

Disrupting the normalisation of unsustainability:

rethinking education and research in times of
global systemic dysfunction

Arjen Wals



Outline

- Systemic Global Dysfunction – The Anthropocene
- Science in the 'post-truth' era
- The SDGs
- T-learning in and for transitions
- Education & Science for Planet & People



Source: The Guardian

Image: Esteban De Armas/Shutterstock.com

It's official: scientists say we're entering Earth's sixth mass extinction

And humans may struggle to survive it.

FIONA MACDONALD 22 JUN 2015





CLIMATE CHANGE 2014: IMPACTS, ADAPTATION, AND VULNERABILITY



*From a presentation on "Climate Change 2014: Impacts, Adaptation, and Vulnerability, Volume I."
Image Credit: IPCC Working Group 2, AR5.*

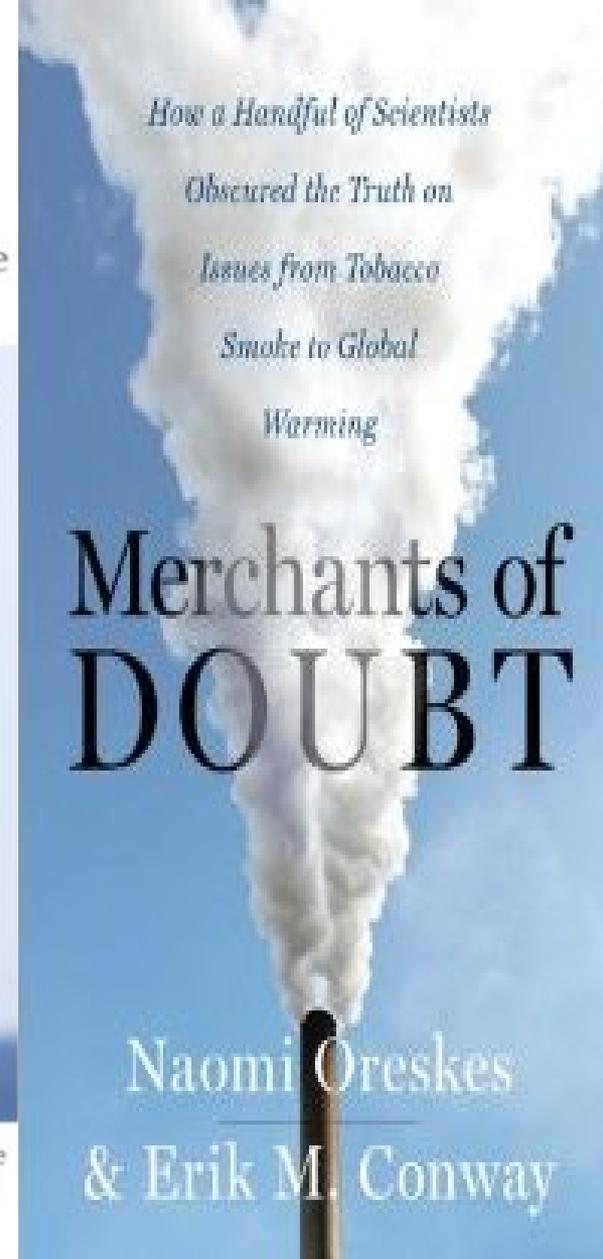
Doubt over climate science is a product with an industry behind it

With its roots in the tobacco industry, climate science denial talking points can be seen as manufactured doubt



📷 The manufacturing of doubt on climate change science, backed by the fossil fuel industry, has its roots with the tobacco industry's assault on climate science in the 1960s. Photograph: Richard Hamilton Smith/Richard Hamilton Smith/Corbis

Source: The Guardian





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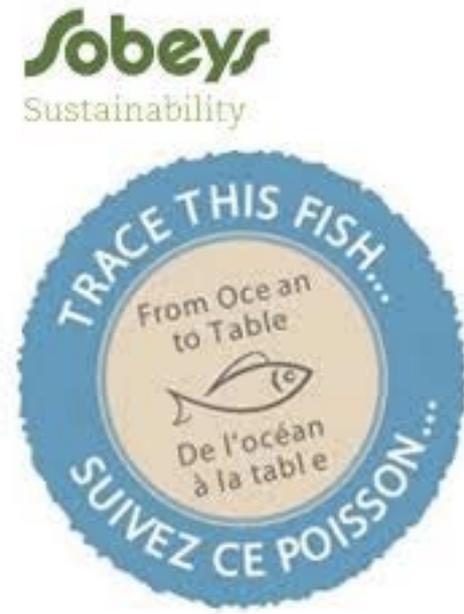
redesigned plastic,
recyclable as ever.





Look for these colored labels to indicate the Seafood Watch® rating of each of our wild-caught products:

Abundant, well managed and caught in environmentally friendly ways.	Some concerns with how caught or with health of habitat due to other human impacts.	Presently caught in ways that harm other marine life or the environment.	Not yet rated.





DO
SOMETHING,
YOU BUNCH
OF MANIACS!

WELL! IT'S
EASY TO JUST
CRITICIZE,
YOUNG
LADY...

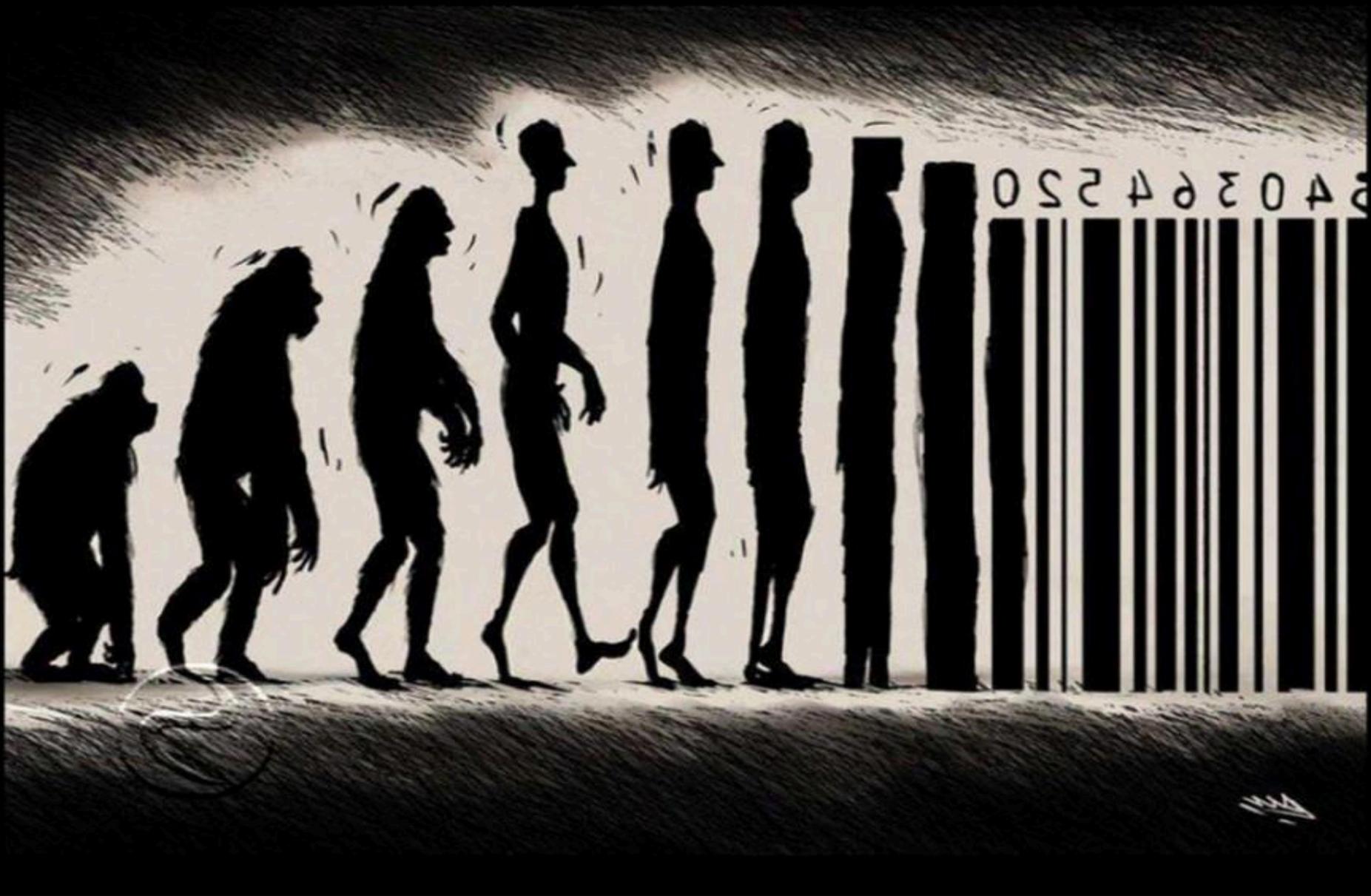
...AND
I SUPPOSE
YOU'VE GOT AN
ALTERNATIVE ALL
WORKED OUT,
HAVE YOU?

HYSTERICAL
ECO-FANATICS!
ALWAYS TELLING
PEOPLE HOW
TO LIVE...

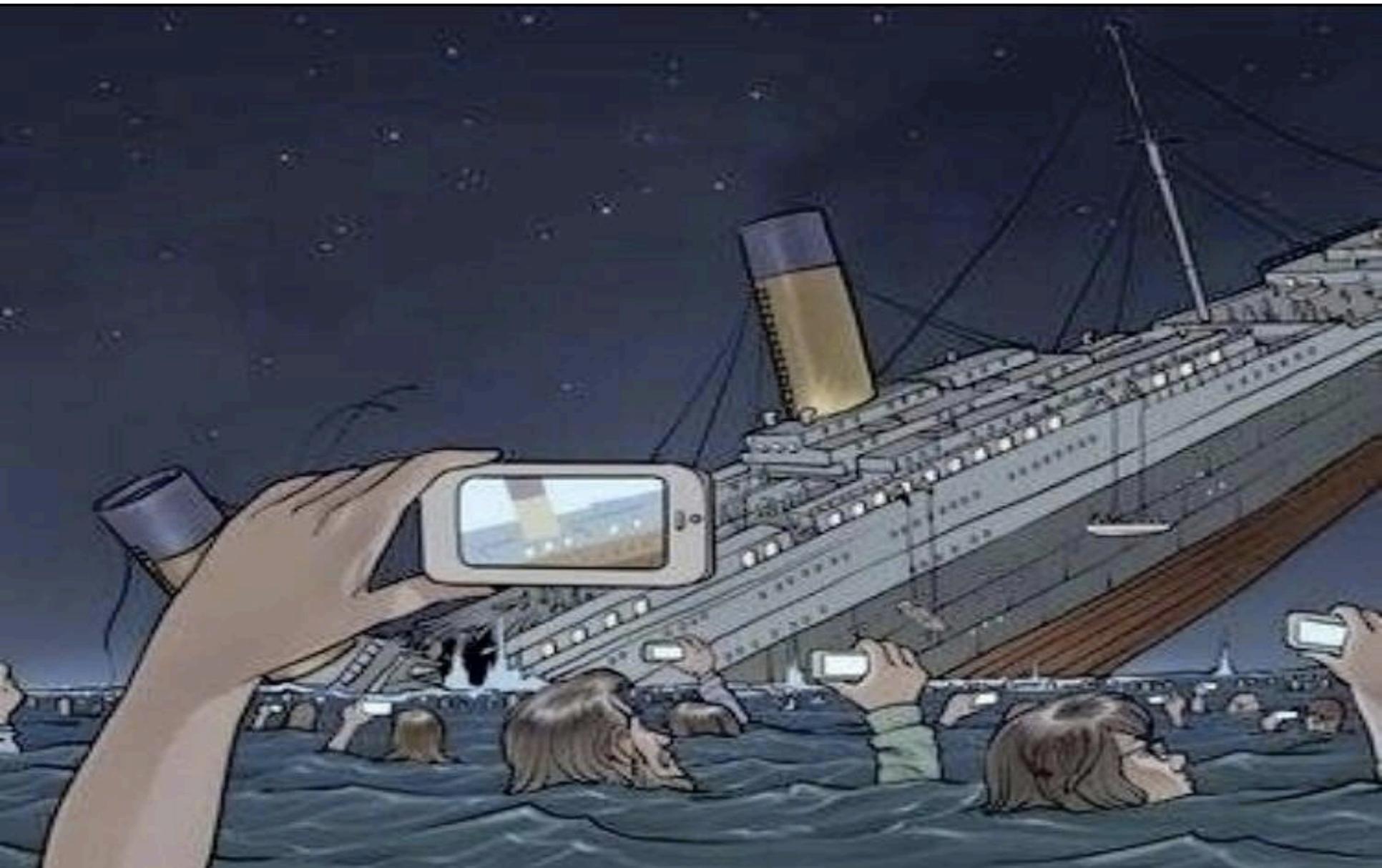
GET
YOURSELF
A PROPER
JOB!

Polyp.org.uk

'STEADY AS SHE GOES'



ICT-driven Psychic Numbing

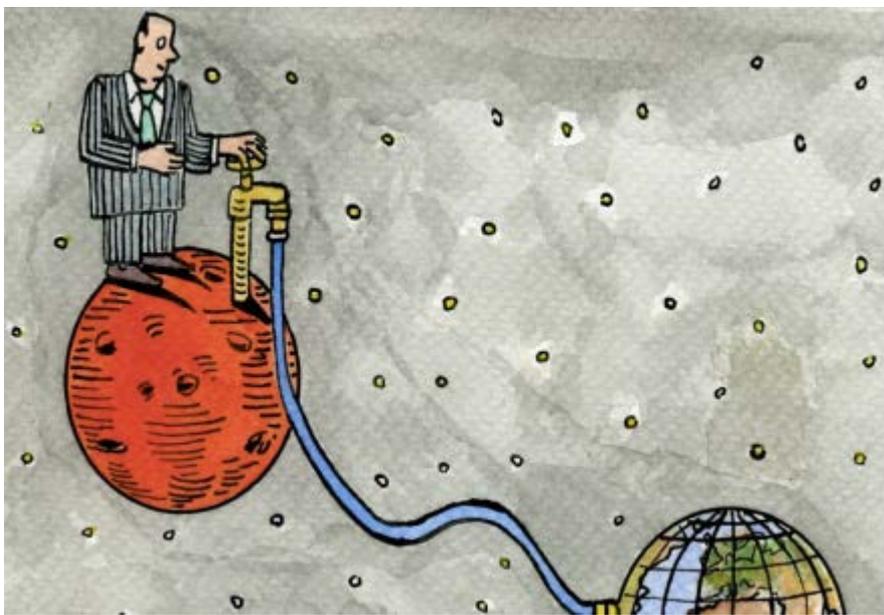




“We are drowning in information while starving for wisdom”
E.O. Wilson, 1998, p. 300

Wicked problems in unusual times...

- Complexity and uncertainty
- Confusion, ambiguity, extinction of ‘truth,’ lack of ‘trust’ in science and in government
- Hyper-connectivity – erosion of meaning, short attention spans – loss of ‘place’ – ‘viral nonsense’
- Dominant neo-liberal economic forces accelerate inequity and material values that normalize and breathe unsustainability
- Need for continuous learning in a ‘reflexive’ society



“There may be flowing water on Mars...
But is there intelligent life on Earth?”

“While we marvel at Nasa’s discoveries, we destroy our irreplaceable natural resources – so we can buy pre-peeled bananas and smartphones for dogs”

George Monbiot,
The Guardian, 30-09-2015



1 NO POVERTY



2 ZERO HUNGER



3 GOOD HEALTH AND WELL-BEING



4 QUALITY EDUCATION



5 GENDER EQUALITY



6 CLEAN WATER AND SANITATION



7 AFFORDABLE AND CLEAN ENERGY



8 DECENT WORK AND ECONOMIC GROWTH



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



10 REDUCED INEQUALITIES



11 SUSTAINABLE CITIES AND COMMUNITIES



THE GLOBAL GOALS

For Sustainable Development

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



14 LIFE BELOW WATER



15 LIFE ON LAND



16 PEACE AND JUSTICE STRONG INSTITUTIONS



17 PARTNERSHIPS FOR THE GOALS



Key area's for sustainability science & education

- Understanding change, complexity and transitions
- Boundary crossing, systems thinking and connectivism
- Building agency and transformative capacity
- Utilizing diversity, uncertainty and dissonance
- Dealing with values, ethics and moral dilemmas

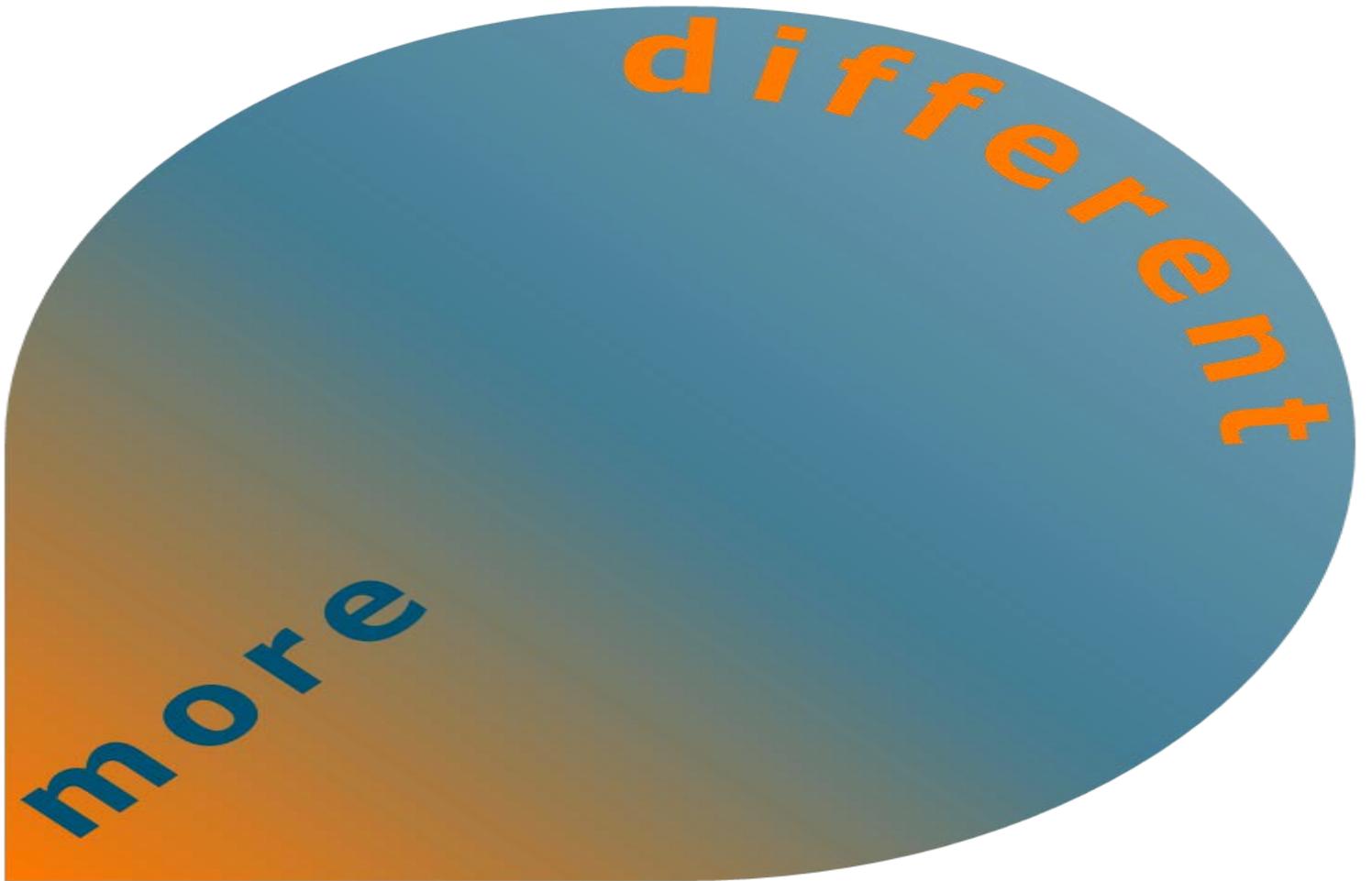
Understanding Change, Complexity & Transitions



technological developments

transition

incremental



incremental

transition

societal developments

Based on Kropff, 2012

Doing what we do better vs doing better things...





To address sustainability we need to transgress the 'walls of our minds'

What makes 1.5 degrees seem nigh impossible?

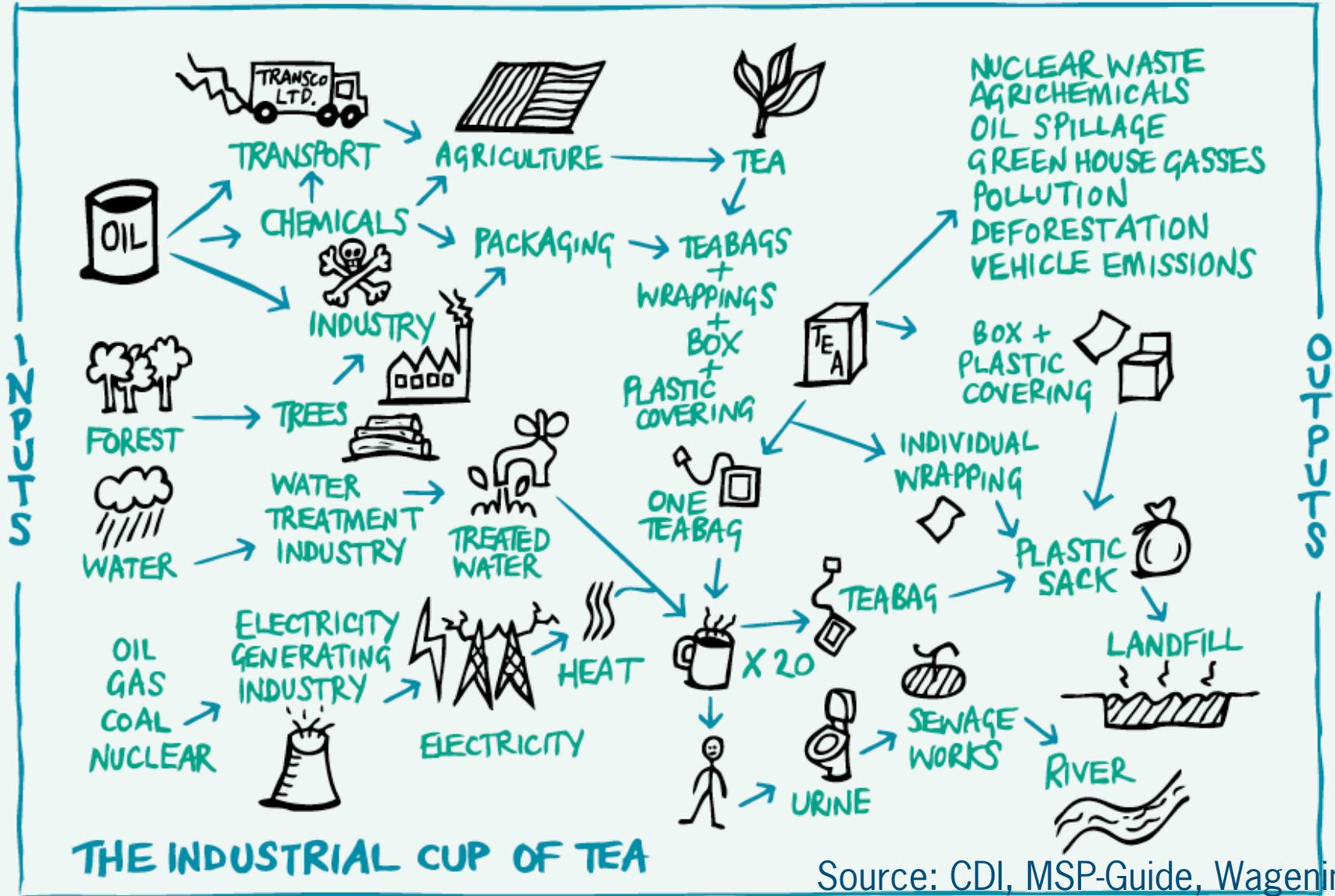
- the ongoing nature-culture dualism of modernisation logic
- colonial / narrow mindsets and cultures - including modern neo-colonialism and market logic
- those processes and logics that hold inequality in place

what and how we learn is important for transitions to sustainability



Boundary crossing & Seeing Connections





Source: CDI, MSP-Guide, Wageningen UR 2015

Building Agency and Transformative Capacity



Ocean, Water, Marine & Terrestrial



mPING

Meteorological Phenomena Identification Near the Ground (mPING) is a project to collect weather information from the public through their smart phone or mobile device. The free mPING mobile app was developed through a partnership between NSSL, The University of Oklahoma and the Cooperative Institute for Mesoscale Meteorological Studies.



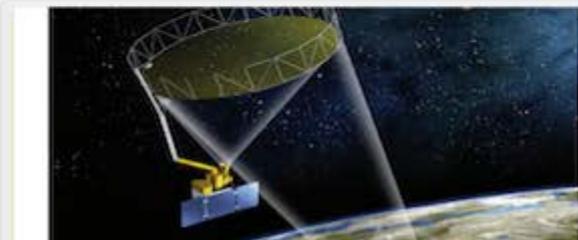
Lake Observer mobile app

The Lake Observer mobile app was designed by members of the Global Lake Ecological Observatory Network (GLEON) for both research scientists and citizen scientists to record lake and water quality observations. Lake Observer is part of a crowd-sourcing platform to facilitate the collection and sharing of lake- and water-related information across the globe.



CITIZAN (Coastal and Intertidal Zone Archaeological Network)

CITIZAN is a national community-led project to tackle the alarming threat to England's coast and intertidal heritage from tides, storms and rising sea levels.



GLOBE: El Nino

Join professional and community scientists in collecting and sharing important data and learn more about your local environment in the process. There are two ways to participate: 1) sign up and contribute as an individual; 2) join as a host-site ambassador to facilitate participation through your community-based organization.

Making Meaning of Ocean Pollution

Sun 18 Sep 2016, 9am - 5pm / Free event / Past event

Arts Ark, Tower Bridge Moorings - 31 Mill Street, London SE1 2AX



To increase awareness of plastic pollution in oceans around the world The Thames Estuary Partnership & the #OneLess campaign are supporting a creative art programme for young people; *Making Meaning of Ocean Pollution*, developed by From the Bow Seat and The Whale Company.

Like this? Share it...



BOYAN SLAT



Boyan Slat (1994) is a Dutch inventor and entrepreneur who creates technologies to solve societal problems.

He is the founder and CEO of The Ocean Cleanup, which develops advanced technologies to rid world's oceans of plastic.

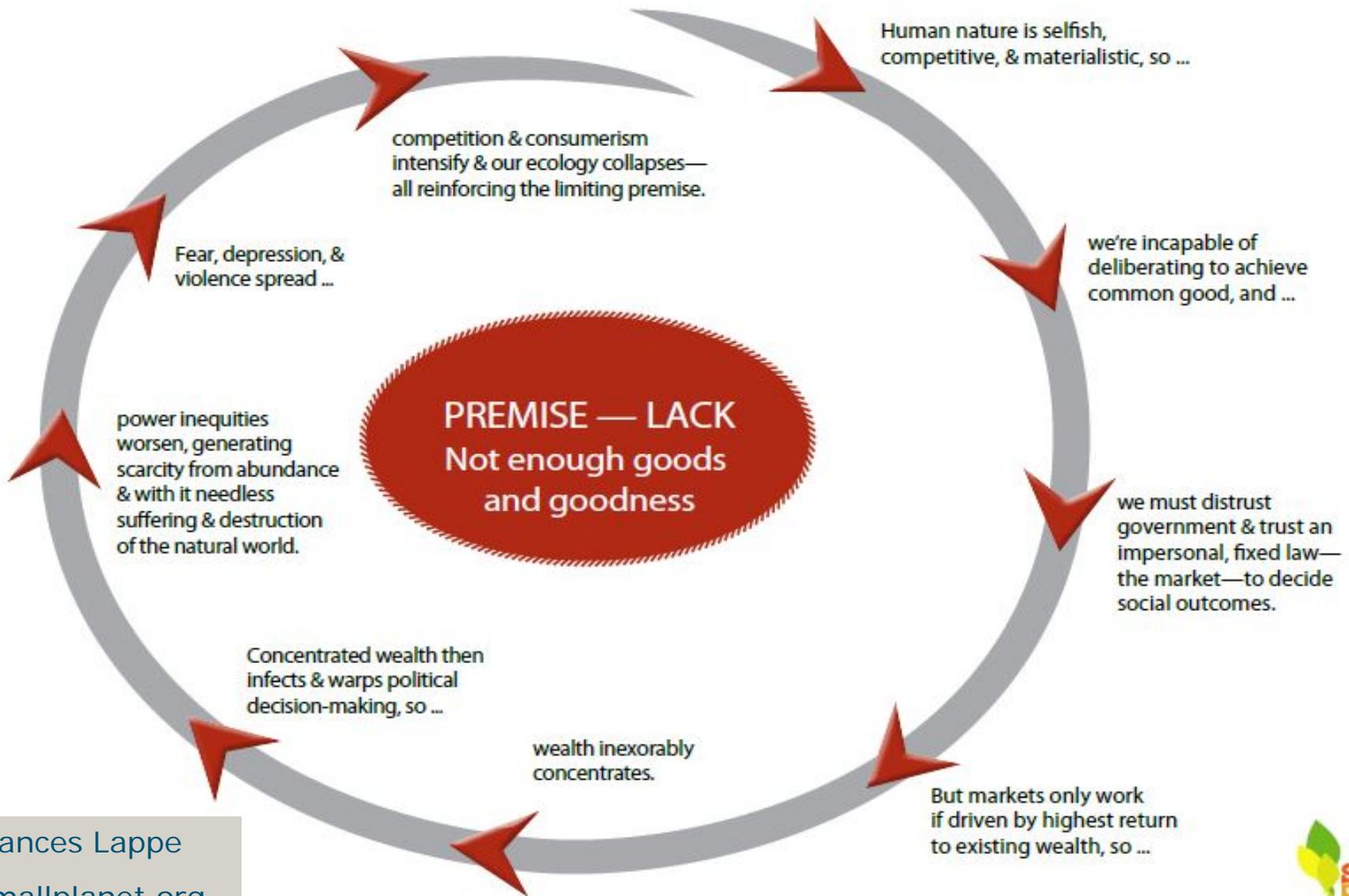
Instead of going after the plastic, Boyan devised a system though which, driven by the ocean currents, the plastic would concentrate itself, reducing the theoretical cleanup time from millennia to mere years. In February 2013 he dropped out of his Aerospace Engineering study to start The Ocean Cleanup. The first prototype system was deployed in June 2016, and The Ocean Cleanup now prepares to launch the first working pilot system in late 2017.

Boyan Slat has been recognized as one of the 20 Most Promising Young Entrepreneurs Worldwide (Intel EYE50), and is the youngest-ever recipient of the UN's highest environmental accolade; *Champion of the Earth*. In 2015, HM King Harald of Norway awarded Boyan the maritime industry's *Young Entrepreneur Award*. *Foreign Policy* included Boyan in their 2015 list of *Global Thinkers*, and *Forbes* included him in their *30 under 30* edition in 2016.

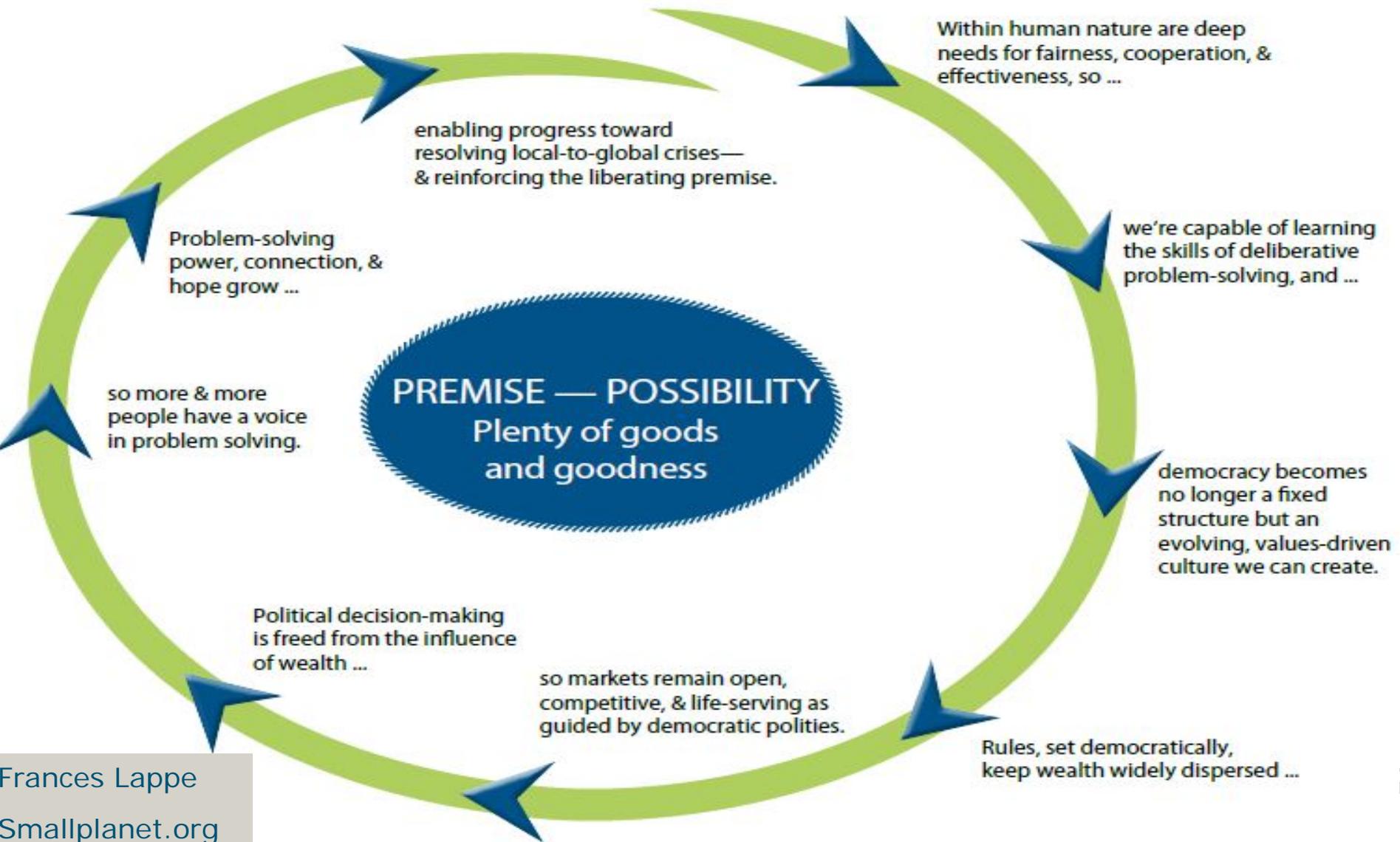
The Ocean Cleanup has been recognized as one of the *Designs of the Year* by the London Design Museum, is recipient of the 2015 *INDEX: Award*, won *Fast Company's 2015 Innovation by Design award*, and has been chosen by *TIME* magazine as one of the *25 best inventions of 2015*.

Visit TheOceanCleanup.com

Spiral of POWERLESSNESS



Spiral of EMPOWERMENT



Creating Vital Coalitions Utilising Diversity



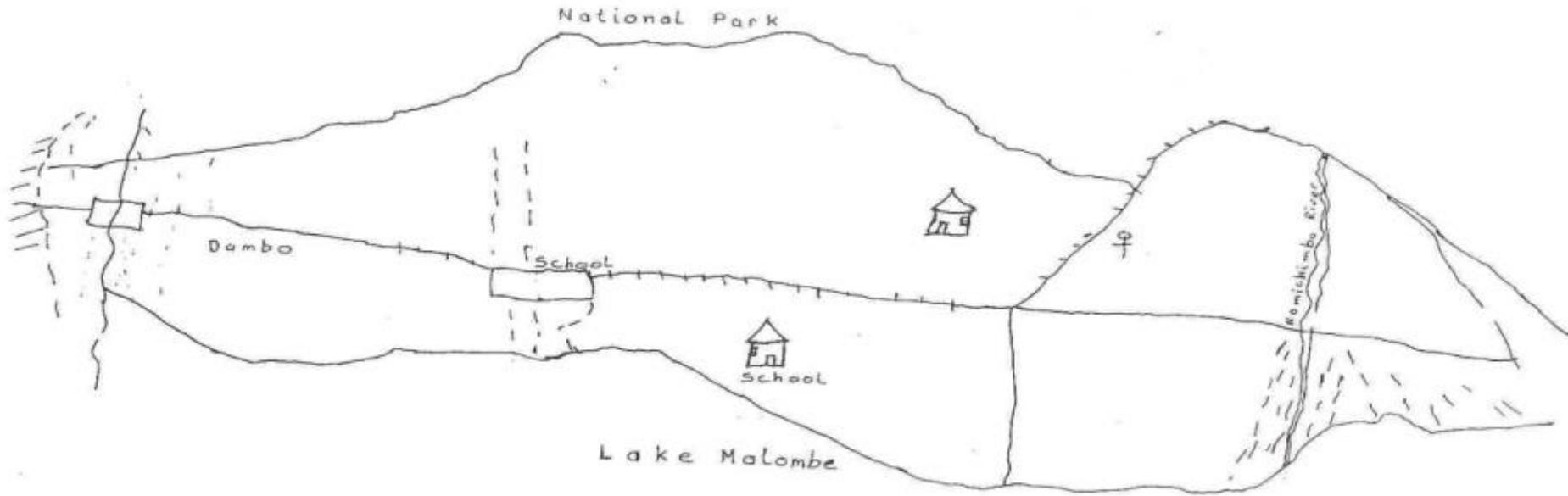
JapanFrog.com Always Real. Always Serious.

Scott E. Page

THE DIFFERENCE

HOW THE POWER OF DIVERSITY
CREATES BETTER GROUPS, FIRMS,
SCHOOLS, AND SOCIETIES

Participatory village Mapping (Male participants)



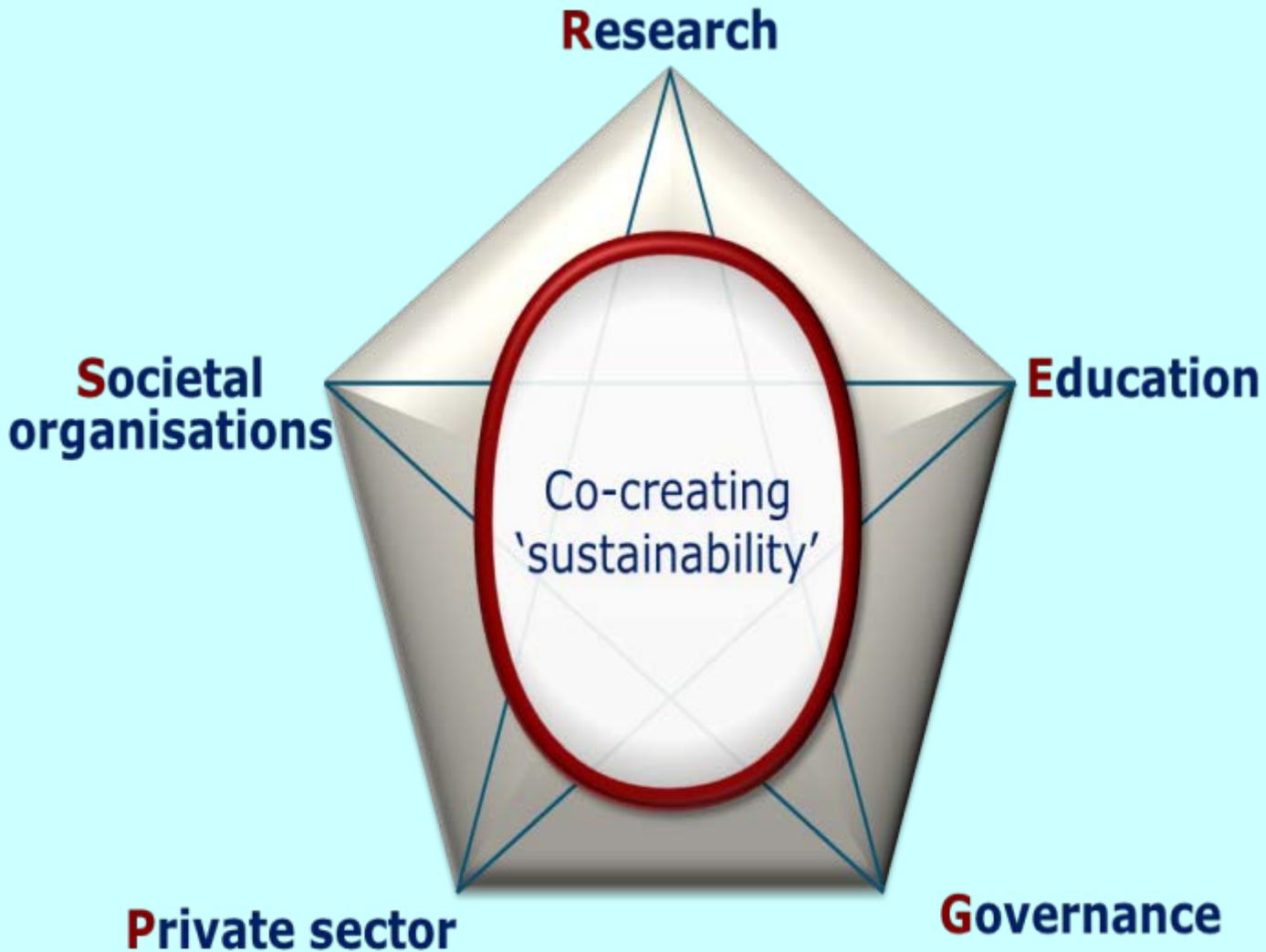
arjen.wals@wur.nl

Source: Mathews Tsirizeni & Sosten Chiotha,
Malawi PGIS study

Participatory village mapping (Female participants)



Source: Mathews Tsirizeni & Sosten Chiotha, Malawi PGIS study



transformative
transgressive
transdisciplinary



Slides from the T-Learning Project
prepared by Professor Heila Lotz-
Sisitka, SARChI Chair, Rhodes
University, South Africa



and
urban
areas



UNIVERSITY OF GOTHENBURG

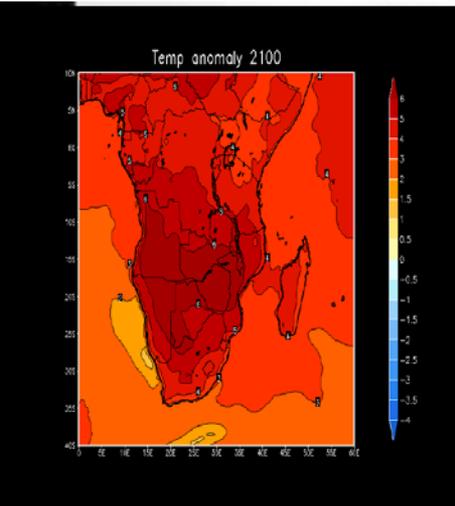


and

regional
networks
linked to
CASA social
movement



1994-2016



#Not Yet Uhuru: An expression of young people looking for more socially just, sustainable futures that include them ... What kinds of teaching and research are needed to transform structural dysfunction and exclusion?



Initial scoping and expansive learning responses in one site...

South Africa:

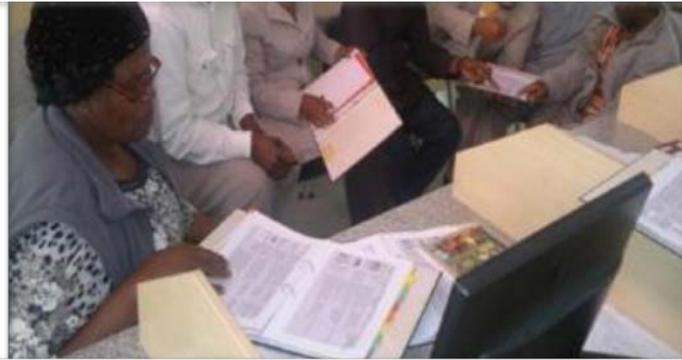
Inequalities:

- Political
- historical
- Land
- Cultural
- Economic
- Educational
- Social (gender)
- Health
- Youth



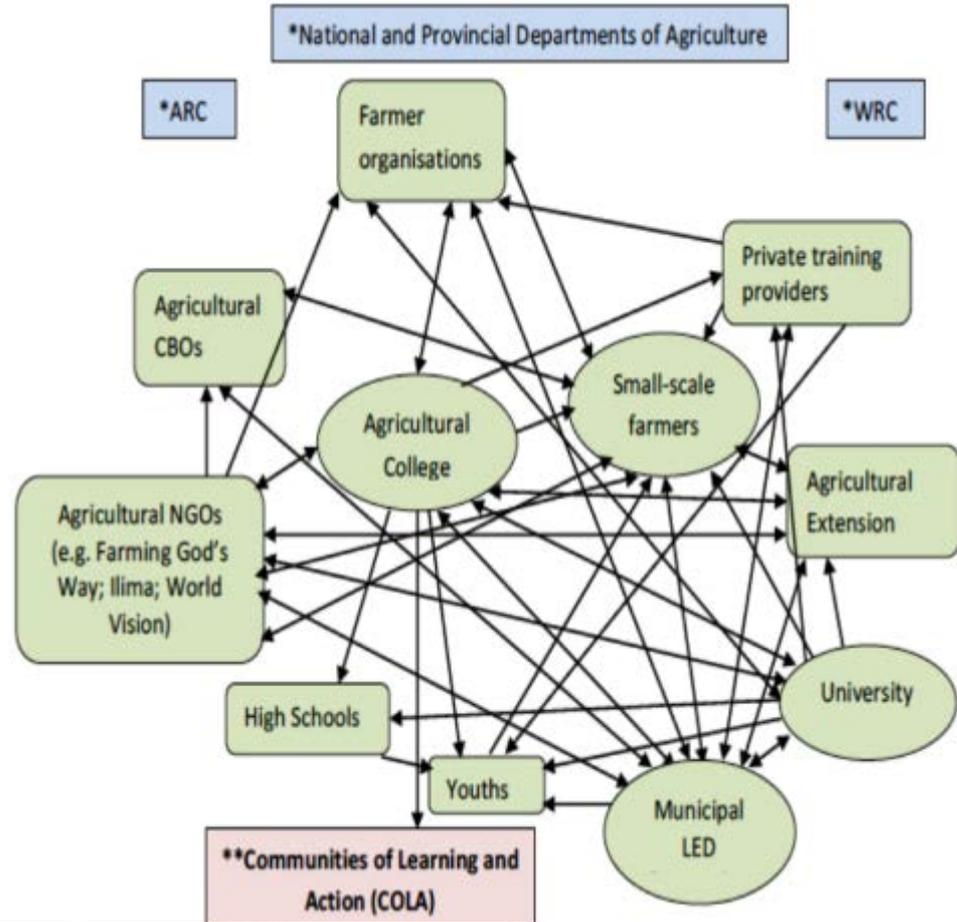
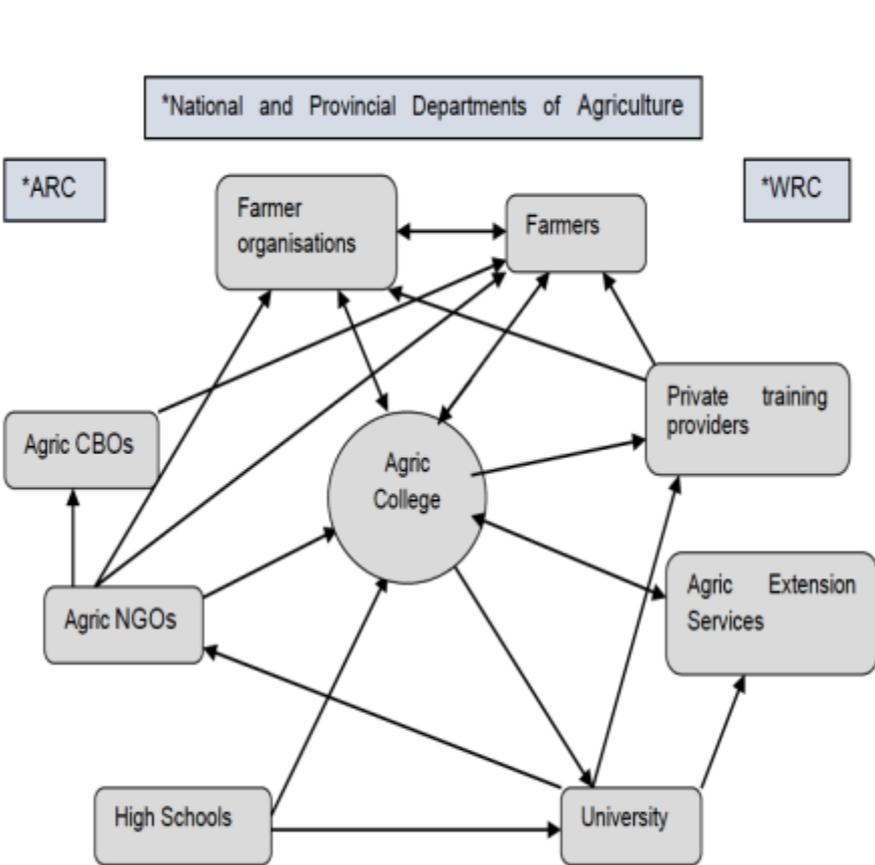


Learning Network Activities: Sharing Knowledge, Individual and Institutional Change Projects, Shared Productive Demonstration Sites





learning network development





Indicators of T-learning?

- Expressions of collective action and 'small changes' that are situated within larger change trajectories
- Resistance, disruption and re-framing as expressions of agency
- Invisible silences, tensions, contradictions or challenges surfacing

- Problem solving and development of new skills
- Transgressing boundaries, norms or that which has been normalised
- Reframed narratives and social movement for the common good – at multiple levels (intersecting)

Indicators showing people are creating a world that is easier 'to love and live in together'

- Signs of crossing boundaries
- Signs of conflict/tension
- Signs of conviction
- Signs of empathy
- Signs of attentiveness
- Signs of listening/attentiveness
- Signs of creativity, innovation, imagination
- Signs of intuitive action
- Signs of new friendships
- Signs of a sense of purpose

How can
we create
a world
that is
easier to
love?

Education & Science for Planet & People

- Look for boundary crossing opportunities
- Adopt a systems approach – e.g. by linking with SDGs
- Utilize diversity and multiple perspectives – looking for synergy but also for contestation and conflict
- Move beyond increasing awareness and understanding
- Ask: what am I/are we strengthening in society, what am I/are we ignoring or weakening? What needs sustaining? What needs disrupting?
- Science for societal impact with people and planet in mind – rather than science for impact factors with continuous growth in mind

Sustainability is not just something to learn, it's something to live!

STUDENTS SHOULD LEARN ABOUT SUSTAINABLE DEVELOPMENT AND GLOBAL CITIZENSHIP TO HELP THEM UNDERSTAND THE WORLD THEY LIVE IN

SCHOOL GARDEN PROGRAMMES CAN TEACH HEALTHY EATING AND HELP BUILD AN EMOTIONAL CONNECTION WITH THE NATURAL WORLD

EDUCATION IS THE BEST TOOL FOR CLIMATE CHANGE AWARENESS

SCHOOLS SHOULD BUILD RELATIONSHIPS AND ENGAGE WITH COMMUNITY ISSUES

SOLAR PANELS



ENERGY SAVING LIGHTBULBS



RENEWABLE MATERIALS

HUMAN RIGHTS
DISCRIMINATION
GENDER EQUALITY
BULLYING

SCHOOL

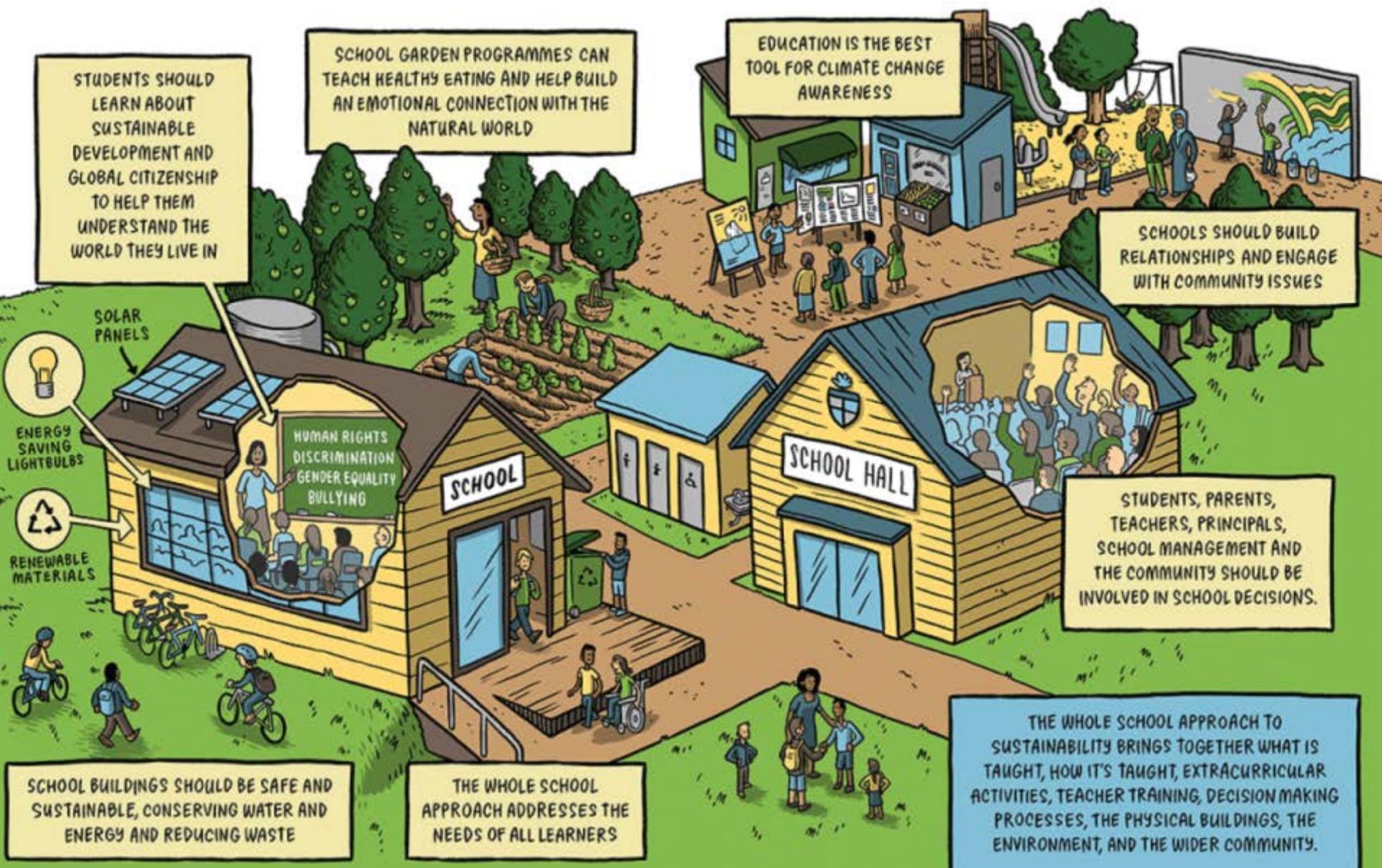
SCHOOL HALL

STUDENTS, PARENTS, TEACHERS, PRINCIPALS, SCHOOL MANAGEMENT AND THE COMMUNITY SHOULD BE INVOLVED IN SCHOOL DECISIONS.

SCHOOL BUILDINGS SHOULD BE SAFE AND SUSTAINABLE, CONSERVING WATER AND ENERGY AND REDUCING WASTE

THE WHOLE SCHOOL APPROACH ADDRESSES THE NEEDS OF ALL LEARNERS

THE WHOLE SCHOOL APPROACH TO SUSTAINABILITY BRINGS TOGETHER WHAT IS TAUGHT, HOW IT'S TAUGHT, EXTRACURRICULAR ACTIVITIES, TEACHER TRAINING, DECISION MAKING PROCESSES, THE PHYSICAL BUILDINGS, THE ENVIRONMENT, AND THE WIDER COMMUNITY.





GLOBAL EDUCATION MONITORING REPORT

2016

Education for people and planet:

CREATING SUSTAINABLE FUTURES FOR ALL

Thank you for
listening!



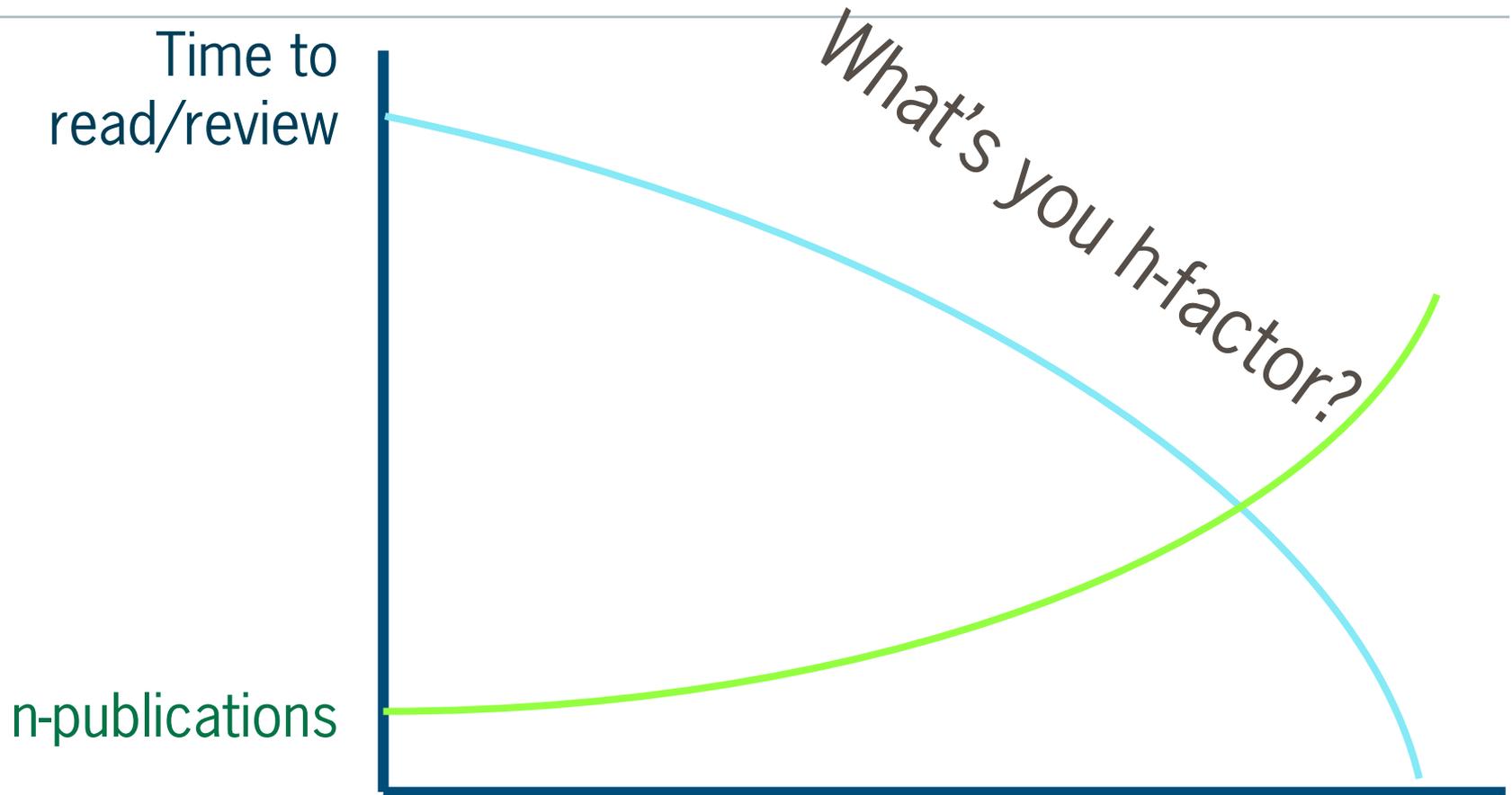
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Blog: www.transformativelearning.nl

Source: Banksy

Publish AND Perish...?



Science for society – counter trend



90 years Wageningen University

Science for Impact

ON SCIENCE, SOCIETY AND BUSINESS



WAGENINGEN UR
For quality of life



V S N U



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