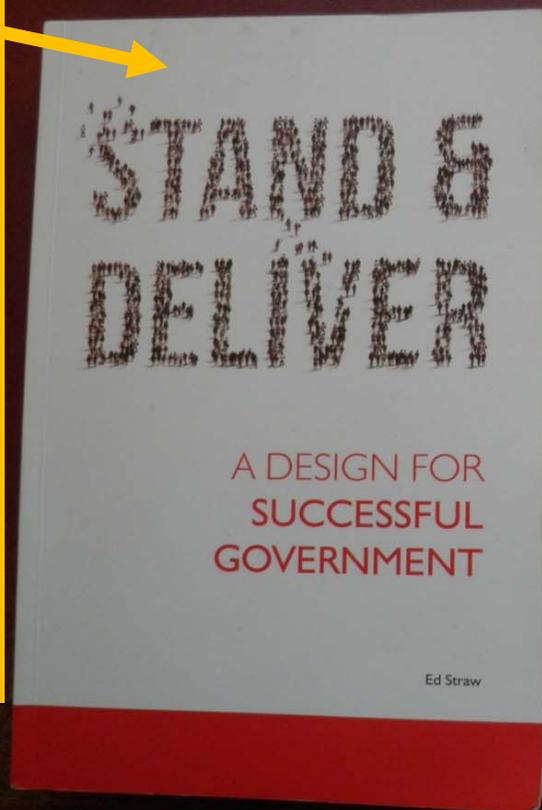


This historical governance diamond is not forever!

The systemic failure of governance by UK government!



...the present system as a whole is itself what stands in the way of successful government ...



a critique of 'deliverology', target setting, 'back office' systemic malfunction. Seddon offers a systemic alternative based on responding to context derived design for purpose

The systemic failure of governance by governments!



- Ison, R.L. (2010) Governance that works. Why public service reform needs systems thinking. In Davis, M. & Lyons, M. eds *More Than Luck. Ideas Australia Needs Now*. pp. 215-228. CPD, Sydney.
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- Ison, R.L. and Wallis, P. (2017) Mechanisms for inclusive governance, In Karar, E. ed *Freshwater Governance for the 21st Century*, pp. 159-185, Global Issues in Water Policy 6, Springer, Switzerland.
- Ison, R.L., Alexandra, J. & Wallis, P.J (2018) Governing in the Anthropocene: cyber-systemic antidotes to the malaise of modern governance. *Sustainability Science* (submitted)

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CONTENTS

Volume 33 Number 5 September–October 2016

Special Issue:
Governing in the Anthropocene: Contributions from Systems Thinking in Practice?
Guest Editors: Ray Ison and Monica Shelley

Editorial
589 Governing in the Anthropocene: Contributions from Systems Thinking in Practice?
R. Ison and M. Shelley

Research Papers
595 Governing in the Anthropocene: What Future Systems Thinking in Practice?
R. Ison

614 Ecosystem Approaches to Health and Well-Being: Navigating Complexity, Promoting Health in Social–Ecological Systems
M. J. Bianchi

635 'Till the Muddle in my Mind Have Cleared Awa': Can We Help Shape Policy Using Systems Modelling?
D. C. Lane

651 Towards a Practice of Systemic Change — Acknowledging Social Complexity in Project Management
L. Klein

662 Towards Systemic Evaluation
M. Reynolds, E. Gates, R. Hammond-Brunner, M. Morris and B. Williams

Commentaries
674 The Myths of Independence and Competition
M. C. Bateson

678 A Delicate Balance: The Interdependence of Natural, Artefactual and Human Systems
S. D. N. Cook

Research Notes
686 Modelling the Limits of Bioenergy
A. Strupazzos

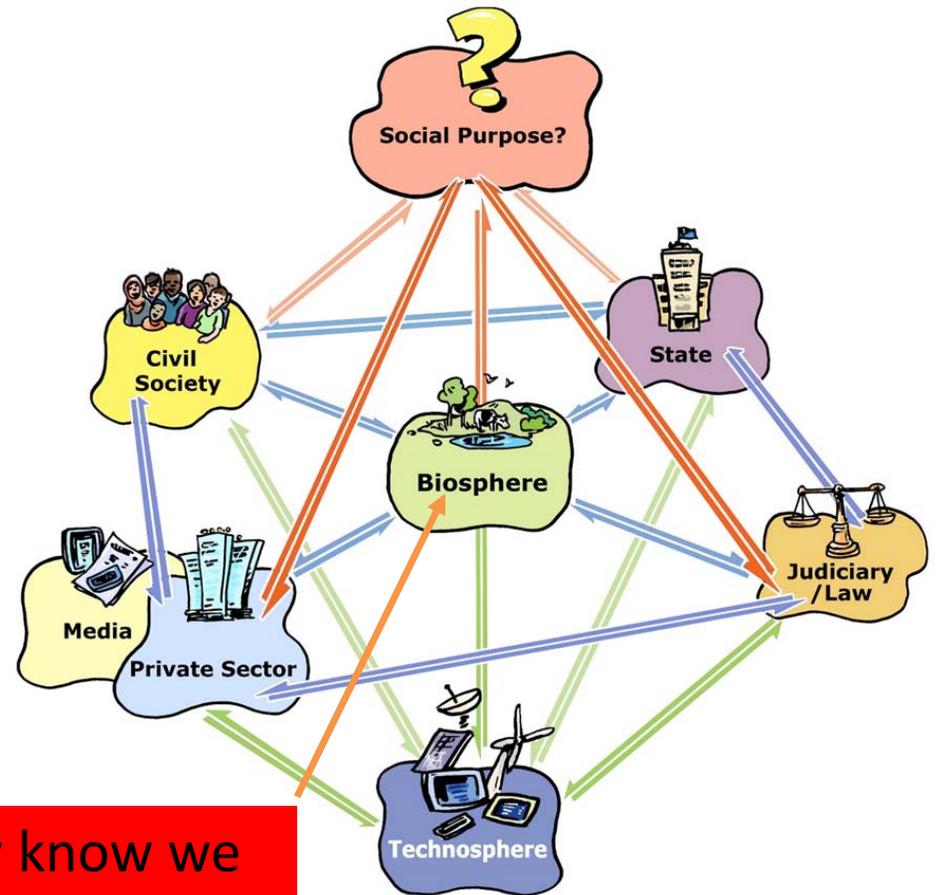
691 Educating and Empowering Children for Governing in the Anthropocene: A Case Study of Children's Homes in Sri Lanka
E. Ariyaratne

Wiley Online Library



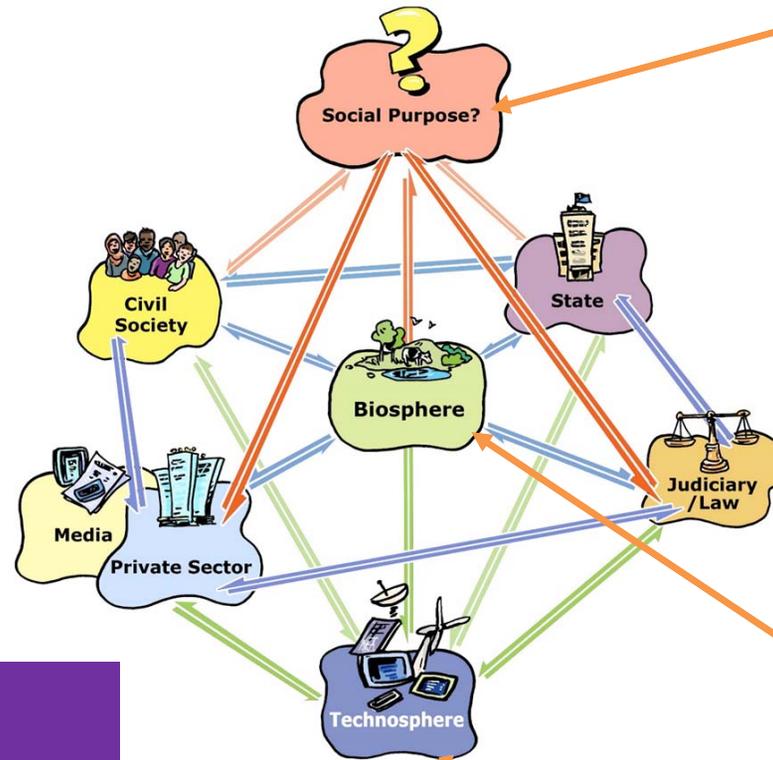
Inventing and enacting a systemic governance diamond fit for circumstance?

Towards systemic governance?



We now know we are in a situation that can be called 'Anthropocene'

Inventing and enacting a systemic governance diamond fit for circumstance?



Invent new systemic institutions to negotiate and pursue social purpose e.g.:

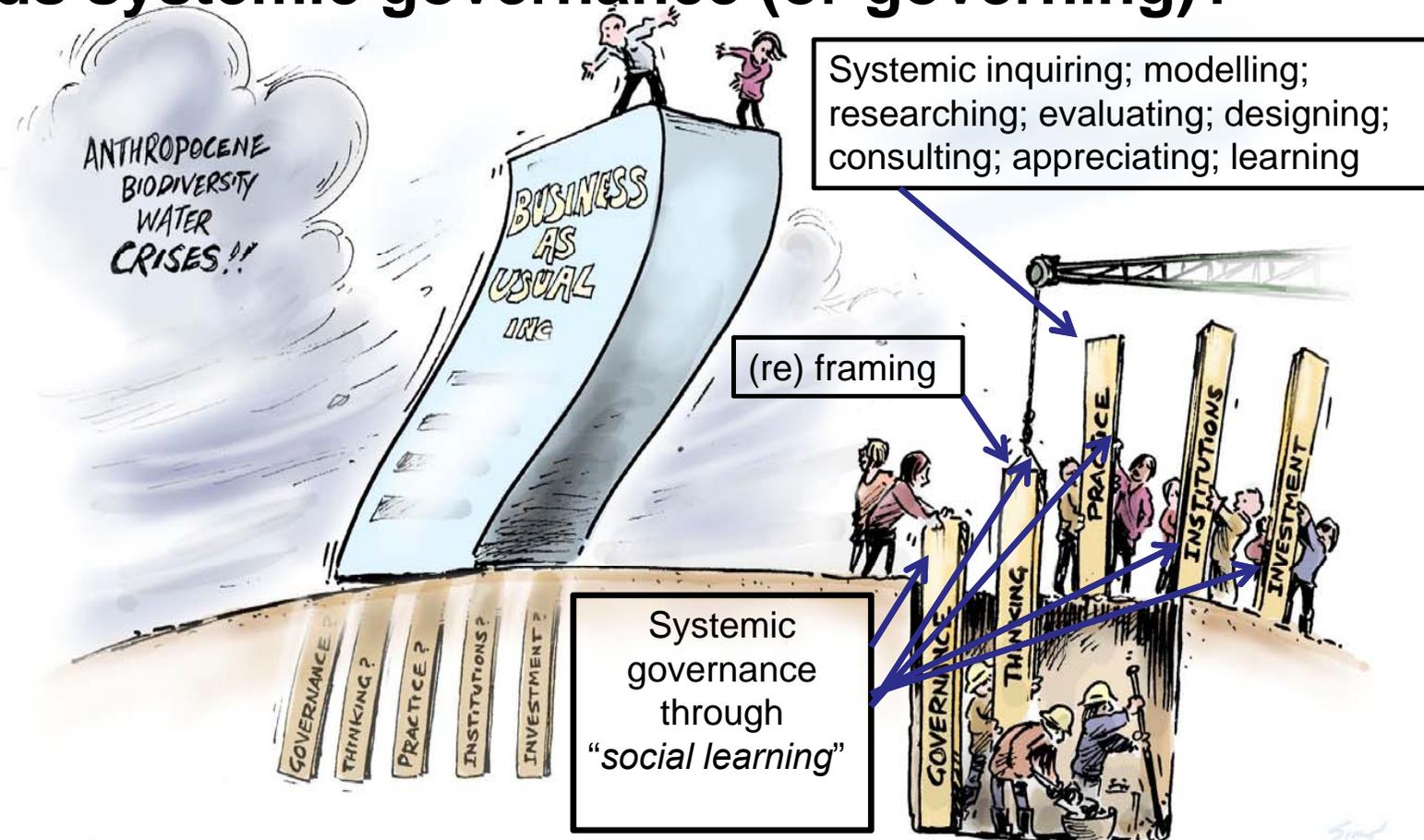
- systemic co-inquiry not 'projectification';
- deliberation not voting
- 'education' = citizen investment + empowerment

Transform towards systemic governance

Abandon *laissez faire* technology development

Design 'Anthropocene' awareness and responsibility into all elements and their relations

Inventing new practices and institutions to transform towards systemic governance (or governing)?



...by which means quality co-evolutionary futures emerge?

RESILIM Background: Resilience building

Improve **transboundary management** of the Olifants Catchment

Enhance the resilience of its people and ecosystems

(holistically with people)



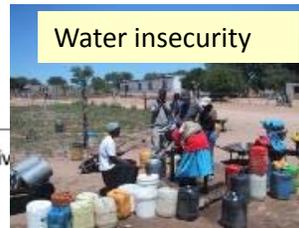
- 2nd largest irrigation scheme in SA
- R1 billion export market



- SA 5th largest global coal producer
- 90% from Witbank coal fields



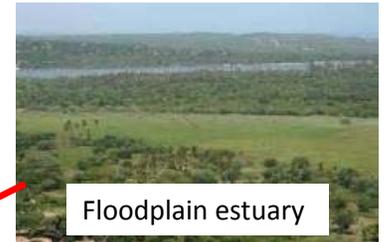
Sewage (WWTW)



Water insecurity



Crocodile deaths



Floodplain estuary



Extreme events



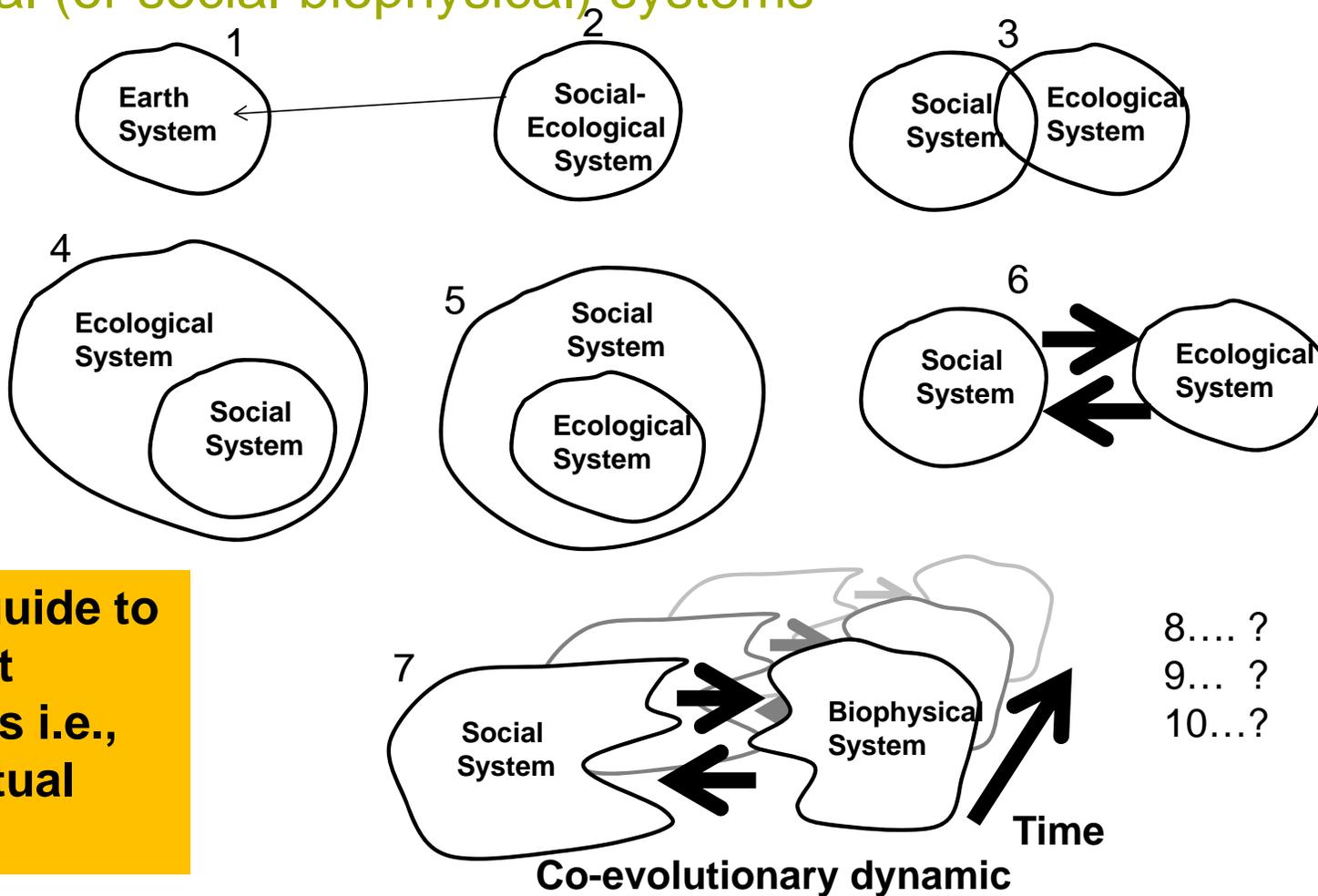
Climate change



The main 'actors' in my Southern African case study

- The Olifants River, a transboundary tributary of the Limpopo River (South Africa + Mozambique)
- AWARD – an NGO given US\$8.3 million by USAID to carry out the
- RESILIM-O Project (Resilience of the Limpopo, Olifants)
- Many other organisations, groups etc., both government & non-government

Conceptual clarity serves praxis and transformation e.g. social-ecological (or social-biophysical) systems



a field guide to different framings i.e., conceptual models



Human social system

Biophysical system

Human invented institutions that mediate co-evolution



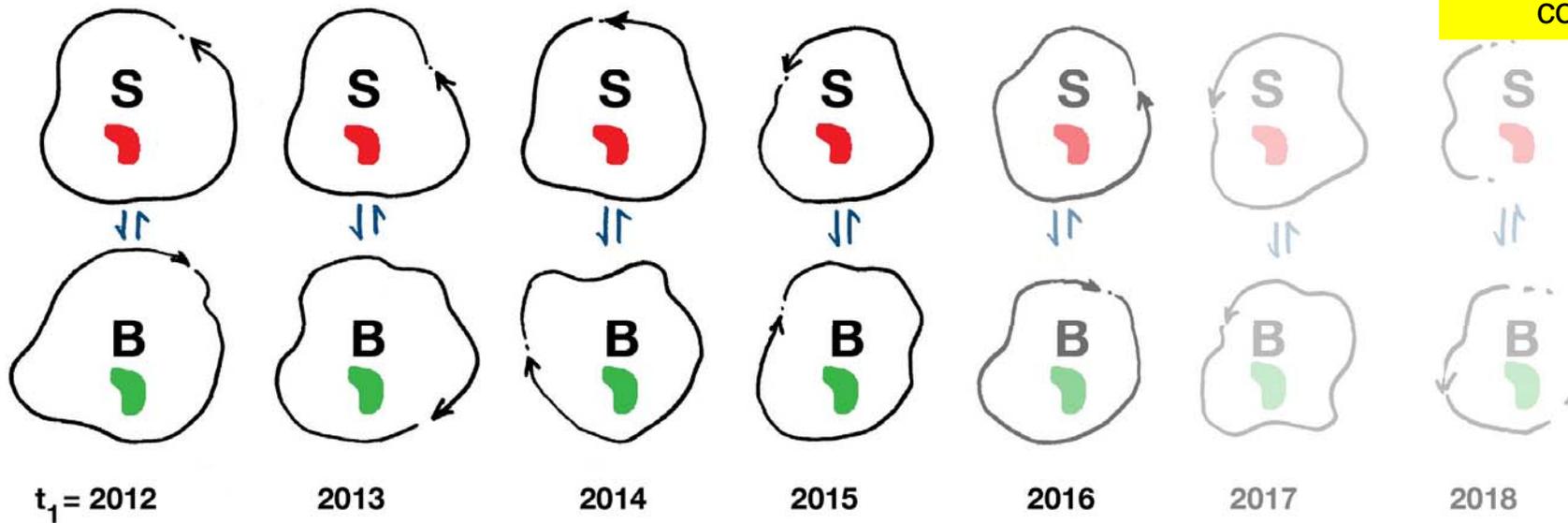
Framing the Olifants catchment as the structural coupling of a social (S) and biophysical (B) system in a co-evolutionary dynamic



RESILIM-O's 'system in focus'

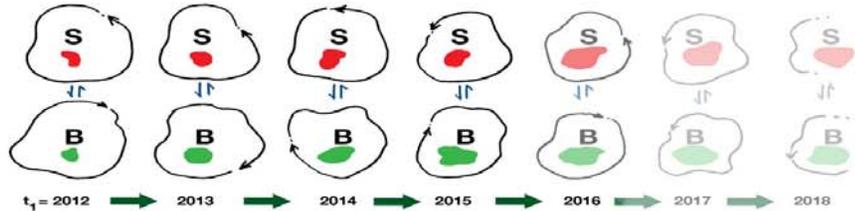
USAID's two key metrics

-  capacity to respond to climate change
-  biodiverse areas conserved



RESILIM-O's 'system in focus'

USAID's two key metrics

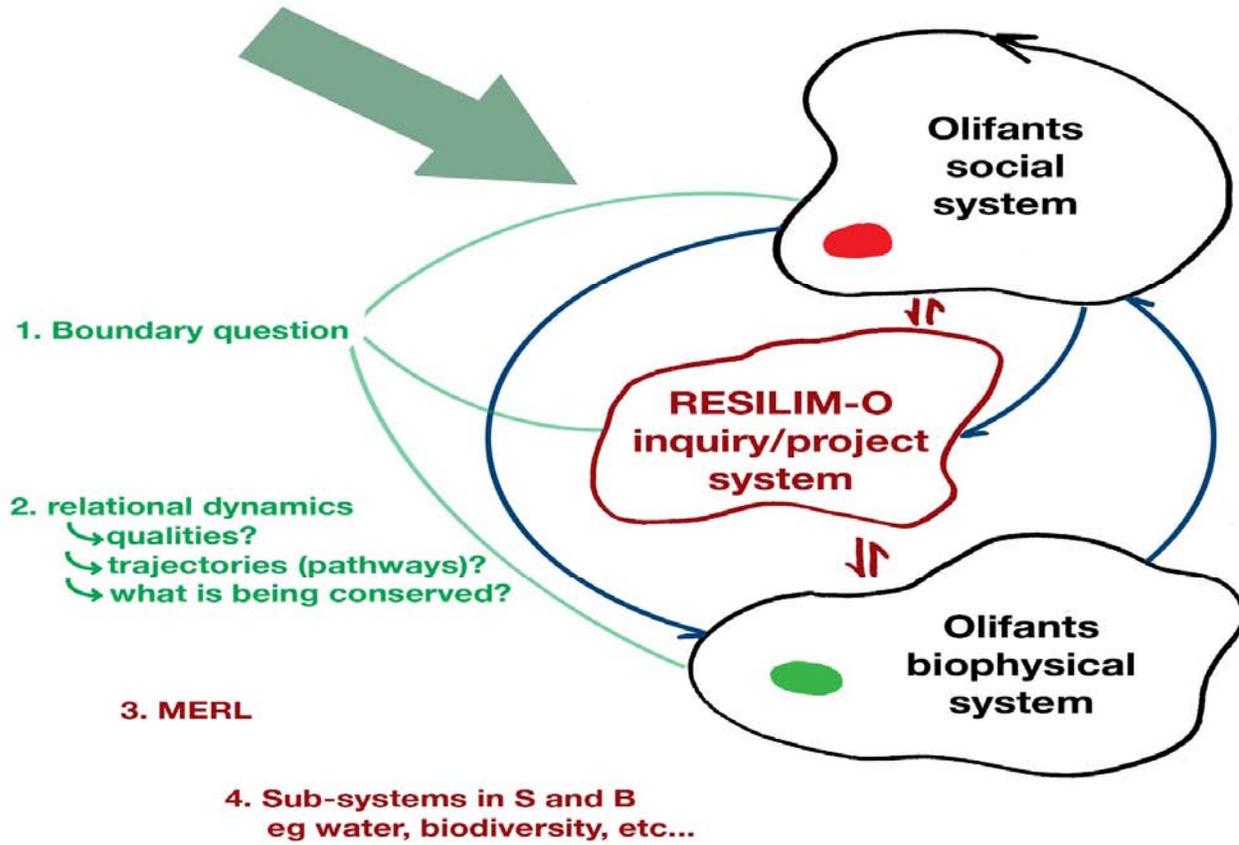


Requires baseline and emerging narratives for M&E + RL (MERL)



Issues

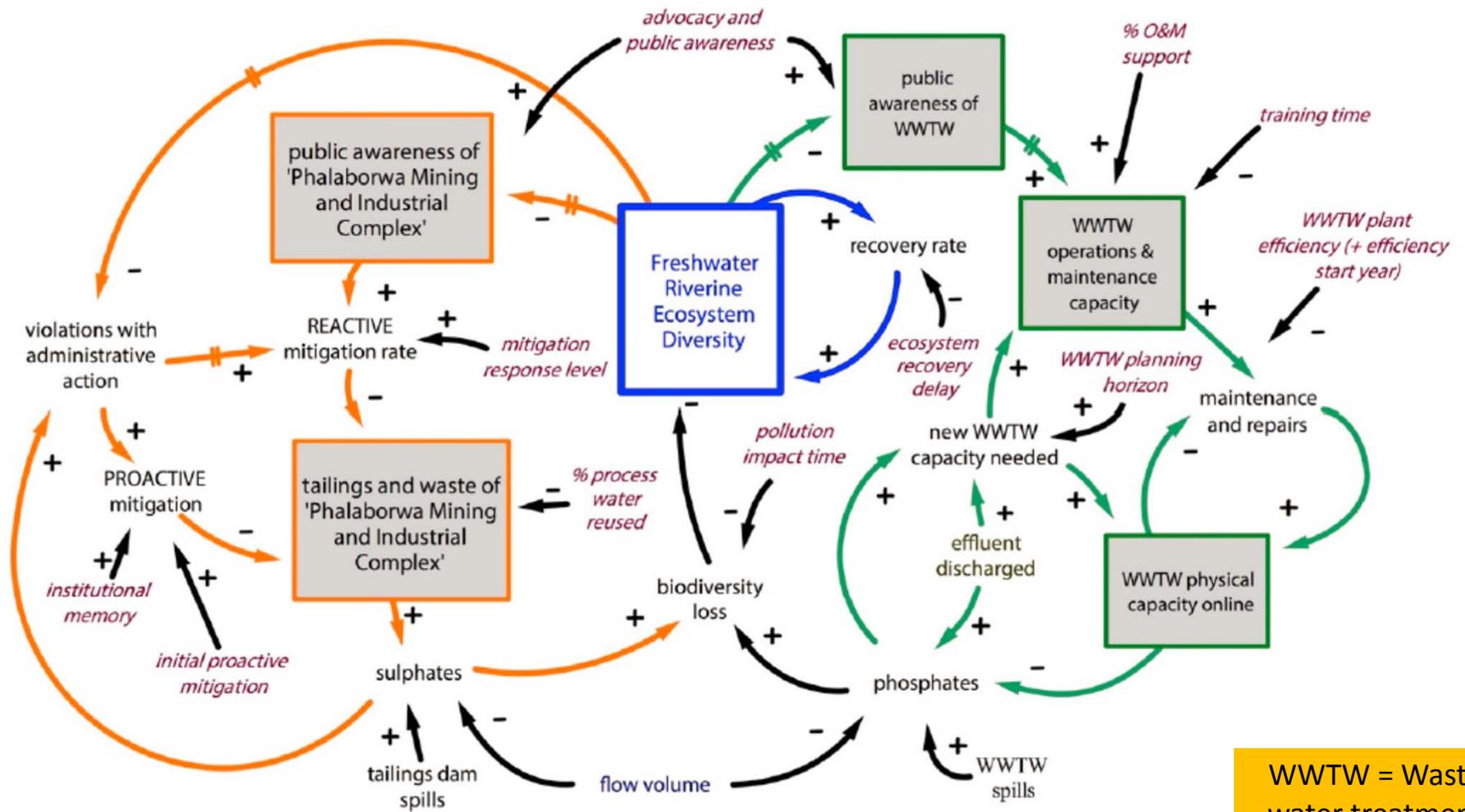
1. Boundaries in action for the Olifants ss? Do they need to be expanded? Is the right baseline data available/being used
2. Is there a need for more investment in demand pull initiatives to secure the ongoing structural coupling via the AWARD approach?
3. As climate change hits where are the greatest vulnerabilities going to emerge?
4. What can be said about the current trajectory? What are the best trajectory altering levers?





A Collaborative Dynamic Modelling process – inventing transformative practices

- ResiMod is a visual and approachable simulation tool developed by the CoDyM team out of Hoedspruit, Limpopo Province Sth Africa.
- The aim of CoDyM is *to use a collaborative dynamic modelling process to co-develop tools that help facilitate building collective action towards adapting to climate change, nurturing biodiversity, and enhancing water security in the Olifants catchment.*



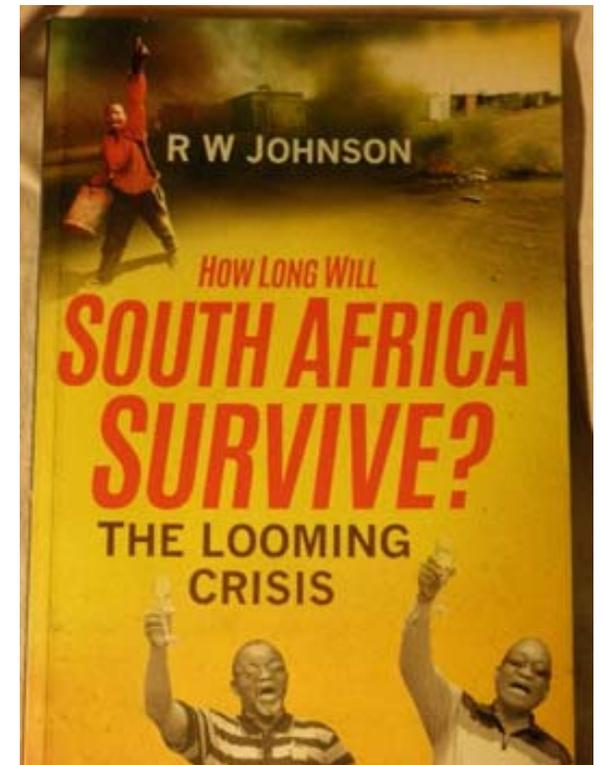
WWTW = Waste water treatment works

Figure 2: The causal loop diagram (CLD) used in the workshop on the 03/11/2016.



What does success look like?

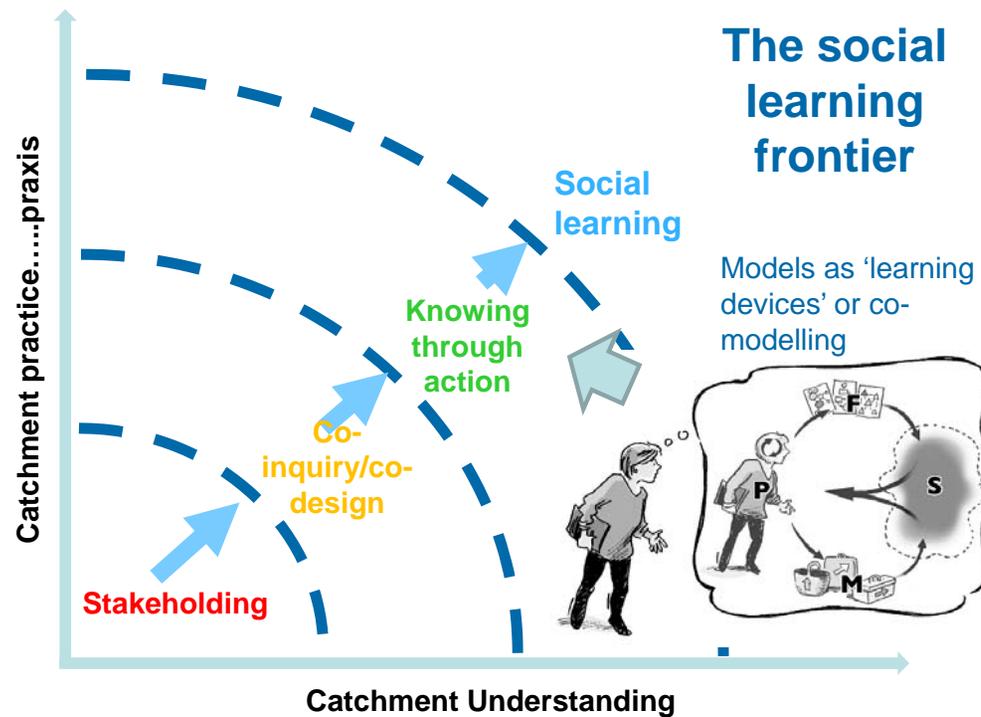
- Has to be considered in the context of governance
- As well as the extent of cybersystemic literacy and capability – in short supply
- Requires new organisational/institutional forms to mediate between **V**ertical and **H**orizontal governance, especially feedback processes
 - practices that pay urgent attention to framing of initial starting conditions
 - inventing and enacting means to secure the robust institutionalisation of systemic governance



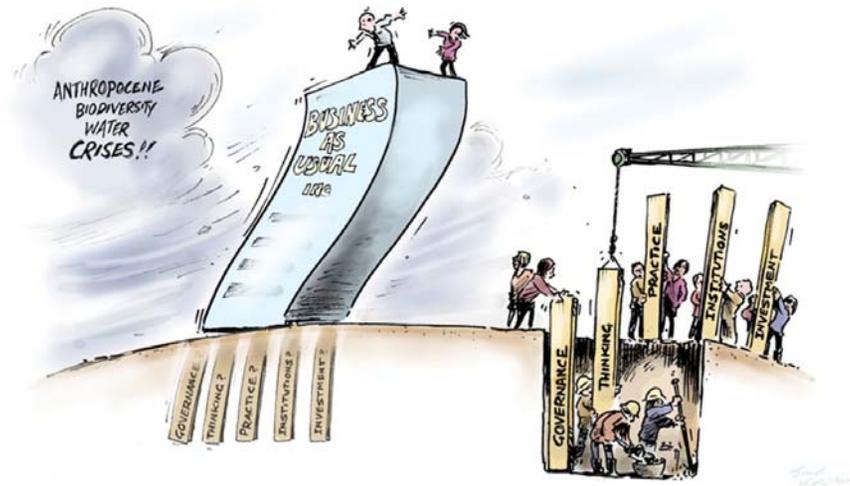
Catchment system functioning as a coupled social-biophysical system

Knowing
processes-
management

knowing +
knowledge
creation =
AWARD
paradigm?



What next?





ENCYCLICAL LETTER, LAUDATO SI' OF THE HOLY FATHER, FRANCIS 2015

Nothing in this world is indifferent to us

- “More than fifty years ago, with the world teetering on the brink of nuclear crisis, Pope Saint John XXIII wrote an Encyclical which not only rejected war but offered a proposal for peace.
- He addressed his message *Pacem in Terris* to the entire “Catholic world” and indeed “to all men and women of good will”. Now, faced as we are with global environmental deterioration, I wish to address every person living on this planet.”



Nothing in this world is indifferent to us

- Given the scale of change, it is no longer possible to find a specific, discrete answer for each part of the problem. It is essential to seek comprehensive solutions which consider the interactions within natural systems themselves and with social systems.
- We are faced not with two separate crises, one environmental and the other social, but rather with one complex crisis which is both social and environmental.
- *ENCYCLICAL LETTER, LAUDATO SI' OF THE HOLY FATHER, FRANCIS 2015*



Nothing in this world is indifferent to us

- 139. When we speak of the “environment”, what we really mean is a relationship existing between nature and the society which lives in it.
- Nature cannot be regarded as something separate from ourselves or as a mere setting in which we live. We are part of nature, included in it and thus in constant interaction with it. Recognizing the reasons why a given area is polluted requires a study of the workings of society, its economy, its behaviour patterns, and the ways it grasps reality.
- *ENCYCLICAL LETTER, LAUDATO SI' OF THE HOLY FATHER, FRANCIS 2015*

Transformations towards systemic governance

