



SUGI nexus meeting

11<sup>th</sup> June 2018

managing complexity & uncertainty

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# OUTLINE

- Intro & welcome to the future
- A short parable
- Nexus & connexus
- Ways forward

Introduction &  
welcome to the future:



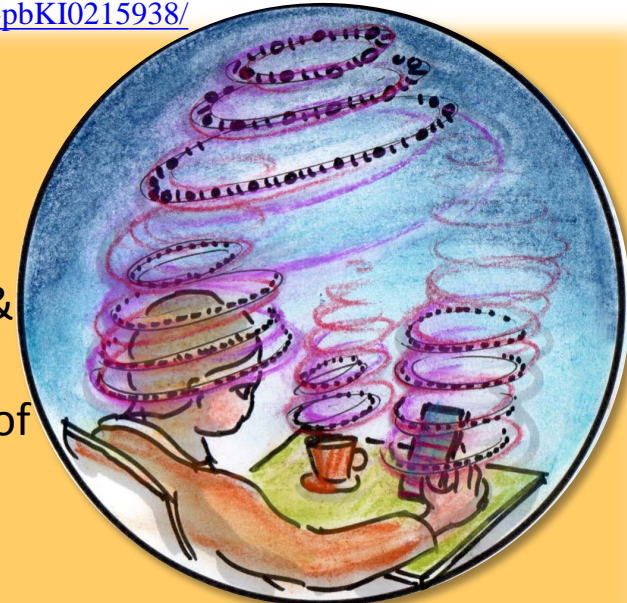


# 12 MEGATRENDS / GRAND CHALLENGES

Duckworth, M, Lye, D, **Ravetz**, J, Ringland, G. (Eds) (2016). *Strategic Foresight: Towards the 3rd Strategic Programme of Horizon 2020*. Brussels, DG Research and Innovation. <http://bookshop.europa.eu/en/strategic-foresight-pbKI0215938/>



1) Financial crisis combines with climate, conflict, corruption, failed states



2) Super-artificial intelligence & datafication, destroys half of all jobs



3) Inequality blocks development, corrupts whole societies, excludes women & minorities



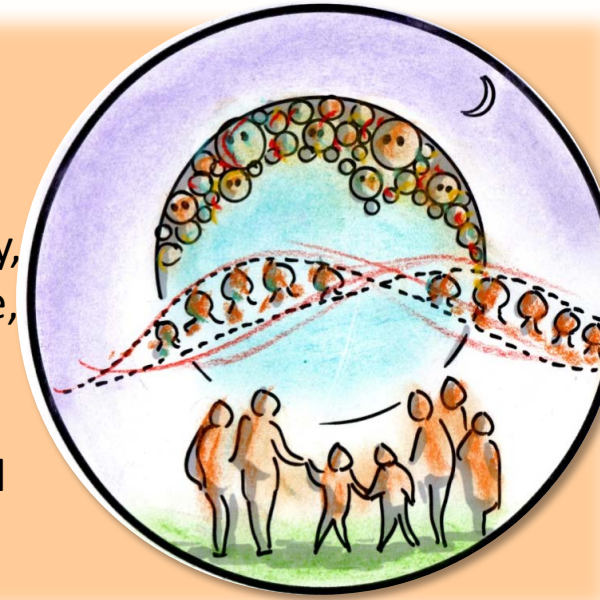
4) Urban areas concentrate wealth, poverty, extremism, unemployment, also innovation & enterprise



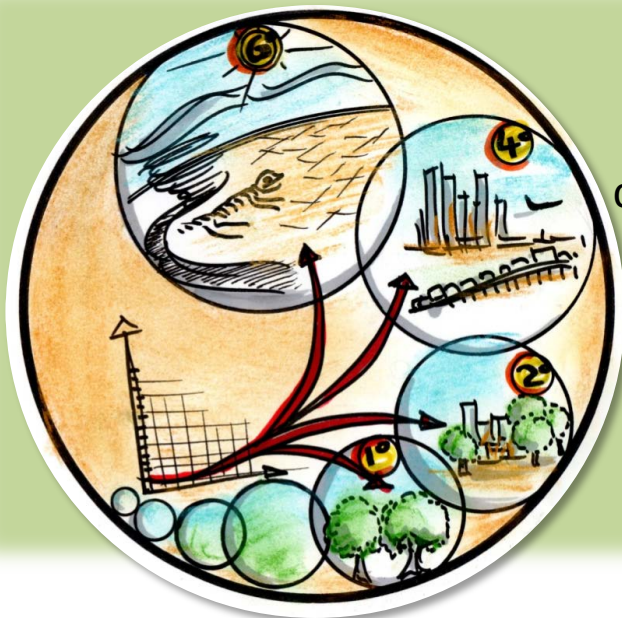
# 12 MEGATRENDS / GRAND CHALLENGES



5) Migration & displacement pressure on societies, breeds extremism & intolerance



6) Ageing society, social enterprise, well-being: pressure on services, ethical dilemmas



7) Global climate stress at 2 / 4 / 6 degrees - slow degradation or rapid collapse?



8) Food / energy / water nexus: global-local integration VS fragility & vulnerability



# What future - don't ask the experts

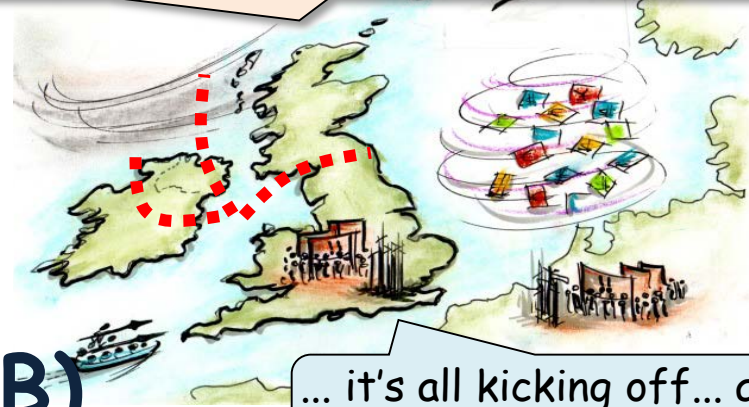
"After Brexit, UK crashed & the EU fell apart. Trump took USA & Putin took Eastern Europe... climate change migration etc



wrong side of the fence!!

(A)

"UK was divided & uncertain... austerity, financial crisis, refugees, terrorism, etc... But the EU & UK worked together



... it's all kicking off... again...  
Anyone have a plan??

(B)

"After 'Brexit-Max' the UK hollowed out, but London grew as the #1 global tax haven & southern England as its playground...



who said Brexit was anti-migration? we need our £3 an hour workers...

(C)

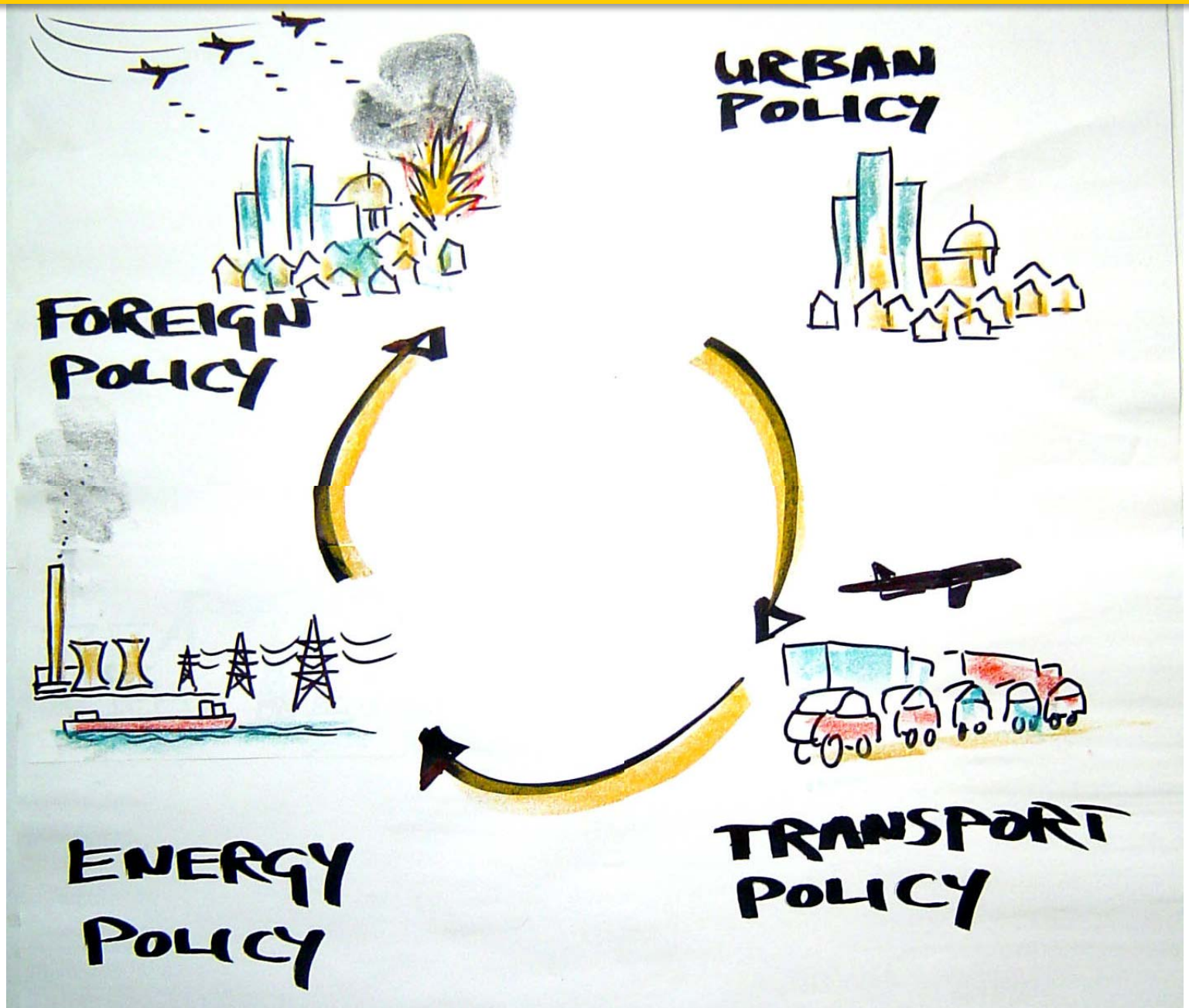
(D)

"in the EEA/EFTA, the UK is now beacon of peace & prosperity, working with a more intelligent EU



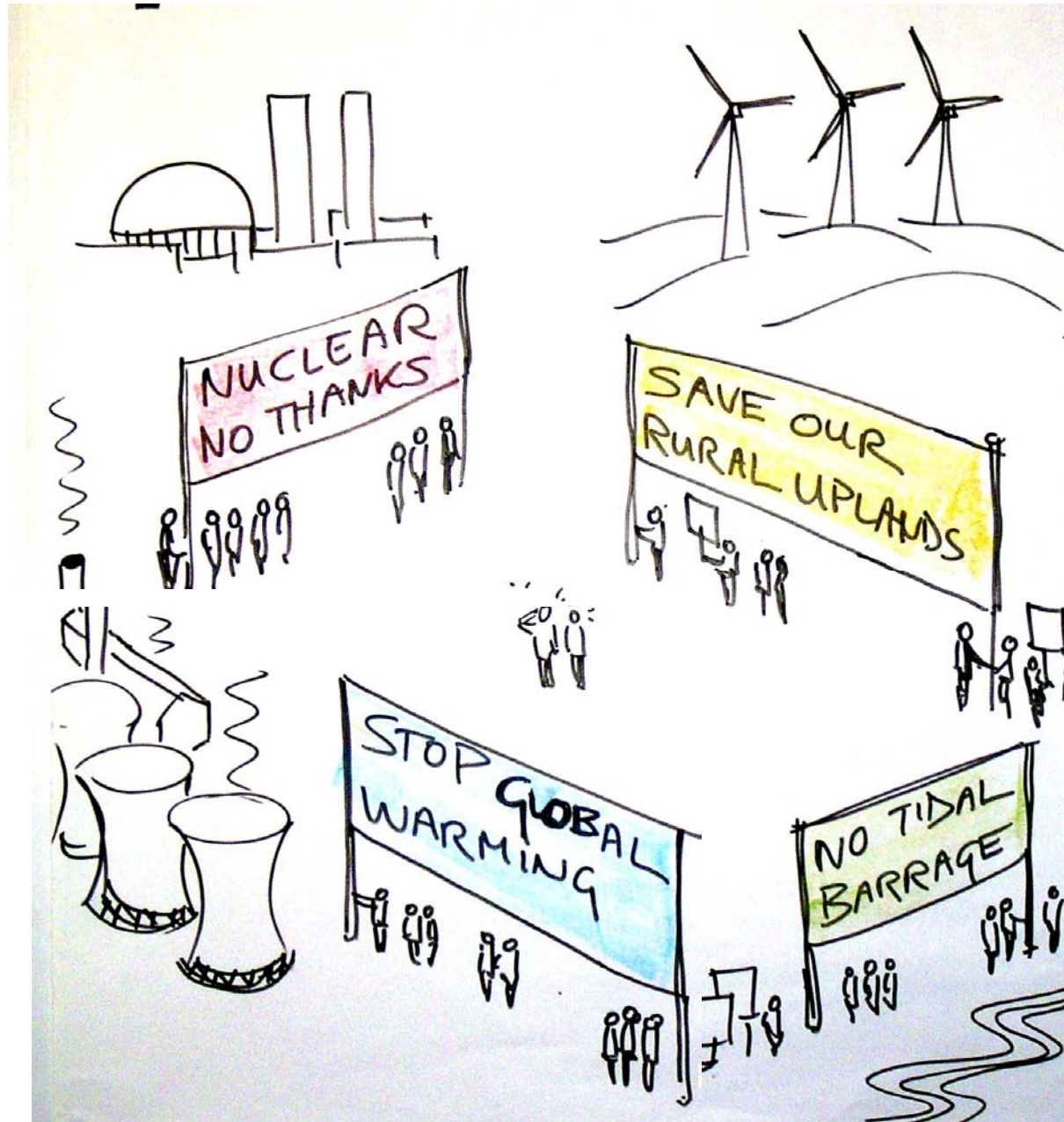
At last... a working community of 500 million for the 21<sup>st</sup> century

# ENERGY POLICY CYCLE





# ENERGY POLICY OPTIONS





# Short parable on the deeper nexus



## "ECOL-OPOLY" The ONE PLANET game

Hi, I'm Benito. My family were rancheros. Hunger was our main hobby

To eat you had to take land from the forest...

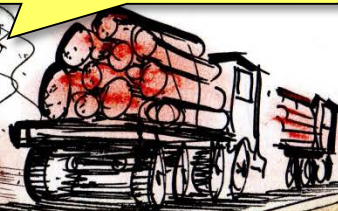
But the forest was a madhouse - police, agencies, farmers, loggers all taking what they could get

One day the police turned the guns on us. It was time to leave

Many went to the cities, but I followed the trucks, all the way to the other side of the world

The people there were so fat, like inside-out hunger...

**GO LARGE !!**





For years I worked.. studied...then I worked on the Syn-Earth game module

The so-called GLOBAL NEXUS was at the core of the system.

But we couldn't get it into stability & balance

But the system was imploding - every 6 minutes another species extinct. The devastation was shocking

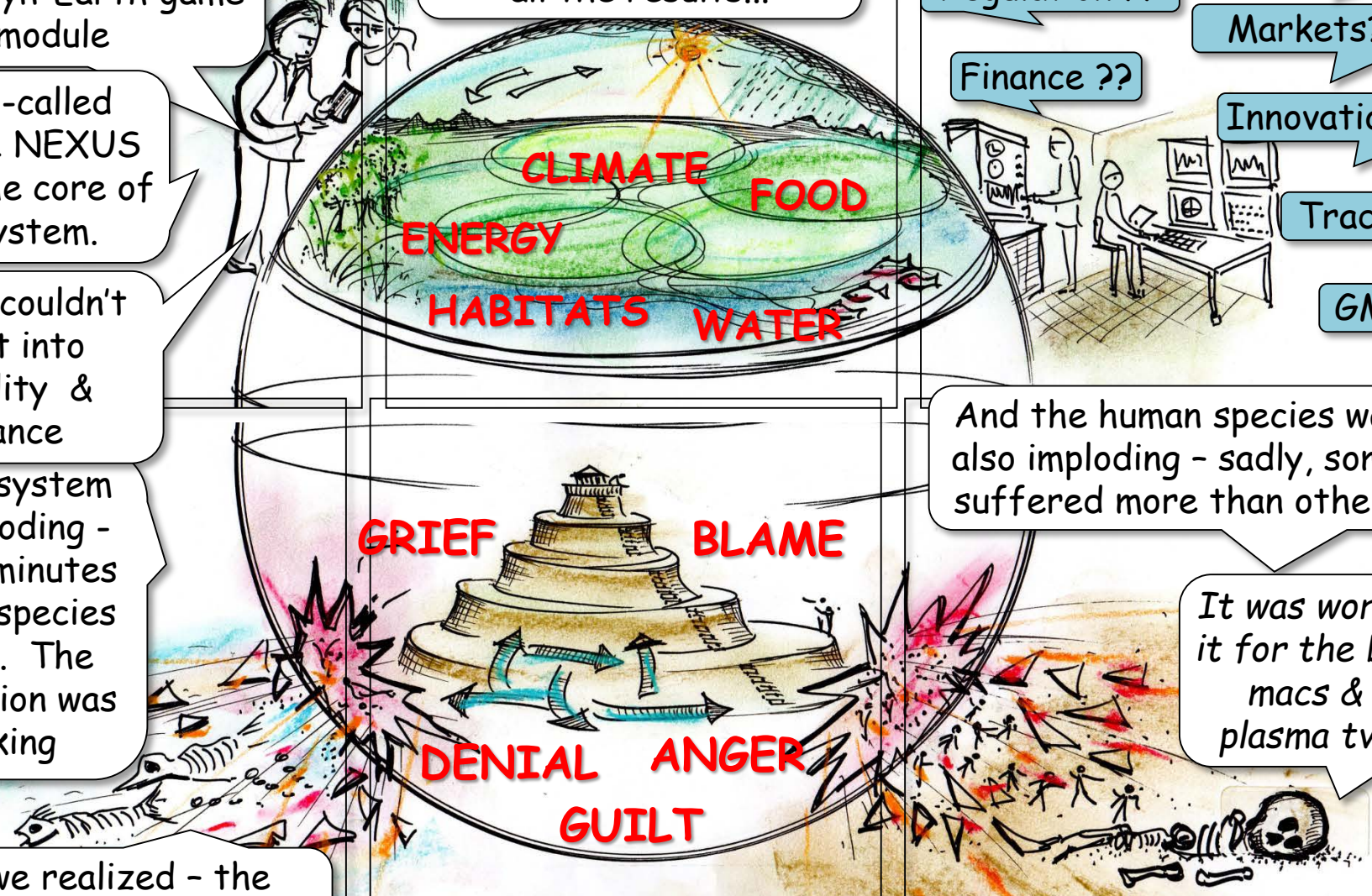
Then we realized - the humans were the problem. Like with 5 stages of trauma

We tried all the options and settings... monitored all the results...

- Development?
- Education ??
- Regulation ??
- Markets??
- Finance ??
- Innovation ??
- Trade??
- GMO?

And the human species was also imploding - sadly, some suffered more than others

It was worth it for the big macs & plasma tvs



So some will feel angry, but the fact is, the only solution is growth & development ...

\*\*\*\*  
develop-  
ment!!

What if we discuss the situation with everyone?

Like a  
Conference of  
the Species?

Then we're into deeper  
myths & archetypes

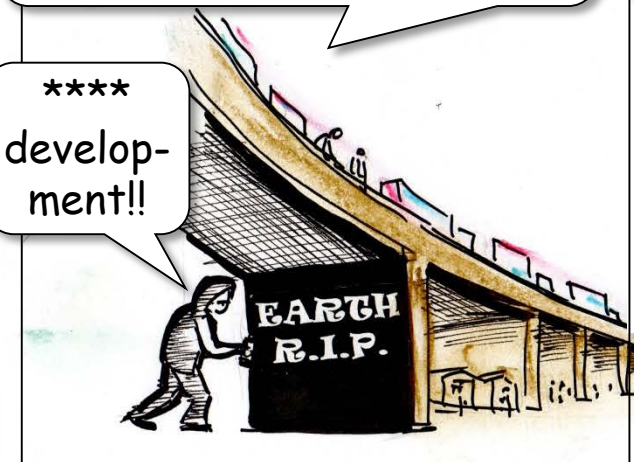
Cosmic  
justice

After the  
Deluge..

Sin &  
redemption..

Shiva the  
destroyer

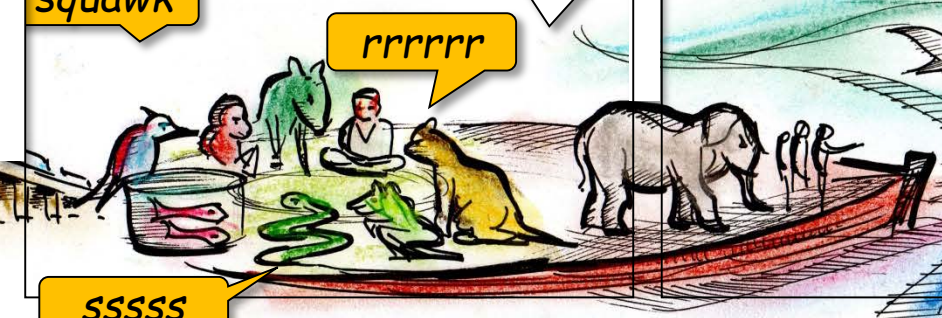
Quantum  
the creator



squawk

rrrrrr

ssssss

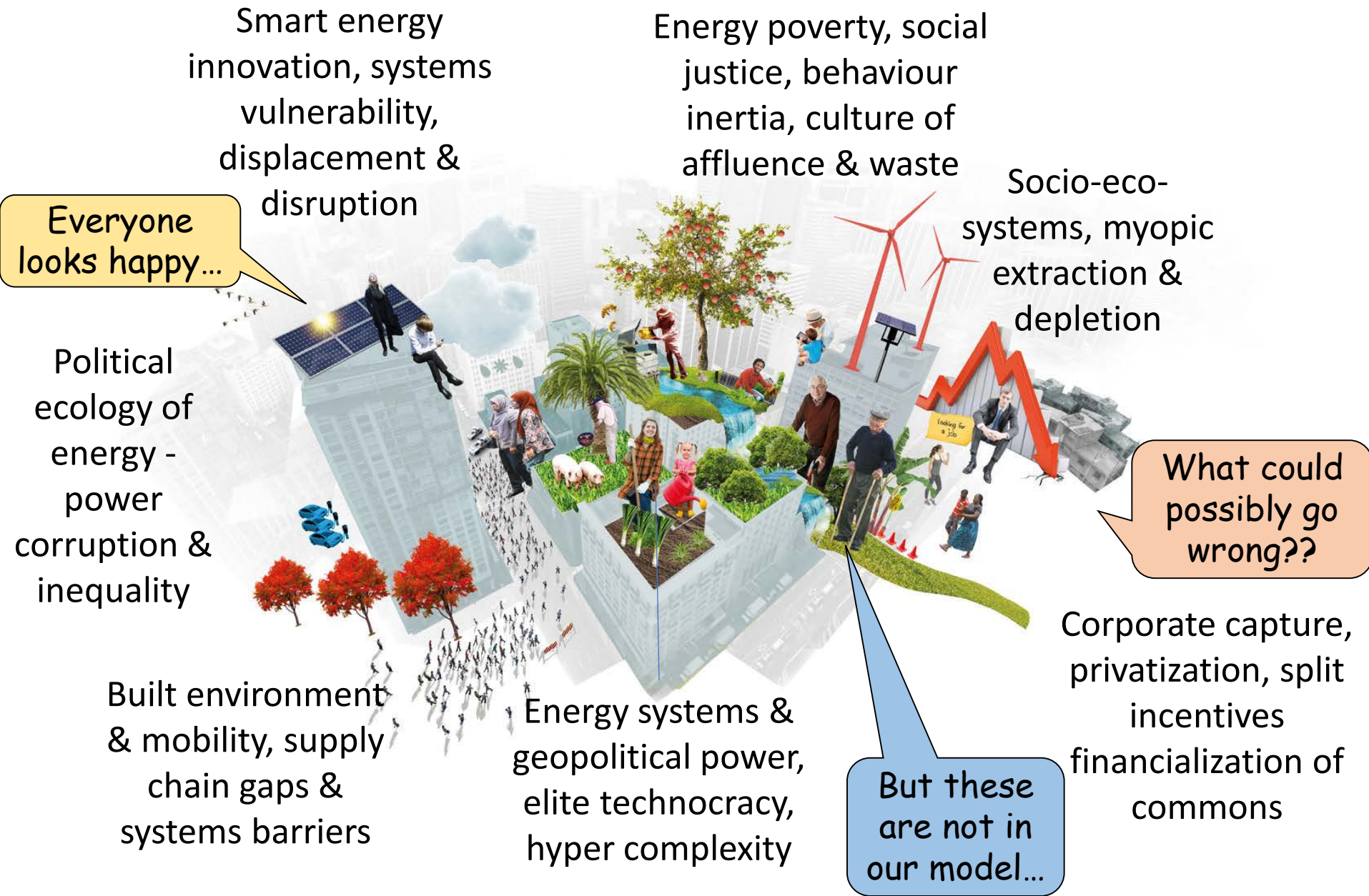




# Food- energy-water nexus / connexus

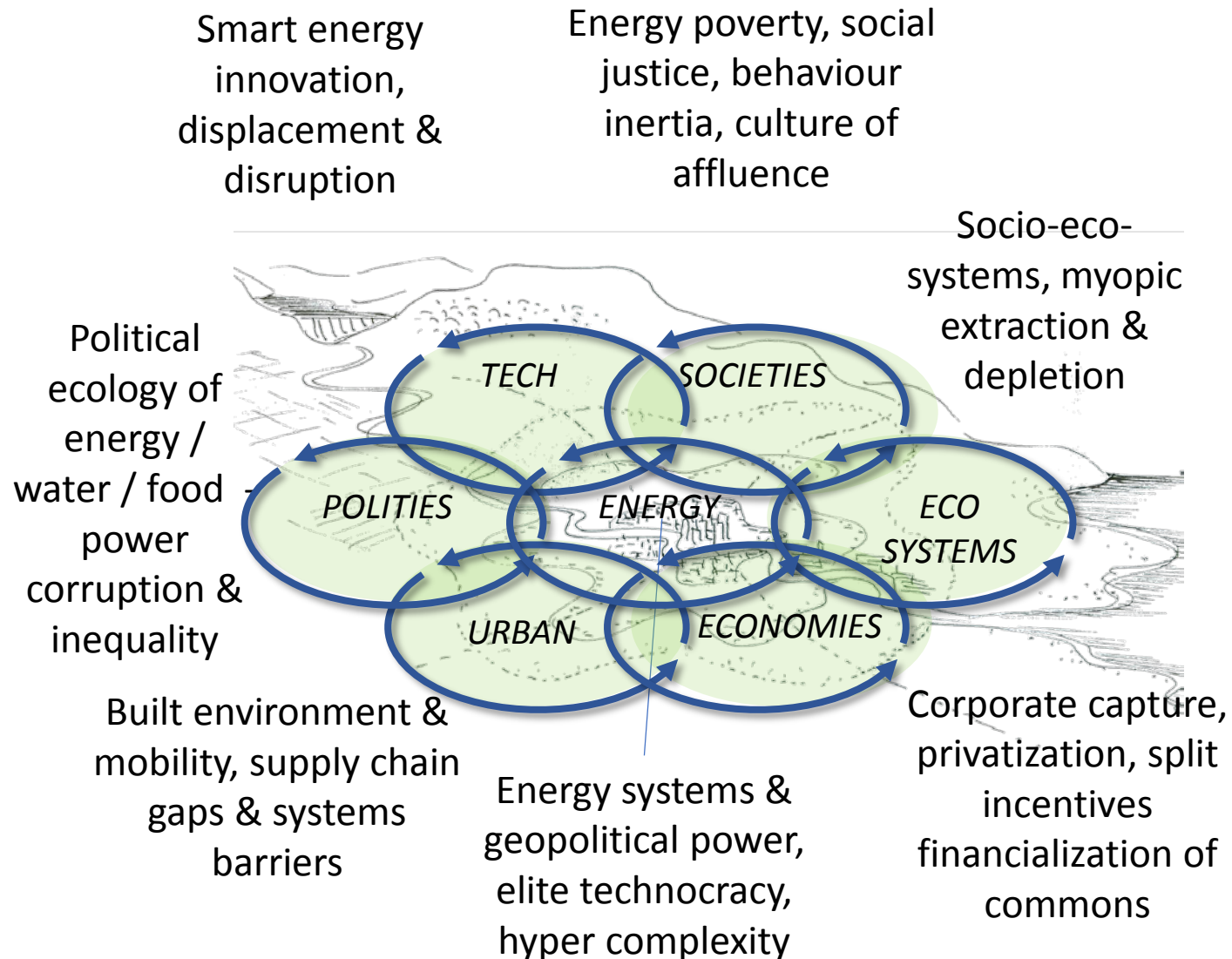


# ENERGY & CLIMATE NEXUS





# ENERGY & CLIMATE NEXUS MAPPING



Ways forward



# from 'NEXUS' to 'CONNEXUS' - RESEARCH MAPPING

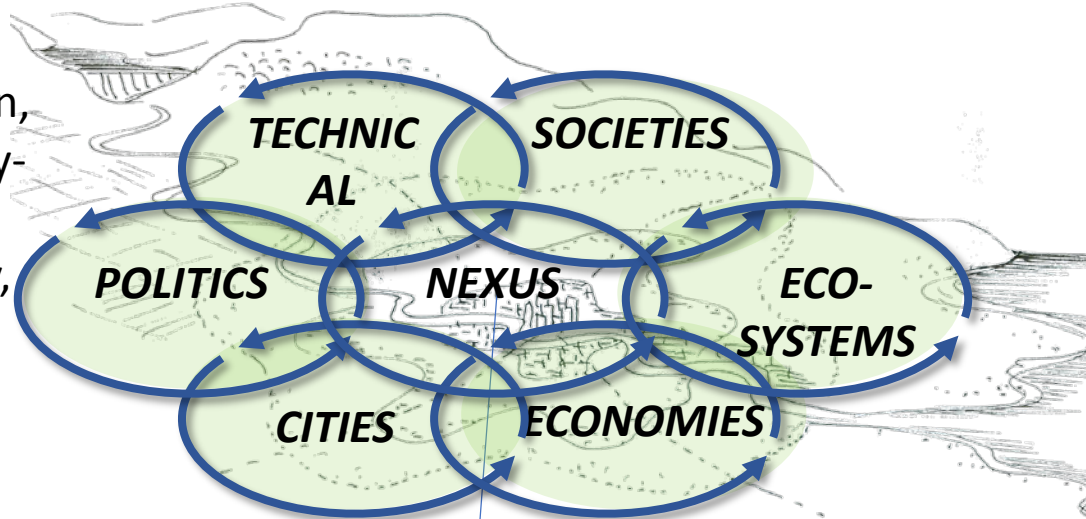
## SYSTEM INTER-CONNECTIONS

Technical: integrated metabolism & resource flow analysis & modelling

Social norms & behaviour, diet & lifestyle, poverty & livelihood,

Ecosystems vulnerability & resilience, climate & biodiversity

Political: policy & participation, food-energy-water democracy, political ecology



Built environment structures, life-cycles, retrofit, design innovation, community effects

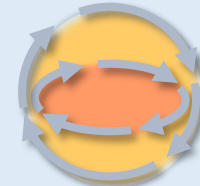
Combined socio-techno-economic-political systems: systemic resilience, transition,

Finance & business models, valuations & services, jobs & skills, sector & supply chain effects

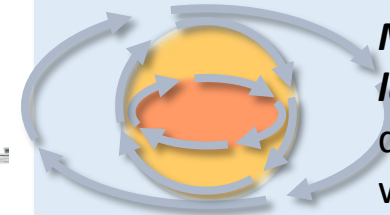
## CO-LEARNING



**Single loop learning:** tangible problems

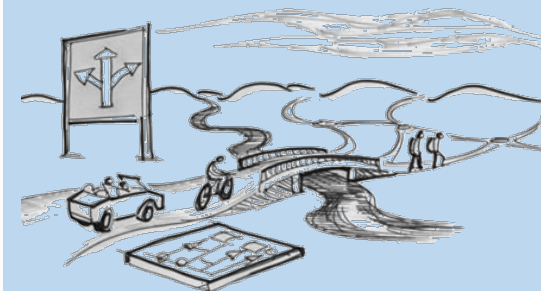


**Double loop learning:** strategic problems



**Multi-loop learning:** deeper / wider challenges

## TRANSITION PATHWAYS & ROAD-MAPS





# FOOD-ENERGY-WATER PATHWAYS

## NEXUS DILEMMAS

**MADDER** = Mutually Assured  
Disruption & Depletion of  
Ecosystems & Resources

The biosphere  
is a common  
dumping  
ground

Industrial  
production is  
wasteful &  
abusive

Eco-governance  
is abused &  
subverted

Global inequality  
drives the culture of  
materialism

Technocratic  
thinking reinforces  
extractive systems

Affluent  
consumption is  
empty &  
unfulfilling



## CONNEXUS OPPORTUNITIES

Ecosystems are signifiers  
in landscapes of meaning

The biosphere is  
protected via  
climate democracy

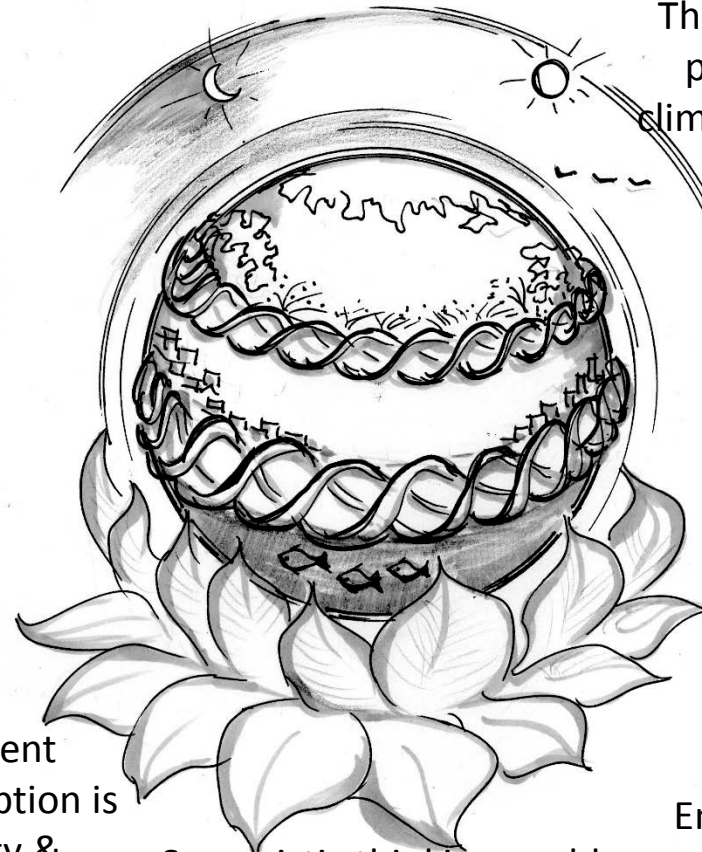
Natural  
resources are in  
stewardship

Industrial  
production is  
recirculatory

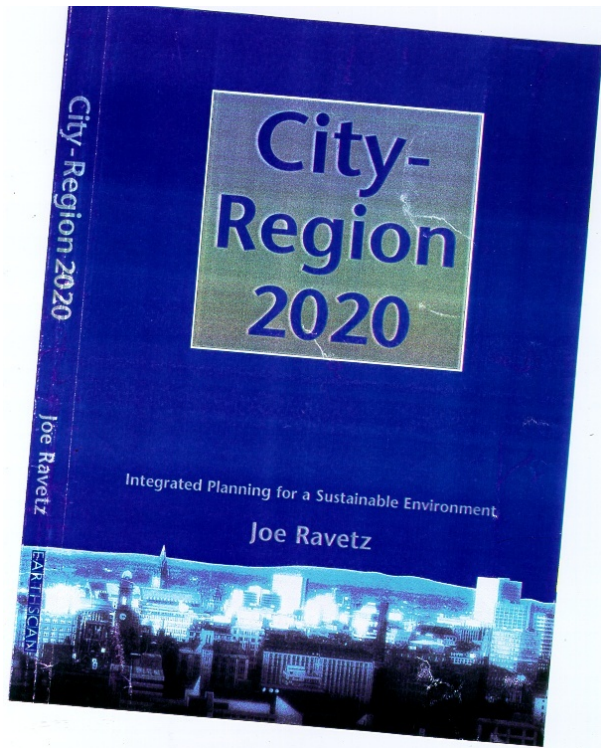
Eco-governance  
is collaborative  
& pro-active

Enhanced equality  
drives a culture of  
sharing

Synergistic thinking enables  
collaborative systems



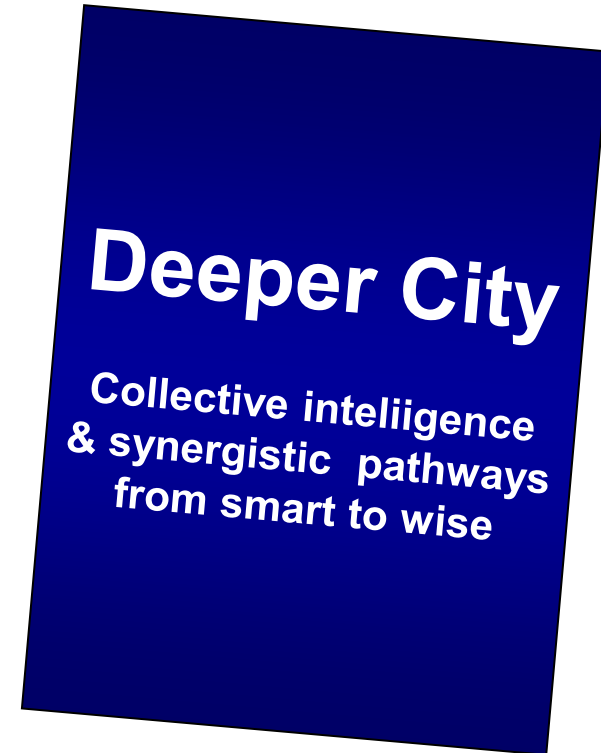
# Thinking in progress...



“World’s largest feasibility study”  
– linking spatial, economy,  
environment, society,  
governance.



“Environment and the  
City” - critical  
perspectives on the  
urban environment  
around the world



collective intelligence for  
relational cities, economies,  
ecologies, technologies & politics