

UN Sustainable Development Goals (SDGs) and Environment Predictions

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WMO OMM

World Meteorological Organization

Organisation météorologique mondiale

**2nd SOFIA EARTH FORUM SYMPOSIUM ON GRAND
CHALLENGES, SOLUTIONS AND LEGITIMACY
31 October - 1 November 2018, Helsinki, Finland**



GAW

WEATHER. CLIMATE. WATER.
TEMPS. CLIMAT. EAU.



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. Strategies for a solution demand an integrated approach to combating poverty, restoring dignity to the excluded, and at the same time protecting nature.

Pope Francis

Laudato Si' 139



"We don't have plan B because there is no planet B!"

(Ban Ki-moon, UN Secretary-General from 2007 to 2016)


- On 25 September 2015, the 193 countries of the UN General Assembly adopted the 2030 Development Agenda titled "**Transforming our world: the 2030 Agenda for Sustainable Development**".
- This agenda has 92 paragraphs. Paragraph 51 outlines the **17 Sustainable Development Goals** and the associated 169 targets.

SDGs and Prediction of Earth System



The SDGs cover social and economic development issues including poverty, hunger, **health, education, global warming, gender equality, water, sanitation, energy, urbanization, environment** and social justice.

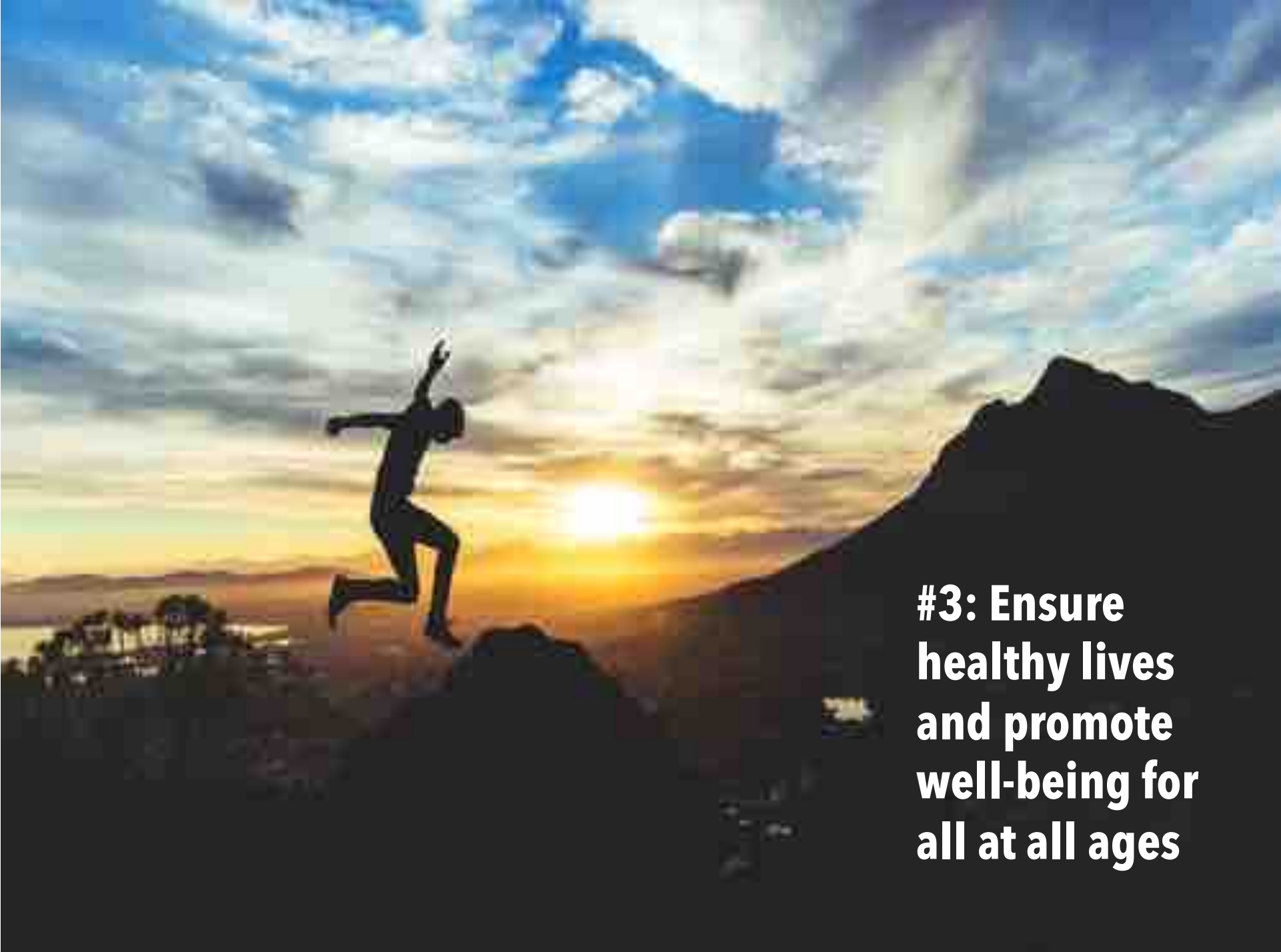


A photograph of two young boys of African descent. The boy on the left is taller, wearing a simple necklace with a circular pendant, and has his arm around the shoulder of the shorter boy on the right. Both boys are smiling warmly at each other. The background is a soft-focus outdoor setting with green foliage and a dirt path.

**#1: End
poverty in all
its forms
everywhere**



#2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture



**#3: Ensure
healthy lives
and promote
well-being for
all at all ages**



**#4: Ensure
inclusive and
quality
education for all
and promote
lifelong
learning**

**#5: Achieve
gender
equality and
empower
women and
girls**



#6: Ensure access to water and sanitation for all



**#7: Ensure access
to affordable,
reliable,
sustainable and
modern energy for
all**



#8: Promote inclusive and sustainable economic growth, employment and decent work for all



A person is standing in a futuristic, curved hallway. The hallway is illuminated by a series of glowing, vertical columns that create a sense of depth and perspective. The walls and ceiling are dark, and the overall atmosphere is mysterious and high-tech. The person is silhouetted against the bright light of the columns.

**#9: Build resilient
infrastructure,
promote
sustainable
industrialization
and foster
innovation**

**#10: Reduce
inequality within
and among
countries**





**#11: Make cities
inclusive, safe,
resilient and
sustainable**



#12: Ensure sustainable consumption and production patterns

**#13: Take urgent
action to combat
climate change and
its impacts***



A vibrant underwater scene featuring a massive school of small, silvery fish swimming in clear, turquoise water. Below them, a diverse coral reef is visible, with various types of coral in shades of green, yellow, and brown. The lighting is bright, creating a shimmering effect on the water's surface and highlighting the intricate details of the marine life.

#14: Conserve and sustainably use the oceans, seas and marine resources

**#15: Sustainably manage forests,
combat desertification, halt and
reverse land degradation,
halt biodiversity loss**



A large crowd of people, many wearing head coverings, under a blue tint. The image is a high-angle shot of a dense crowd, with many individuals wearing head coverings, possibly in a religious or cultural context. The overall color scheme is a monochromatic blue, giving it a somber or official appearance. The text is overlaid in the lower center of the image.

**#16: Promote just, peaceful
and inclusive
societies**



**#17: Revitalize the
global
partnership for
sustainable
development**

Each goal is important in itself ...



**Each goal is
important
in itself ...**



**And they
are all
connected**

To find out more, go to

17Goals.org

And read the *real* documents for
yourself, at

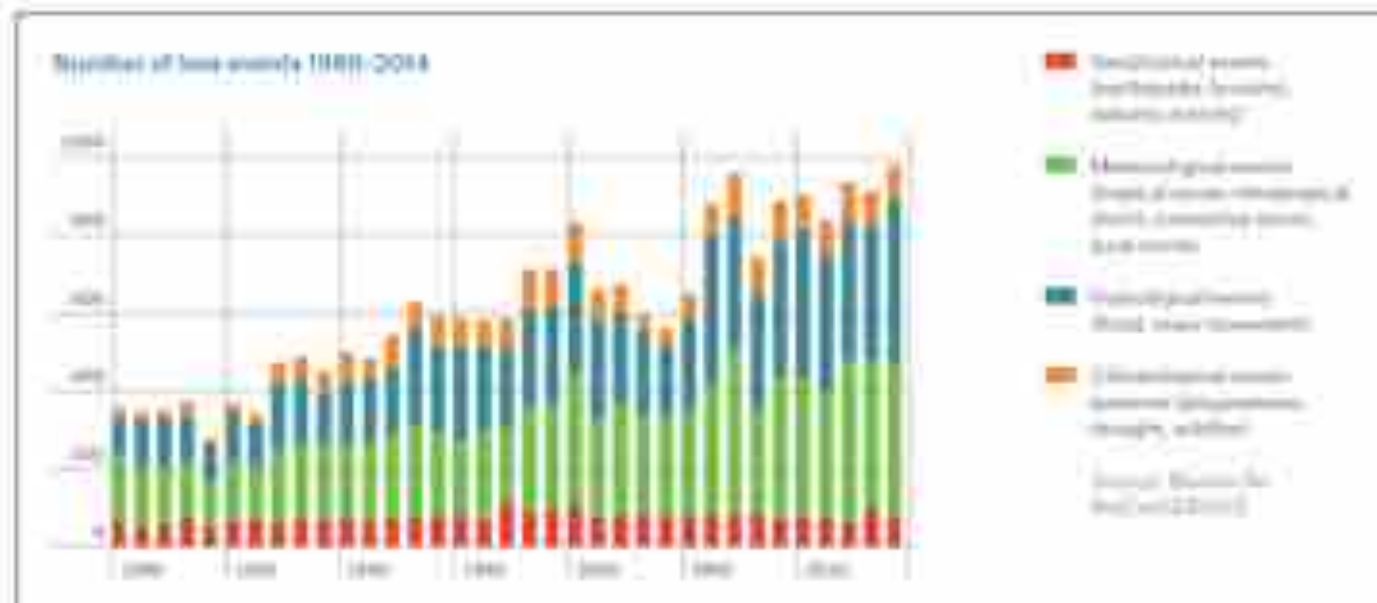
[https://sustainabledevelopment.un.org
/topics](https://sustainabledevelopment.un.org/topics)



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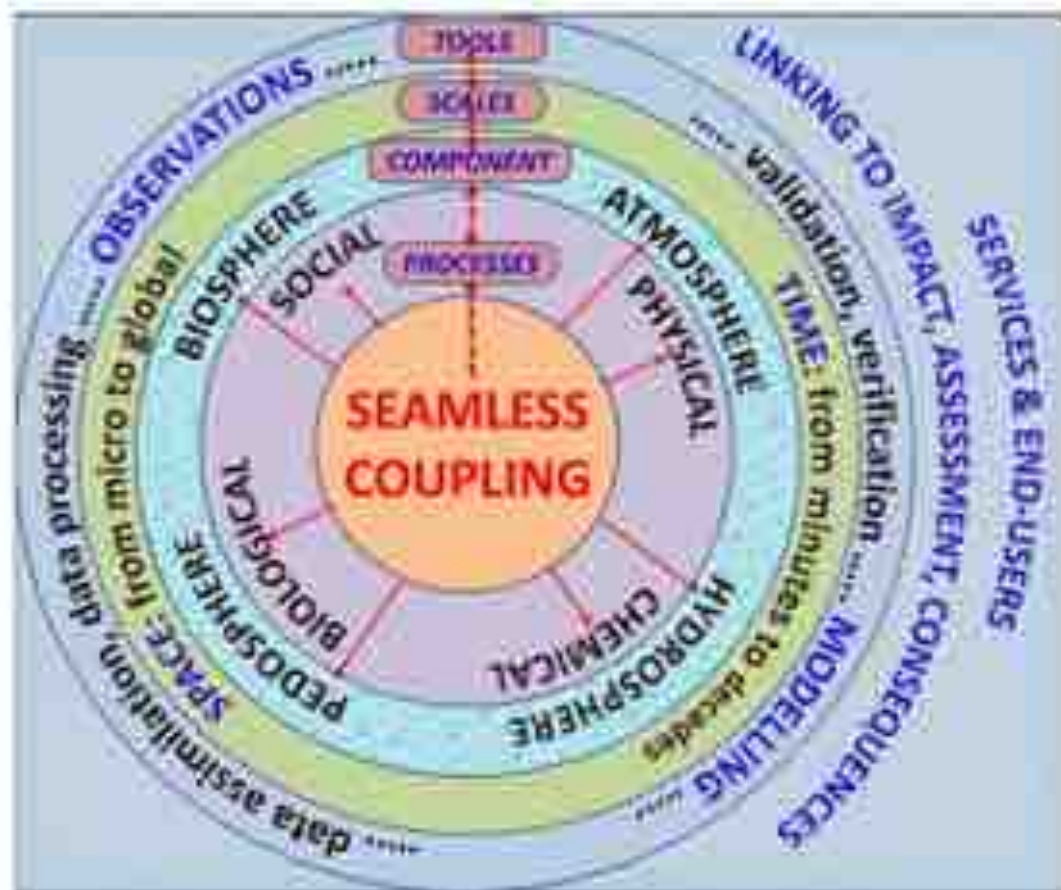
What Earth System scientists can contribute for SDGs to make the world more resilient, sustainable and safe?

- Changing climate urgently requires new approaches , mechanisms and solutions
- 90 % of natural disasters are of hydro-meteorological nature – DRR is one of the key targets
- Domino effect: single extreme event can lead to a broad breakdown of infrastructure
- Seamless Prediction of the Earth System
- Time for interdisciplinary research and system analysis approaches
- Social components are critically important
- Multi-factor optimization to reduce risks, increase resilience and sustainability



Seamless Prediction of the Earth System

several dimensions of the coupling:



=> **New generation of seamless models integrated with observations**

i) **Time scales** (from minutes and nowcasting till decades and climate time-scale);

ii) **Spatial scales** (from street till global scales with downscaling and upscaling methods);

iii) **Processes**: physical, chemical, biological, and social;

iv) **Earth system components**: atmosphere, hydrosphere, pedosphere, ecosystems/ biosphere;

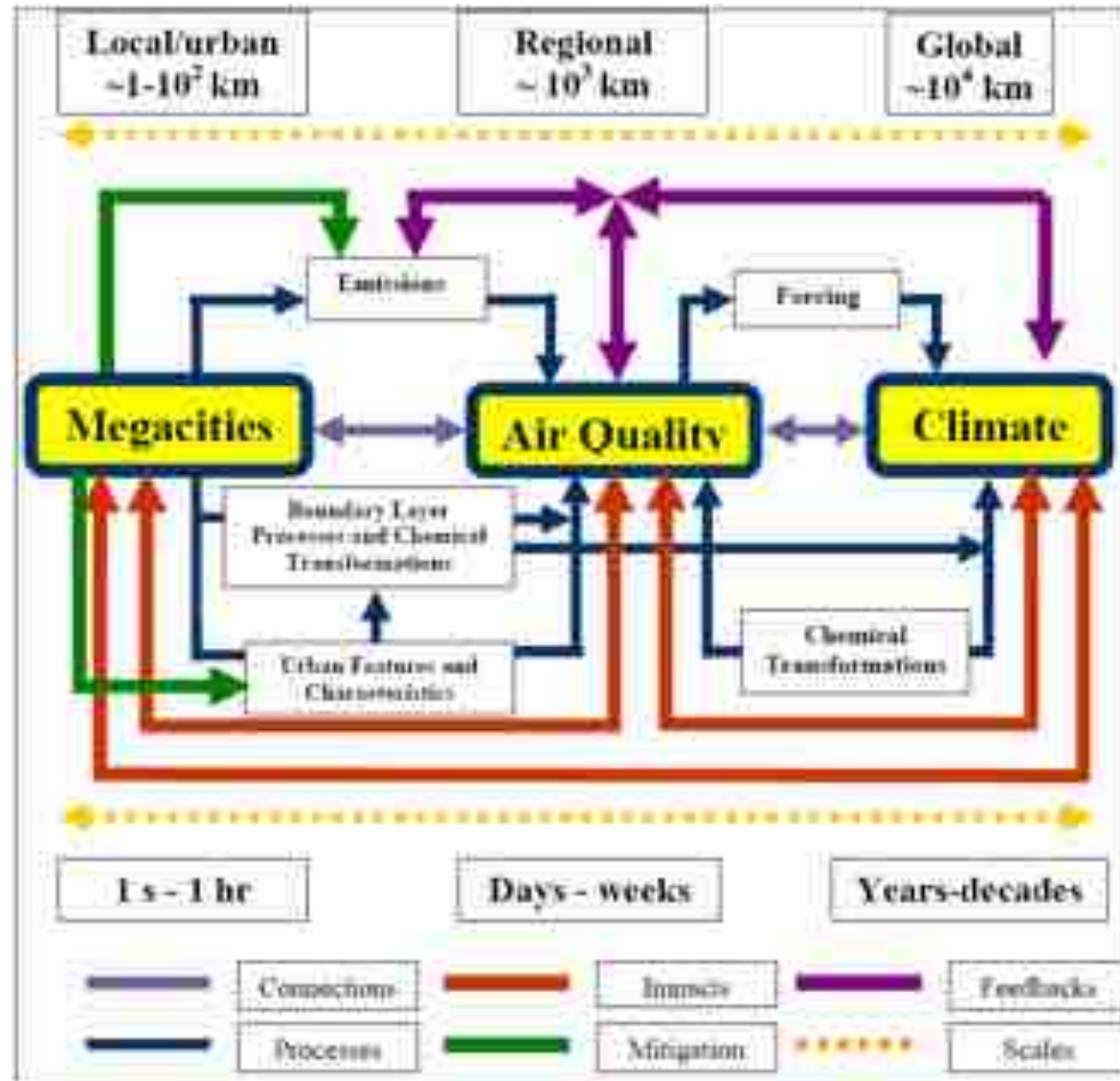
v) Different types of **observations** and modelling tools: measurement-model fusion and **data assimilation**, validation and verification of modelling results;

vi) **User-oriented** integrated systems with social component and **impact based forecasts and services**.

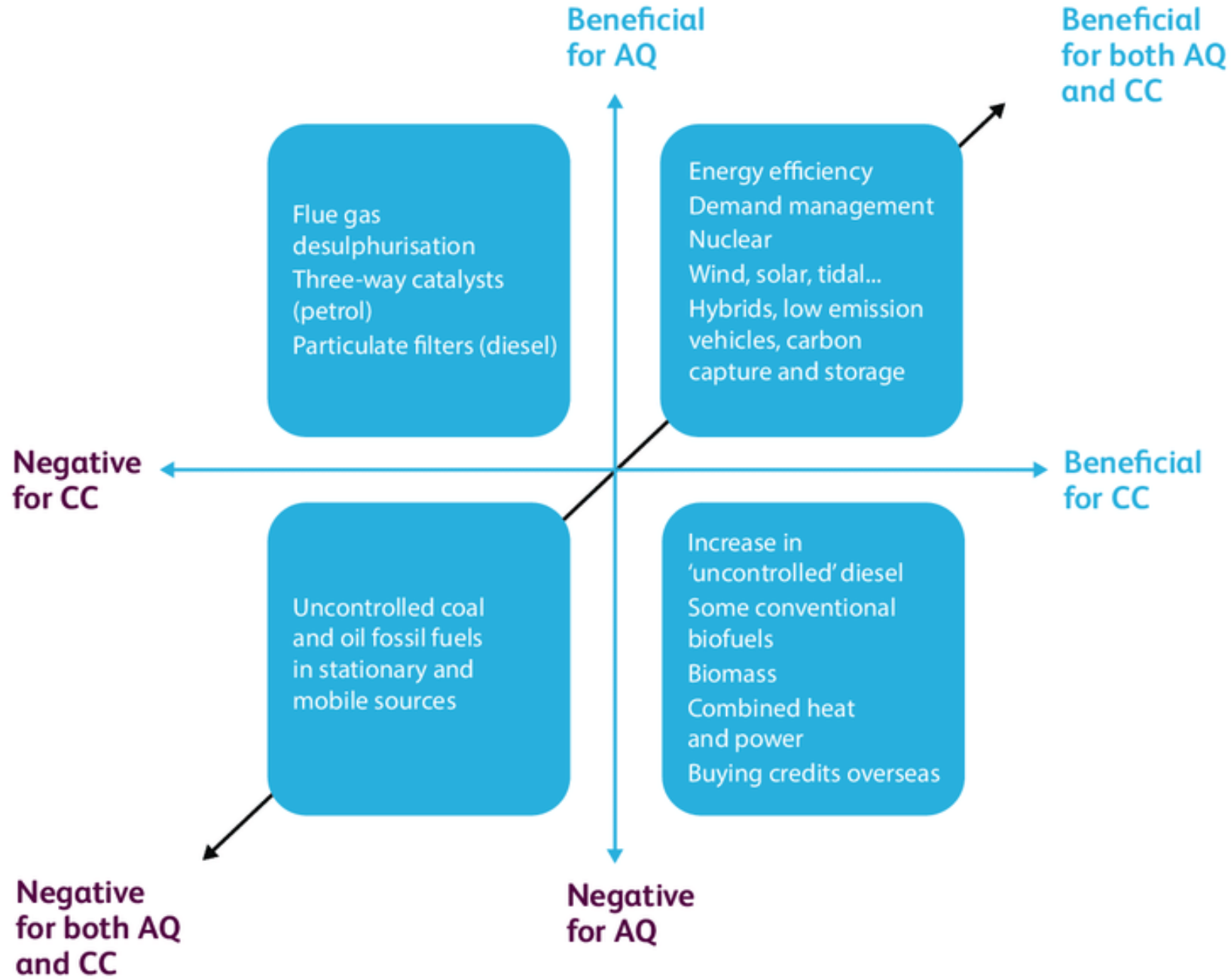


Connections between Cities, Air Quality, Weather and Climate

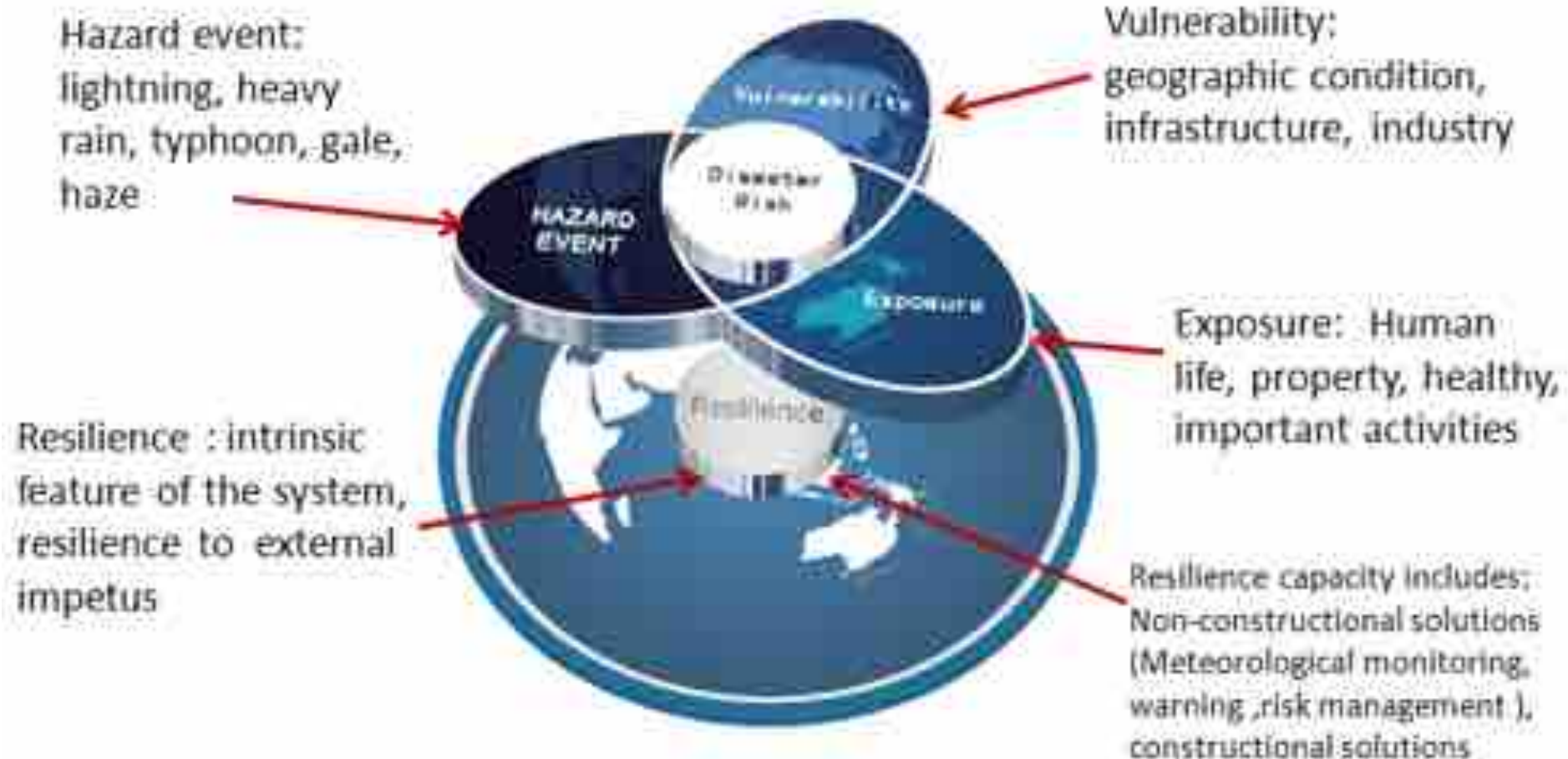
- Science - nonlinear interactions and feedbacks between urban land cover, emissions, chemistry, meteorology, hydrology and climate
 - Multiple spatial and temporal scales
 - Complex mixture of pollutants from large sources
 - Scales from urban to global
 - Interacting effects of urban features and emissions
- see: *Nature*, **455**, 142-143 (2008)



Emission Control: Co-benefits for Environment & Climate



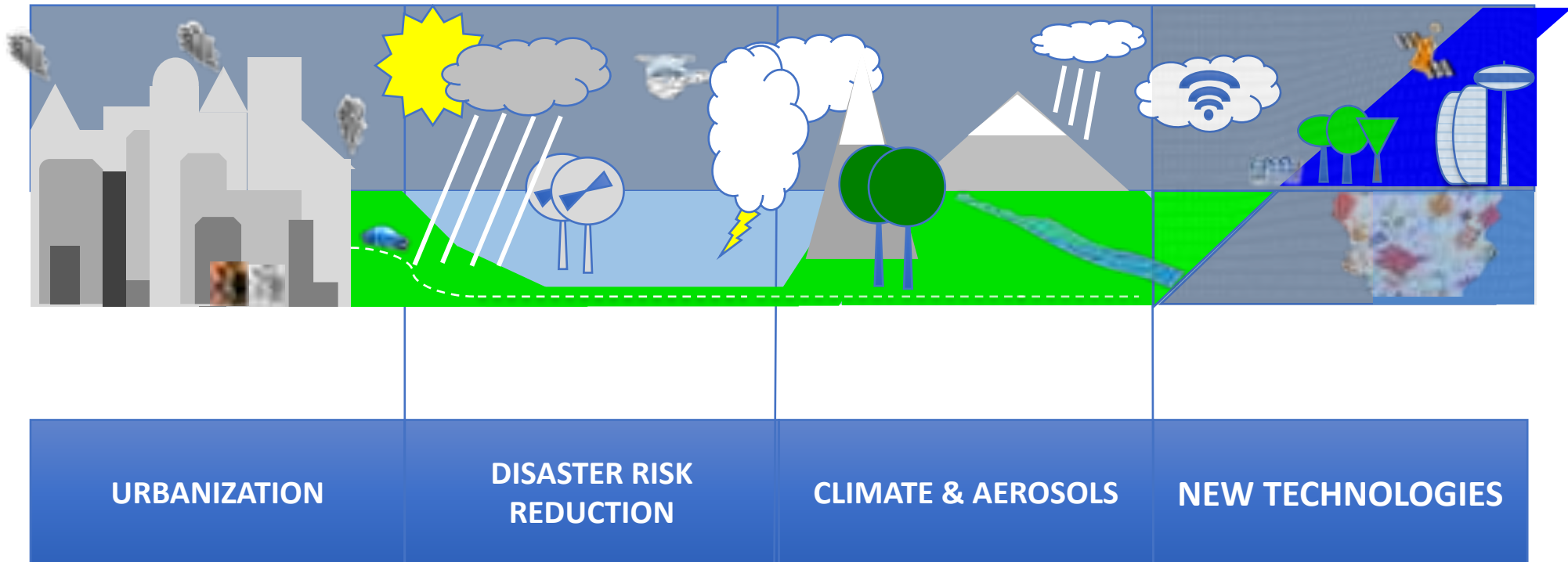
Linkages between exposure and vulnerability to natural hazards influence the impacts and probability of disasters (disaster risk)



Supporting Platform for Building a Climate Resilient Society

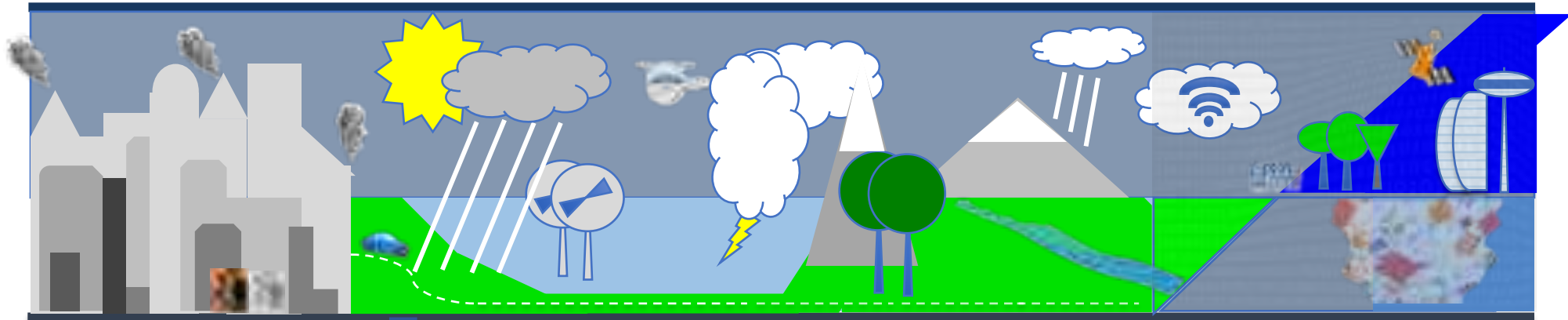


WMO Research Priorities: Catalyzing innovation, strengthening resilience



How Met&Climate Services can help future urban evolution
→ Towards low-emission and climate resilient development

Integrating knowledge and prediction



Prediction & Warning

- Detailed weather and climate prediction in a range of scales
- Activating a chain of national multi agency coordination for response to weather / climate extremes

Monitoring & Understanding

- Weather, Climate and Environmental monitoring
- Greenhouse gas and chemical constituents
- National databank

Processing and Decision-Supporting

- Benchmarking urban development scenarios .vs. weather/climate/environmental projections
- Quantified, sector-specific analyses for cities under different climate change scenario

WMO for the 21st Century meeting the UN SDGs

Proposed structure



"Think globally, act locally"

- Consider the health of the entire planet and to take action in own communities and cities
- Multi-scale models and prediction systems
- Citizen science, local authorities and spiritual component



YEAR OF POLAR PREDICTION



Coordinated by the
World Meteorological
Organization (WMO)

Period:
mid 2017– mid 2019
(Launch: 15th May
2017)

www.polarprediction.net
[@polarprediction](https://twitter.com/polarprediction)

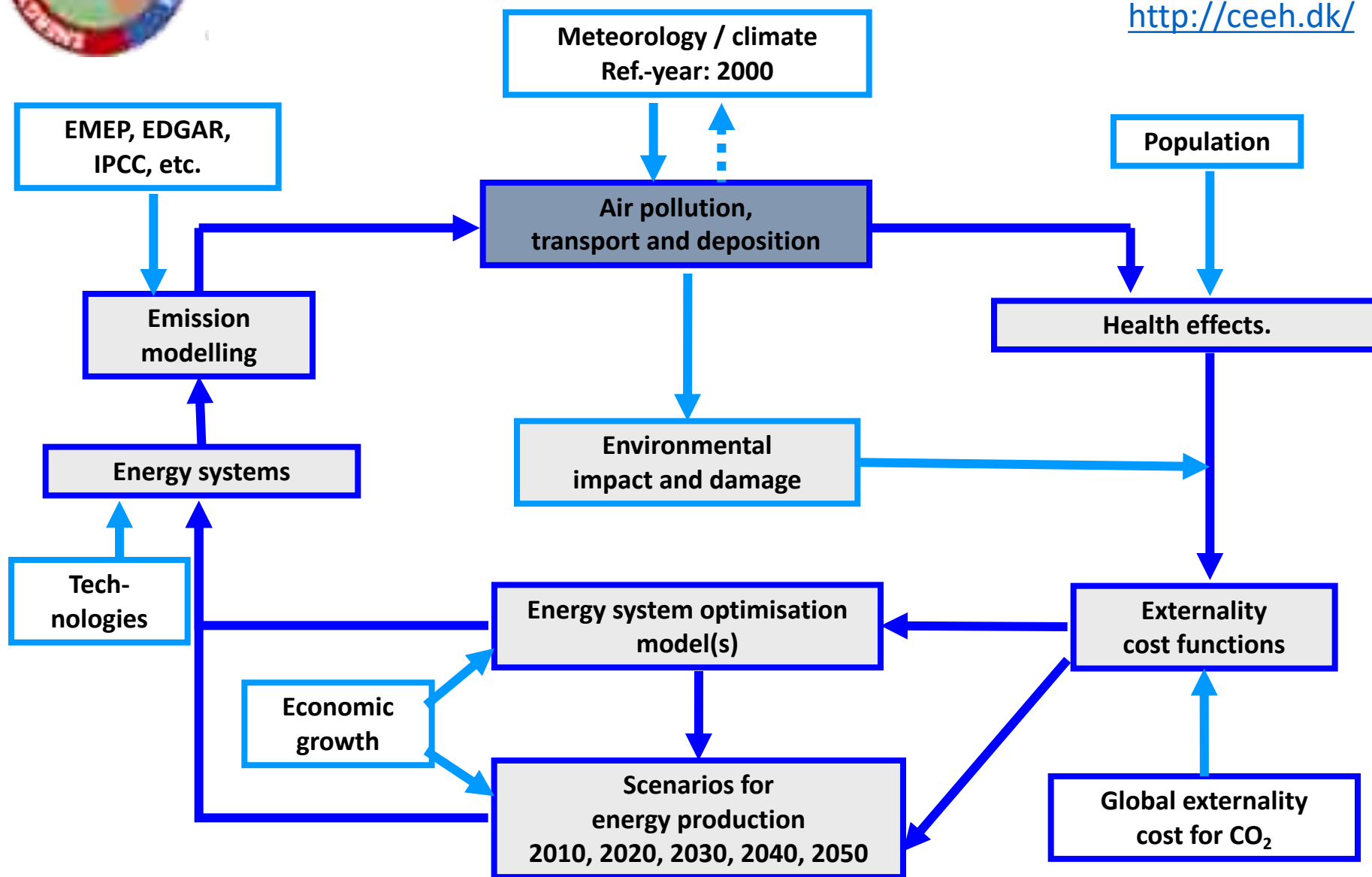
- **Goal: Improving predictions of weather and environmental conditions in polar regions and beyond**
- International collaboration between academia, operational forecasting centres, and stakeholders
- Improving the polar observing system, as well as weather and climate prediction models in polar regions





CEEH modelling framework: Model Components for Energy System Optimisation

<http://ceeh.dk/>



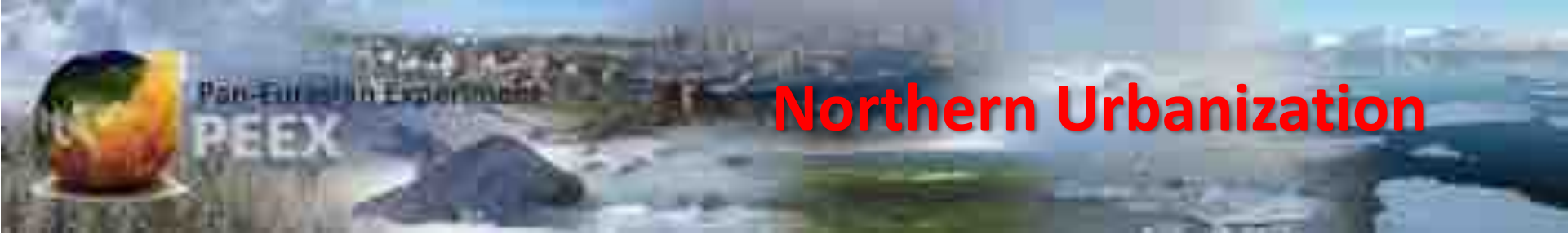


New UN Urban Agenda

Urban Ecology and Environment



<https://www.habitat3.org/the-new-urban-agenda>



Northern Urbanization

- PEEX WG: Northern Urbanization: Environmental challenges and their impact on urban societies (current focus on UHI studies)
- UHIARC: Urban heat island observation network in Arctic cities (Apatity, Vorkuta, Nadym, Urengoy, Murmansk, Norilsk) – MSU, Russia
- HIARC: Anthropogenic Heat Islands in the Arctic - Windows to the Future of the Regional Climates, Ecosystems and Society – NERSC, Norway
- WMO Integrated Urban Weather, Water, Environment and Climate Services & Multi-Hazard Early Warning Systems (GURME project)
- Demonstration & Focus Cities: Examples for Arctic: Fairbanks, Tromso, Murmansk, Norilsk, ...
- PACES (air Pollution in the Arctic: Climate, Environment and Societies): WG on urban AQ and sustainable development
- Year of Polar Prediction (YOPP) and Polar Prediction Project – urban study

City	Reference
Apatity	Konstantinov et al. (2015)
	Varentsov et al. (2018)
	Demin et al. (2016)
Barrow	Klene et al. (2013)
	Hinkel & Nelson (2007)
Fairbanks	Magee et al. (1999)
	Descari et al. (2018)
Nadym	Esau and Miles (2016)
Norilsk	Varentsov et al. (2014)
	Telyatnikov et al. (2014)



Esau et al., 2017



“Russkiy Sever” (the Russian North) National Park



- A unique natural, historical and cultural complex
- Initial student research project of MSU on hydrology
- Several open questions for sustainable development
- It could be a joint project within Sophie Forum, PEEX and RGO
- Goal: a harmonised strategy for natural, social, historical and spiritual development of the region



Thanks!



**We are open for
collaboration!**



Science - Policy Dialogue: Climate Change Perspective

Atte Korhola

Professor of Environmental
Change, University of Helsinki

2nd SOFIA EARTH FORUM ON
GRAND CHALLENGES,
SOLUTIONS AND
LEGITIMACY 1.11.2018



Linear or technocratic model of communication



Information
Disseminator
Messenger
Advocator

Science + communication = action

knowledge leads to action;
more certain knowledge leads to *more definite* action;
more integrated knowledge leads to *more joined-up* action.

Simplified message
Appeal to consensus
Effective presentation
Translation for relevance

Scientific “facts” are transmitted directly to policy advisers to “solve problems”

Scientists





The facts are coming! The facts are coming!

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The Guardian international edition

Environment > Climate change Wildlife Energy Pollution

Environment

UN's vast report will end the scientific argument. Now will the world act?

Three year study by panel of experts published this week will kick off tortuous negotiations on new emissions treaty to replace Kyoto agreement in 2012

David Adam, environment correspondent

14:27 GMT 27 Jan 2007

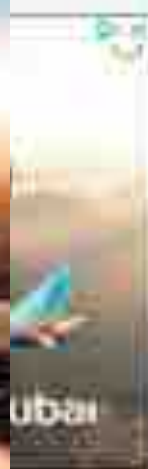


VO

The following correction was printed in the Guardian's Corrections and clarifications column, Monday February 5 2007

The word for a set of three reports is trilogy, not triumvirate, as we said in the article below.

For this hundreds of scientists... to find this... must... will...



Frustrations of communicating climate change



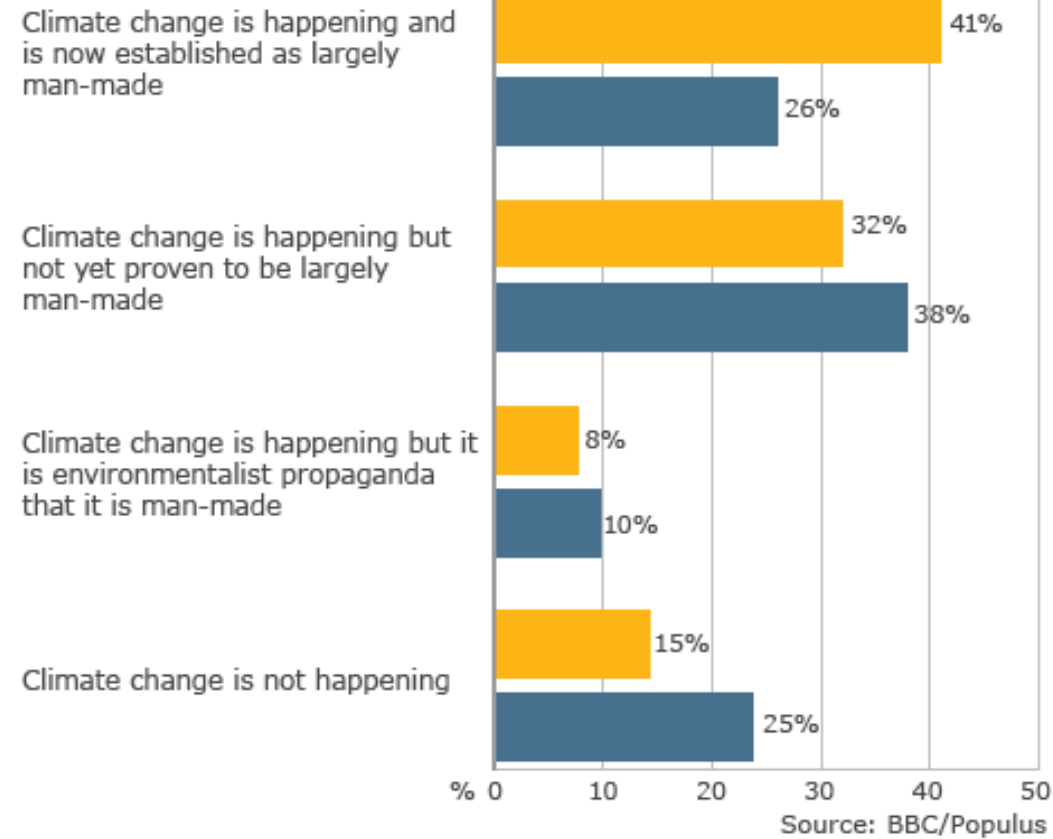
- Failure of the politicians and public to act on the risks perceived by the climate scientists.
- Opinion polls show that many people doubt the warming and its attribution to humans
- Continued media attention to climate change skepticism and skeptics



UK

Which of these statements is closest to your view?

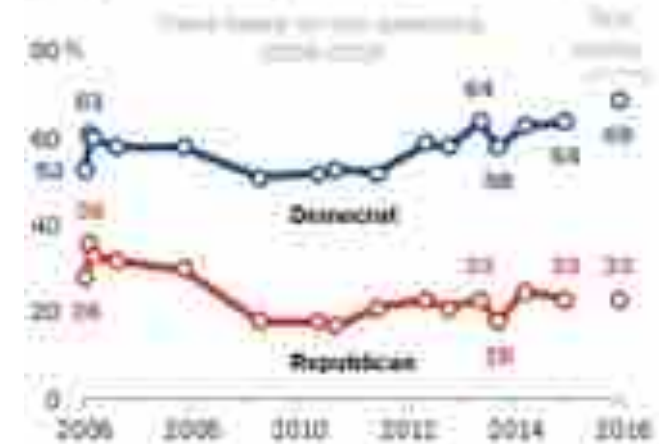
November 2009 February 2010



USA

A decade of political divides over climate change

% of U.S. adults in each group who say the Earth is getting warmer mostly because of human activity



Note: Republican and Democrat numbers do not always add to 100% due to rounding. Excludes those who do not know how to answer or refuse to answer. Source: The Pew Research Center, May 20-26, 2016. "The Future of Climate"

PEW RESEARCH CENTER

What is the solution to the climate communication problem?

- Better messengers?
- Clearer message?
- More exciting presentations?
- Better educated populace?
- Squashing skepticism?



The polarizing impact of science literacy and numeracy on perceived climate change risks

Dan M. Kahan^{1*}, Ellen Peters², Maggie Wittlin³, Paul Slovic⁴, Lisa Larrimore Ouellette³, Donald Braman⁵ and Gregory Mandel⁶

Seeming public apathy over climate change is often attributed to a deficit in comprehension. The public knows too little science, it is claimed, to understand the evidence or avoid being misled¹. Widespread limits on technical reasoning aggravate the problem by forcing citizens to use unreliable cognitive heuristics to assess risk². We conducted a study to test this account and found no support for it. Members of the public with the highest degrees of science literacy and technical reasoning capacity were not the most concerned about climate change. Rather, they were the ones among whom cultural polarization was greatest. This result suggests that public divisions over climate change stem not from the public's incomprehension of science but from a distinctive conflict of interest: between the personal interest individuals have in forming beliefs in line with those held by others with whom they share close ties and the collective one they all share in making use of the best available science to promote common welfare.

literacy—that is, concern should increase as people become more science literate.

Second, and even more important, SCT attributes low concern with climate change to limits on the ability of ordinary members of the public to engage in technical reasoning. Recent research in psychology posits two discrete forms of information processing: system 1, which involves rapid visceral judgments that manifest themselves in various decision-making heuristics; and system 2, which requires conscious reflection and calculation¹⁰. Most members of the public, according to this research, typically employ system 1 reasoning without resorting to more effortful system 2 processing. Although system 1 works well for most daily contingencies, ordinary citizens' predominant reliance on heuristic rather than analytic modes of reasoning is viewed as leading them to underestimate climate change risks, which are remote and abstract compared with a host of more emotionally charged risks (for example, terrorism) that the public is thought to overestimate^{2,3}.

Kahan et al. 2012

Main conclusions

- Members of the public with the highest degrees of science literacy and technical reasoning capacity were not the most concerned about climate change.
- Rather, they were the ones among whom cultural polarization was greatest.
- As worthwhile as it would be, simply ***improving the clarity of scientific information will not dispel public conflict*** so long as the climate-change debate continues to feature cultural meanings that divide citizens of opposing world-views.

Fear Factor



Arctic summers ice-free 'by 2013'

By Jonathan Amos
Science reporter, BBC News, San Francisco

Scientists in the US have presented one of the most dramatic forecasts yet for the disappearance of Arctic sea ice.

Their latest modelling shows northern polar waters could be ice-free in summer within just 5-8 years.

Professor Wesley Maslowe told an American Geophysical Union meeting that previous projections had underestimated the processes now driving ice loss.

Summer melting this year reduced the ice cover to 4.33 million sq km, the smallest ever extent in modern times.

Remarkably, this stunning low point was not even incorporated into the model runs of Professor Maslowe and his team, which used data sets from 1979 to 2004 to constrain their future projections.

"Our projection of 2013 for the removal of ice in summer is not accounting for the last two minima, in 2005 and 2007," the researcher from the Naval Postgraduate School, Monterey, California, explained to the BBC.

"So given that fact, you can argue that may be our projection of 2013 is already too conservative."

Real world

Using supercomputers to crunch through possible future outcomes has become a standard part of climate science in recent years.

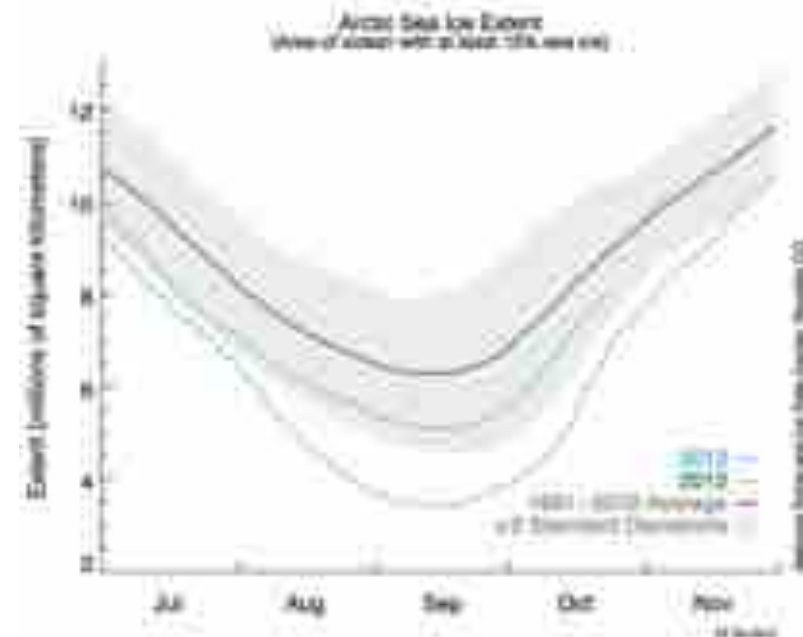


66 In the end, it will just melt every year inevitably **45**
Professor Wesley Maslowe

NASA climate scientist **Jay Zwally**: "At this rate, the Arctic Ocean could be nearly ice-free at the end of summer by 2012, much faster than previous predictions."

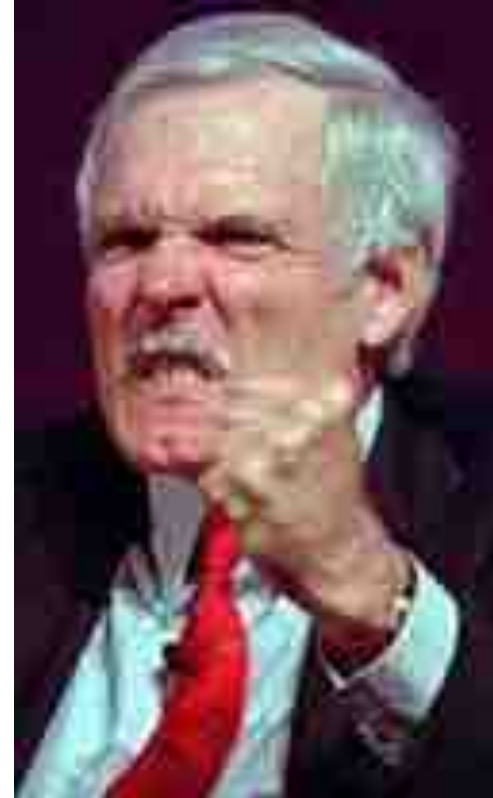


December 12, 2007



CNN channel founder Ted Turner

“Global warming will be catastrophic and those who don't die will be cannibals”.



Prof. Hans Joachim Schellnhuber: Director of the Potsdam Institute for Climate Impact Research

The New York Times

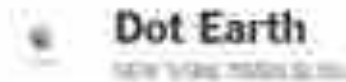
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“If earth temperature rises 5 degrees only 1 billion people can survive”
At that temperature, there would be “no fluctuations anymore, we can be fairly sure”

The Opinion Pages



Search bar with "SEARCH" button

Scientist: Warming Could Cut Population to 1 Billion

BY JAMES KASTER | JANUARY 13, 2009 11:23 AM

Copenhagen Summit Sinks Climate Action

An Update on Climate and Energy Issues

[UPDATE, 4:45 p.m.: A roundup of commentators' and scientists' views at the Copenhagen climate meeting and a reaction from Mike Hulme, a participating scientist.]

COPENHAGEN — A scientist known for his aggressive stance on climate policy made an apocalyptic prediction:



Apocalyptic framing of climate change does three things:

Foust, C.R. & Murphy, W.O. 2009. Revealing and reframing apocalyptic tragedy in global warming discourse. *Environ. Comm.* 3(2):151-167.

1. It endows experts and elites – the modern-day gnostic prophets – with the ‘hidden knowledge’ to understand and foretell the future.
2. It may harm the credibility of climate science (counter-acting).
3. It reinforces the feeling that ordinary citizens can do little to reduce global warming. Such rhetoric both excludes and paralyzes.

Hans Rosling

”Crying wolf too many times puts at risk the credibility and reputation of serious climate scientists and the entire movement. With a problem as big as climate change, we cannot let that happen. Exaggerating the role of climate change in wars and conflicts, or poverty, or migration, means that the other major causes of these global problems are ignored, hampering our ability to take action against them”.

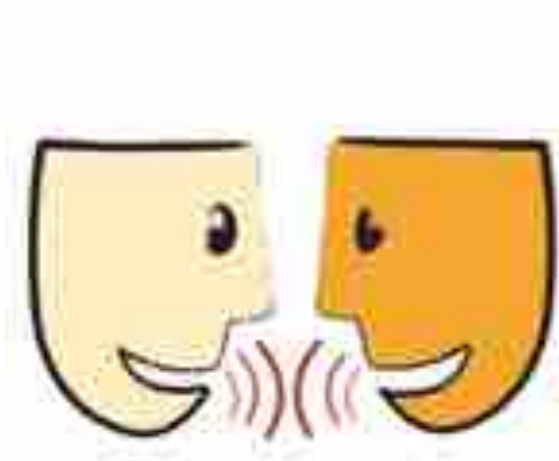


There does **not** exist a fully objective, independent and impartial domain of technoscience that experts can tap into (Young et al. 2014)

- Research itself is not neutral and its commissioning and interpretation reflects societal values.
- Policy processes are complex, multidimensional and unpredictable, incorporate multiple sources of information, not only scientific, and often use the latter selectively.
- Knowledge is something better understood as socially constructed (co-production) and there are important trade-offs in producing knowledge that is simultaneously credible, legitimate and relevant.



Circular model of communication



Addressing complexity
Uncertainty
Open science

Raising the level
of the public dialogue

Increase alternatives:

Rather than telling what should be done, science should tell what could be done!

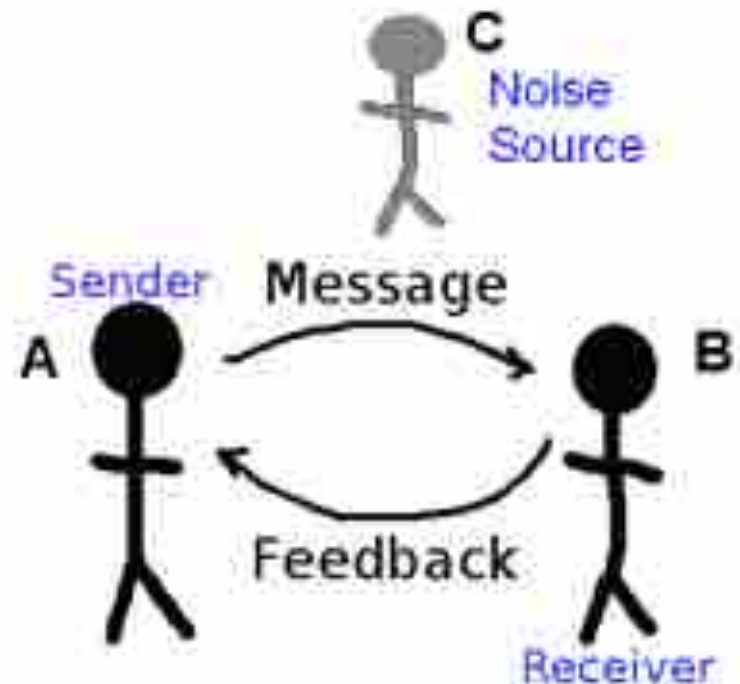


Figure 1. (Interpersonal Communication, 2006, Aug 23). In: Wikipedia, the free Encyclopedia.

HONEST BROKERS

Engagement

Goal: not just to inform, but to enable, motivate and involve the public/policy makers regarding the technical, political, and social dimensions of climate change.

Circular process: experts and decision-makers seek input and learn from the public about preferences, needs, insights, and ideas relative to scientific topics, climate change impacts, vulnerabilities, solutions, and policy options.

Unlike the linear model that focuses on the messenger, the circular model views the receiver as an equal partner in the communication and focuses on the process of engagement (which includes dialogue and feedback).



This democratisation of academic influence, enabled especially by social media, is challenging the power and influence of the elite (senior) academics.



The voice of science: let's agree to disagree

Consensus reports are the bedrock of science-based policy-making. But disagreement and arguments are more useful, says Daniel Sarewitz

When scientists wish to speak with one voice, they typically do so in a most unscientific way: the consensus report. The idea is to condense the knowledge of many experts into a single point of view that can settle disputes and aid policy-making. But the process of achieving such a consensus often acts against those goals, and can undermine the very authority it seeks to project.

My most recent engagement with this form of posturing is marked this week with the release of *Get engineering: A National Strategic Plan for Research on Climate Remediation*, sponsored by the Bipartisan Policy Center in Washington DC. The report reflects more than a year of discussion between 18 experts from a diverse range of fields and organizations. It sorts out, I think, many valuable principles and recommendations.

The discussions that craft expert consensus, however, have more in common with politics than science. And I don't think I give too much away by revealing that one of the battles in our panel was over the term 'geoengineering' itself.

This struggle is obvious in the report's title, which begins with 'geoengineering' and ends with the reluctant term 'climate remediation'. Why? Some of the committee felt that 'geoengineering' was too imprecise, some thought it too controversial; others argued that it was already commonly used, and that a new term would create confusion.

I didn't have a problem with 'geoengineering', but for others it was a do-or-die issue. I yielded on that point (and several others) to gain political capital to secure issues that had a higher priority for me. Thus, disagreements between panels are settled not with the 'right' answer, but by achieving a political balance across many of the issues discussed.

This political essence of consensus leads to other difficulties. Ask a

clarifying anything, the key recommendation — that mammograms were being overutilized — became instant ammunition for reform opponents, who viewed it as a threat to patient autonomy.

The final cover mistakes in the 2007 reports by the Intergovernmental Panel on Climate Change highlights a related problem: a claim of scientific consensus creates a public expectation of infallibility that, if undermined, can erode public confidence. And when expert consensus changes, as it has on health issues from the safety of hormone replacement therapy to nutritional standards, public trust in expert advice is also undermined.

The very idea that science best expresses its authority through consensus statements is at odds with a vibrant scientific enterprise. Consensus is for textbooks; real science depends for its progress on continual challenges to the current state of always-imperfect knowl-

edge. Science would provide better value to politics if it articulated the broadest set of plausible interpretations, options and perspectives, imagined by the best experts, rather than forcing convergence to an allegedly unified voice.

Yet, as anyone who has served on a consensus committee knows, much of what is most interesting about a subject gets left out of the final report. For months, our get engineering group argued about almost every issue conceivably related to establishing a research programme. Many ideas failed to make the report — not because they were wrong or unimportant, but because they didn't attract a political constituency in the group that was strong enough to keep them in. The commitment to consensus therefore comes at a high price: the elimination of proposals and alternatives that might be valuable for decision-

REAL SCIENCE
DEPENDS FOR ITS
PROGRESS
ON CONTINUAL
CHALLENGES TO THE
CURRENT STATE OF
ALWAYS-IMPERFECT
KNOWLEDGE.

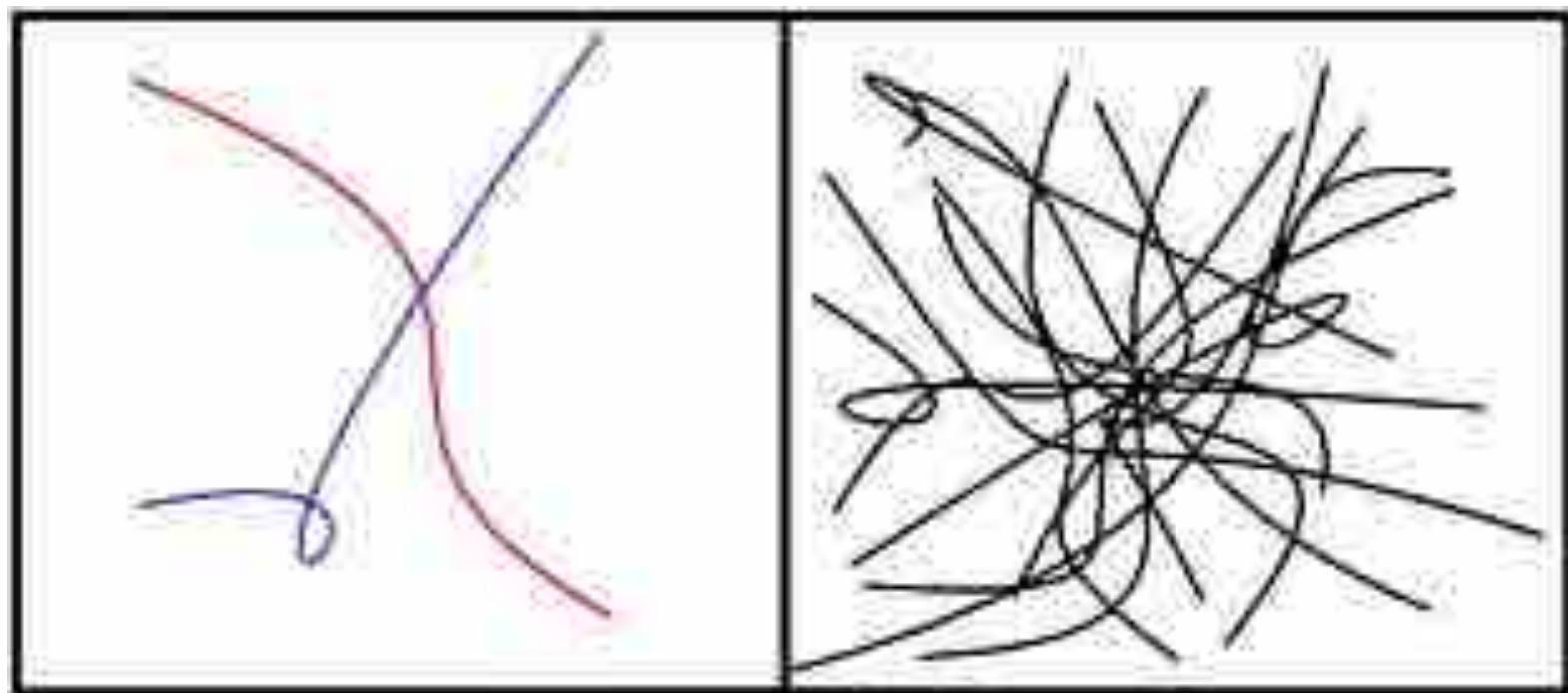
Why haven't we solved the global warming problem yet?





WICKED

THE UNTOLD STORY OF THE WITCHES OF OZ



Traditional Problem

Wicked Problem

Social Messes

Representing Wicked, Ill-Structured Problems

No unique "correct" view of the problem



Ideological constraints



Many possible intervention points



Often a-logical or illogical or multi-valued

An illustration of a stylized human figure standing next to the mathematical equation $1+2=7$. The equation is written in a large, bold font, and the figure's presence suggests a lack of logical consistency or a multi-valued reality where standard logic does not apply.

Great Resistance to change



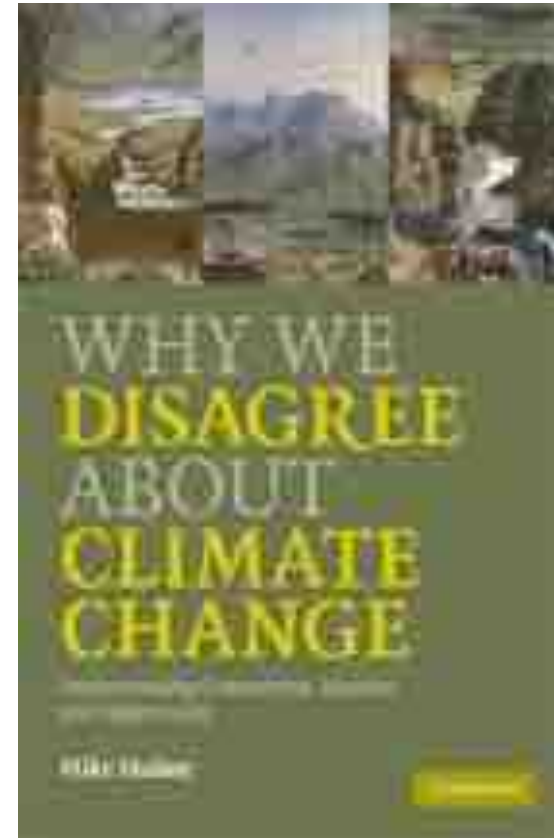
Super wicked problems

(Levin et al. 2007)

- Time is running out.
- No central authority.
- Those seeking to solve the problem are also causing it.
- Hyperbolic discounting occurs (tendency for people to increasingly choose a smaller-sooner reward over a larger-later reward)

Climate Change: What problem?

- Atmospheric problem?
- Population growth problem?
- Economic problem?
- Energy problem?
- Consumption problem?
- Technological problem?
- Political problem?
- Inequality problem?
- Scientific problem?
- Social problem?
- Communication problem?



Resolution mapping

Horn & Weber 2007

- Incorporates knowledge, biases, and beliefs across diverse stakeholder groups;
- Depending on the particular Wicked Problem addressed, may take into account simultaneously international, national, state, local, or organizational issues;
- Incorporates rather than minimizes uncertainty;
- Does not seek simplistic solutions;
- Provides a basis for iterative strategic decision-making;
- Identifies key events and actions;



Obliquity – why our goals are best achieved indirectly?

Obliquity is the principle that complex goals are best achieved *indirectly*. This book explains why the happiest people aren't necessarily those who focus on happiness, and how the most successful cities aren't planned (look at Paris versus Brasilia). And if a company announces shareholder return as its number one goal, perhaps we should beware: the most profit-orientated companies aren't usually the most profitable.



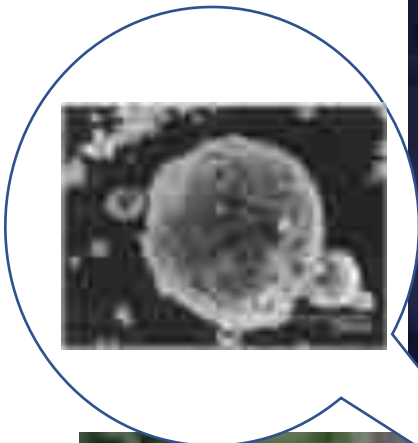
John Kay

Pew Research: Americans' priorities in 2013

<u>Priority Items</u>	<u>2009</u>	<u>2012</u>	<u>2013</u>	<u>4-yr</u> Δ
1.Strengthening economy	85%	86%	86%	+1
2.Improving job situation	82%	82%	79%	-3
3.Reducing budget deficit	53%	69%	72%	+19
4.Defending against terrorism 76%	69%	71%	-5	
5.Making Social Security sound 63%	68%	70%	+7	
6.Improving education	61%	65%	70%	+9
7.Making Medicare financially sound	60%	61%	65%	+5
8.Reducing health care costs	59%	60%	63%	+4
9.Helping the poor and needy 50%	52%	57%	+7	
10.Reducing crime	46%	48%	55%	+9
11.Reforming tax system	--	--	52%	--
12.Protecting the environment 41%	43%	52%	+11	
13.Dealing with the energy problem	60%	52%	45%	-15
14.Reducing influence of lobbyists	36%	40%	44%	+8
15.Strengthening the military	44%	39%	41%	-3
16.Dealing with moral breakdown	45%	44%	40%	-5
17.Dealing with illegal immigration	41%	39%	39%	-2
18.Strengthening gun laws	--	--	37%	--
19.Dealing with global trade	31%	38%	31%	0
20.Improving infrastructure	--	30%	30%	--
21.Dealing with global warming	30%	25%	28%	-2

Win-win opportunities to ‘connect the dots’

<u>Priority Items</u>	<u>2009</u>	<u>2012</u>	<u>2013</u>	<u>4-yr</u> Δ
1.Strengthening economy	85%	86%	86%	+1
2.Improving job situation	82%	82%	79%	-3
3.Reducing budget deficit	53%	69%	72%	+19
4.Defending against terrorism	76%	69%	71%	-5
5.Making Social Security sound 63%	68%	70%	+7	
6.Improving education	61%	65%	70%	+9
7.Making Medicare financially sound	60%	61%	65%	+5
8.Reducing health care costs	59%	60%	63%	+4
9.Helping the poor and needy	50%	52%	57%	+7
10.Reducing crime	46%	48%	55%	+9
11.Reforming tax system	--	--	52%	--
12.Protecting the environment	41%	43%	52%	+11
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18.Strengthening gun laws	--	--	37%	--
19.Dealing with global trade	31%	38%	31%	0
20.Improving infrastructure	--	30%	30%	--
21.Dealing with global warming	30%	25%	28%	-2



Thank you!

“politics
is more
difficult
than
physics”

Albert Einstein

CHANGING WORLD – PERSPECTIVES

Archbishop Tapio Luoma

Sofia Earth Forum 2.11.2018

One basic perspective: human perspective

- the question of life in general
- the question of humanity in particular
- → one common human standpoint but many ideologies
 - → the role of world view as a perspective

The special role of human being

- as far as we know, the only creature capable of reflecting herself, other creatures and the universe
- self-reflection – strive to objectivity in subjectivity
- two important perspectives from the standpoint of:
 - science, facts discernible to human senses
 - religion, understanding of the dependence of the universe on transcendent will/power

Change 1: Increasing role of technology

- invention and application of **electricity** and **combustion engine** and **nuclear power**
 - → will to make life easier, search for pleasure/gratification
 - → impact on various world views
- distancing from the conditions of nature
 - → nature as the source for commodities and as a commodity itself

Change 2: Importance of ethics

- world view connected with a view of what is good and right and what is not
- Enlightenment ideal: facts and values are independent of each other
 - facts are objective, values are subjective
- what is good and right again an important question
 - human flourishing as an independent objective → human flourishing related to the welfare of nature

Change 3: Deepening understanding of climate change

- recognizing climate change as humanity's common serious challenge
- recognizing the need for interaction between natural science, philosophy, theology, all sciences, religion and world views included

Climate change and world view

- need for responsible world views
- specific issues characteristic of an accountable world view
 - the question of human responsibility
 - the question of guilt
 - the question of hope