



Deeper City

collective intelligence and the pathways from smart to wise



6-3

How to be cool: Climate-III

Seen from space, Arctic ice now gives way to dark open sea, another of many tipping points in what some call the greatest ever 'market failure' or collective action dilemma.¹ At the Paris Conference of Parties (COP 21), 194 nations agreed on the goal to limit climate change to 2 degrees and '1.5 as an aspiration'. In technical terms, this would rely on 'negative emissions' through 'BECCS' (bio-energy with carbon capture and storage): technically unproven, politically controversial, and demanding huge land areas and costly infrastructures.² But after the COP 21, reality soon kicked in. Within days the UK, host of the world's first national carbon budget, ended its CCS programme and most renewable subsidies, and opened up new oil fields and fracking zones.³ Elsewhere, Beijing and Delhi were suffocated by air pollution, Indonesia was choked by burning rainforests, and Rio bulldozed slums for the (high-carbon) Olympic Games. The city of Vancouver won the 'Greenest City' award, but just over its boundaries are new airport runways and shopping malls. Longer-term, even if global warming could by some unlikely event hold at 2 degrees (current trends as of 2019 point towards 3.5 degrees), it seems up to 20% of world population could be displaced by rising sea-levels, with coastal mega-cities such as Shanghai, Dhaka, Manila, Lagos, New York, London and others, all at risk.⁴ The response from some is to promote doubt and denial, with unlimited dark money for disinformation and manipulation.⁵

Figure 6-3

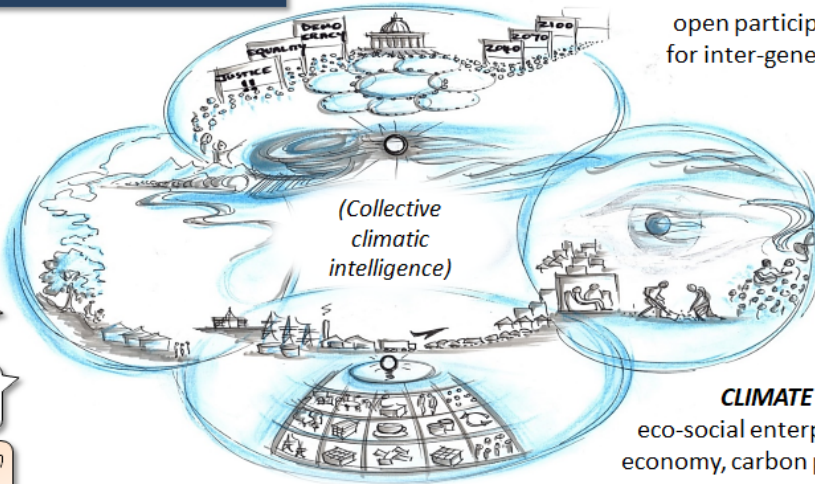
CLIMATE-III

Mapping global energy-climate syndromes & potential synergies via four structural pathways

a) ENERGY-CLIMATE CONNEXUS

CLIMATE DEVELOPMENT:
global commons stewardship & eco-restoration, via adaptive urban & rural development

Climate changes everything!!
What about human nature??
Ok that's work in progress



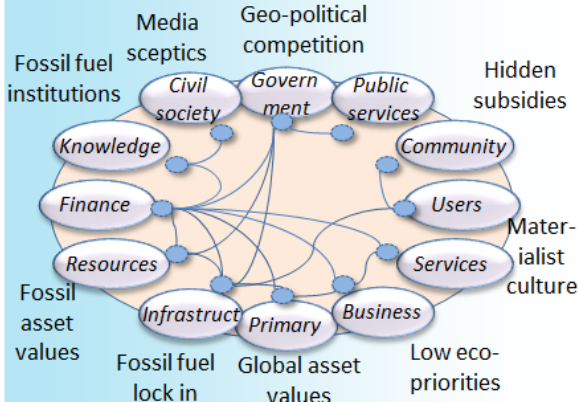
CLIMATE DEMOCRACY:
open participative co-governance for inter-generational social justice

CLIMATE COMMUNITY:
inter-generation links & networks for cohesion & stewardship

CLIMATE ENTERPRISE:
eco-social enterprise models, circular economy, carbon platforms, long finance

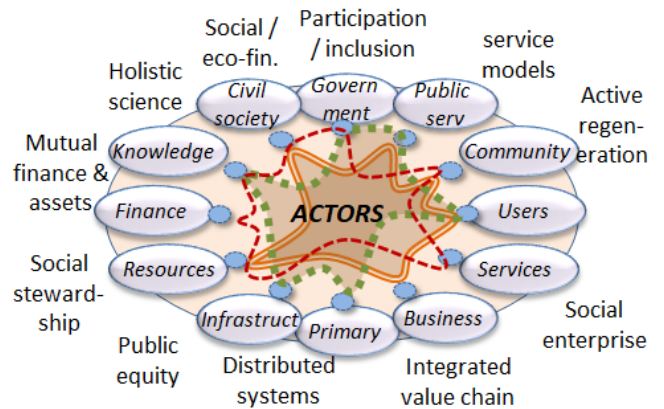
b) CLIMATE SYNDROMES-I&II

Actor mapping: typical energy-climate power structures



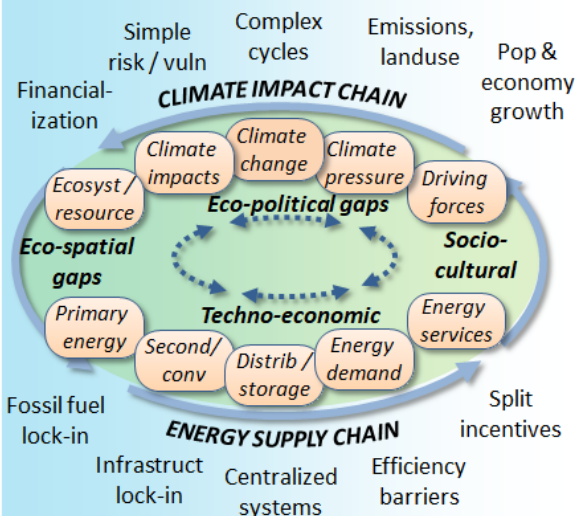
c) CLIMATE SYNERGIES-III

Actor mapping: potential climate alignments & synergies

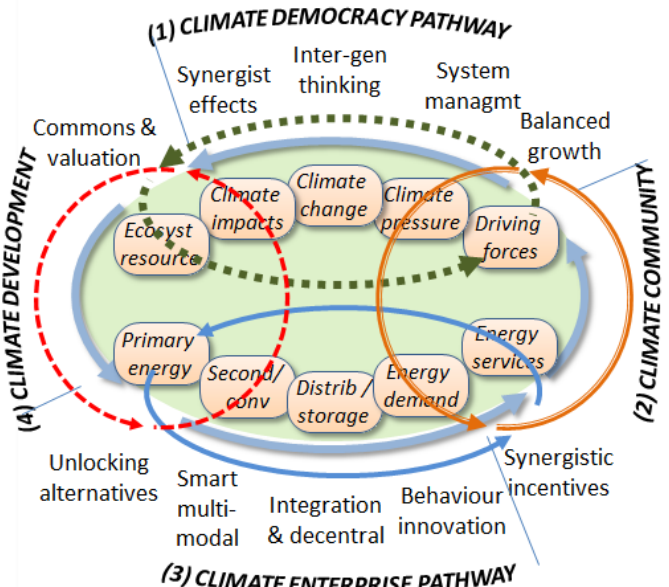


d) CLIMATE GAPS & CONFLICTS

Factor mapping: energy-climate gaps & conflicts



e) CLIMATE PATHWAYS



However, there are positive messages, from the 'Cities for Climate' campaign and others – that low-carbon cities are cost-effective and just around the corner, if we can just fix a few financial and legal gaps. New Climate Economy reports that low-carbon policies by 2050 could generate savings of US\$16.6 trillion (net present value, with unreal precision).⁶ This sounds fine in principle, until we look out the window, to cities which are endemically messed up, with near-total absence of good governance or clean money. And at the global level there are much greater dilemmas. If fossil fuels have to stay in the ground, financial assets estimated at \$21 trillion are more or less worthless, putting the entire global economy at risk: if they are burnt, the long-term damage could be 20% of GDP, also putting the global economy at risk.⁷ Even the European Commission and the OECD, not usually radical organizations, call for 'profound lifestyle changes' and 'new economic models'.⁸

How to map and navigate such a labyrinth? Synergistic thinking aims to look for *deeper* combinations of social-economic-political, and below the surface at the dynamics of alienation, corruption or inequality. Then we can look *wider* at the inter-connections of finance, infrastructure or technology, and then *further*, for upstream causes and downstream effects in the energy-climate metabolism. All this highlights the difference between 'clever' technology, or 'smart' markets, and a '*wiser*' form of governance, a *collective climate intelligence*. Then the basic questions can be framed:

<list>

- How could the global climate be managed by such a *collective climate intelligence*?
- Which synergistic pathways could mobilize this?
- And as always, how to respond to hostile and predatory forces?

This kind of thinking is starting to emerge in many places. One is 'planetary economics', with three economic paradigms, not unlike the synergistic scheme: a positive/behavioural economics (*Mode-I*), to evolutionary/neo-classical (*Mode-II*), and then a co-evolutionary economics (*Mode-III*).⁹ The point is that the climate-economics interactions can work on all three levels, and particularly that the economic dilemmas in *Mode-I* or *II* methods (such as discount rates, non-market valuations, extreme risks), can be reframed in *Mode-III* thinking as human problems with creative human responses.¹⁰

The sheer scale of this existential challenge stretches our one-page format here to its limits. But to start, we sketch a *connexus* of inter-connecting pathways in the upper part **a)** of *CLIMATE-III* (Fig.6-3). Then we explore the present-day syndromes, in simplest possible form, in the lower left (**b** & **d**). The 'actor mapping' at **b)** shows the typical (up to now) interactions of profit and power in the energy-climate system, with a corporate business model which buys governments, drives financial speculation, grabs indigenous land, locks into fossil fuels, and funds climate scepticism and denial. Then we see the basic energy metabolism, as a 'factor

mapping' at **d**), as a chain from primary resources, to secondary electricity, to distribution and storage, and then to energy demand and energy 'services'. The impacts then track around the cycle, with a cause-effect impact chain, following the logic of the 'DPSIR' scheme ('drivers-pressure-state-impacts-responses').¹¹ Here are the 'driving forces' of population/economic growth, 'pressures' from emissions, 'state' of the climate, direct 'impacts' of floods or droughts, and the downstream results or 'responses' for ecosystems policies, which then might feed back to the energy resources at the start.

Managing such a cycle should be fine in principle, balancing the energy supply chain with its climate impact chain. But in practice there are gaps and barriers and syndromes everywhere. The mapping shows these clustered in the four main parts of the cycle. The *political-ecology syndrome* (1) starts with the 'tragedy of the commons', scaled up to where ecosystems and their services are run by political myopia, corporate capture and social divisions.¹² Then comes a *socio-cultural syndrome* (2) on the energy demand chain, where social inequality, addictive consumption and industrial alienation, all contribute to climate denial and self-destruction. Also on the demand side, the urban building stock is typically messy and disorganized, with lock-ins, split incentives and resistance to change.

Third, the *techno-economic syndrome* (3) is about the energy-industrial supply chain: here are innovation hurdles, sunk assets in fossil fuels, and the destructive logic of short-term finance. Fourth, the *eco-spatial or urban-rural syndrome* (4), focuses on energy resources and ecosystems themselves, and implications for land and territorial development, as seen in **ECO-URBAN-III** (Fig.6-2).

The overall picture shows energy supply chains and climate impact chains which are highly extractive, dysfunctional and lacking essential loops for learning and feedback. There are profound schisms between different parts of society, well-intentioned policies are subverted or hijacked, and an attempts at carbon management or trading or offsets turn into a game of speculation and land-grabbing.¹³ And then come the 'crunch' questions on power and money, where any real climate pathway will be a game-changer, likely to disrupt geo-political power, business models, capital assets, industrial dynasties, professional skills, property values and (not least) local jobs. There will be determined resistance to change from all these and more. The likely responses range from co-option and collaboration, to competition, subversion, confrontation, or just 'build a new system'. Just as the 19th century campaign against slavery was won (more or less) against every kind of opposition, the 21st century battle of *WISER* versus *MADDER* could have an outside chance. It may be that climate 'changes everything', as enabler and catalyst for social, economic and political transformation.¹⁴ Or maybe we need the wider transformation first; or, we look for synergies between climate change and other changes, economic, political and 'societal'. And while it's not difficult to calculate energy and carbon in great detail,

societal change calculations or projections are near impossible, so we need other means of collective mapping and design of the pathways ahead.

Climate-III pathways

All this is sketched on the right (*c & e*) of **CLIMATE-III** (Fig.6-3), with pathways from 'syndromes' to 'synergies'. Here we look beyond the normal limits of climate science, policy or economics, up to now based on functional *Mode-I* thinking, or evolutionary *Mode-II*. With the *deeper-wider* scope of co-evolutionary *Mode-III* thinking, we can explore the scope and possibility of a *collective climate intelligence*, as the enabler for a more ambitious transformation. Four clusters of pathways then follow from the syndromes above, now titled 'climate-democracy, community, enterprise and development'. These aim to bridge the most pressing gaps with the most likely synergies: they are not silver bullet answers or checklists, more like the start of a new kind of journey.

Underlying each pathway are *deeper* layers of culture and psychology, where the psycho-therapeutic approach helps to understand the *MADDER* logic of self-destruction, and then respond with *deeper* forms of knowledge-into-action, as in **SCIENCE-III** (Fig.7-6). The dynamics of global climate management may yet emerge through *deeper* myths and archetypes, such as the gift of fire, the story of redemption, or the cycle of destruction and rebirth, as explored in the *Mind-Games* of Chapter 11.

Climate democracy pathways

With a logic of *social-political synergies*, these pathways focus upstream of the energy supply chain, and downstream of the climate impact chain. Where indigenous people are displaced by energy or mineral extraction, or where farmers lose their livelihood by flood or drought, there's an over-arching case for energy and/or climate justice, and the democratic system to underpin it. In human rights terms, every community should have a stake (economic, political, social), in 'their' resources, energy, land and livelihoods. But this raises huge questions: who is the community? Who speaks for them? And who decides what is 'theirs' in a world of conflicting claims, of migration and displacement and international trade? There are great examples of indigenous peoples facing big corporations alongside eco-activists (a very high risk profession), but there are other more tricky questions, such as

indigenous communities in nature reserves, or local opposition to windfarms, or the human right to drive a car or fence private property.

It seems that democracy and/or social justice, as debated in *POLITICALS-III* (Fig.8-7), is a many-layered basket of principles and critiques.¹⁵ At the core, from a political ecology perspective, energy and climate change are all about power and inequality. On the global scale, rich nations have (mainly) caused the problems which poor nations suffer, now or in the near future: in the UK the poorest 10% pay twice the energy tariffs of the richest, while in Africa oil extraction has poisoned and displaced whole peoples.¹⁶ So in principle, the human rights of communities large or small, are balanced with the rights of energy suppliers upstream and users downstream. The basic idea was accepted at the COP 21, of balance and reinvestment between developed and developing nations, but this is easier to say than do, and progress as yet is painfully slow. It seems that climate democracy is a process more than blueprint, which has to work by open debate and transparent accountable government. So again, we fit the climate agenda into a *deeper-wider* societal transformation: as in *POLITICALS-III* we look for 'co-organizations', multi-level 'co-governance', co-production in public services, and collaborative-co-creation or '*Co-opolism*'. The implications are huge: energy corporations could or should be re-mutualized, land could be resocialized as a common resource, climate refugees could sue the developed world in mass actions ...

Climate community pathways

With the 'tragedies of the commons' both local and global, with nationalist politics and toxic effects of shadow finance and dark data, all might seem impossible. But if social norms and cultural narratives can be mobilized, to steer towards mutual aid and social learning, i.e. *collective climate intelligence*, there may still be a chance. Ostrom's 'institutional design' approach aims to build or rebuild collective norms and rules, which can work well for local or maybe regional ecosystems.¹⁷ But for the global commons we are just beginning to map possible pathways, from the 'tragedies' to the 'opportunities' of the commons (see *DEEPER-MIND-III*, Fig.9-1). These pathways follow the potential *socio-cultural synergies*, and look for societal structures with *deeper* layers of value and logic, with *wider* communities of interest, and with *further* horizons from upstream to downstream.

Practically, there are potential value-added links between climate insurance and social insurance, or between climate damage and forward investment. This could start with the social diaspora: globalized cultures and communities are more than ever networked, and with friends or relatives in climate vulnerability, there's more reason to consider their security and prosperity. On the basis of '*six degrees of*

separation', social platforms could promote *'three degrees of connection'*, and the inter-dependencies between people, countries, climate and lifestyle. Similar principles work for CSR in niche markets of organic food, clothing, sport or tourism, looking for the vital shift from eco-consumerism towards real climate investment. The potential for inter-generational insurance/investment was explored in **FINANCE-III** (Fig.5-5), as a *wider* question on the 'willingness to pay' for the benefit of grandchildren, and a *deeper* question of psychology and culture.

Climate-enterprise pathways

With a logic of *technology-economic synergies*, these energy-climate industrial value chains start with fossil fuel assets, with current proven reserves valued at \$21 trillion, and a near-total lock-hold on firms, technologies, investors and governments.¹⁸ Most current policies cover *Mode-I* type taxes or subsidies, or evolutionary *Mode-II* markets and trading systems. Each aims in some way to adjust prices of climate emissions or investments, for a) 'social cost' of impacts, b) 'social price' of the transition or c) other redistribution, compensation, subsidy or investment. But reality is never simple. While in principle the economic logic seems clear, the practice is full of unresolved questions, such as long-term discounting, or non-market valuation of ecosystems.¹⁹ And the economics often misses the political realities – governments which raise fossil taxes rapidly turn unpopular, both with citizens and the corporates which fund them. While cheaper renewable energy is now growing rapidly, so are new resources of conventional/unconventional fossil fuels, in both rich and poor nations, even while smart entrepreneurs profit from climate disruptions.²⁰

On the general principle of building synergies, here is a shortlist of components, with potential inter-connections and synergies all around (see also the cartoon in **FINANCE-III**, Fig.5-5):

- Upstream resources and financial instruments;
- Energy infrastructures and political economy models;
- Industrial production, supply chains and technologies;
- Technology innovation processes, skills, organizations ;
- Downstream markets, demand side and life-cycle effects;
- Longer-term issues of competitiveness or macro-economic balance.

To work with this level of complexity, the *climate enterprise pathway* looks for *deeper* layers of value, *wider* communities of interest and *further* upstream/downstream links. With a focus on the system learning and thinking capacity for transformation, i.e. the *collective climate intelligence*, new possibilities can emerge, avoiding the pitfalls of emissions trading or tax/subsidy. In practical

terms, social-cultural narratives can help with technology innovation barriers, crowd-platforms can help to balance market demand, digital block-chain systems can help with re-investment loops and so on.

'Futurity' is a cross-cutting theme for the whole climate agenda: with *deeper* layers of futurity we can begin to unlock inter-generational finance and mobilize climate-related collateral, with climate bonds or 'carbon mortgages'. Workers can then invest tax-free in their grandchildren, or pension funds can invest in their members' well-being. Forward-thinking governments can sponsor strategic procurement or sovereign funds, while local communities mobilize their collateral in property or land values for social energy schemes. Housing energy retrofit, currently in the UK in stalemate, can be a zone of advanced eco-urban markets, linking technology and finance with social and community innovation. A '*Climate Collaboratorium*' ('laboratory of collaboration') is where firms and entrepreneurs can build synergies with customers, or financiers compare notes with builders, as part of a larger **MULTI-VERSITY** (Fig.10-4).

Climate developmental pathways

These value-cycles start and end in cities and city-regions as the locus of energy demand and climate vulnerability, based on the logic of *urban-social-economic synergies*. But this isn't simple: inertias, lock-ins, split incentives, power games, ideological battles and simple chaos all showed up in **RETROFIT-III** (Fig.4-4) and **ECO-URBAN-III** (Fig.6-2). In the UK (at the time of writing), there's an austerity funding crisis, climate-sceptic media, construction skills gaps, privatized energy firms, social fragmentation and Brexit chaos, to name just a few challenges.

However, it seems that cities can lead the way, as shown by the networks of C40, Carbon Neutral Cities Alliance, Global Covenant of Mayors and the 100 Resilient Cities, to name a few. In principle, action would start with 'deep retrofit' of existing buildings, technically feasible and in principle cost-effective up to 80% CO₂ reduction, as in **RETROFIT-III**. In practice there are many gaps and barriers, not only for the details of landlords and tenants, but on the system level: basically, neither public or private sectors are geared up to work with complex messy systems, such as a whole urban building stock, or a local economy. Similar kinds of gaps and barriers apply to renewable energies, construction materials, materials and waste, farming and food chains. So the implication is that progress depends on new systems for learning and thinking, which then translate into new kinds of organizations, markets, finance or social action.

Some possible ways forward came up in *ECO-URBAN-III* (Fig.6-2), on the policy cycle, and local-global links. Here we could push further on the local development agenda as in *LOCAL-ONOMICS-III* (Fig.5-2), the resource flows in *CIRCUL-ONOMICS-III* (Fig.5-3), and/or the governance agenda in *MULTI-LEVEL-III* (Fig.8-2). In Manchester for example, there are schemes emerging at every level, from local carbon cooperatives and demonstrations, to city-wide energy consortiums.²¹ The logic of energy services or ‘nega-watts’, works well in larger complexes, but less in the majority of small-medium buildings with transaction costs, asymmetric information and landlord/tenant split incentives. So, there is huge potential if such gaps and market failures can be bridged. Upstream providers could inter-connect with downstream residents with integrated retrofit and micro-generation packages. Mid-stream energy distributors can benefit from the community collateral which underpins local carbon bonds and mortgages. All this could be helped by *smart-wise* energy platforms, using block-chain or similar technology. But over-arching this is the agenda for a *collective energy intelligence*, learning and thinking with all social, technical, economic, cultural and political layers.

Overall, these pathways are experiments and debates for a very uncertain future. Now could be the time for the co-evolutionary leap towards the *collective climate intelligence* needed to collaborate, to survive and prosper on one planet. But if as it seems, climate change is already in motion, the next question is how to adapt and thrive, in the coming ‘apocalypse soon’ of flood and fire ...

Notes

¹ Giddens 2009; Hulme 2013

² Anderson 2015

³ Fracking = ‘Hydraulic rock fracturing for shale gas extraction’

⁴ Clark et al 2016

⁵ Mayer 2016

⁶ Gouldson et al 2016

⁷ WEC 2016

⁸ www.theguardian.com/environment/2016/feb/15/europe-climate-change-goals-need-profound-lifestyle-changes-european-commission

⁹ Grubb, Hourcade & Neuhoff 2014

¹⁰ Scricciu, Barker & Ackerman 2013

¹¹ EEA 1995

¹² Hardin 1968

¹³ Lohmann 2006

¹⁴ Klein 2014

¹⁵ Heynen, Kaika & Swyngedouw 2006

¹⁶ Ali 2009

¹⁷ Ostrom 2005

¹⁸ WEC 2016

¹⁹ Scricciu, Barker & Ackerman 2013

²⁰ Funk 2014

²¹ www.carbon.coop, <http://gmlch.ontheplatform.org.uk/>