



Strategic Sustainable Planning De-growth & Redirections

Post Oil Settlement in BC
A 2010 Initiative

SSP 31



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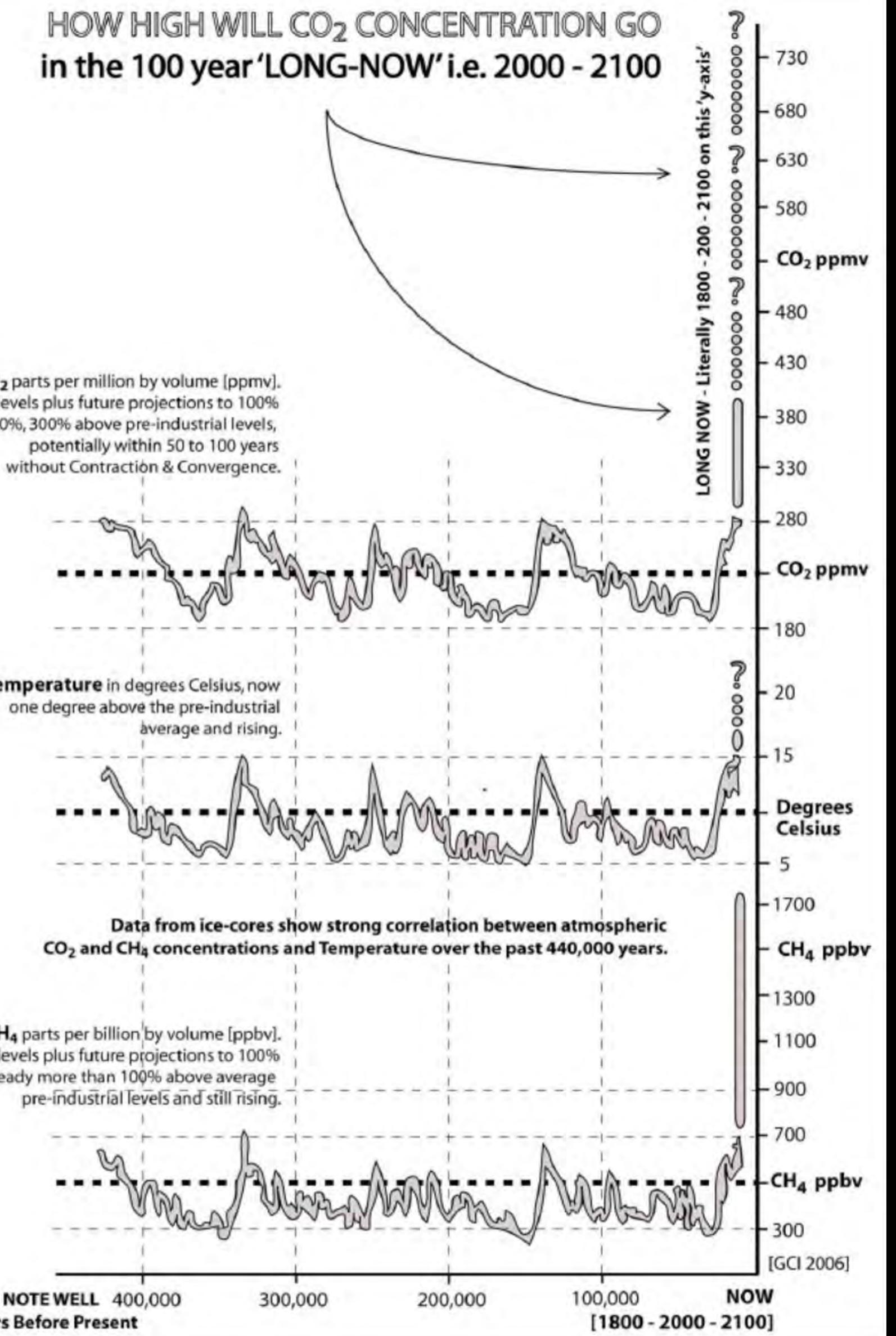
Planning Advocate Urban Design Transportation

Planning for Oil Shock: New Patterns of Community for Real Sustainability:



the 3 R's Rapid Radical Resource Poor

The Manual from
Old City Foundation Press
Vancouver
Planning Commission Gaming for Global Impacts on City
& Culture



Peter Saloni

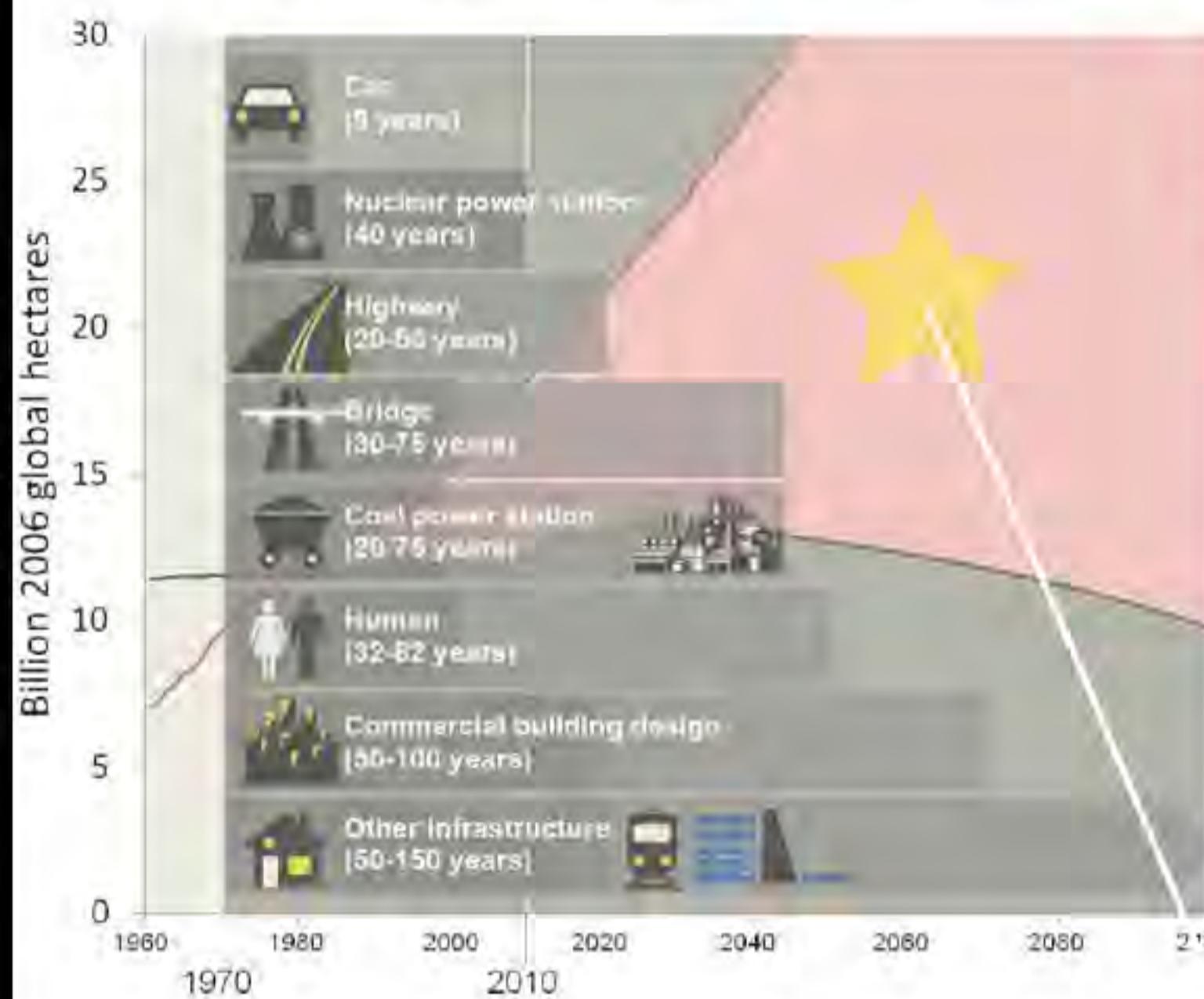


This is NOT
our future...

Outline Part One: Context

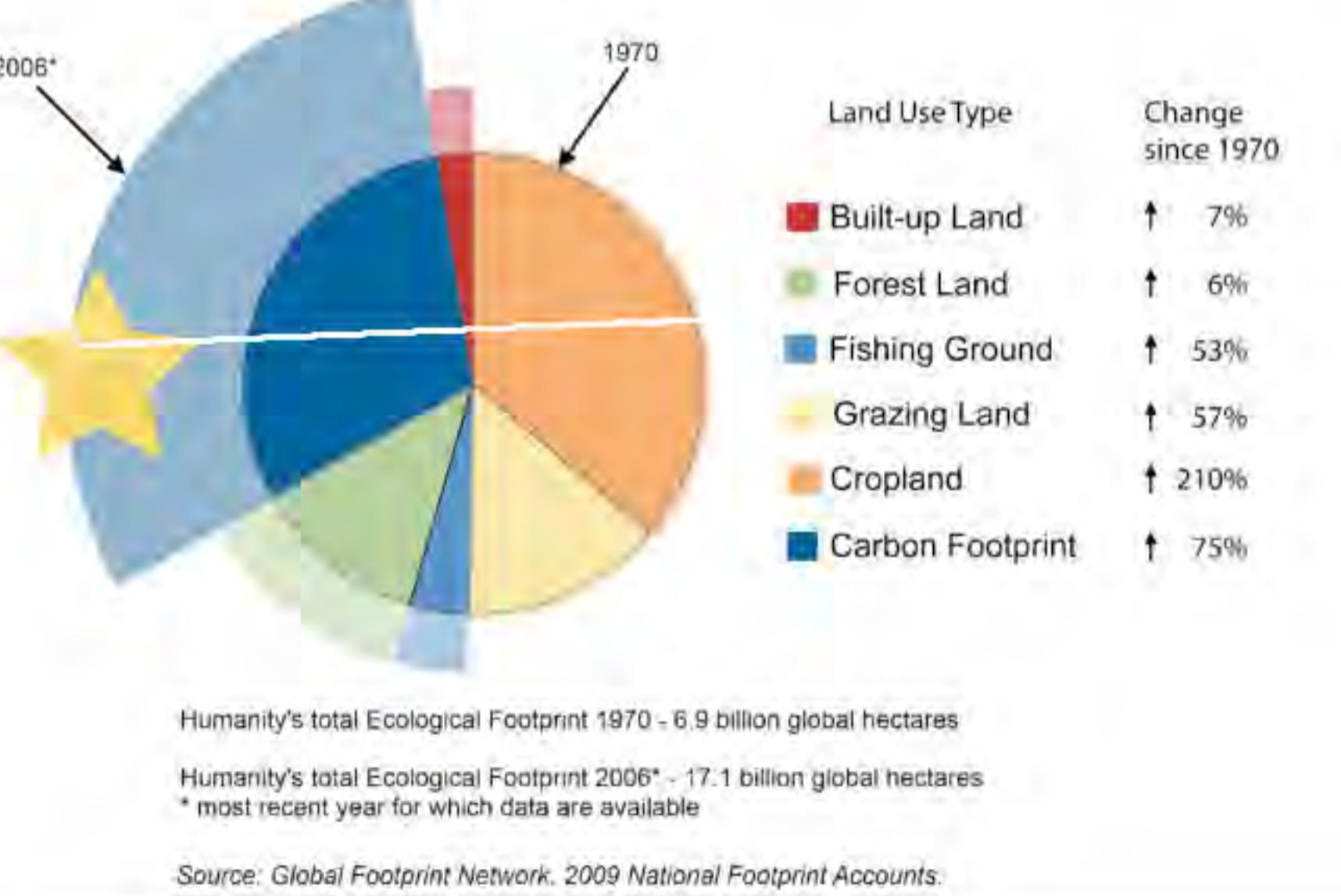
- 1. The Issue of Overshoot: why in human terms? Cheap Energy.
- 2. Peak Oil with other global impacts must create Extreme Societal shock, starting with food shortages, job losses, tax base erosion.
- The following graphics show the change in assessing Global Impacts just since 2005 to 2010. (The SSP series/Vancouver Planning Commission and others.)

Average lifespan of people and infrastructure



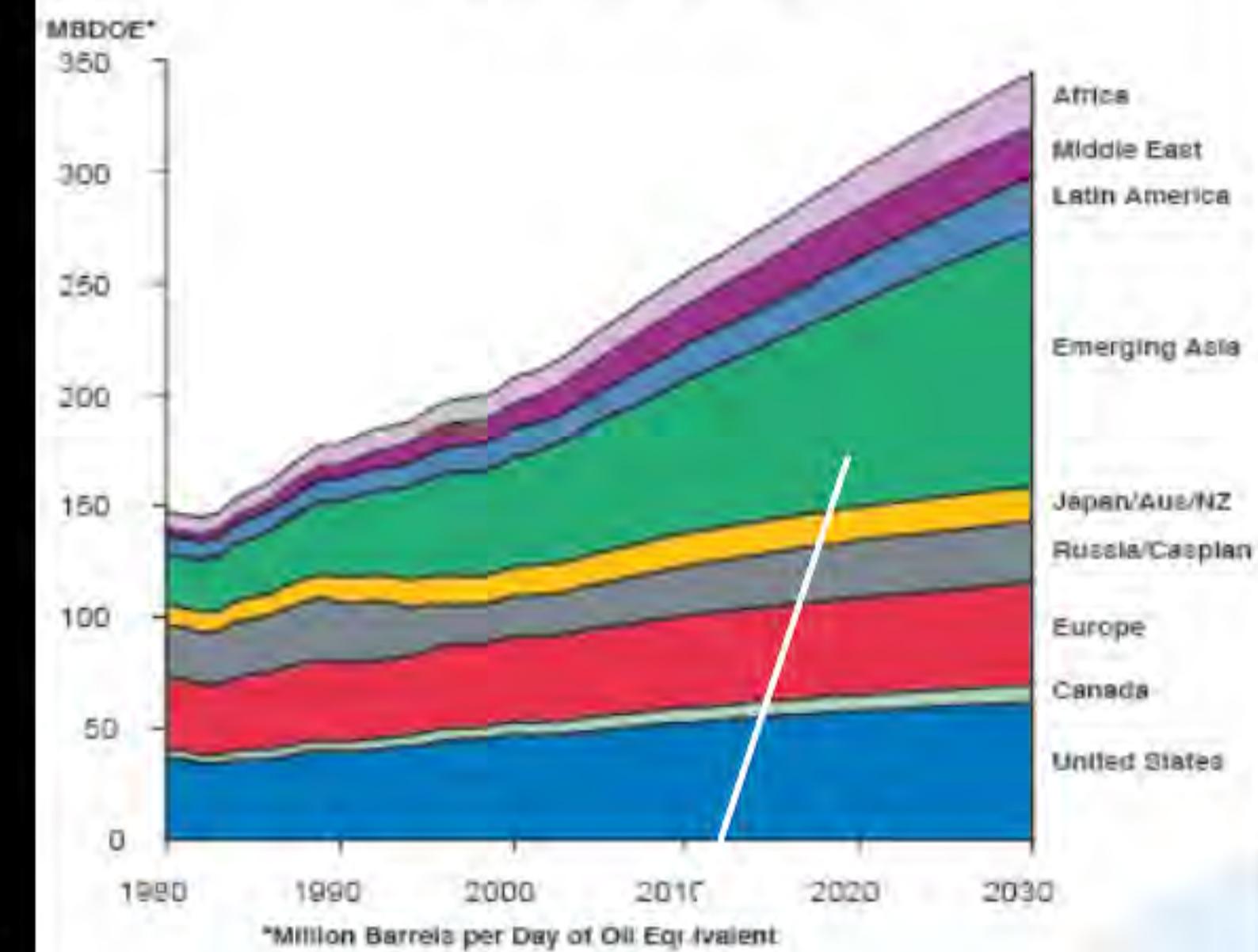
Critical Timing

Increase in the Ecological Footprint by land use type, 1970 and today

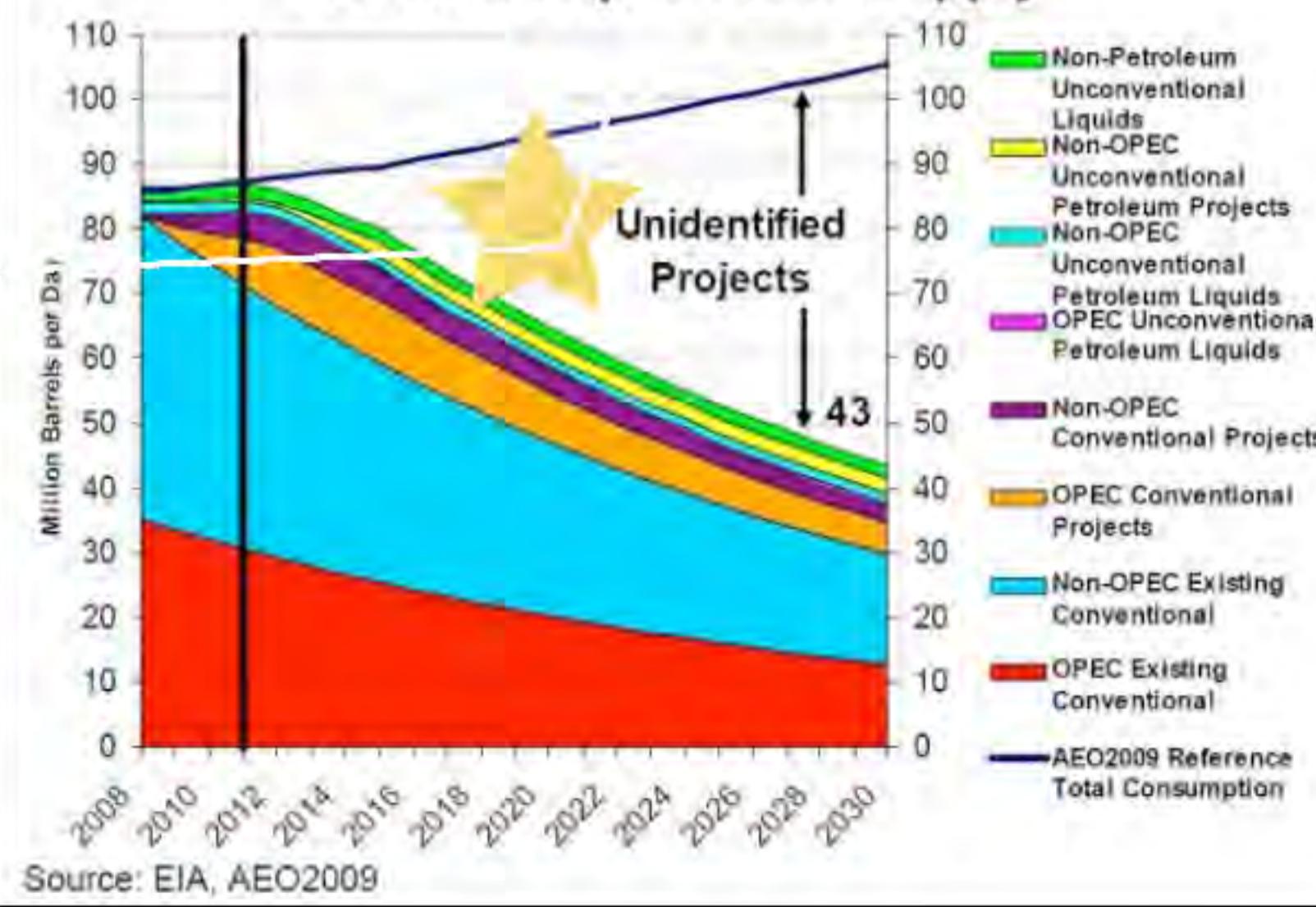


These factors can not all play out

World Energy Demand



World's Liquid Fuels Supply

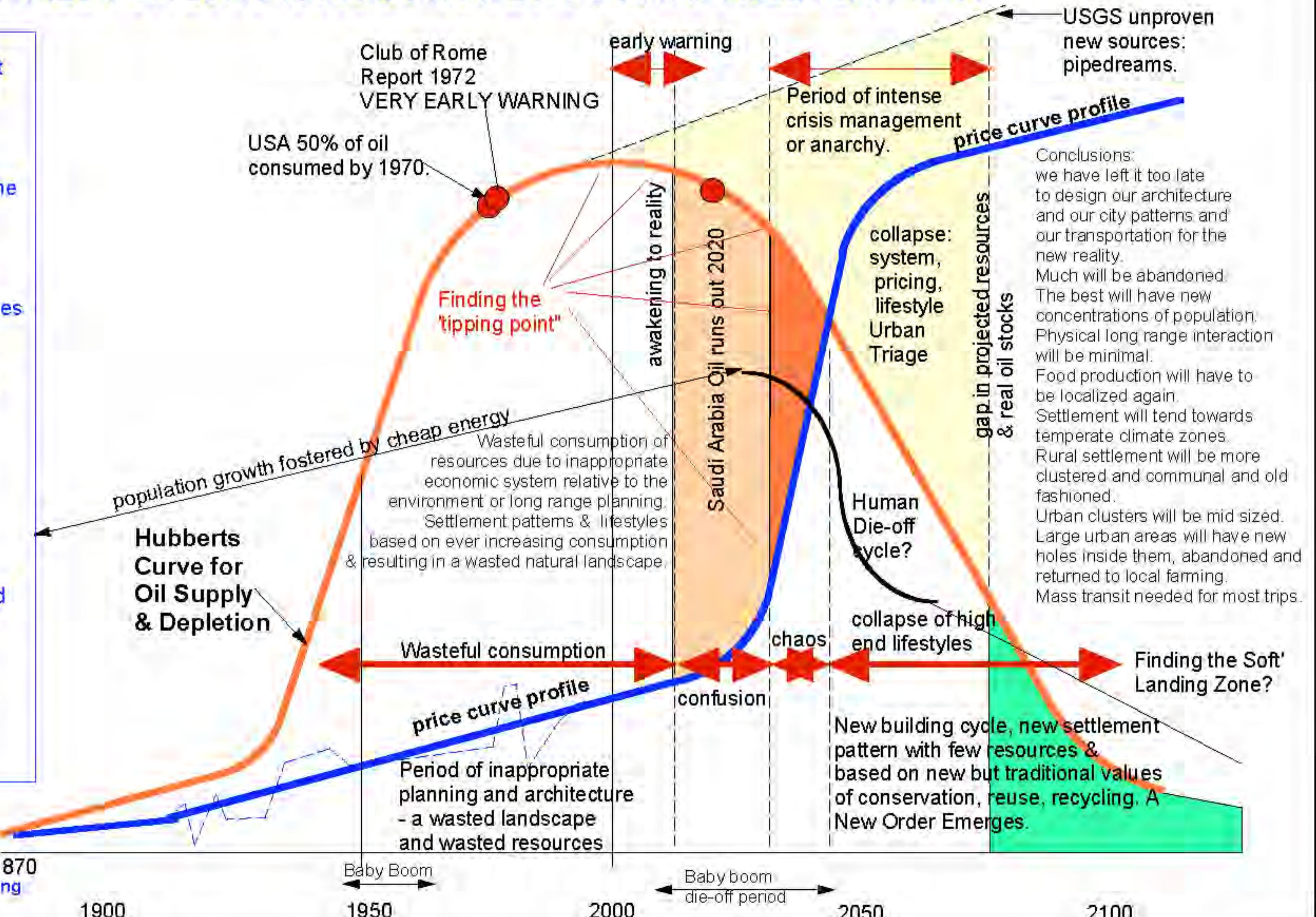


Hubbert's Curve & Sociology Strategic Sustainable Planning 2005

THE DEPLETION OF RESOURCES & THE IMPACT ON PATTERNS OF HUMAN SETTLEMENTS: THE NEED FOR LONG RANGE STRATEGIC SUSTAINABLE PLANNING.

We are neglecting the design of appropriate patterns of settlement & transportation systems for the fast approaching new reality of energy scarcity & resource depletion.
 We need strategies to deal with the following new realities:

- settlements will tend to be located in temperate climate zones & on higher ground.
- large sections of our existing cities will be abandoned as they are unsustainable. New appropriate concentrations of population will emerge as physical long range interaction becomes minimal.
- food production will return to restricted smaller areas and serving local needs.
- mass transit will be used for inter and intra city movement of people & goods.
- settlements will be compromised of smaller towns, smaller houses & narrower streets.
- localized industry, farming & market return. Proximity to food production, social networks & natural reserves will mark points of new community.



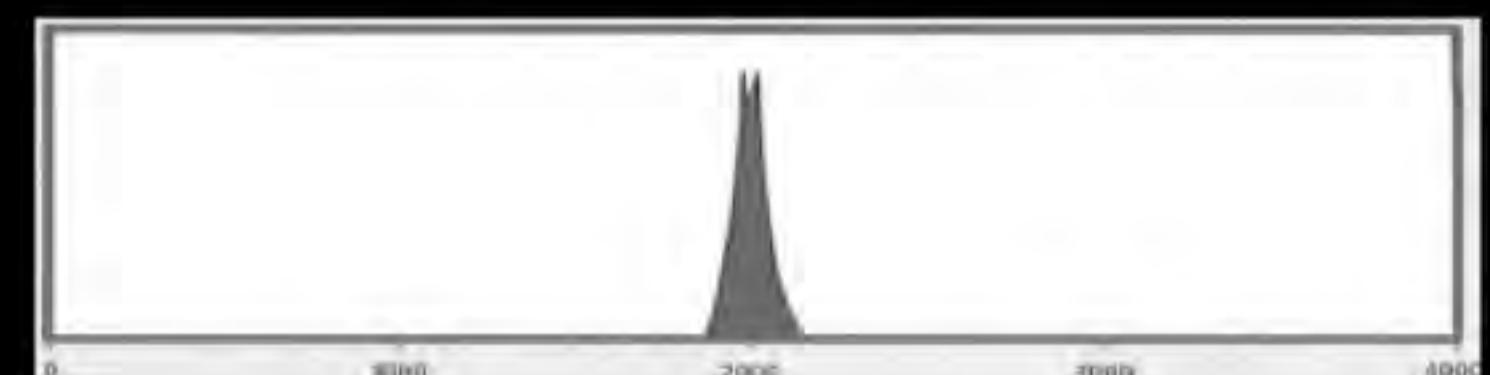


Our Point in Time:

Oil Curve in relation to history:



Human Population too?????

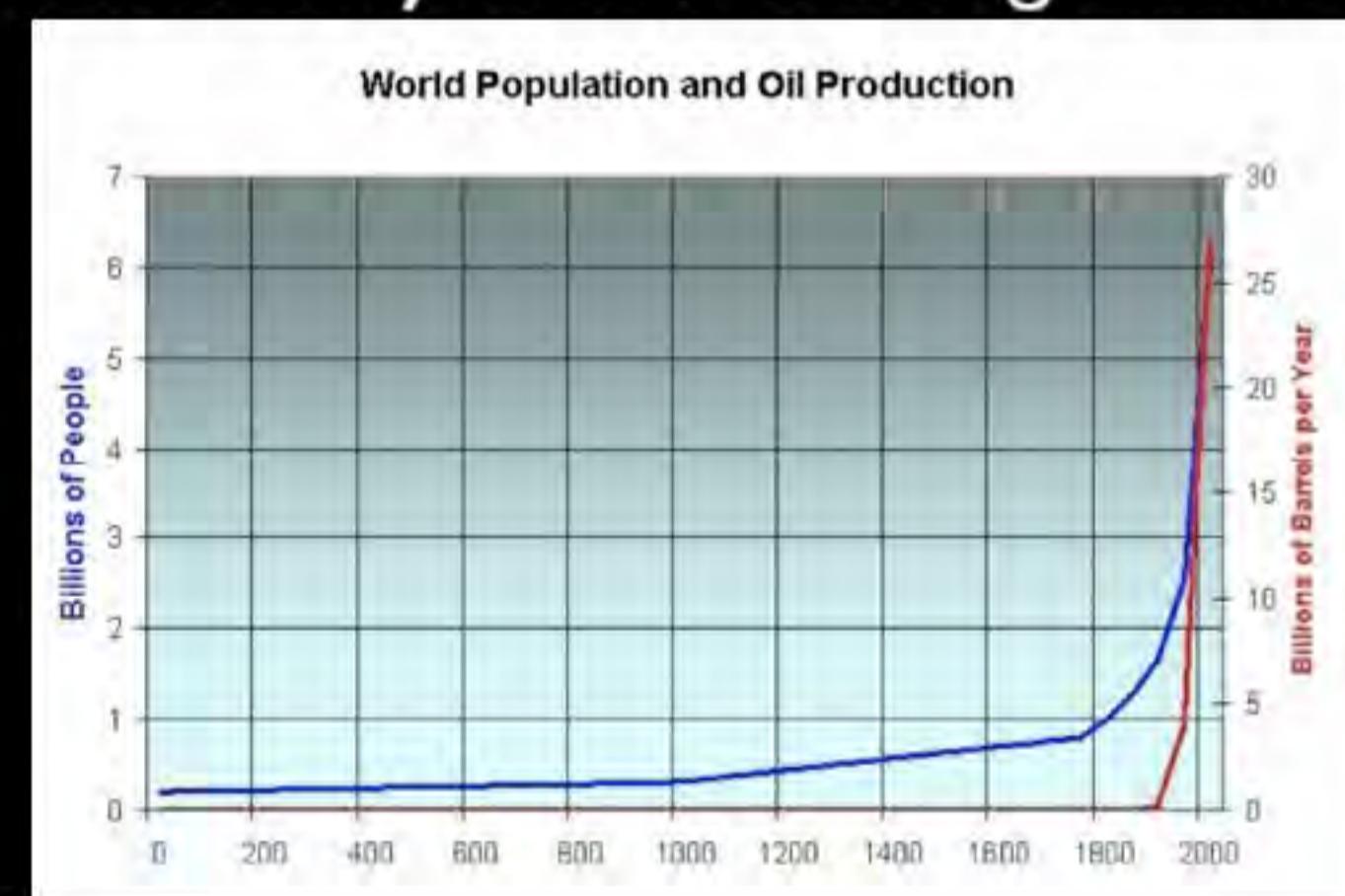
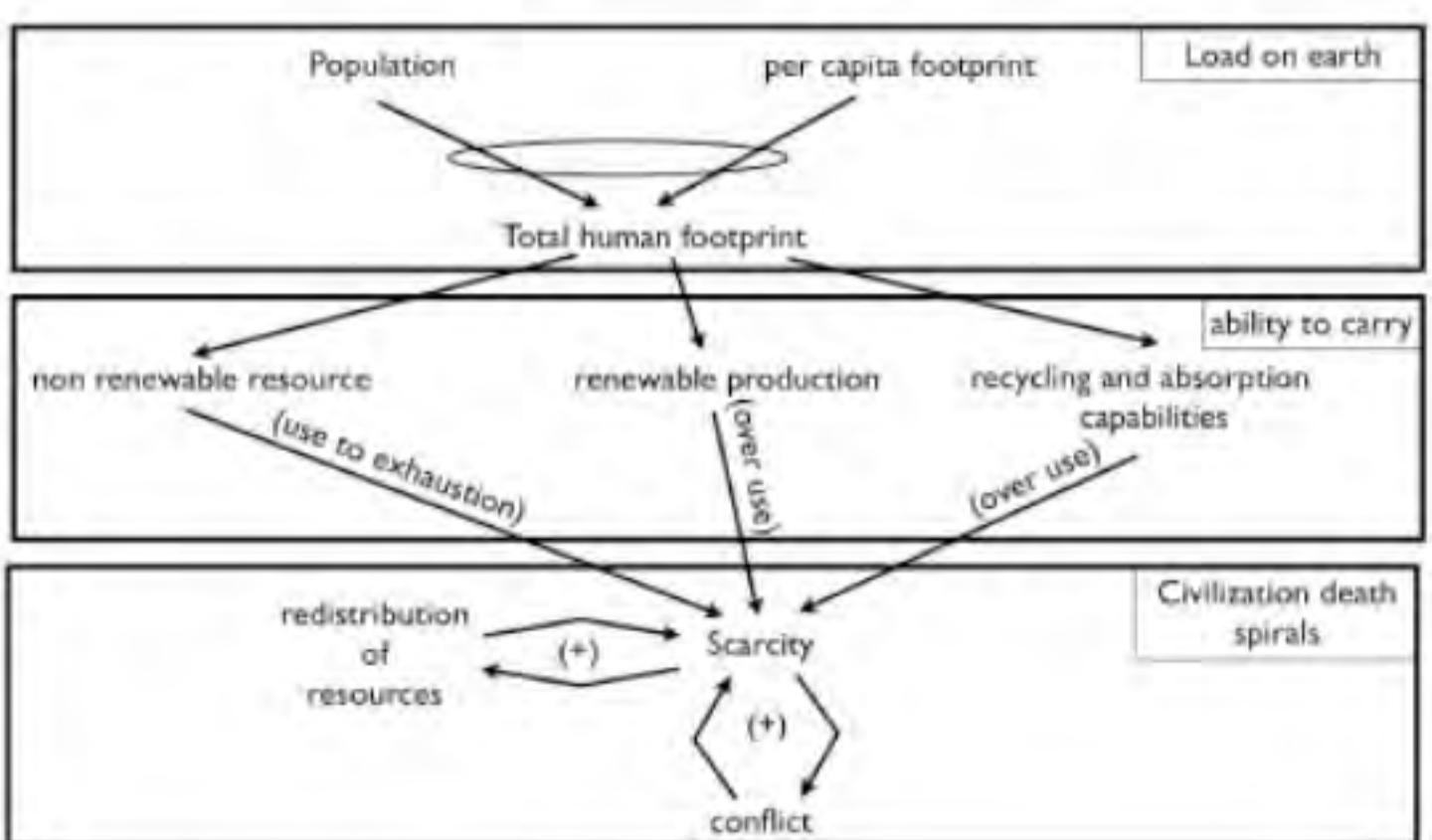


Current Culture and Civilization is blip in geological time.

We have harvested 500 millions of years of stored solar energy & wasted it.
The human population explosion matches Hubbert's Curve on oil consumption.

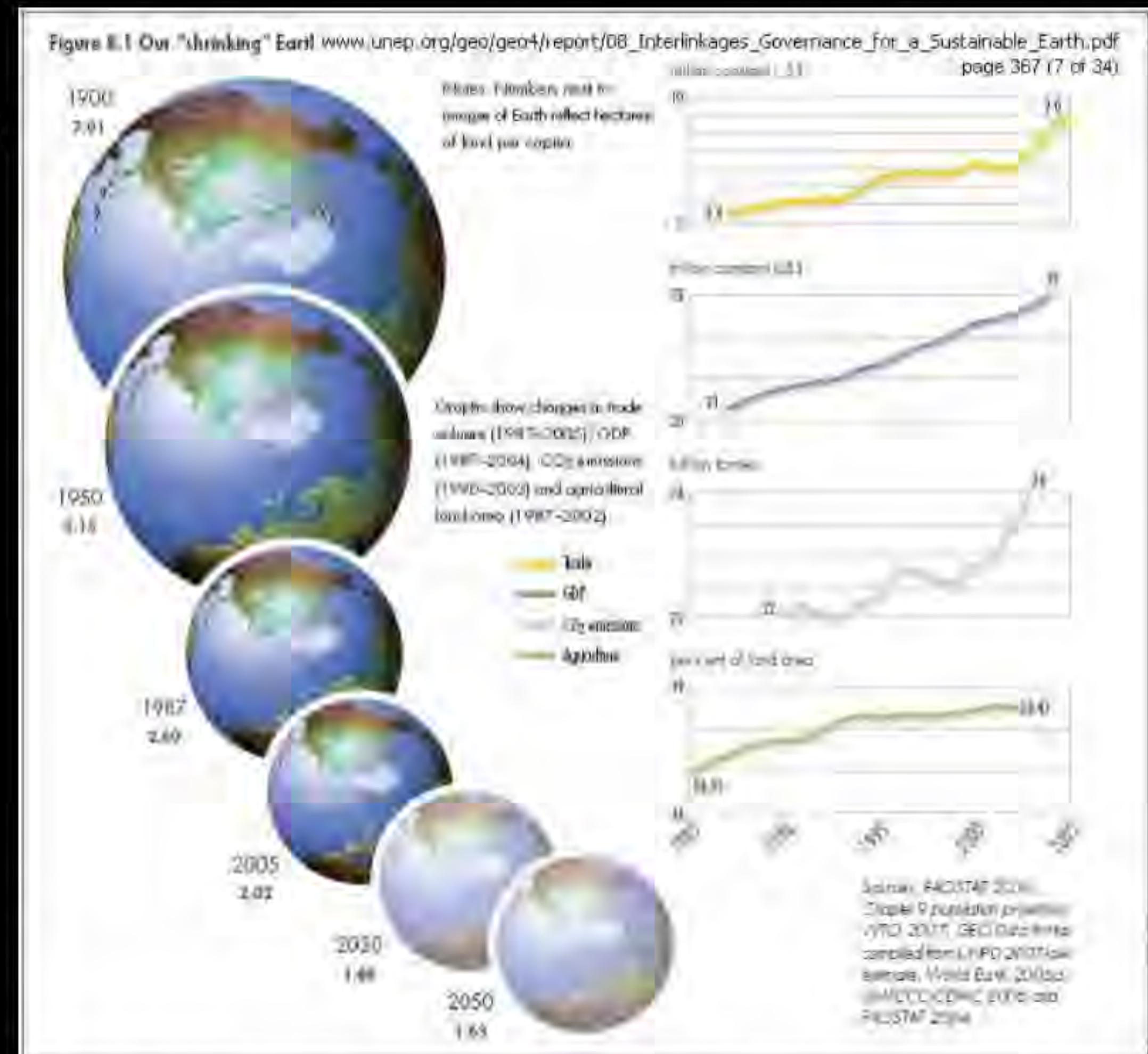
Our numbers pretty well have to follow the oil depletion curve down.
Technical Solutions for energy replacement are not enough, nor reliable.
How do you follow the graceful adjustment and find a soft landing spot?

How Civilizations Collapse



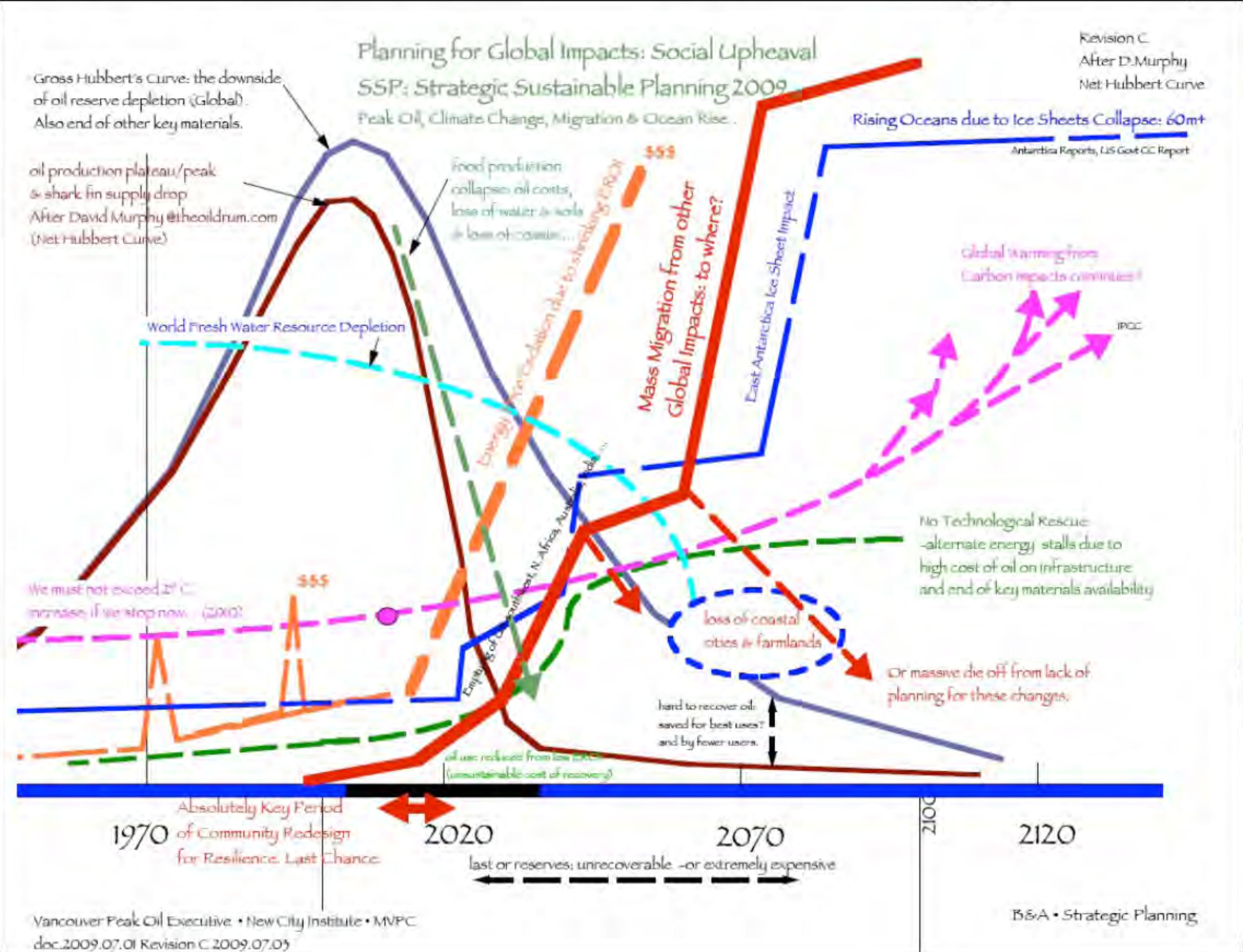
Global Impacts 2010+

- Peak Oil: the end of cheap energy, failure of urban structure. Since 2005 the oil supply curve and EROI have steepened; end of supplies will happen sooner and energy price shock arrives earlier.
- Climate Change: loss of food & water, mass migration starts.
- Ocean rise: unknown extent and timing, just another factor.



Shrinking earth via over consumption

Combined Planning Impacts: updated



Adjustment period for any soft landing is now much shorter: options are reduced the longer we put off needed action.



Macros of Global Shifts: Post Oil, Climate Change Quantum Planning 2050.

Redefining your image of our Earth.

perceived best
refuges are
overrun?

loss of coasts
& cities

perceived best
refuges are
overrun?

Tropics are evacuated
due to just heat, lack
of fresh water

growing
deserts

migration, or
invasion?

Amazon lost, then
sea rise with deserts?

Sahara Desert leaps
Mediterranean Sea

Most ocean
islands lost

Loss of Atlantic
Conveyor?

perceived best
refuges are
overrun?

Indians: turn
to north &
take to boats..

perceived best
refuges are
overrun?

arrows= local
& global migration

How to fit a growing population into a shrinking sustainable land base? You cannot.
Current Linear Planning, or Business as Usual is now a waste of time and dangerous.

Pattern of Community Related to Energy

Finding the Stable Glide Path:

Taking control to achieve a Soft Landing

Cheap Energy Availability Curve

Peak Oil, 1970-1990's at latest

Adjustment to loss of resources: optional paths

How all of this affects Urban Planning:
we are not doing any yet to deal with
this in any effective manner.

Translation, impact on planning
& architecture: the circles represent
totally different cities in form, uses,
sustainability of both, lifestyle,
mobility patterns, livability etc.
• Strategic Sustainable Planning
has to addresss the required changes
to the whole pattern of community
in all those areas for our culture
to prosper or even survive.

Towns before
cars & sprawl

Hubberts Curve: Oil Peak
but also overall energy availability.

1870 1900

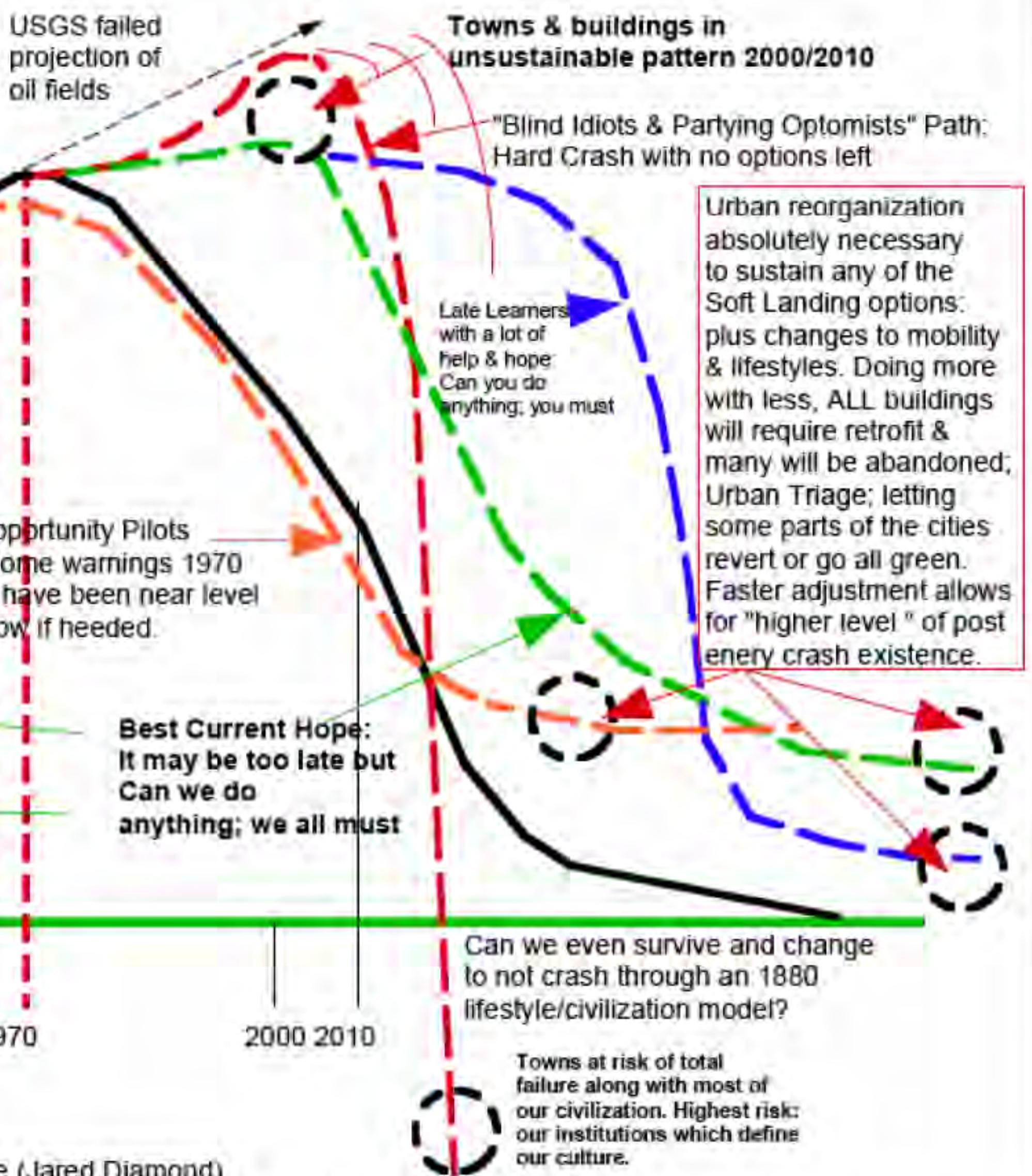
cultural/energy baseline: Pre-oil

Social Psychology: slow learning and adaption is near impossible (Jared Diamond)

No weaning from cheap energy; we can only adapt to a crash condition (No pilots, only navigators yelling help)

To put us on a safe glide path, we all have to wake up and take charge of the plane.

- It cannot be the work/fault, responsibility of the other guy; it will take all of us to protect our culture from impact.



Strategic Sustainable Planning
Vancouver City Planning Commission
2005.09.16 rb/bca-sp

MOVEMENT:

Needed:
Rapid & radical
change to the
pattern of
community.

Not small steps
and don't take
too much time
talking.

Rising Awareness: Moving to Actions beyond Planning.

2005: Peak Oil and Climate Change were starting to become issues in the public realm but with much resistance & persistent denial from vested interests and amateur skeptics.

2010: Now we move into dealing with the problem and looking at solutions: how does EROI affect food, cities, jobs, survival.

2011+: Secondary impacts arise: mass migration, wars over the diminishing resources, what extent do rising oceans impact us.

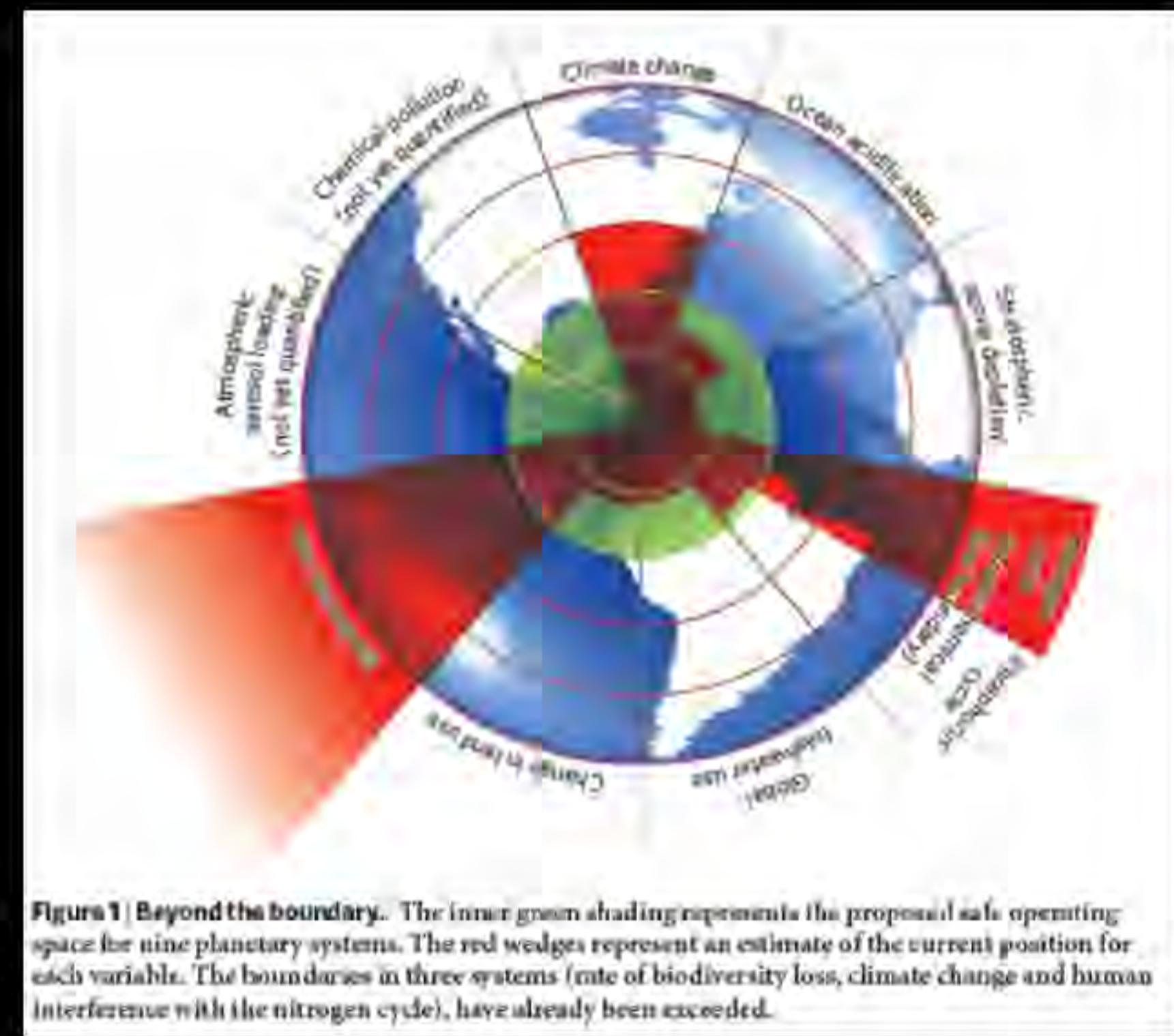
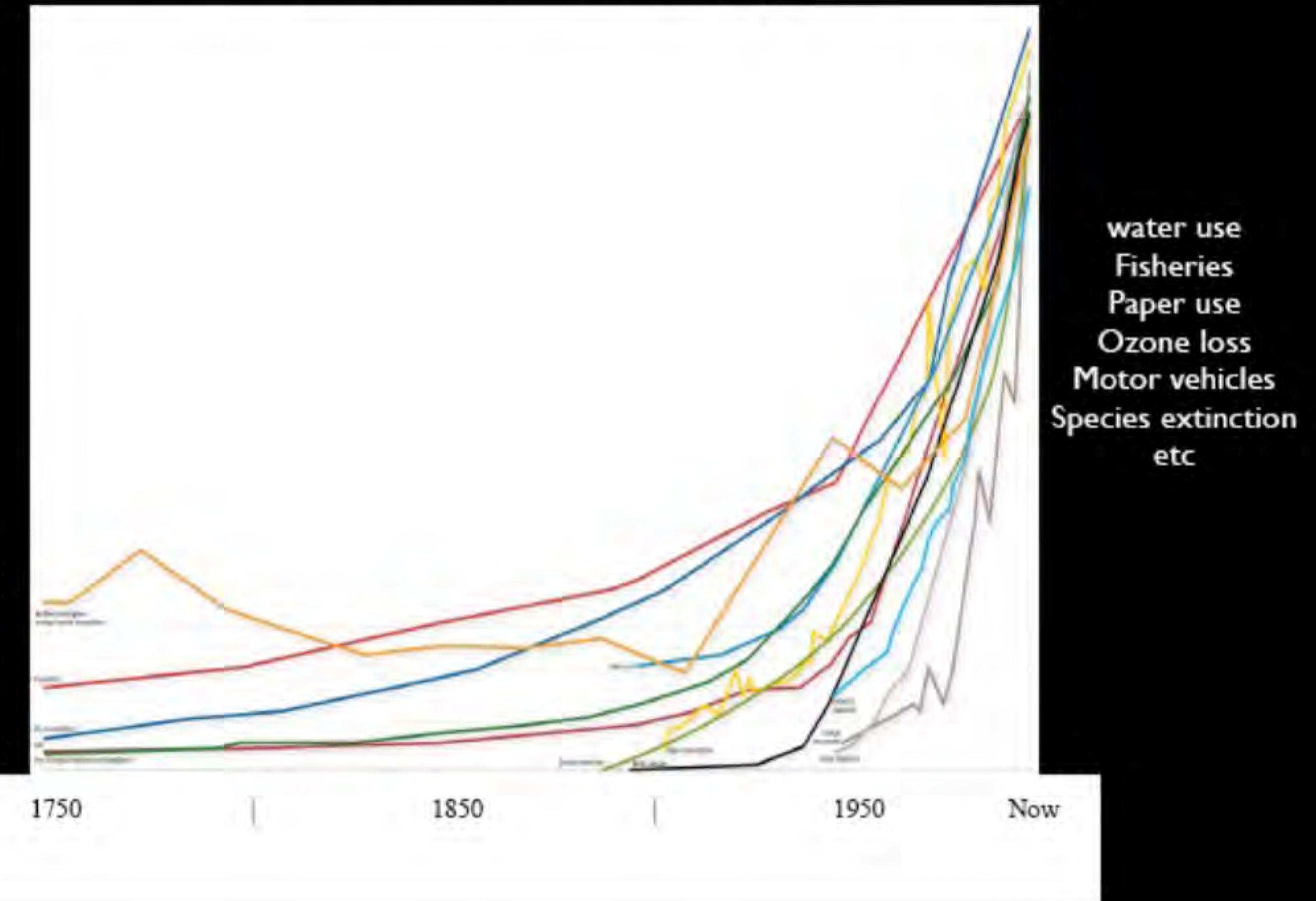
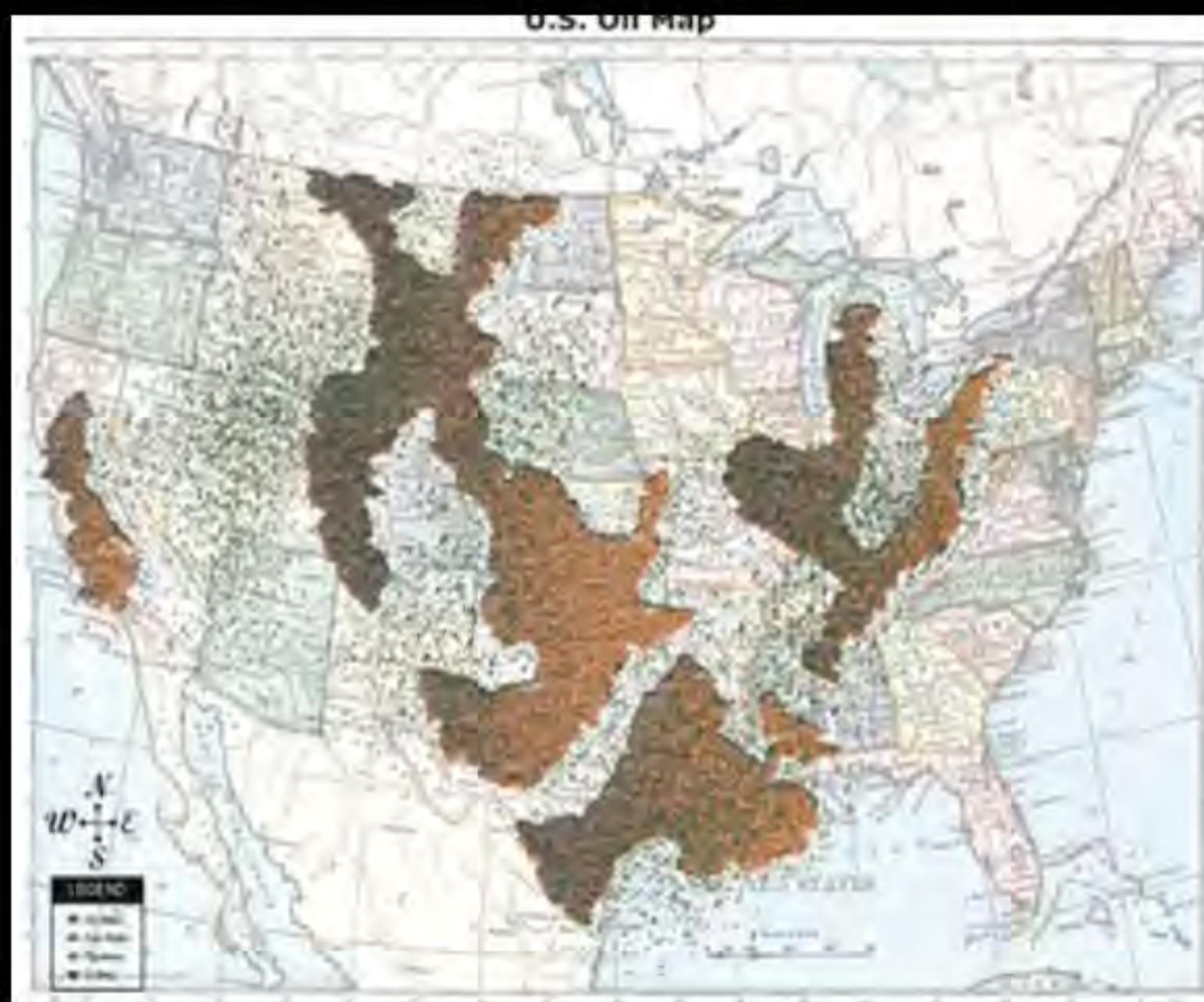


Figure 1 | Beyond the boundary. The inner green shading represents the proposed safe operating space for nine planetary systems. The red wedges represent an estimate of the current position for each variable. The boundaries in three systems (rate of biodiversity loss, climate change and human interference with the nitrogen cycle), have already been exceeded.

Understatement.

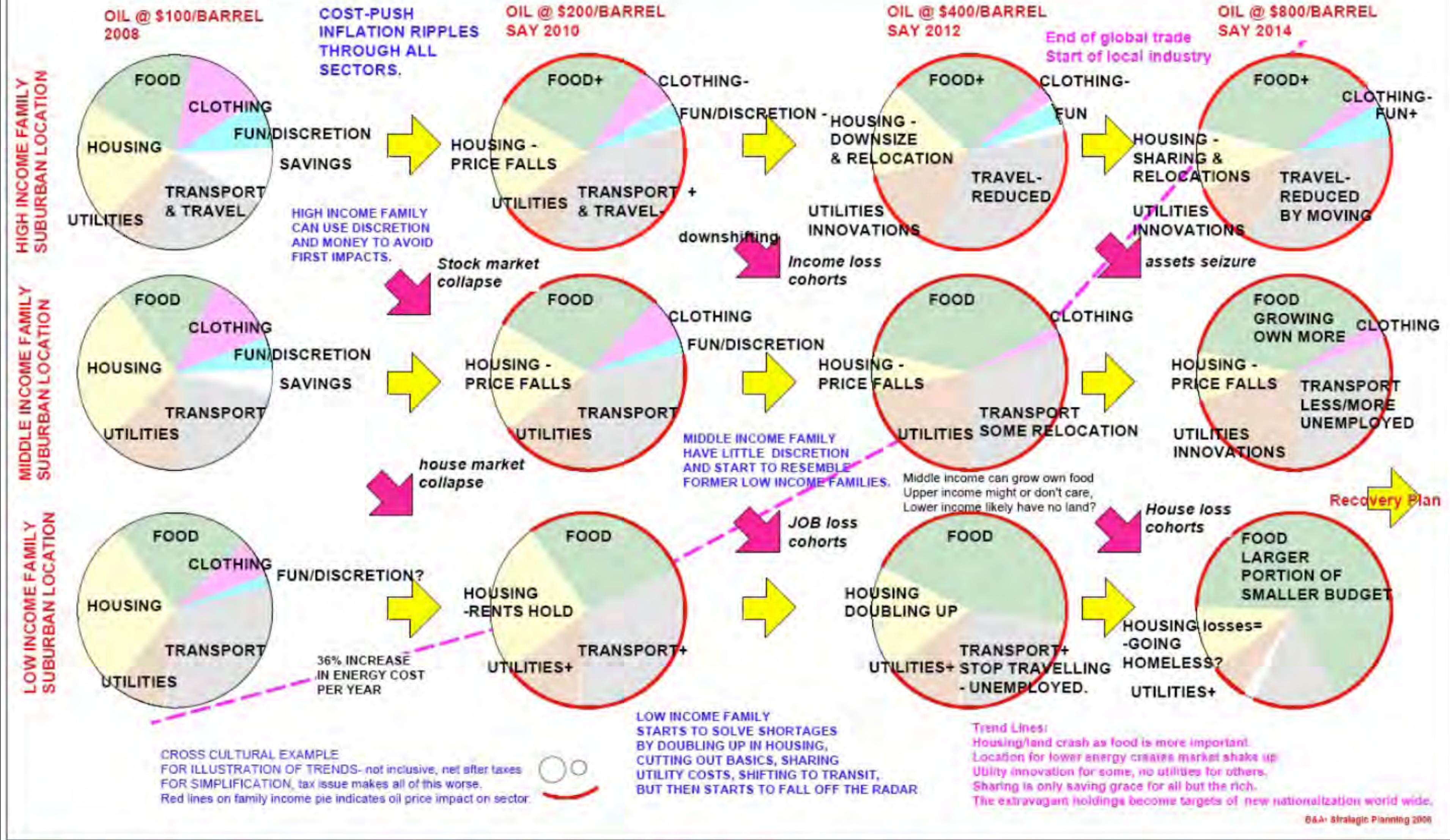
Before we move on, it is not just oil...



& false hopes, delaying necessary adaptation...

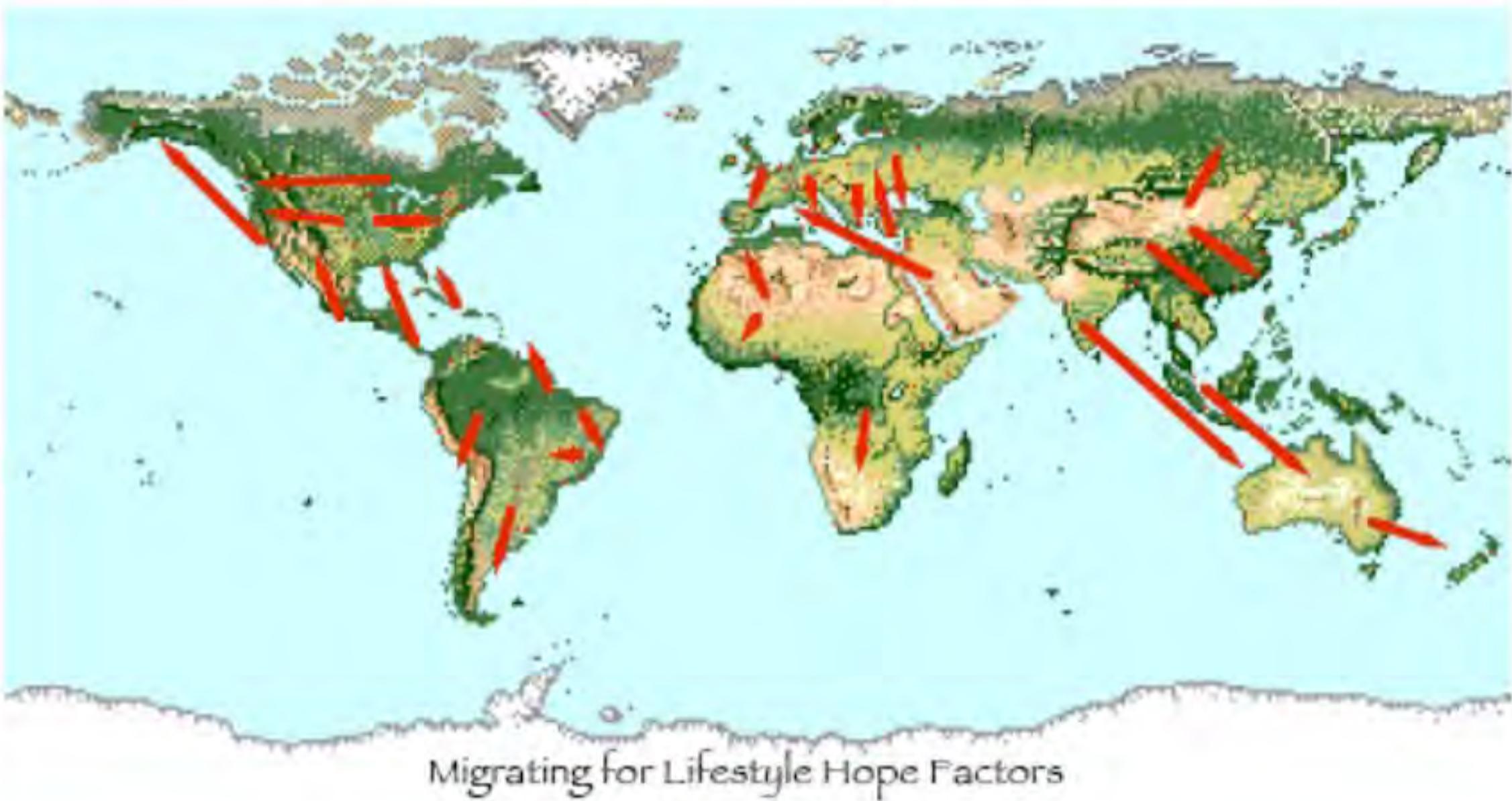
OIL PEAK PRICE ESCALATION DIFFERENTIAL IMPACT ON INCOME, LIFESTYLES AND 'BASICS' OF LIFE.

A sociological perspective on Peak Oil and Family



Family Income & Post Oil Economy:Not so good....WASF

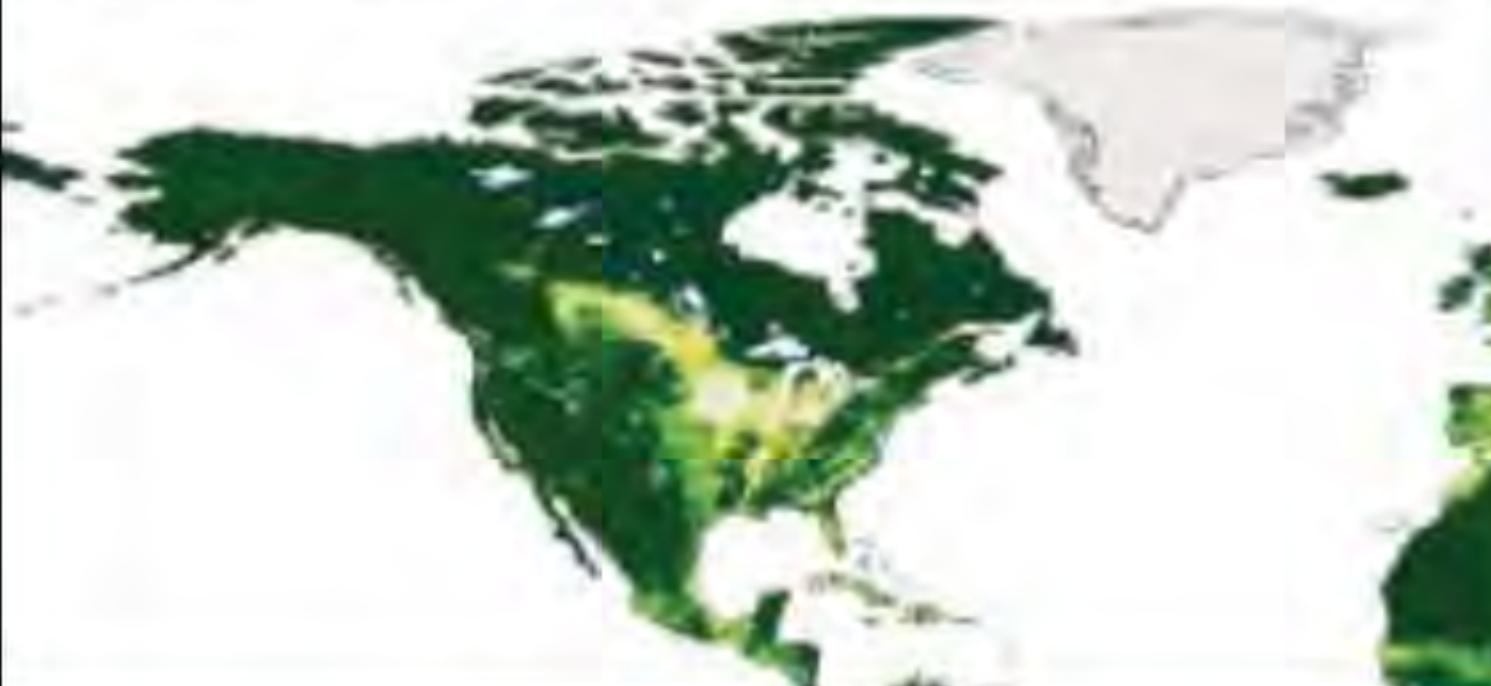
World Mass Migration Scenarios



Re-ruralization, Re-localization, Marbleization



Proportion of land not under cultivation or built-up



...after subtracting forests, deserts and other non-vegetated land

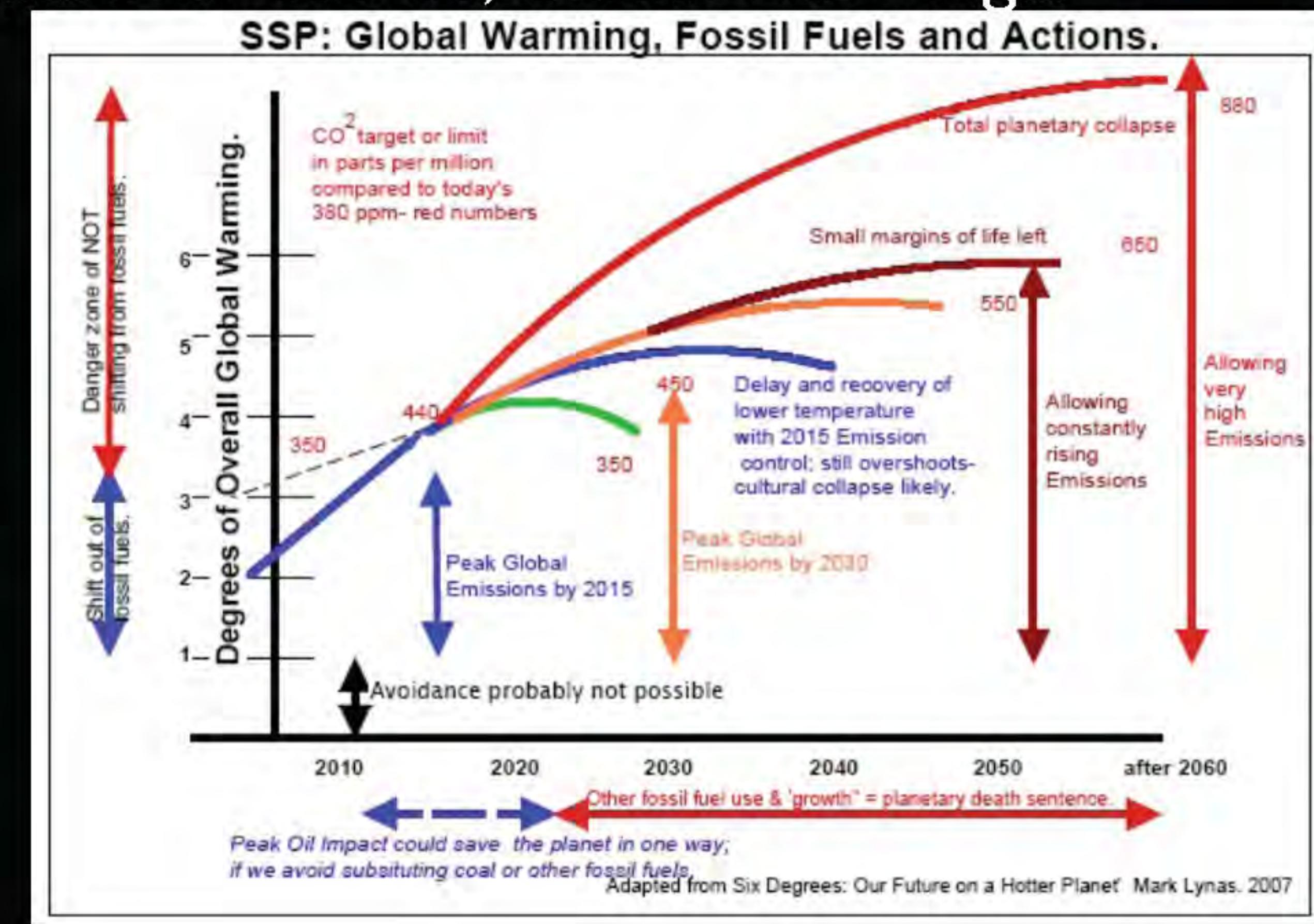


...and then subtracting mountains and areas that are probably unsuitable for agriculture



- North America Net Arable Lands?
- -now, and in 2050?

...and of course, Global Warming...



from
Mark
Lynas
6°

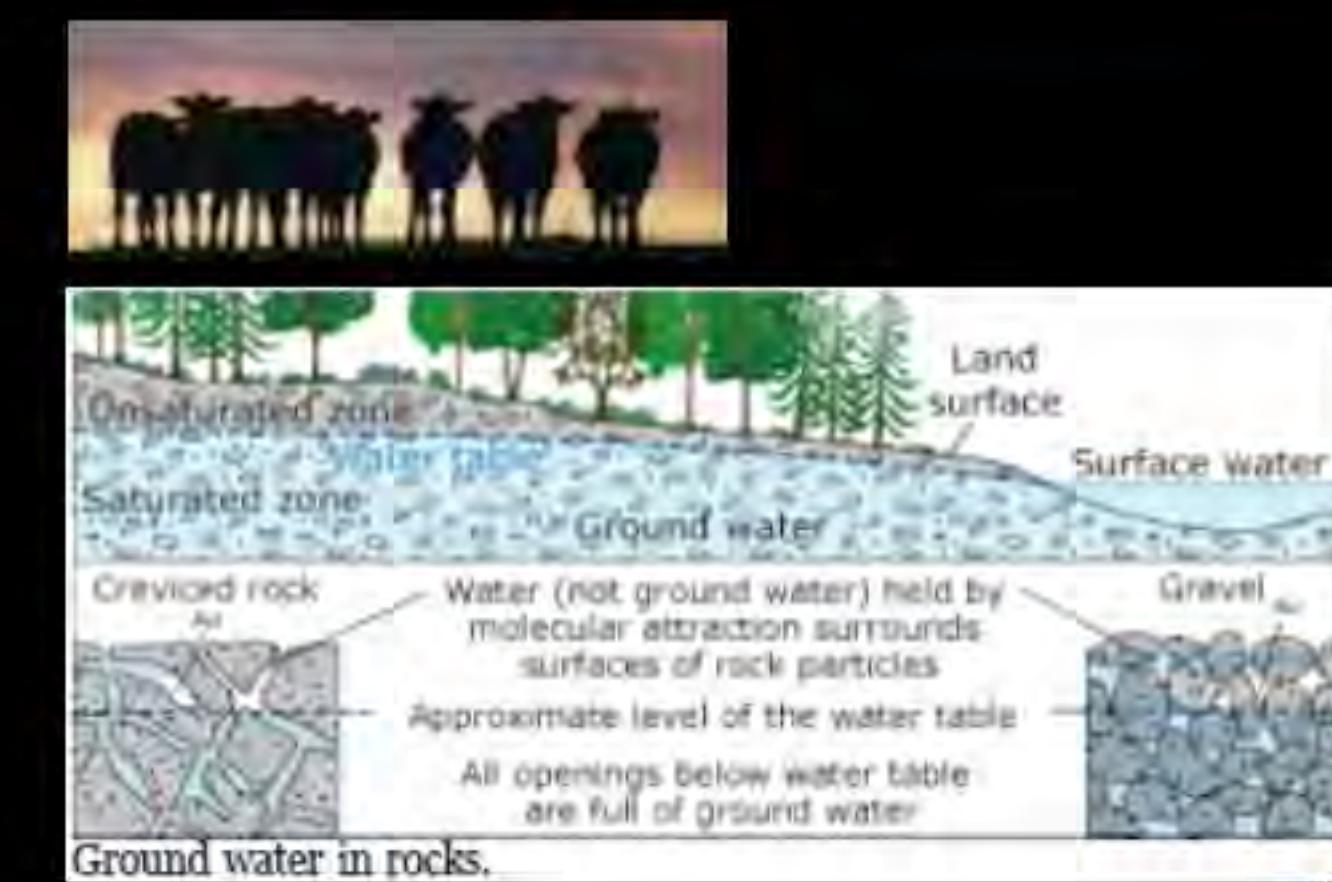
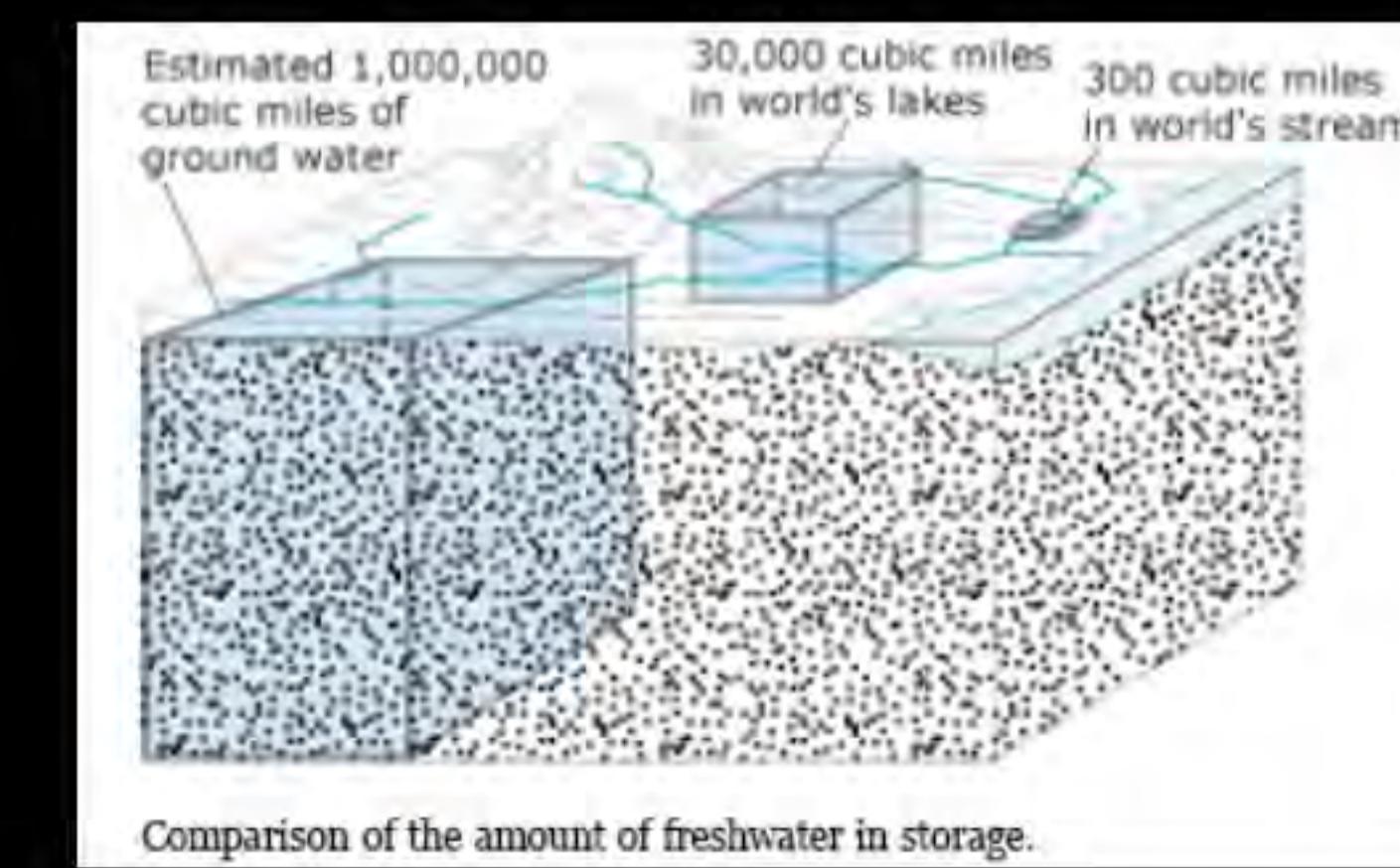
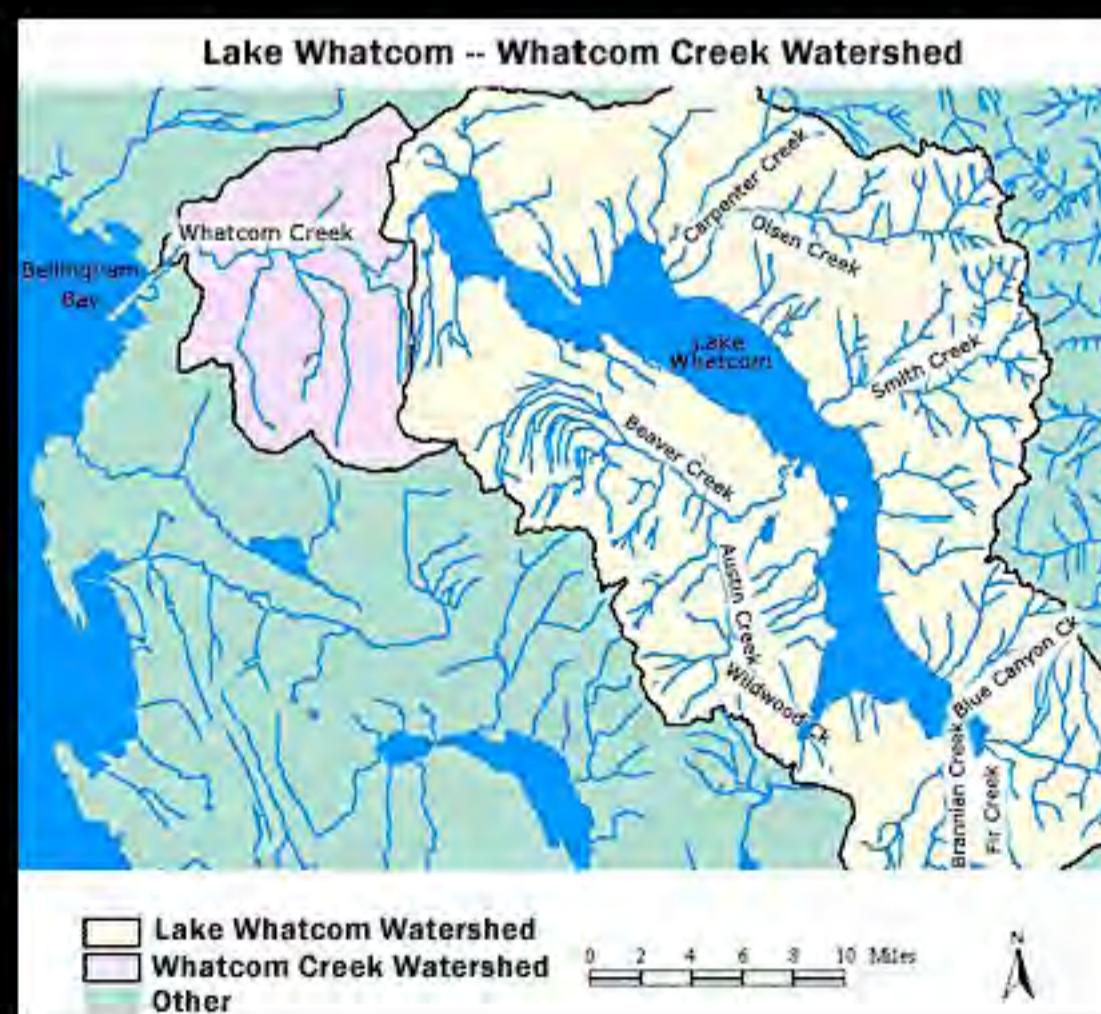
Ancient Aquifers Dying



Many aquifers cross international boundaries, making control & protection impossible as each we beggar our neighbour to consume the resource first.



World Losses trigger new migrations...

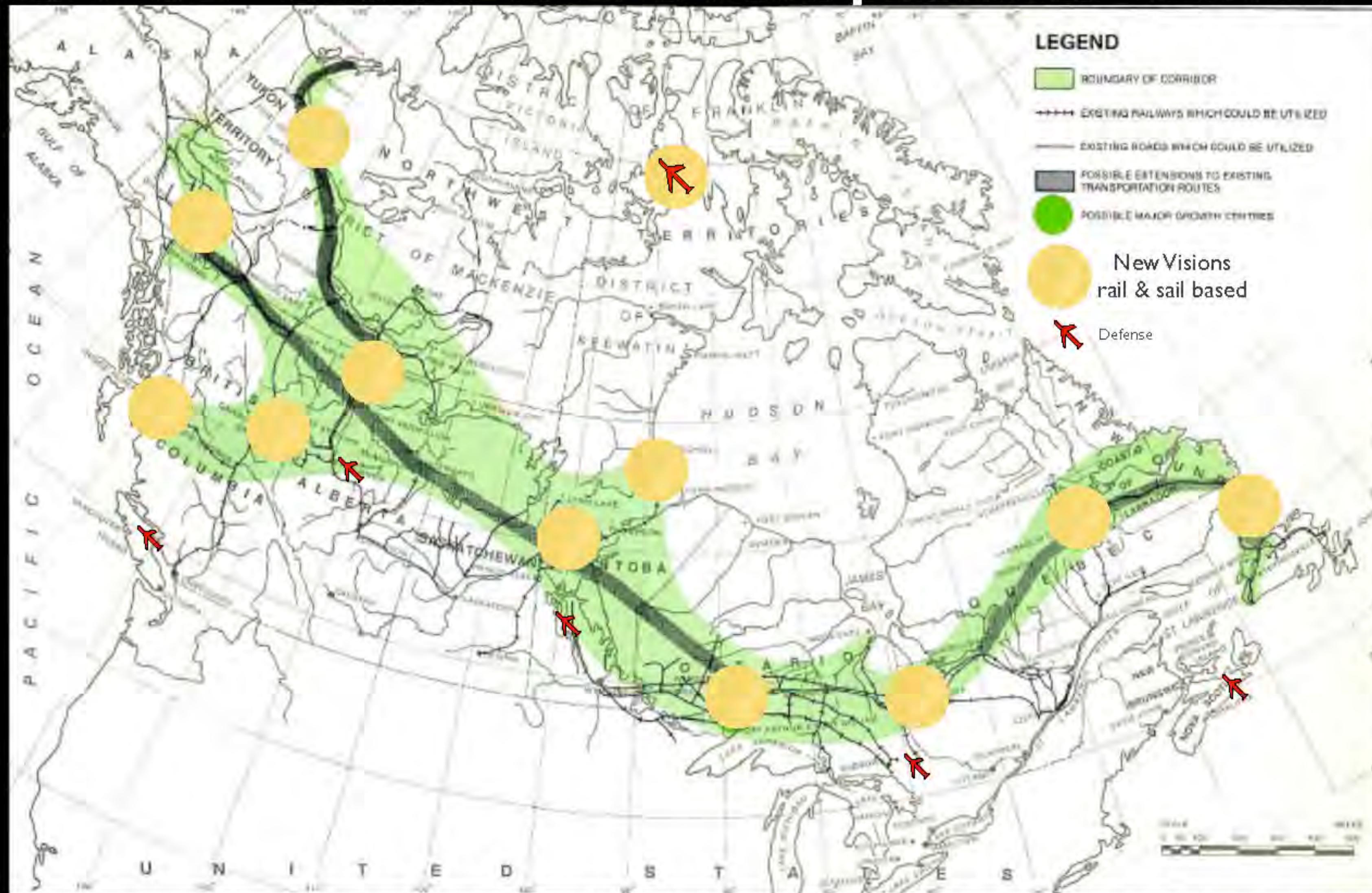


- Overall warming
- Erratic, violent weather
- Growth of deserts
- Loss of Forests
- Rising Oceans
- Dryer rivers & lakes
- loss of ancient aquifers
- Acid rain from China Coal plants growth in effluent.

Climate Change Canada



The Mid Canada Development Corridor



Proactive
Solutions



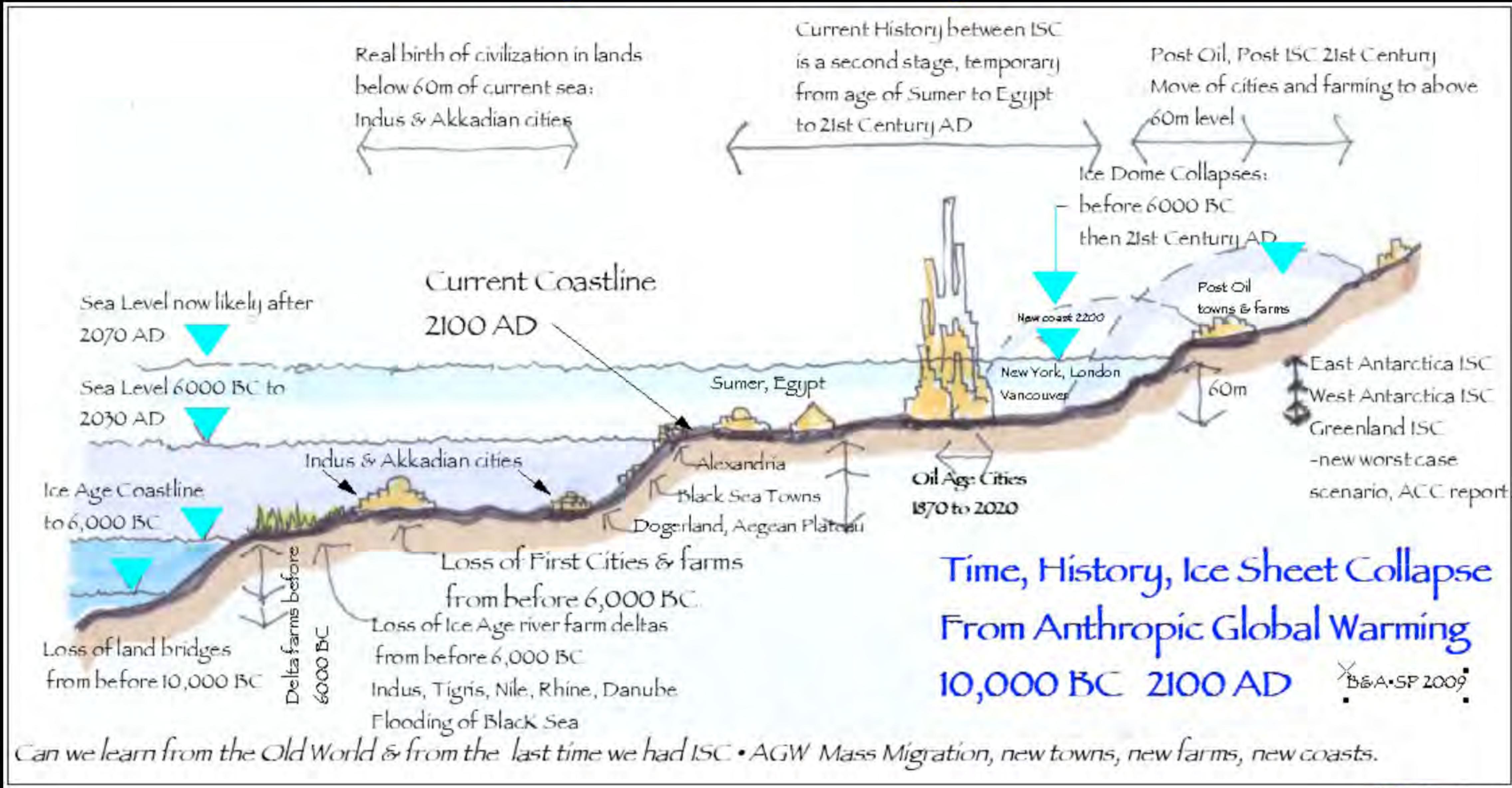
What limits?

Do we take in post oil & climate change refugees, or not?

The Big Shift Section B

- 4. De-growth globally a goal but new pressure hits key places, the new Edens of places like BC as an attractant.
- 5. SSP: Urban Cities: rapid and radical change is necessary to make them sustainable: urban triage, marbleization, a shift to rail, sail and trail and away from roads, oil and gas.
- 6. Food & water: critical change as oil inputs drop: oil gave us more food and more people, less oil means less food, less people...
- 7. Migration impacts: scale of this overwhelms all of us.
- 8. Limits to Growth: both globally and locally: ethics & nature.

20,000 year history of tides.

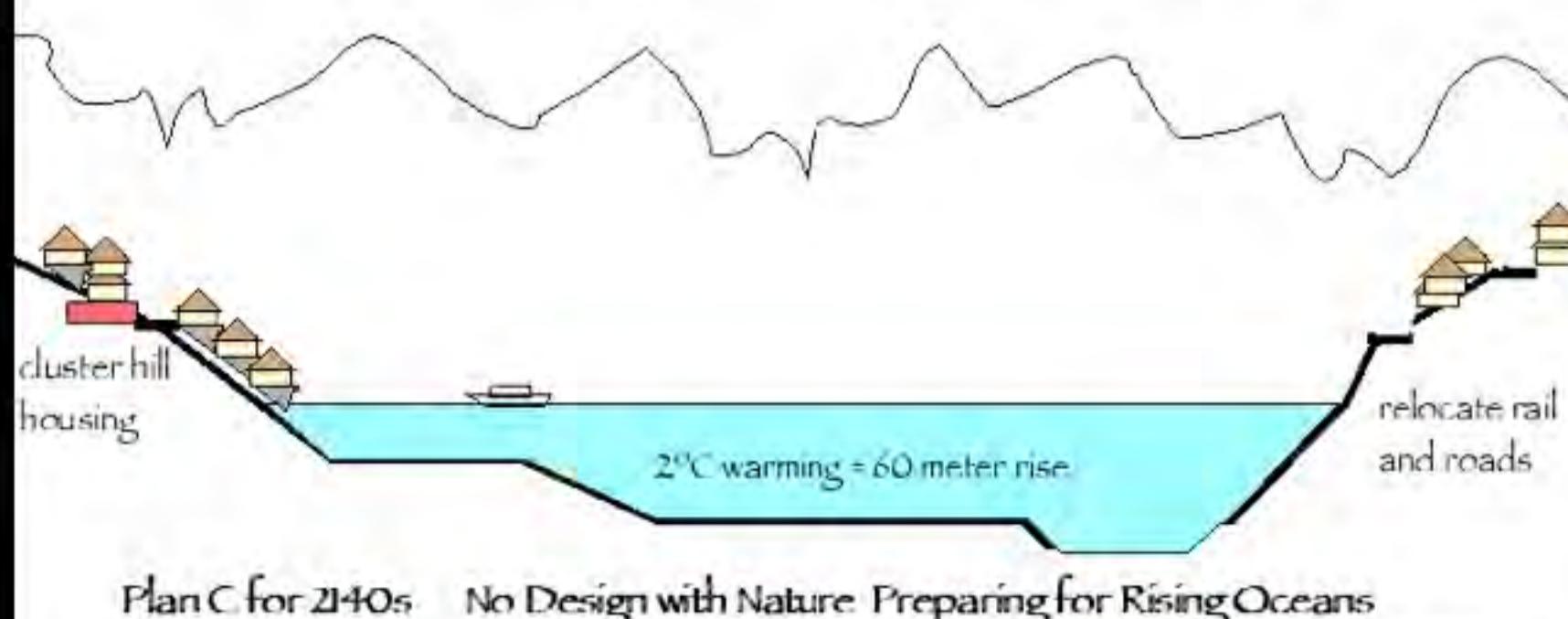
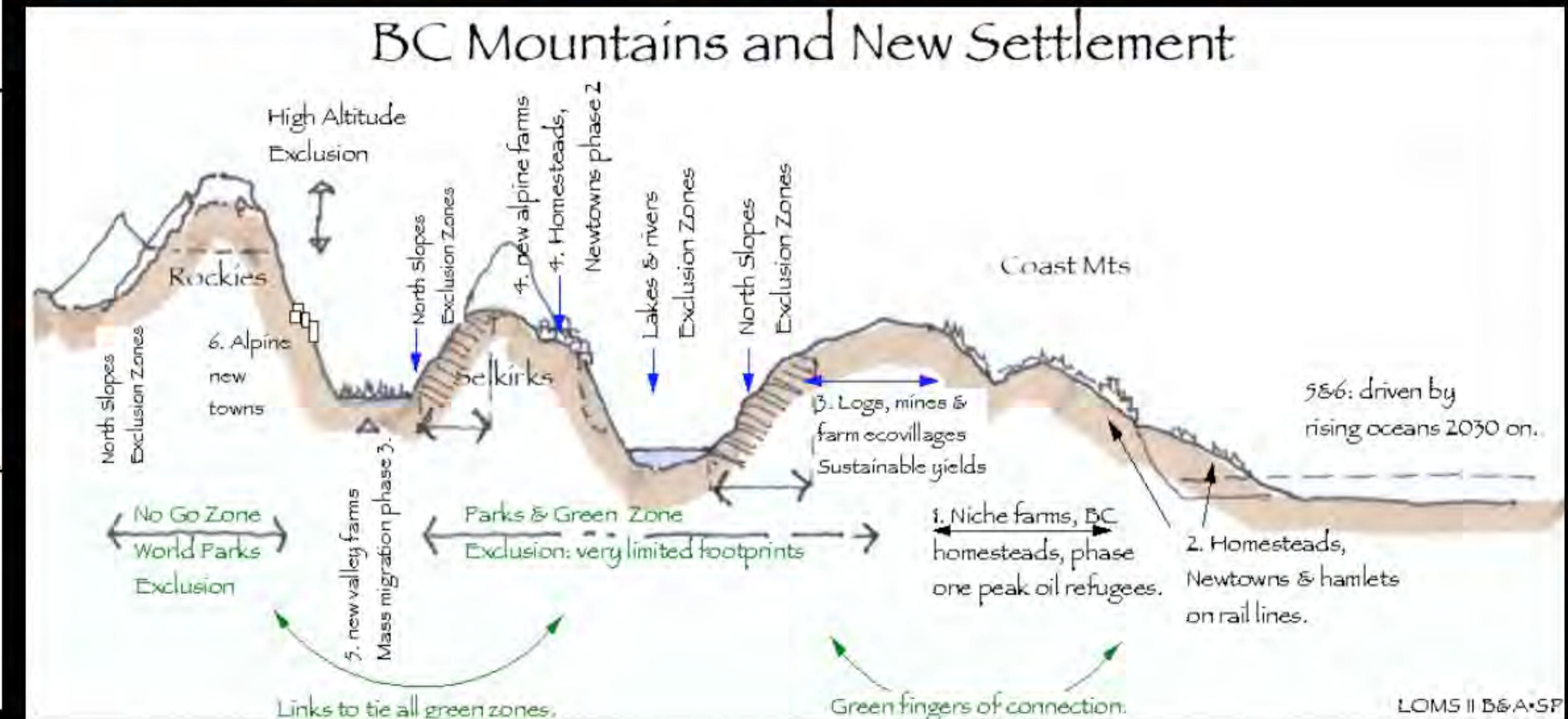
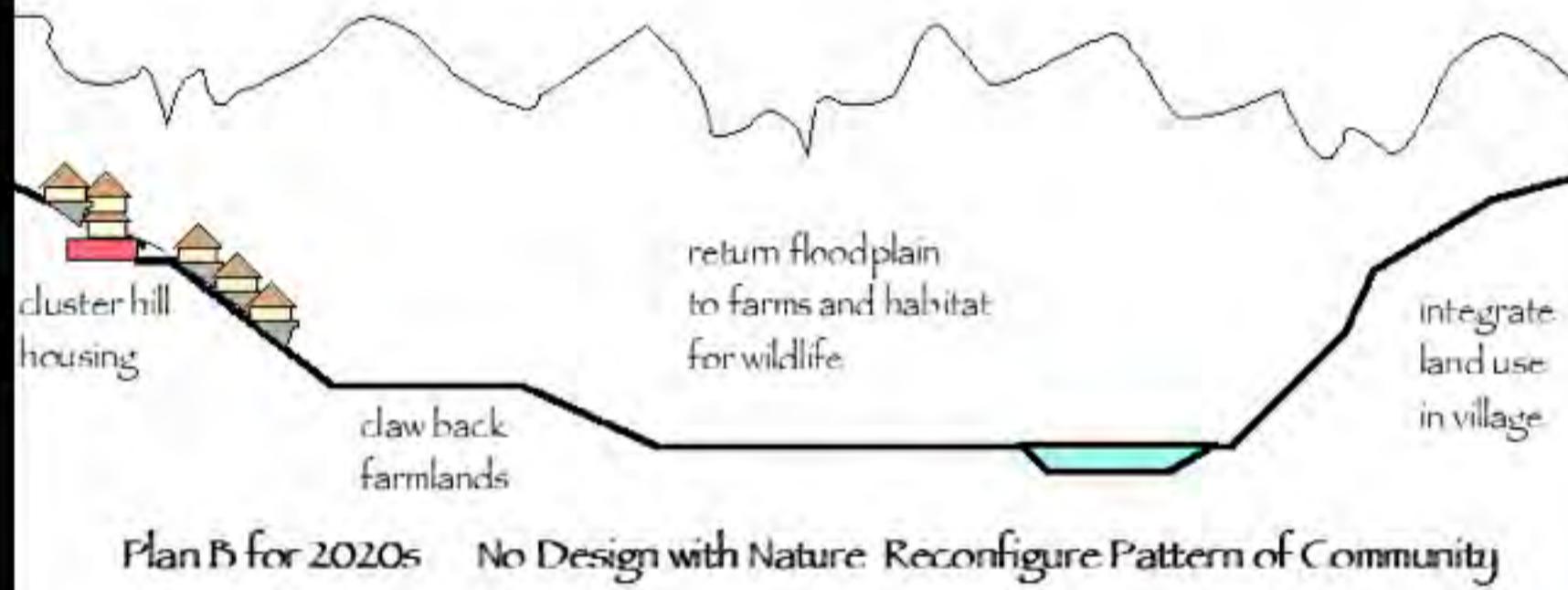
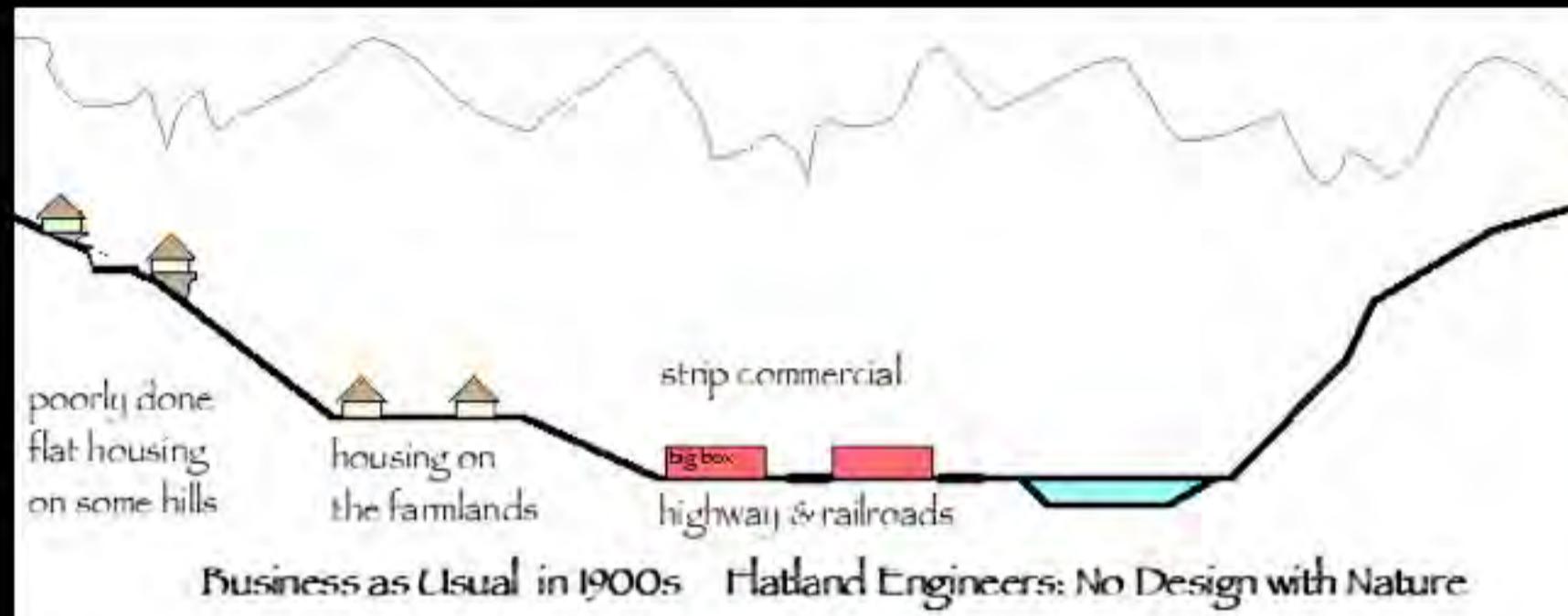


Time, History, Ice Sheet Collapse
From Anthropic Global Warming
10,000 BC 2100 AD

B&A SP 2009

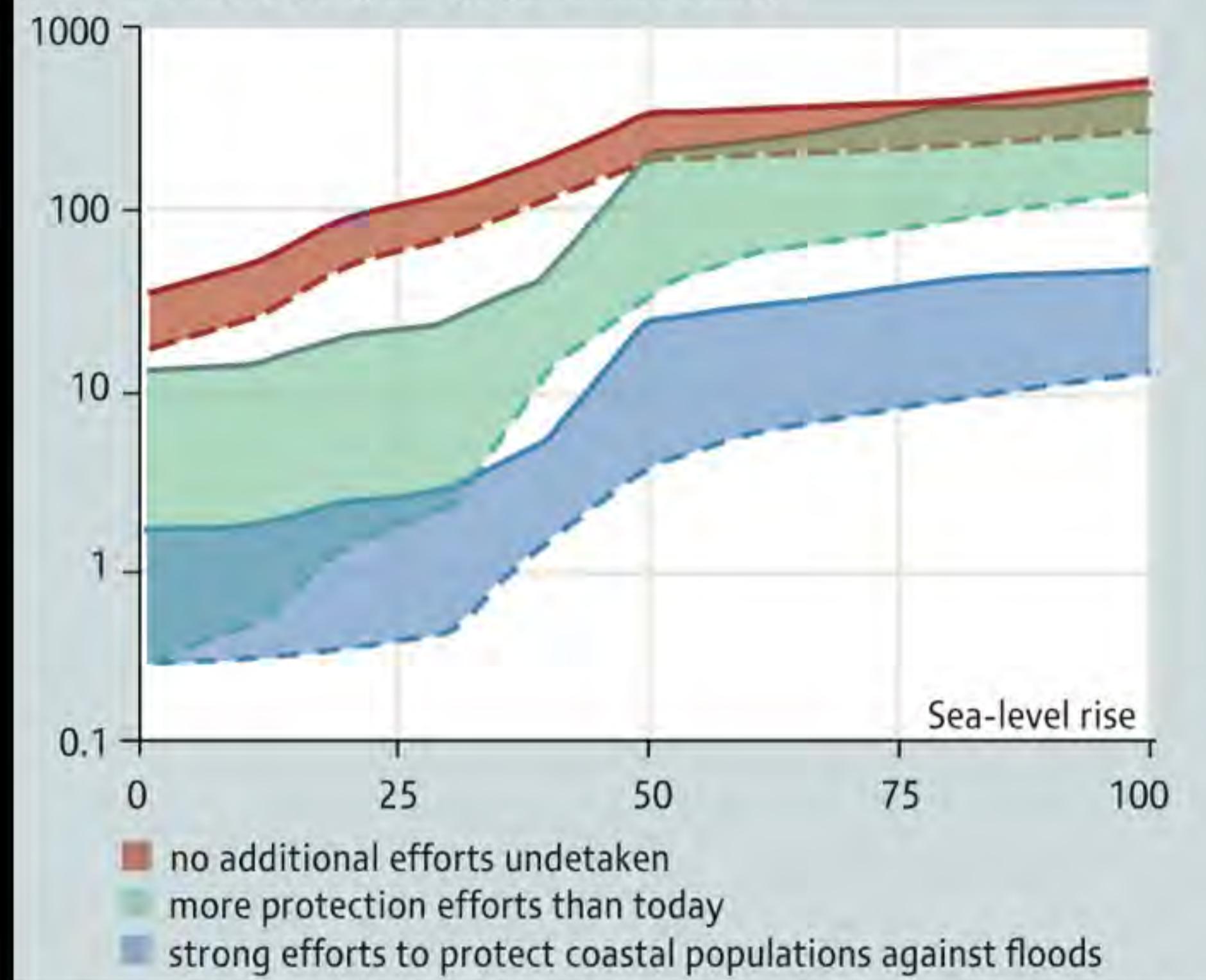
Can we learn from the Old World & from the last time we had ISC • AGW Mass Migration, new towns, new farms, new coasts.

BC: mountains as asset, not a barrier.



Population flooded in coastal areas in 2080

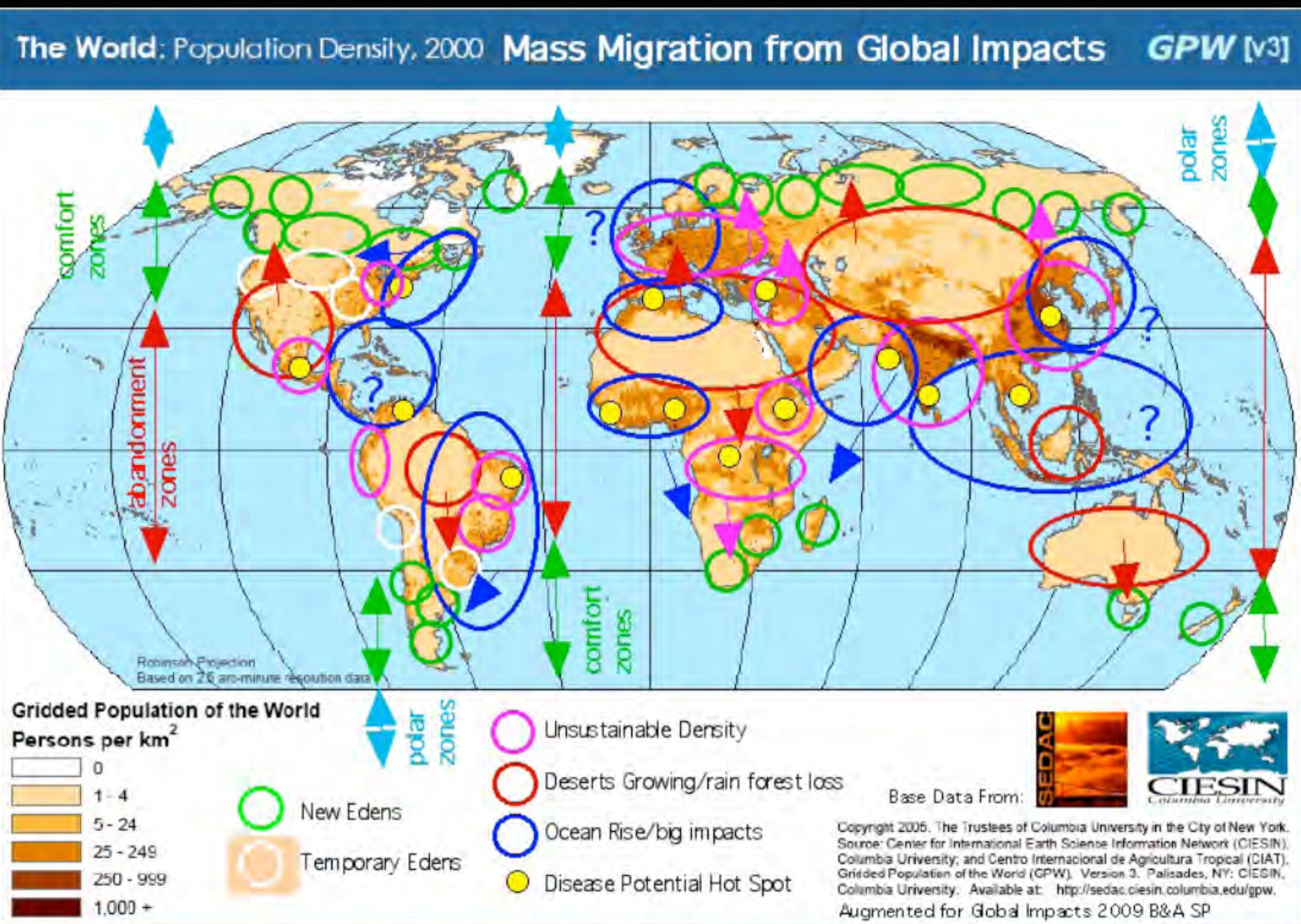
Million people per year (logarithmic scale)



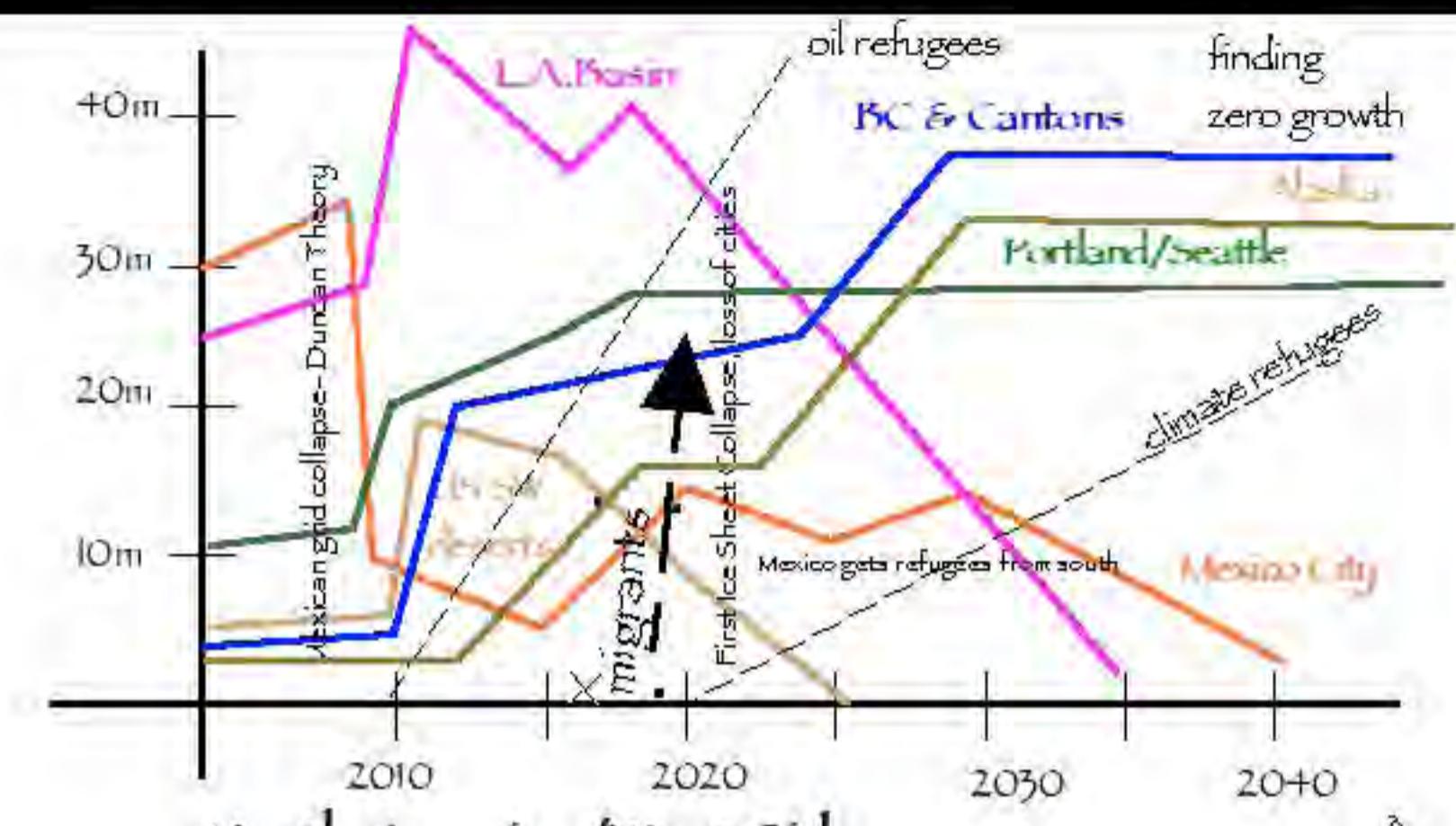
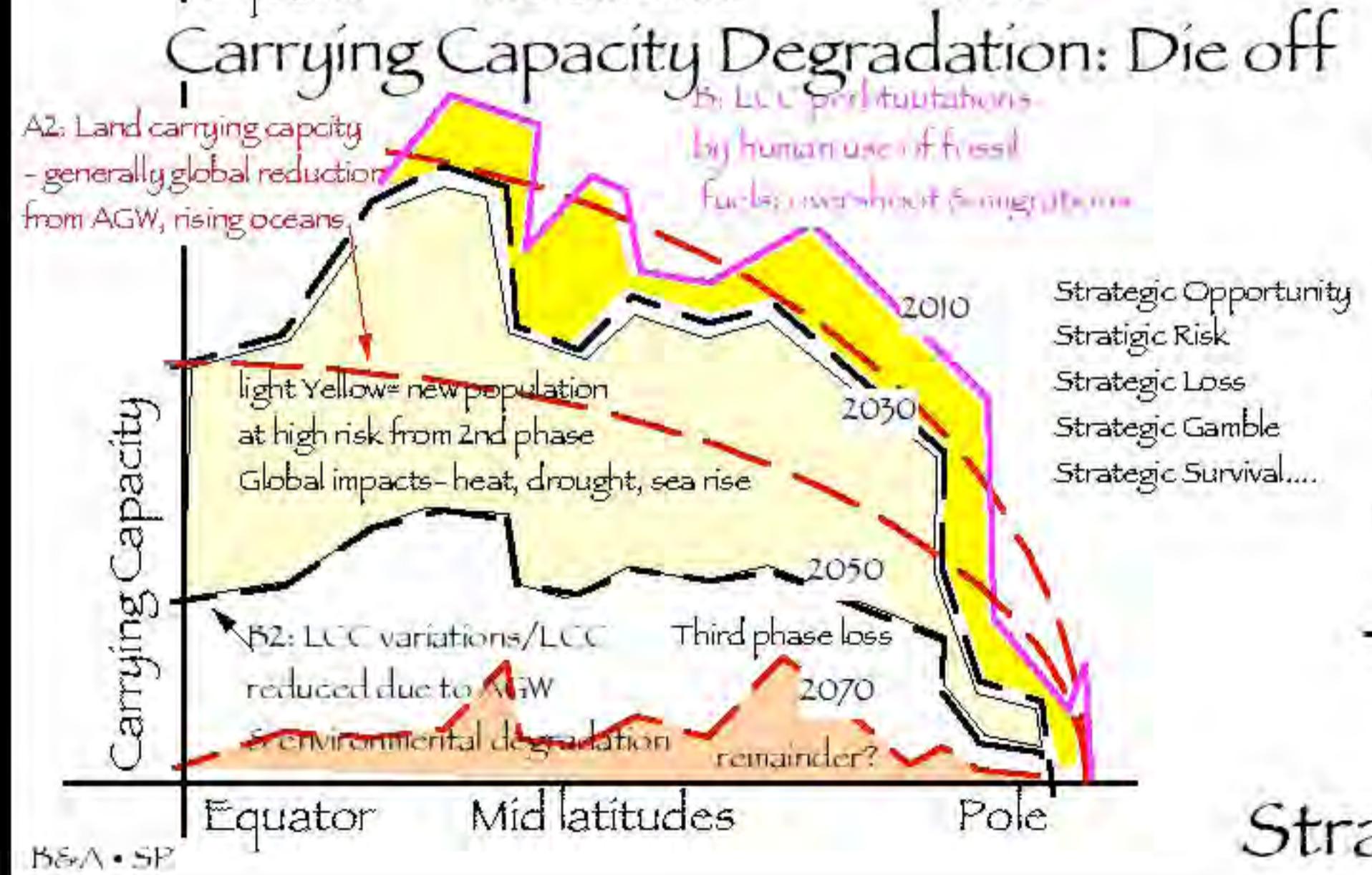
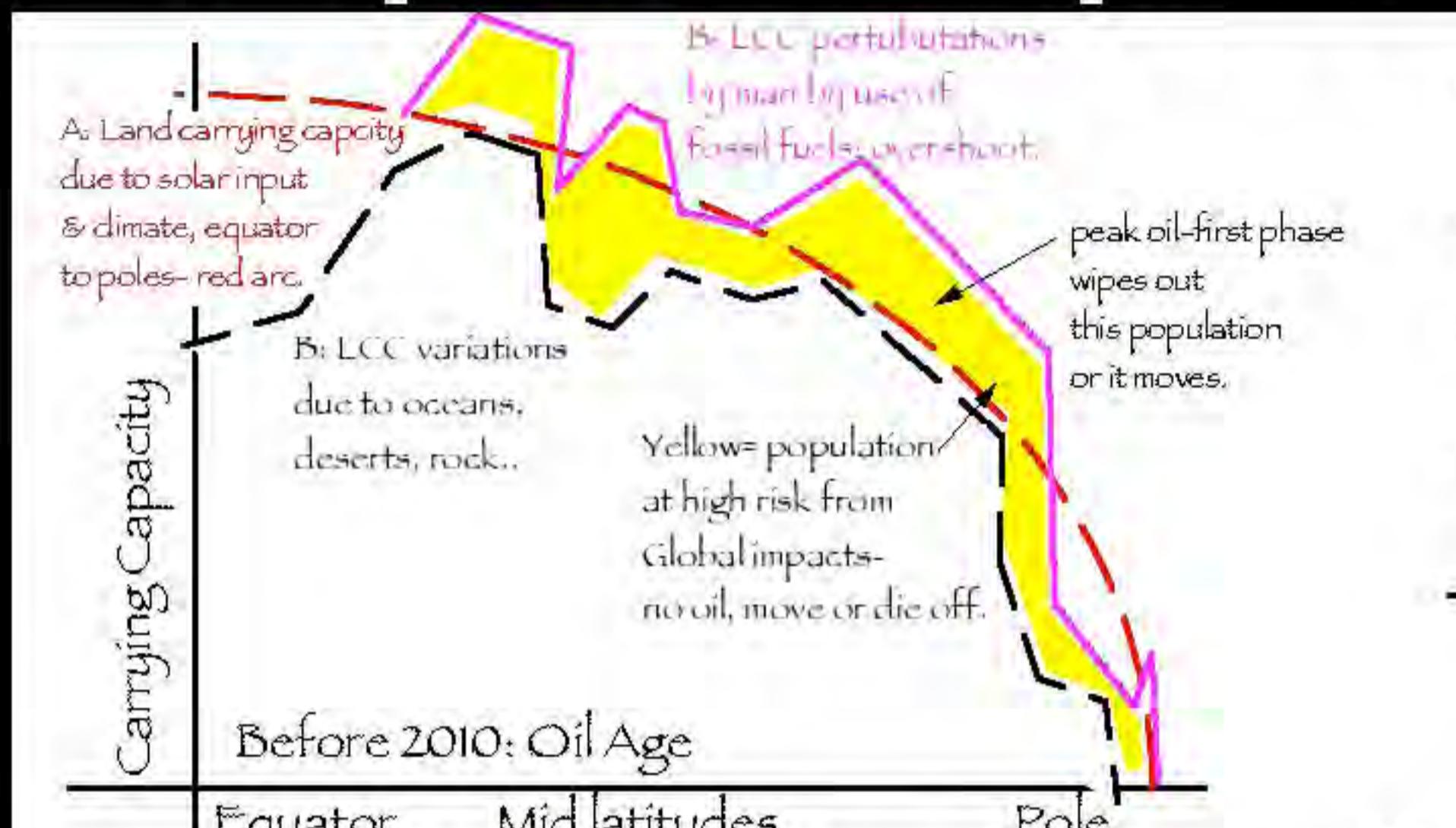
Note: The upper margin of each band shows the amount of people affected in the A2 scenario according to which global population will reach 14 thousand million by 2080 with the lowest GDP of all IPCC scenarios. Therefore little capacity exists to adapt, and more people will be affected by floods. The lower end of each curve shows the impact for the A1/B1 scenario assuming the highest per capita income and world population at 8 thousand million, allowing for higher investments in the protection of the population.

Source: H. Ahlenius, GEO Ice and Snow, 2007, based on Nicholls, R.J. and Lowe, J.A., 2006.

Legacy for your children...

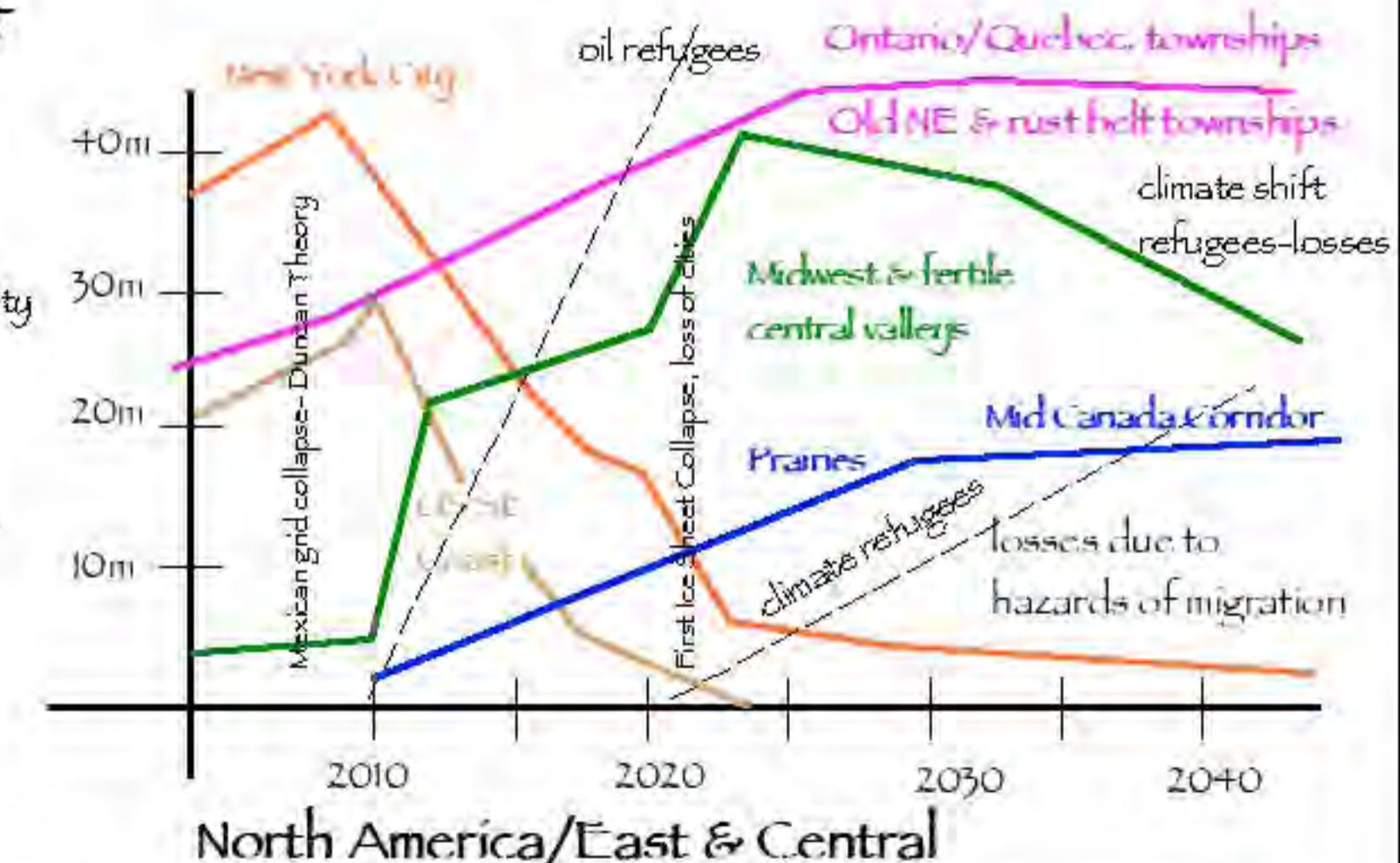


Graphic Impacts



Some sample sites:
Not all populations shown.

↑
pulses of migration
from south to north
and from east to west



Strategic Planning: Mass Migrations

The Unquiet Ice

Scientific American Feb. 2008

60 meters/
200 feet

Timing?
uncertain
but
imminent



- New Antarctic on Site researchers, more blue lakes, more melt, more subsurface lubrication= accelerating ice sheets sooner than making corrections graph on the right. Ice Sheet Collapse is possible in one century.

The pay-back for
wasting a century of
carbon fuels.

THE BIG PICTURE

Even if carbon emissions are slashed in the 21st century, and atmospheric CO₂ levels stabilise at between 450 and 1000 parts per million, the temperature will continue to rise for centuries and sea level will continue to rise for millennia. Under the Kyoto Protocol, emissions will continue to rise until the treaty expires in 2012

- Sea level rise due to ice melting (several millennia)
- Sea level rise due to thermal expansion (centuries to millennia)
- Temperature stabilisation (a few centuries) — CO₂ stabilisation (100 – 300 years)
- CO₂ emissions



SOURCE: ICSI

Death of Alpha Cities...

unavoidable

Rank	Population of city (proper)	Population of metropolitan area ^[31]	Percentage foreign born ^[32]	Expatriate cost of living ^[19]	Metro systems by annual passenger ridership	Top 10 metro systems by the route length	Annual airport traffic by passenger ^[33]	Number of billionaires (U.S. dollars) ^[34]	Gross Metropolitan Product at PPPs (Total output; not per capita) ^[35]
1	Mumbai	Tokyo	Dubai	Tokyo	Tokyo	London	London (5 airports)	New York City	Tokyo
2	Shanghai	Seoul	Miami	Osaka	Moscow	New York City	New York City (3 airports)	London	New York City
3	Karachi	Mexico City	Amsterdam	Moscow	New York City	Berlin	Tokyo (2 airports)	Moscow	Los Angeles
4	Delhi	New York City	Toronto	Geneva	Seoul	Madrid	Atlanta	Hong Kong	Chicago
5	Istanbul	Mumbai	Muscat	Hong Kong	Mexico City	Moscow	Chicago (2 airports)	Los Angeles	Paris
6	São Paulo	Jakarta	Vancouver	Zürich	Paris	Seoul	Paris (2 airports)	Dallas	London
7	Moscow	Sao Paolo	Auckland	Copenhagen	Hong Kong	Shanghai	Los Angeles	Istanbul	Osaka
8	Seoul	Delhi	Geneva	New York City	London	Paris	Dallas	San Francisco	Mexico City
9	Beijing	Osaka	Mecca	Beijing	Osaka	Beijing	Frankfurt	Chicago, Mumbai, São Paulo, Tokyo	Philadelphia
10	Mexico City	Shanghai	The Hague	Singapore	São Paulo	Tokyo	Beijing	n/a	Washington, D.C.

Part B: Community Policy

- Urban: de-growth needed to make the city survivable: largest cities cannot be sustained or continued as they cannot be serviced from a distance. Or introduction of new urban villages and Green Fingers of farm as Detroit is now restructuring as a post oil city.
- Rural outgrowth of some kind is needed and necessary even for stopgap measure: a doubling of BC farmland beyond the ALR and a new Homestead Act to make this happen.

...unavoidable steps in change to adapt.

CANADA

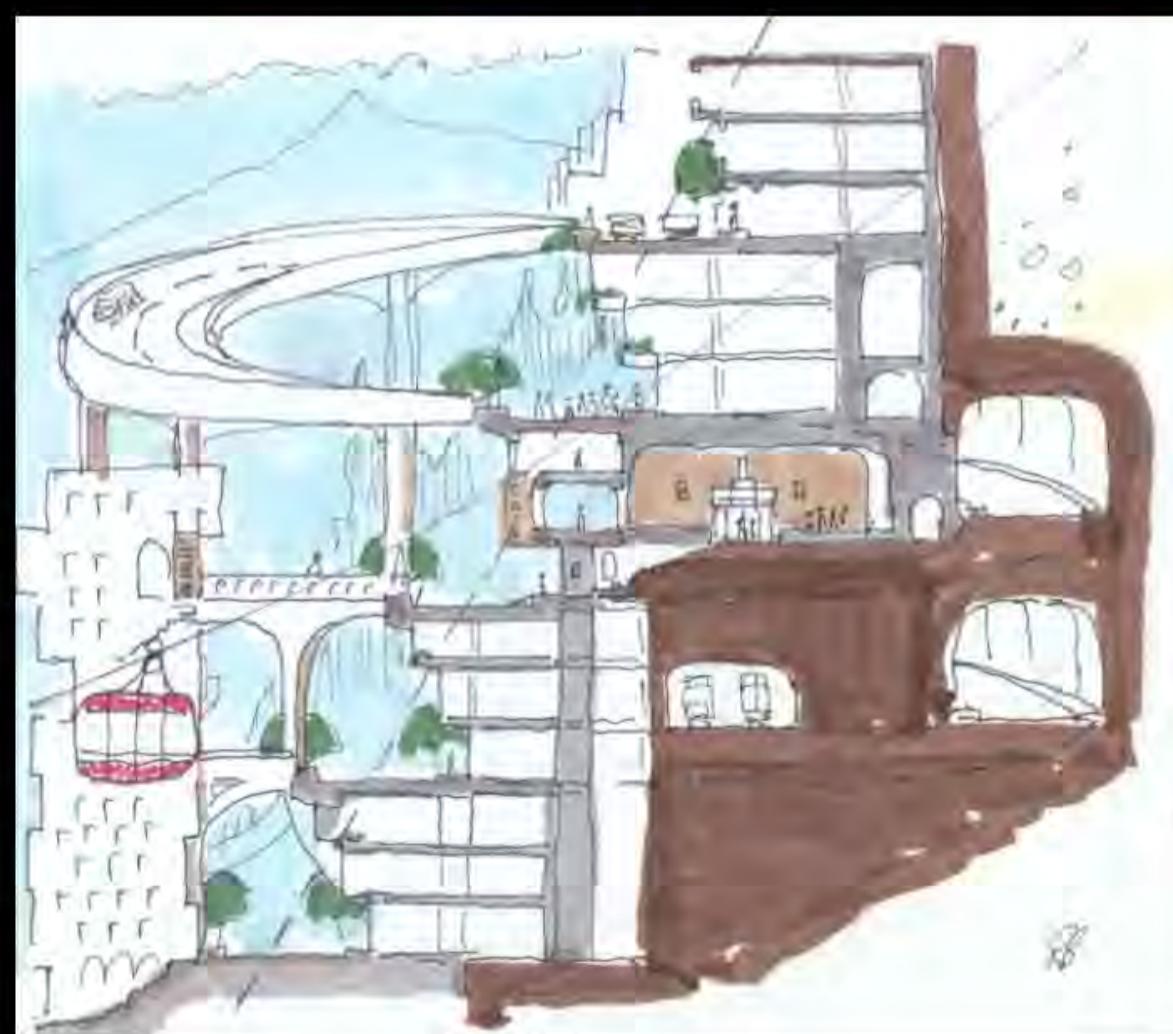
Rural, Urban & Village Policies

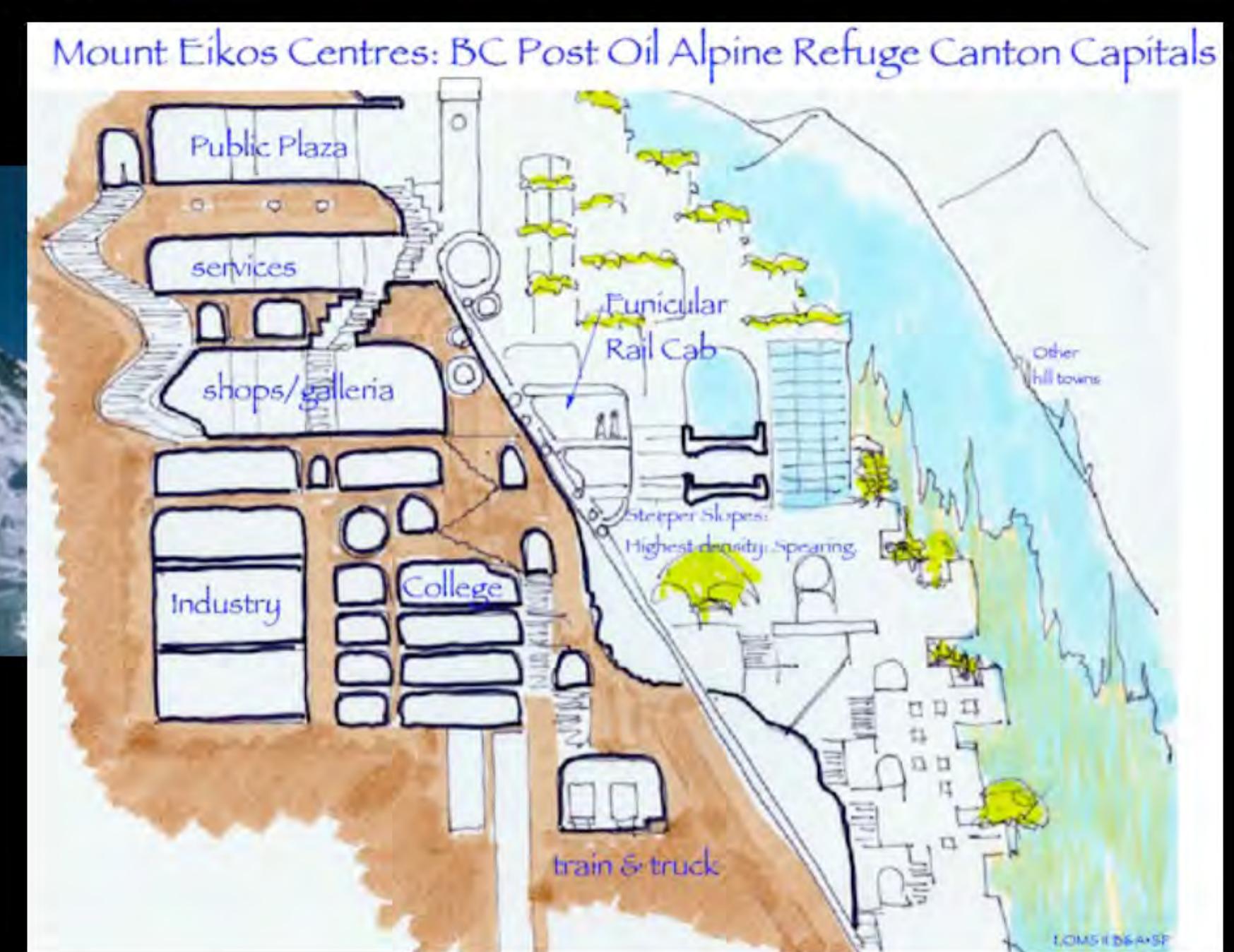
- pro-farm policies
- less taxation
- favour family/village scale
- decentralize farming
- lessen monocultures
- traditional modes/energy
- aid in urban triage
- recover good soils lost
- favour family/village scale
- make urban farming
- aid marbelization/green fingers
- traditional modes/energy
- new village pattern support/ rail transport
- aid localization moves
- favour family/village scale
- traditional industry!
- maintain communications
- traditional transport

Part C: Applied Science Now



- 10. New patterns of community at every scale: a downscaling for re-localization of production and social networks; homesteads, hamlets and villages to provide half the population another chance, access to land even though this is a modified lifestyle. Canton governance of eco basins in BC.
- 11. Canton assessment, a Design with Nature exercise leads the way into new settlement and farming and avoidance of NO GO zones.
- 12. Not a development plan but a relearning of Old World patterns and a more non-planned and evolutionary cultural landscape.
- 13. New Homesteads are a social network, and interdependence model. (Ostrom, Nobel Peace Prize, Economics.) Images of farm, hamlet & village.

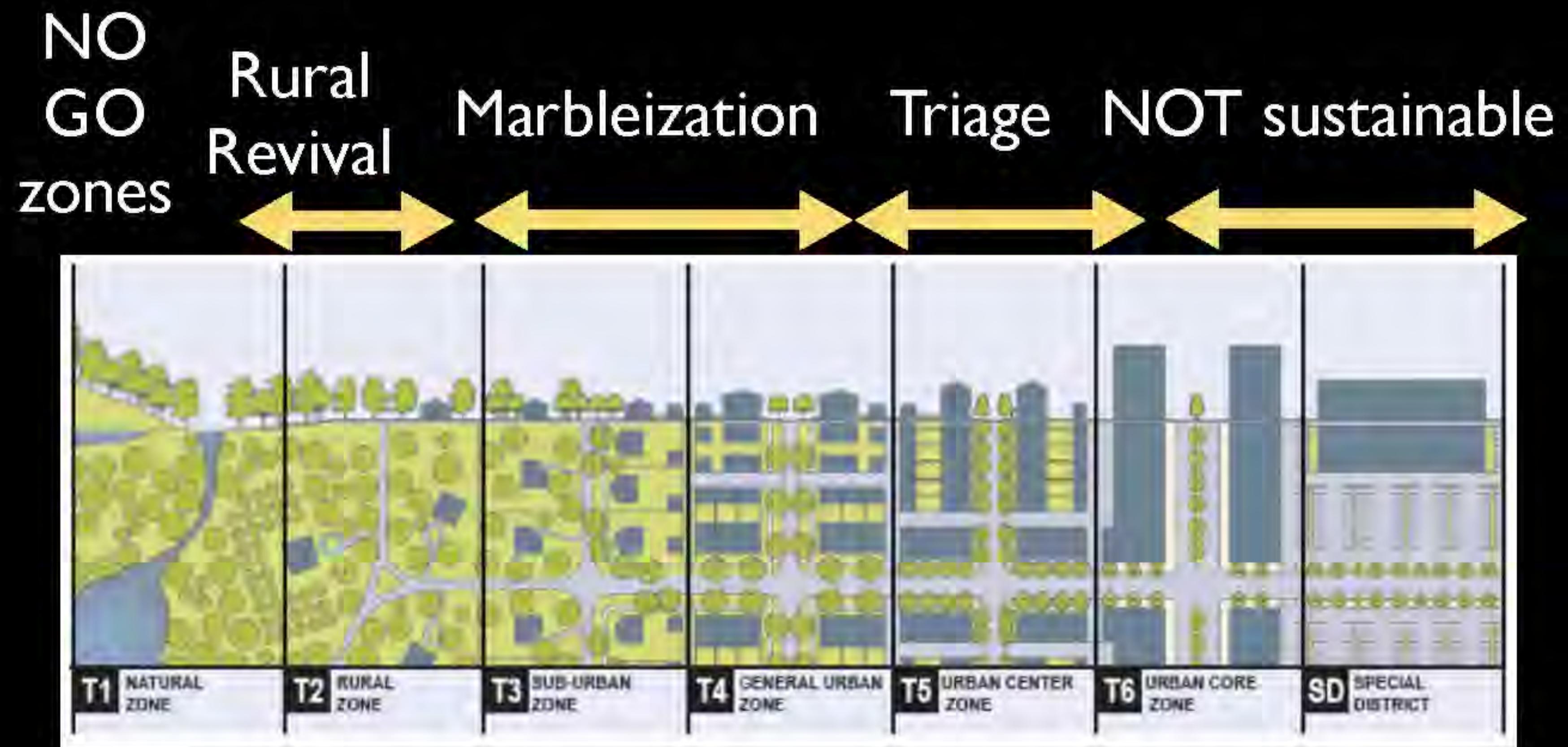




Learning to Judge the Terrain.

- Look at any city or metro area like the leader of a Rescue. The current lifestyle is not going to last. Be prepared to act now.
- The marshaling of resources, the conservation of land and energy, food and water are paramount. Civilization is at risk.
- Urban Triage and marbelization of the landscape are events and solutions which permit effective change for a Transition Town.
- The first step for community adjustment is to raise public consciousness about the need for community resilience.





Attempts to Codify Food Production in Settlements -can be overly prescriptive?

- more energy in analysis than of benefit?
 - may preclude just good design & common sense?
- still worth exploring as a pattern language tool, developing methodology-
(within limits).

Marbelization of the Suburbs: Green Fingers and Sustainable Home and Community Transitions

Deconstruction of Suburbia



Before Peak Oil Impacts: commuter's haven.

First stages of transition: missing teeth become gardens. Houses moved to free lots and infill of some lots to create village clusters in the new green commons.

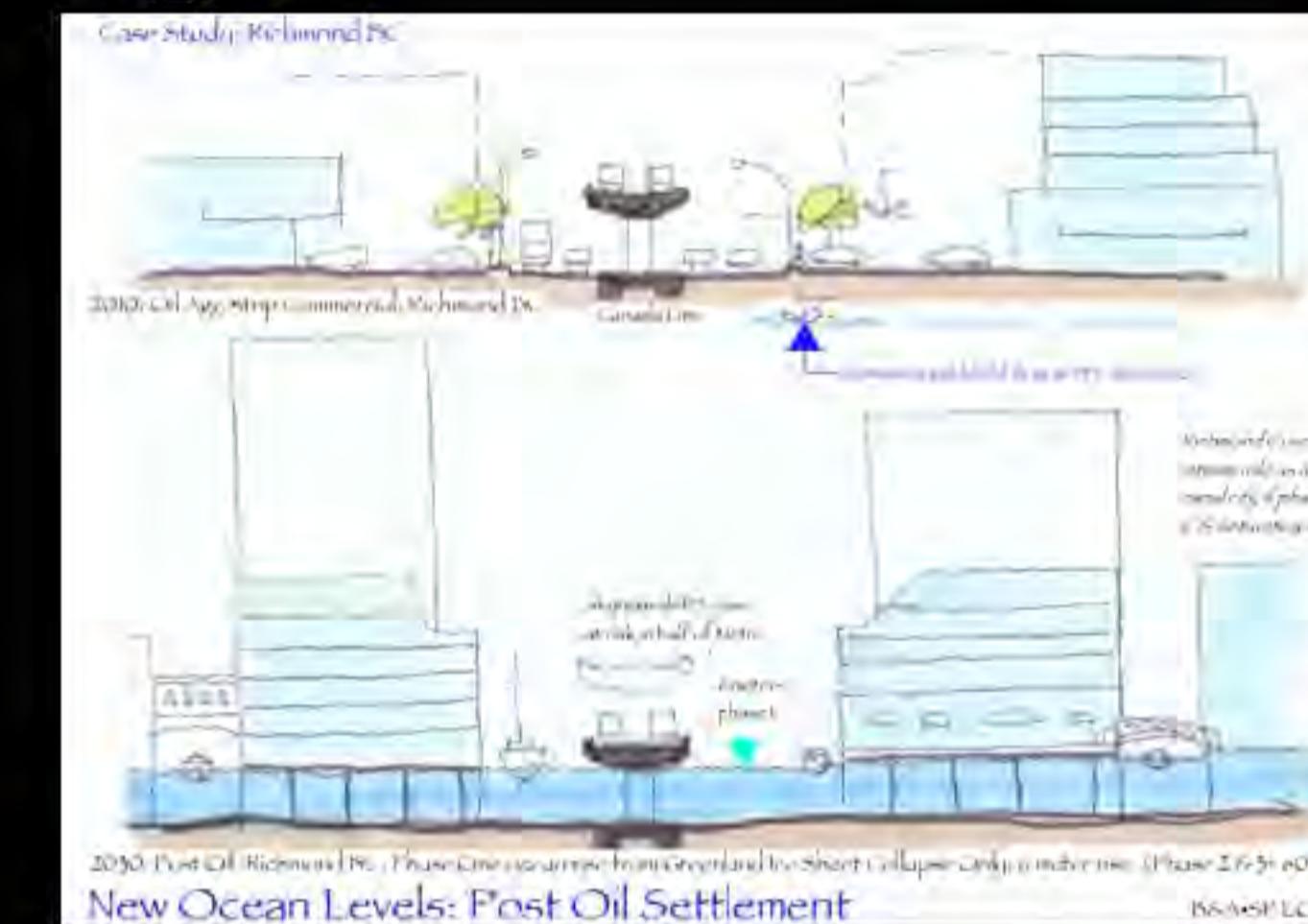
Sustainable forms captured; farmland for food, clustering of buildings to save energy, creation of community feeling and village spaces, addition of missing land uses to complete the village.

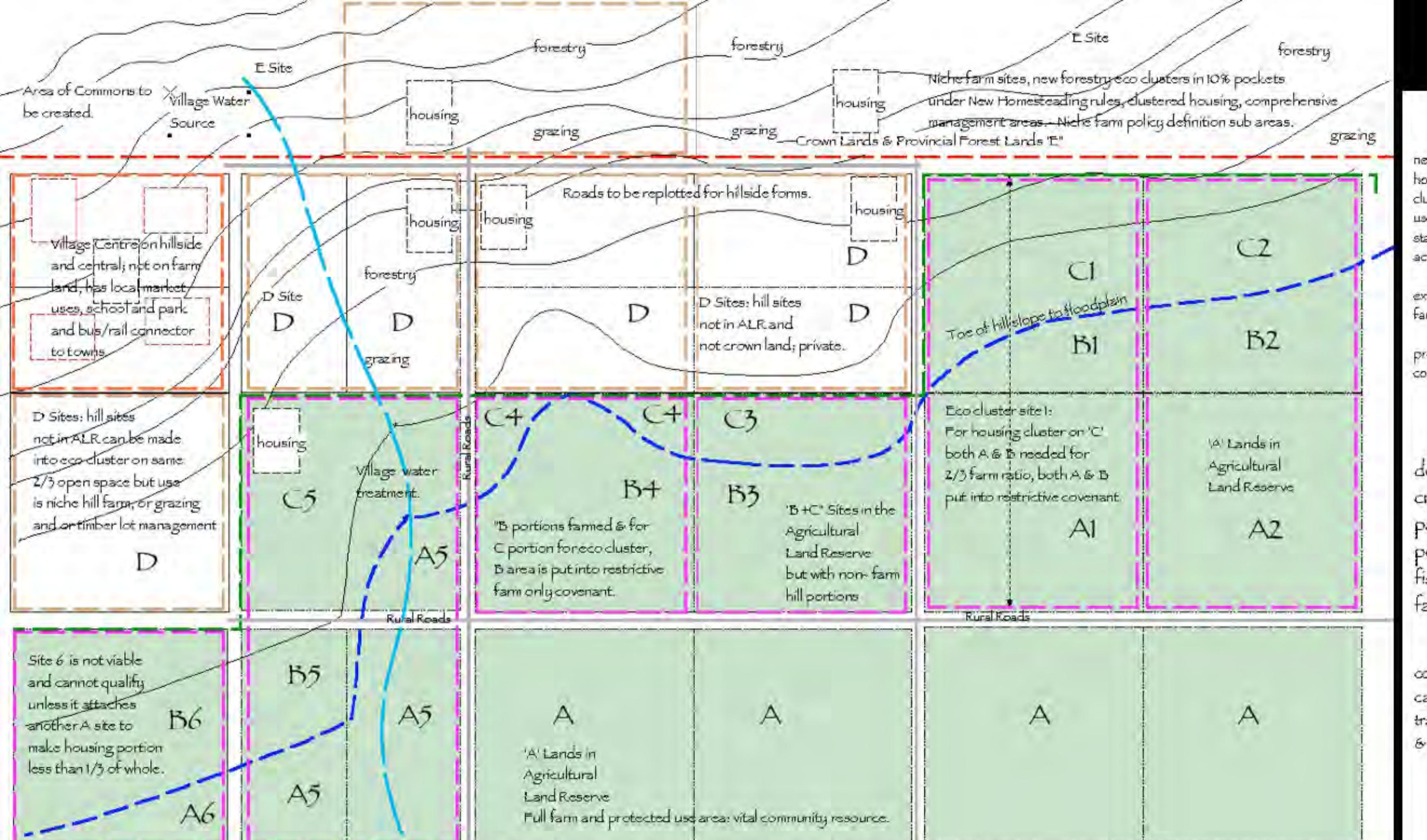
Managing the Death of Suburbia: Reclaiming Green Fingers: Turning the remainder housing into the Village

new constraints, new opportunity

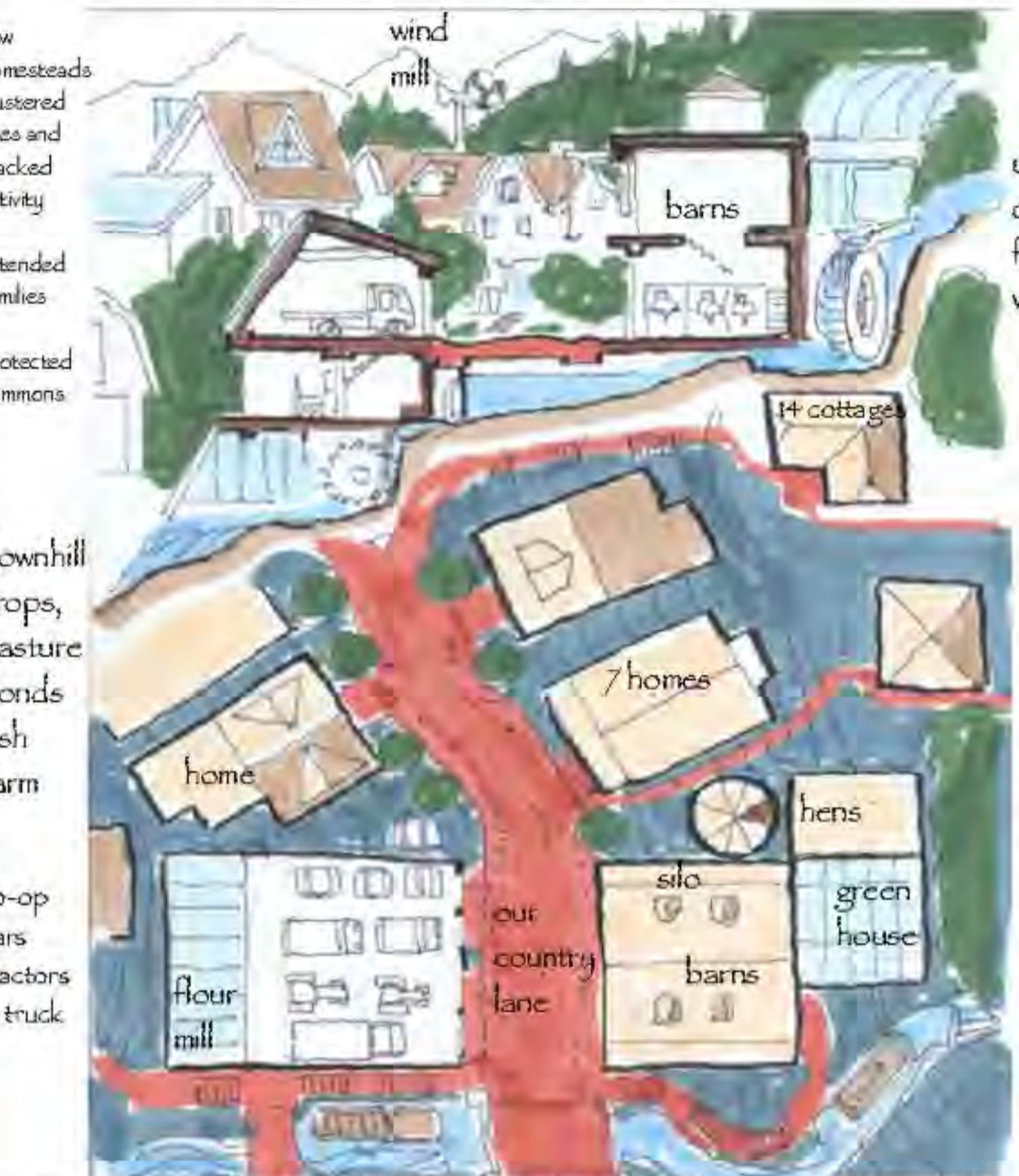
Marbleization & Urban Triage.

- Death of suburbia.
- Hollowing out of city form.
- Failure of buildings of oil age function and dependence on gas & oil.
- Collapse of largest cities due to failure to provide food and services.
- Risk of population re-settlement in out of control means & numbers.





The Homestead Cluster Patterns



Rick, I am not sure if you can use info like this in your designs, but it came up today. Space put aside for outbuildings, and lots of them. Repair a machine, dry wood, store feed and straw, dry bamboo, outdoor work or meeting space etc. The first thing I did here was put up cutbuildings and mark out other areas for storing seaweed, woodchips and other mulch materials. These need to be somewhere easy to dump off and central enough to be useful without strain. In some designs, this stuff is stuck off in the fringes which is a waste of human power to get and use them.

By the way, besides one half of the roof on the big greenhouse, and some rolled roofing on the potato shed, the rest of the materials were scrounged. And that is another space that needs to be available - where to put scrounged materials while they are being incorporated into housing etc. Don't even know if this is where you were going but it really is missing in design of rustic living. Robin Wheeler, Sunshine Coast

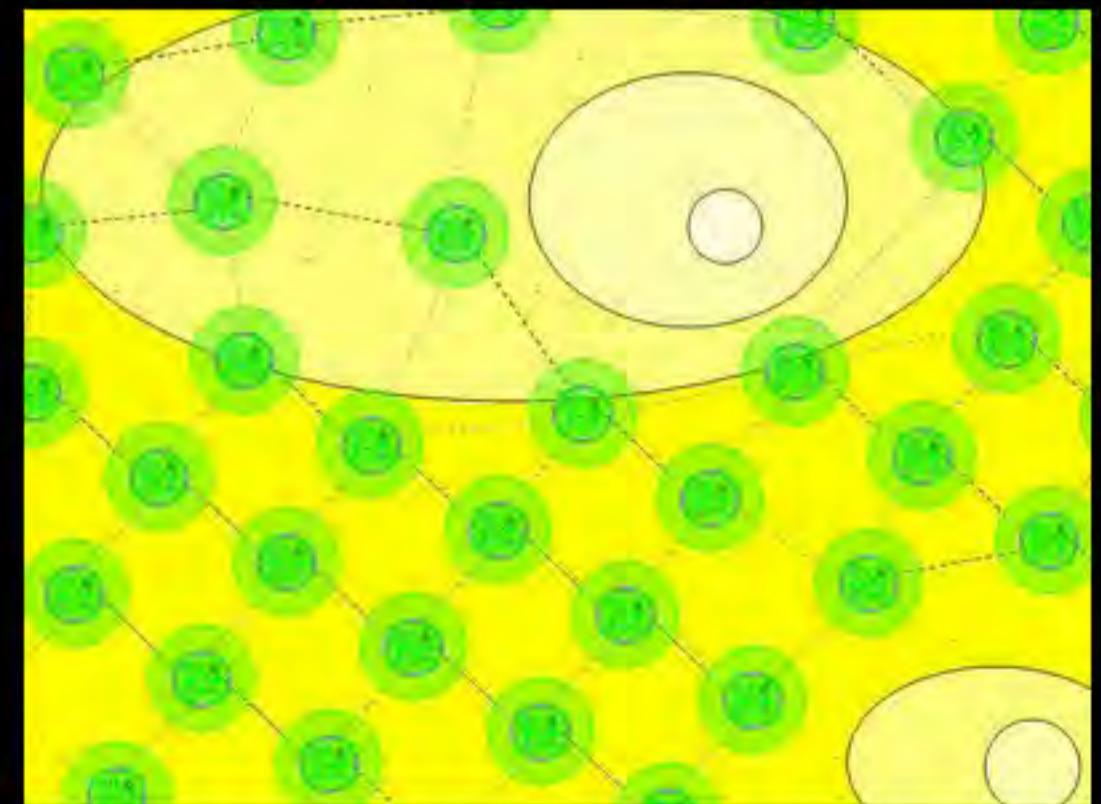
Access to land, a new urgency.

Farms access with development on hills.

Re-Learning Old World Lessons



Town Edge: not
more suburbs but
new Village, farm &
forest



"A Theory of Power", by Jeff Vail. An exploration of the development and structure of hierarchy and empire through political anthropology, economic theory, evolutionary ontogeny and developmental psychology.

Triage Planning for
Post Oil Society
& Climate Change

You

Families

Buildings

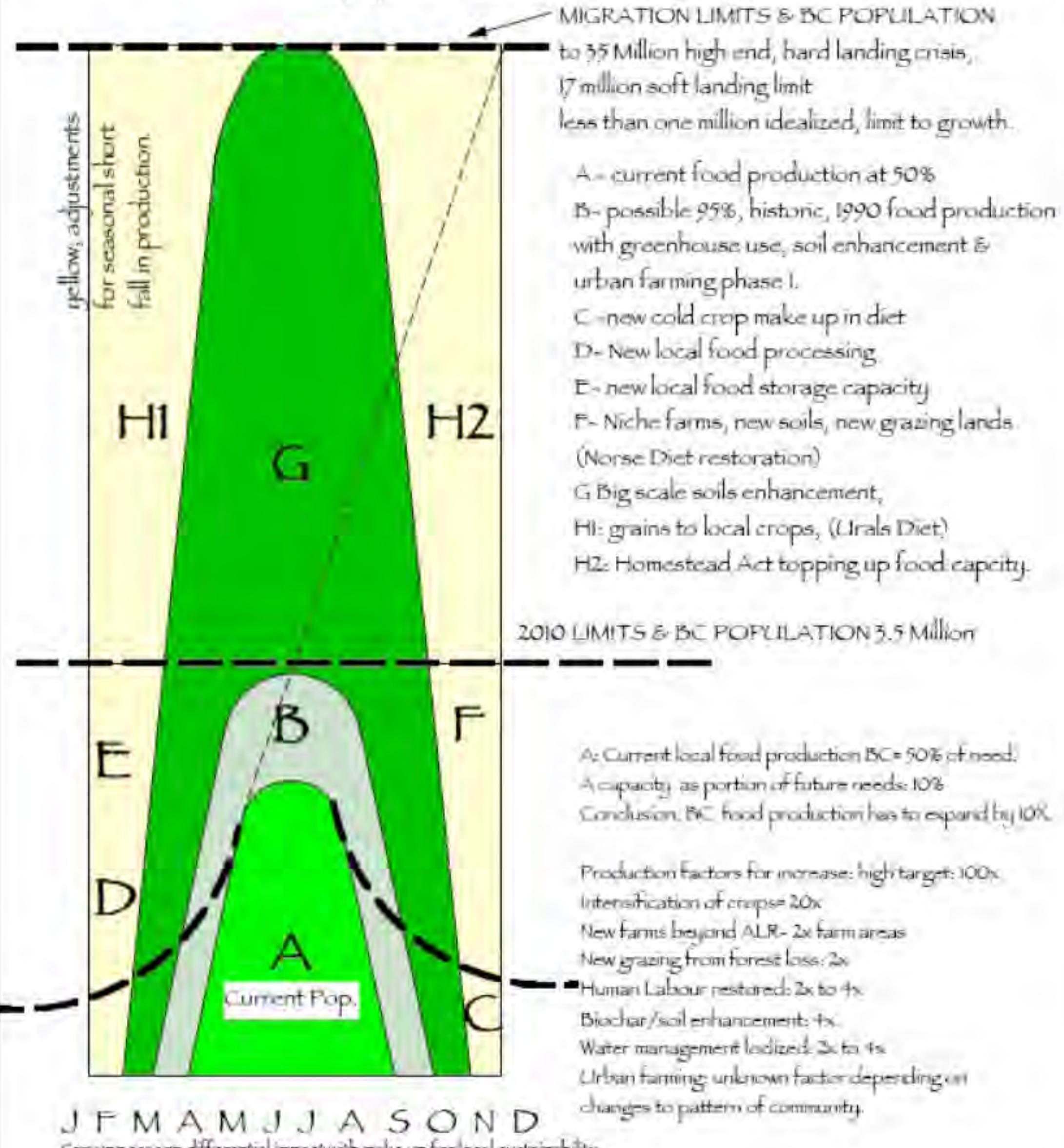
Community Pattern

&

Food

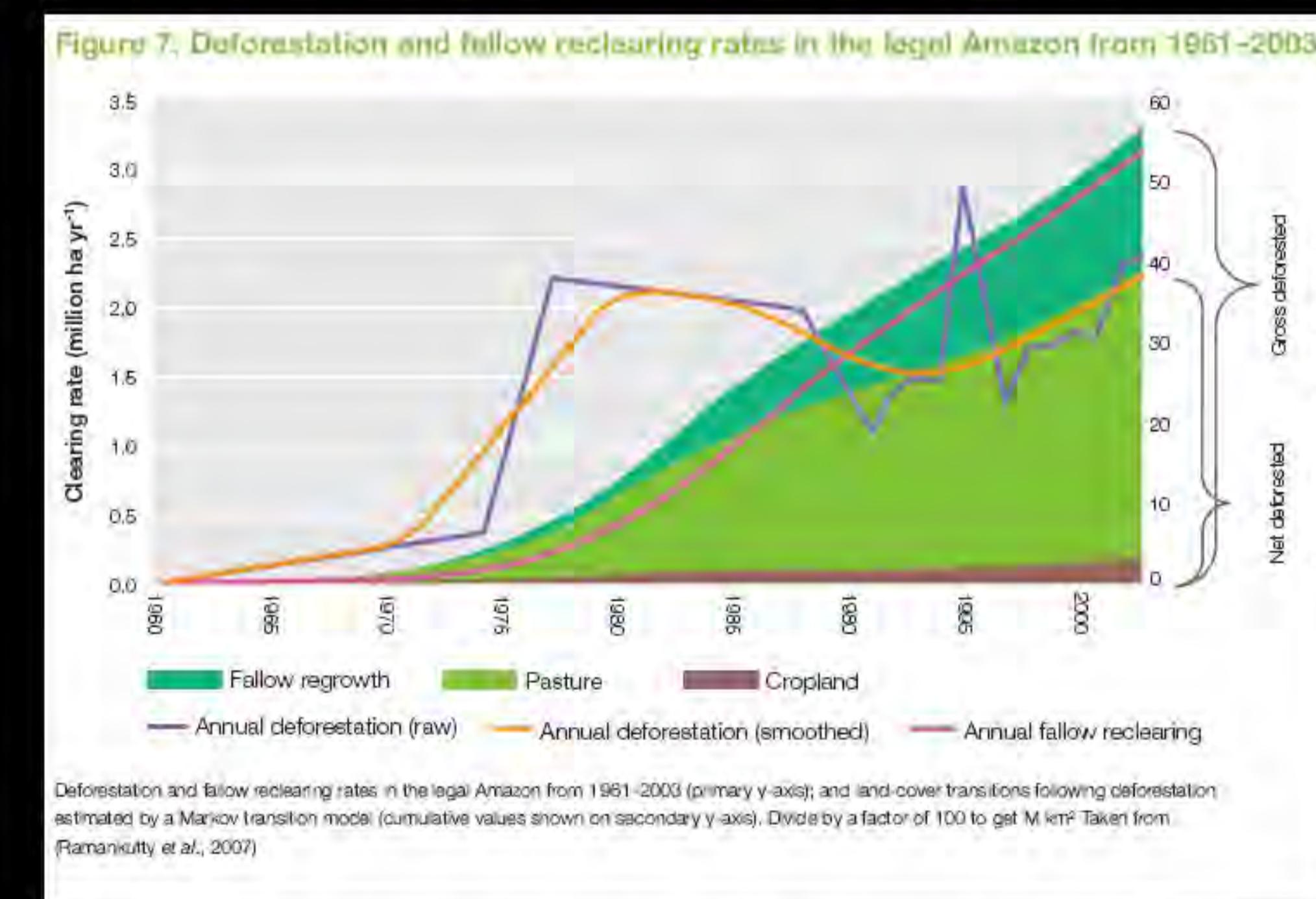
All you take for
granted is now
going to change.

Strategic Program for Canton/Regional Food Security
For current population, and for Mass Migration Scenarios.



Overshoot Risk: BC

Extremes tested and found wanting:
BC as a New Eden
or a last lifeboat Scenario.



Amazon example: deforestation ↗

Cantons: Eco-basin renewed local governance.



Re-localization affecting governance.



Homesteads: 9% of BC



Human Settlement
North America.

Global Impacts: land controls for Triage Planning.

The World Park

No-Go zones: 50%

Hamlet & farm	ALR	Eco Reserve BC & Can. Parks x2=
Rural Commons some human use		25% of BC

See
Global
Ocean
Limits

See
Global
Air
Limits

Key Policy

* Hamlet & farm; subsistence farming norm 6%

* ALR Key societies productive farms, 3%

X' factor 1.5%, the loss of land to sea rise.

1% urban triage in flux- reversion to half nature

1% of urban area marbleized in recovery.



Homesteads, Hamlets & Villages: Adaptive Settlements

- Loss of oil/switch to railway/steam power (wood fuels)
- Downscale of cities/new sustainable towns on rail lines
- New rail lines to access new belts of farm/town/forest pattern
- Settlements seeking good climate/good soils, water access
- Refugees seeking defensible communities/ new towns & villages
- Rudimentary forms of settlement will be the new norm, not luxury
- Generalists, & few specialists will be needed.
- Relocalization of all industry, not globalization will be unavoidable
- So get used to it and plan for adaption





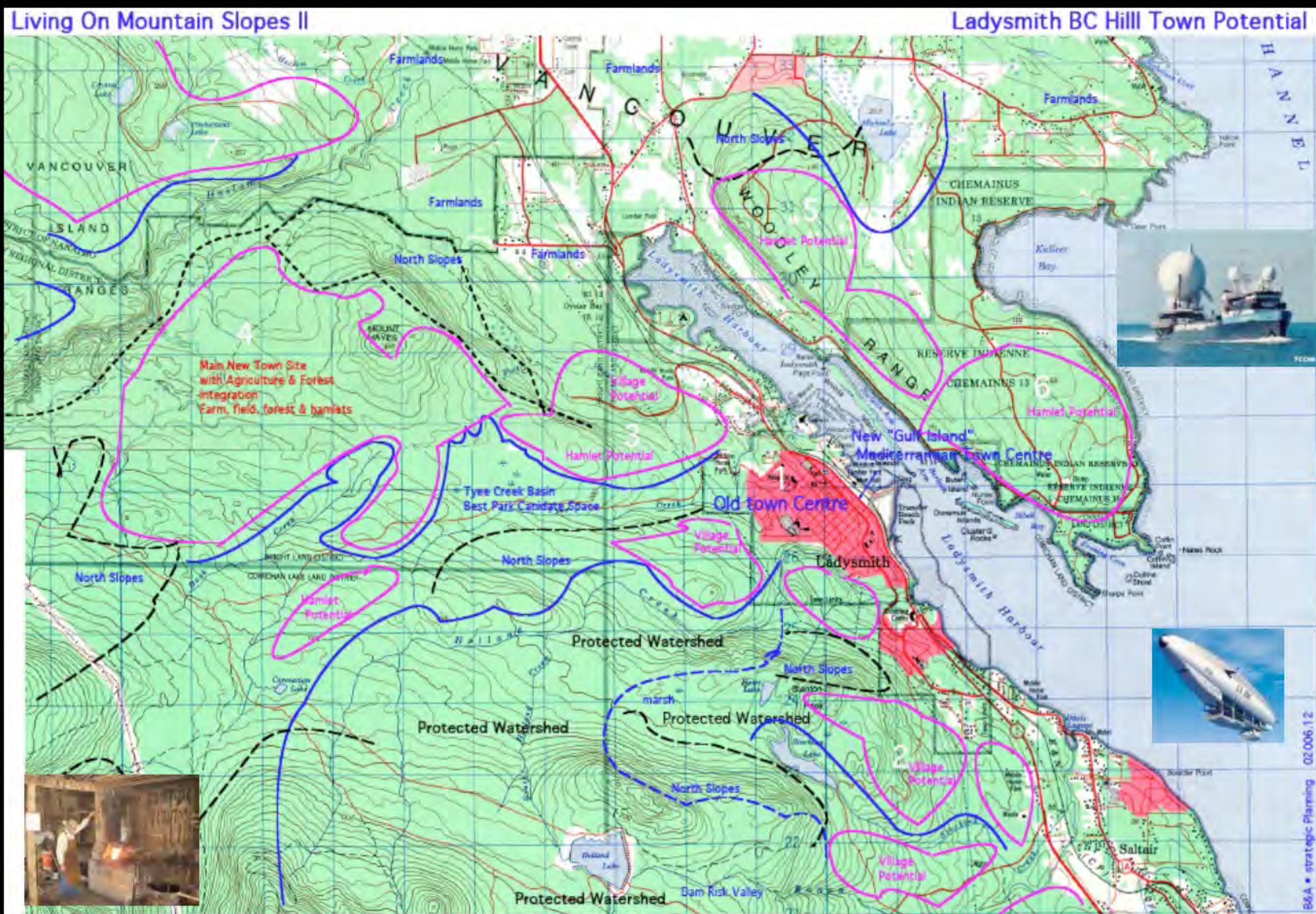
After the Oil Economy: Back to Rail & Expand it.



New County Government Eco Basin Rule



Hill Towns Revival- rail & mountain towns for BC + Mill town cooperatives For economic relocalization



- Design With Nature Approaches: a Vancouver Island Example

Hierarchy & matrix Pattern

Scale Plan Populations Areas
BC Limits 35M population 350,000 sq. Mi.
BC at 2010 3.5 Million

10 Cantons Factor 1/10 Factor 1/10
Canton 3.5 Million 35,000 sq. Mi.

Factor 1/7 Factor 1/10
Valley/City 500,000 pop. 3500 sq. Mi.

Town 70,000 pop. 350 sq. Mi.

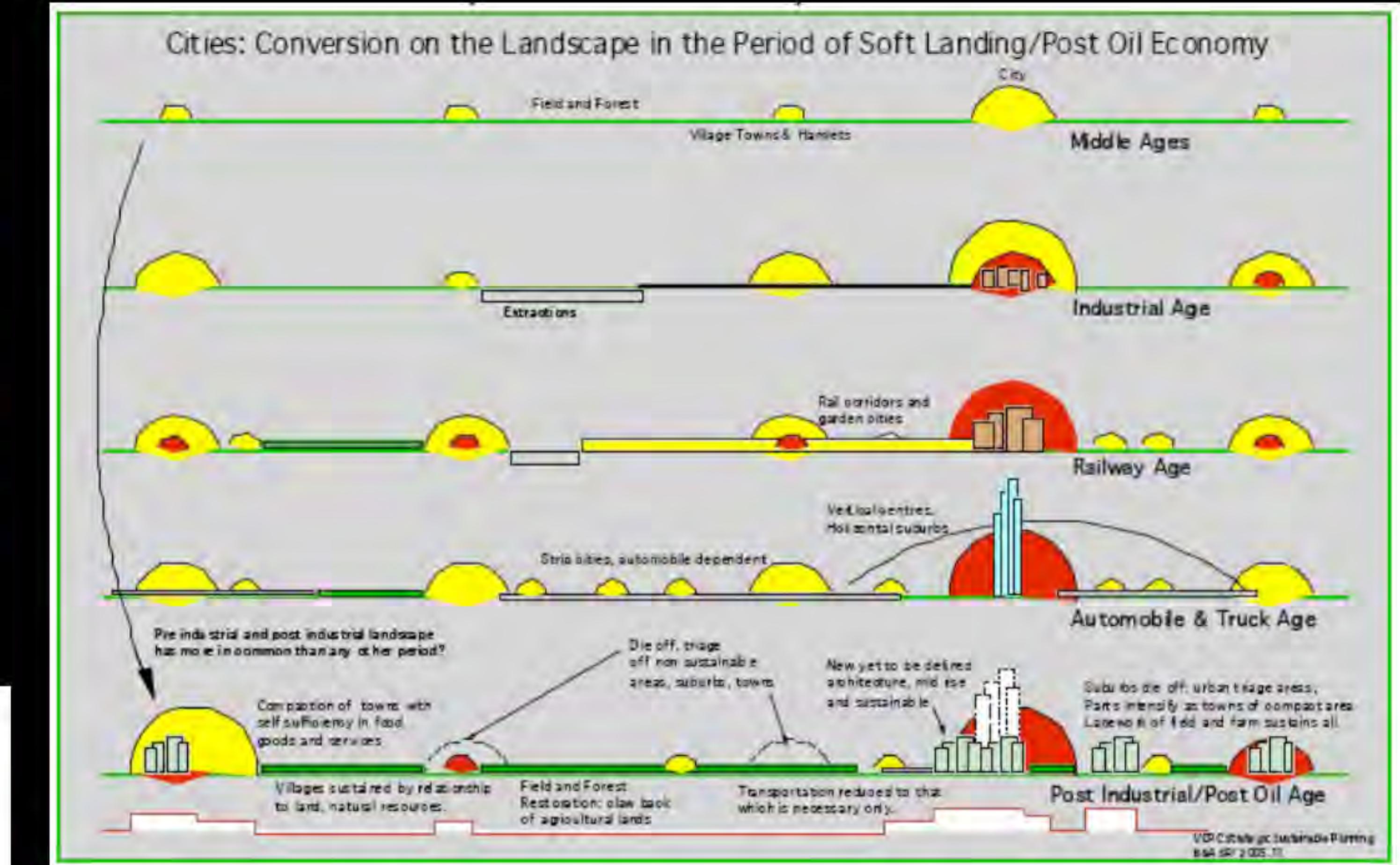
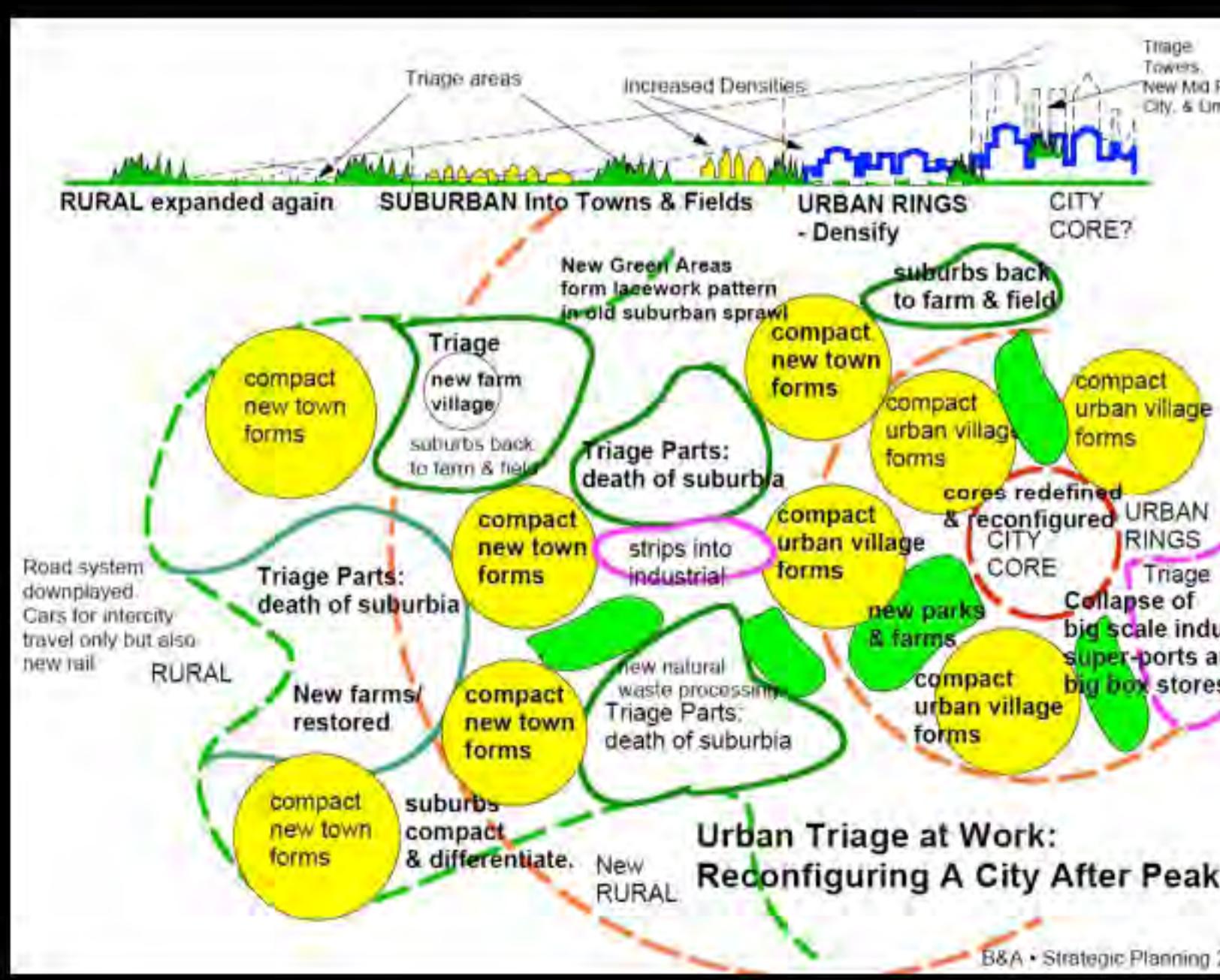
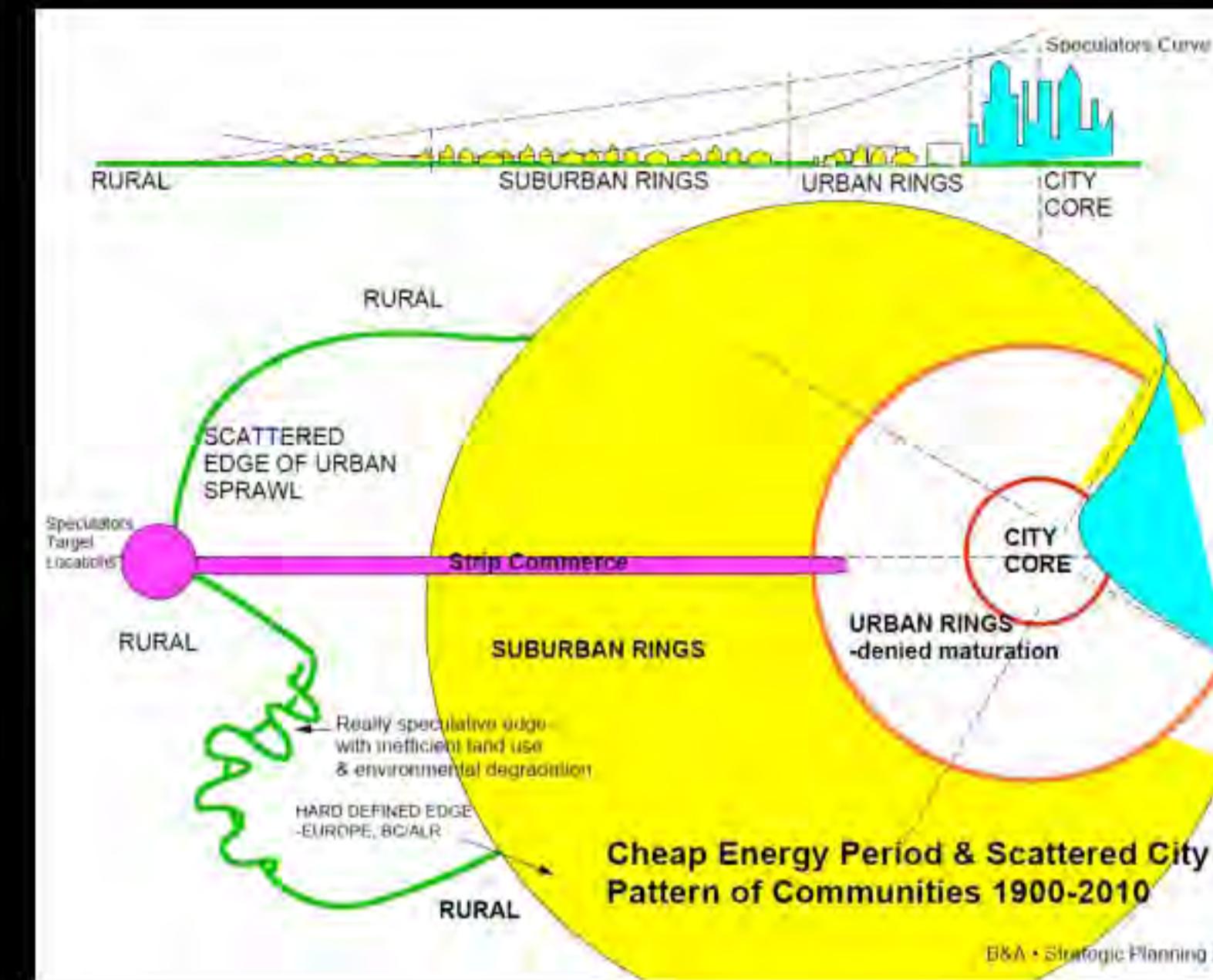
Village 10,000 pop. 35 sq. Mi.

Hamlet 200 to 1500 pop. 3.5 sq. Mi.

Homestead 30 to 200 pop. 0.35 sq. Mi/ 200 acres

Home-site 4 to 30 people 1 acre net
7 home-site families share in 200 acre homestead
of which half the site is direct farm, half is commons
with some utility; forest and field (grazing),
watercourse protection, habitat for wildlife

Human community power of 7
Nature Reserves power of 10
Nature doubles reserves at each step in scale.



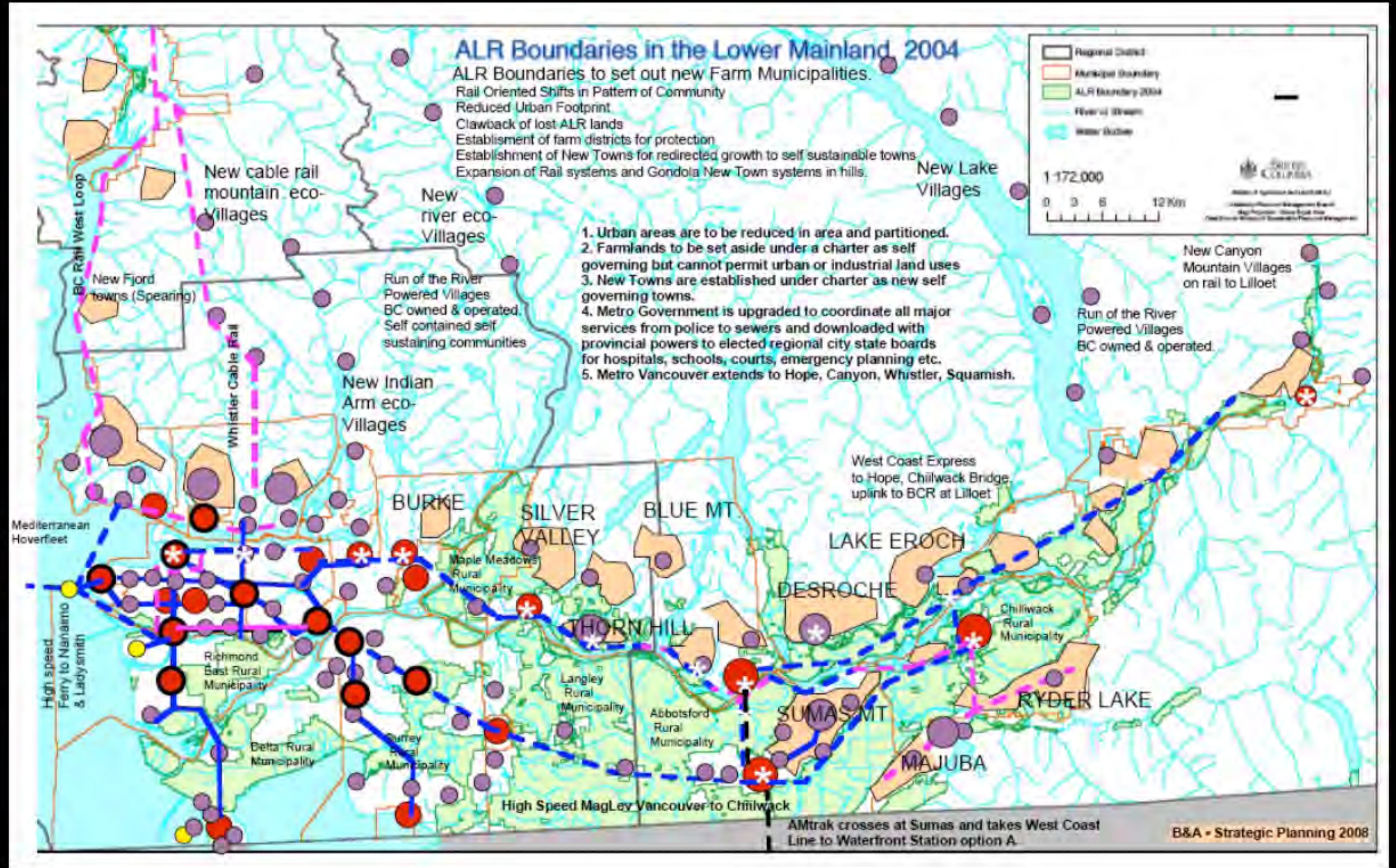
Settlement Cross Section Evolution

Re-settlement Policy.

- Access to land for chance at subsistence farming, for family & friends.
- Urban homesteads: how to make the 40% public lands productive.
- New Homestead Act and rural hamlets: before we need them, now.
- Re-orientation to railways and waterways as highways fall into disuse.
- Planning for evolution, accretion and small scale community change.



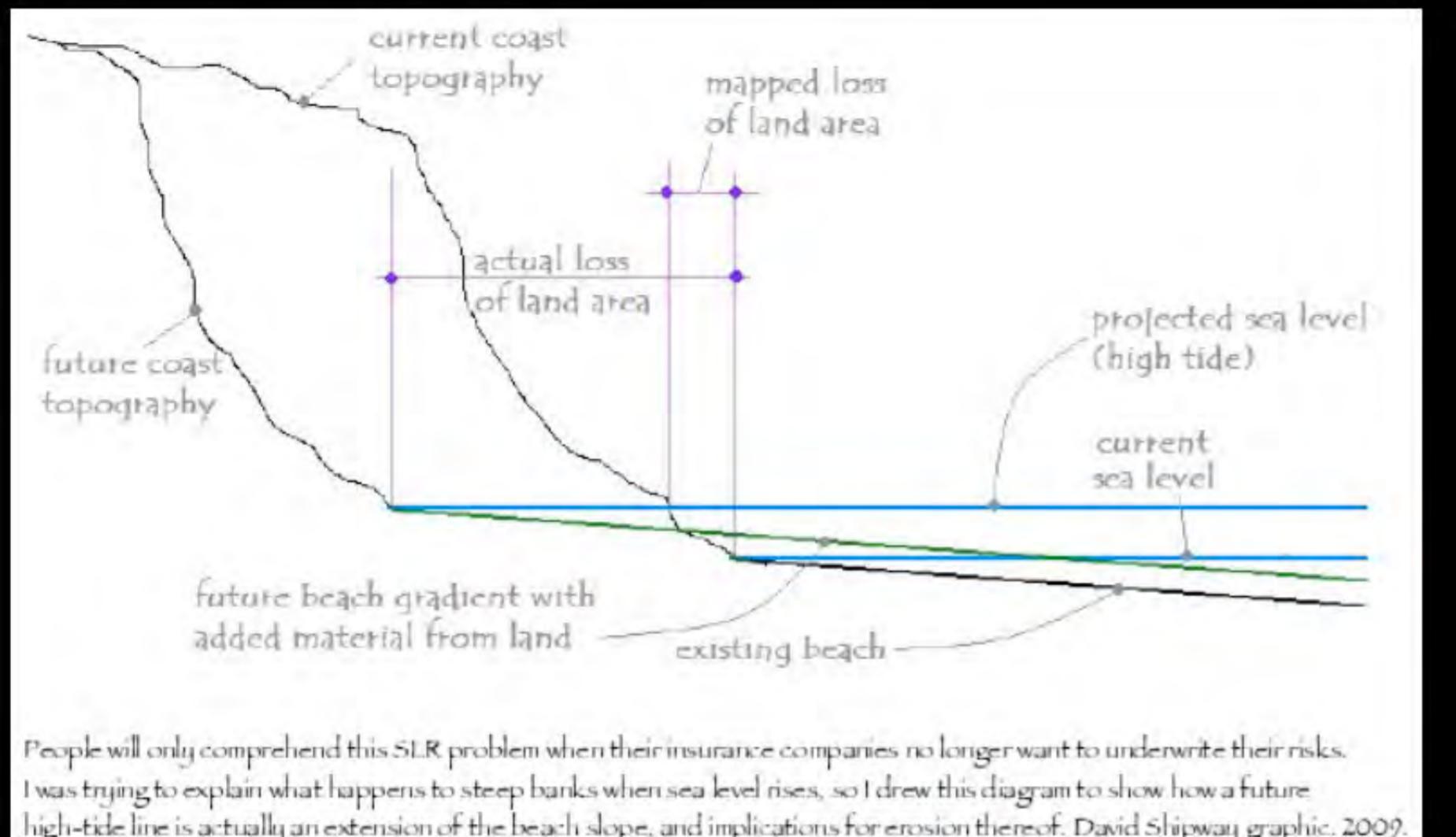
SSP series: urban focus Metro Hilltowns & Rail Service Now..



Post Oil Settlements
on hills, served by
rail, gondolas and
maritime ferries.

Claw back of lost
Agricultural Lands.

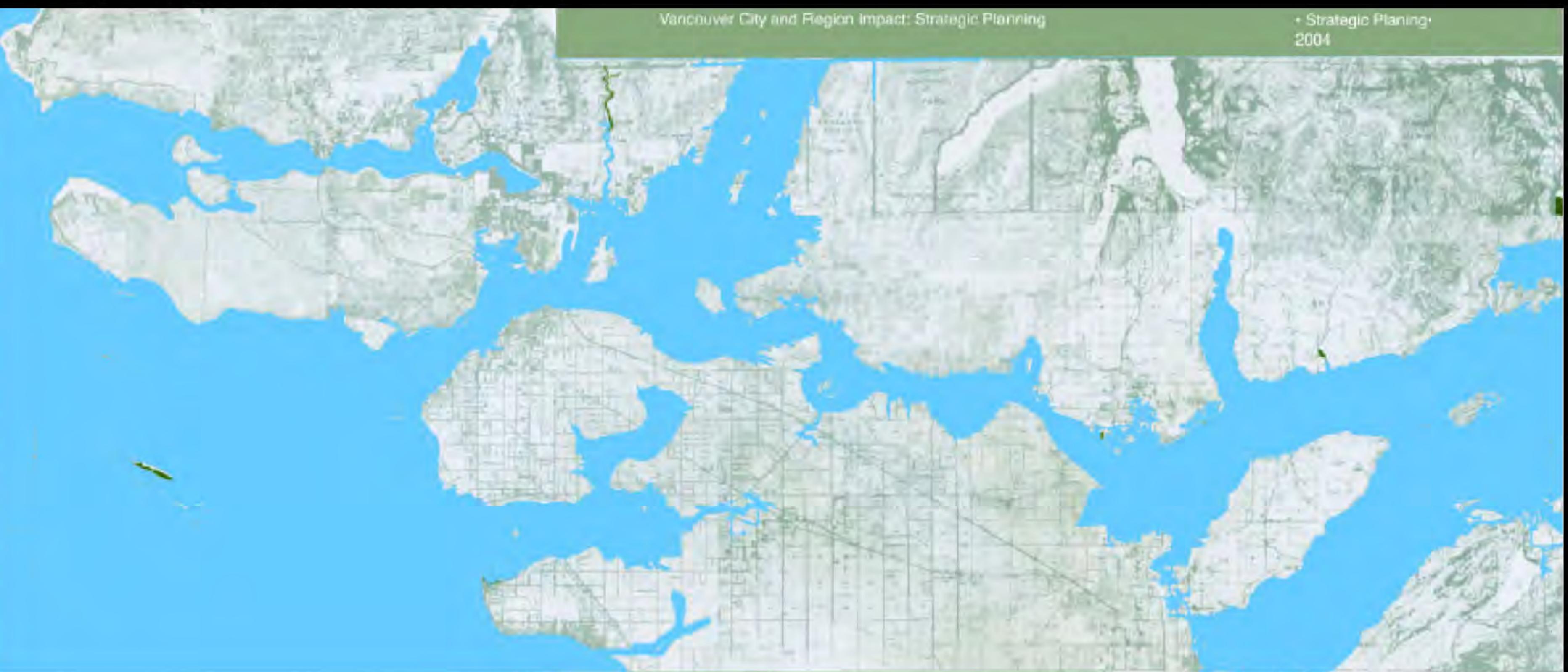
Avoidance of any
more floodplain
settlement.



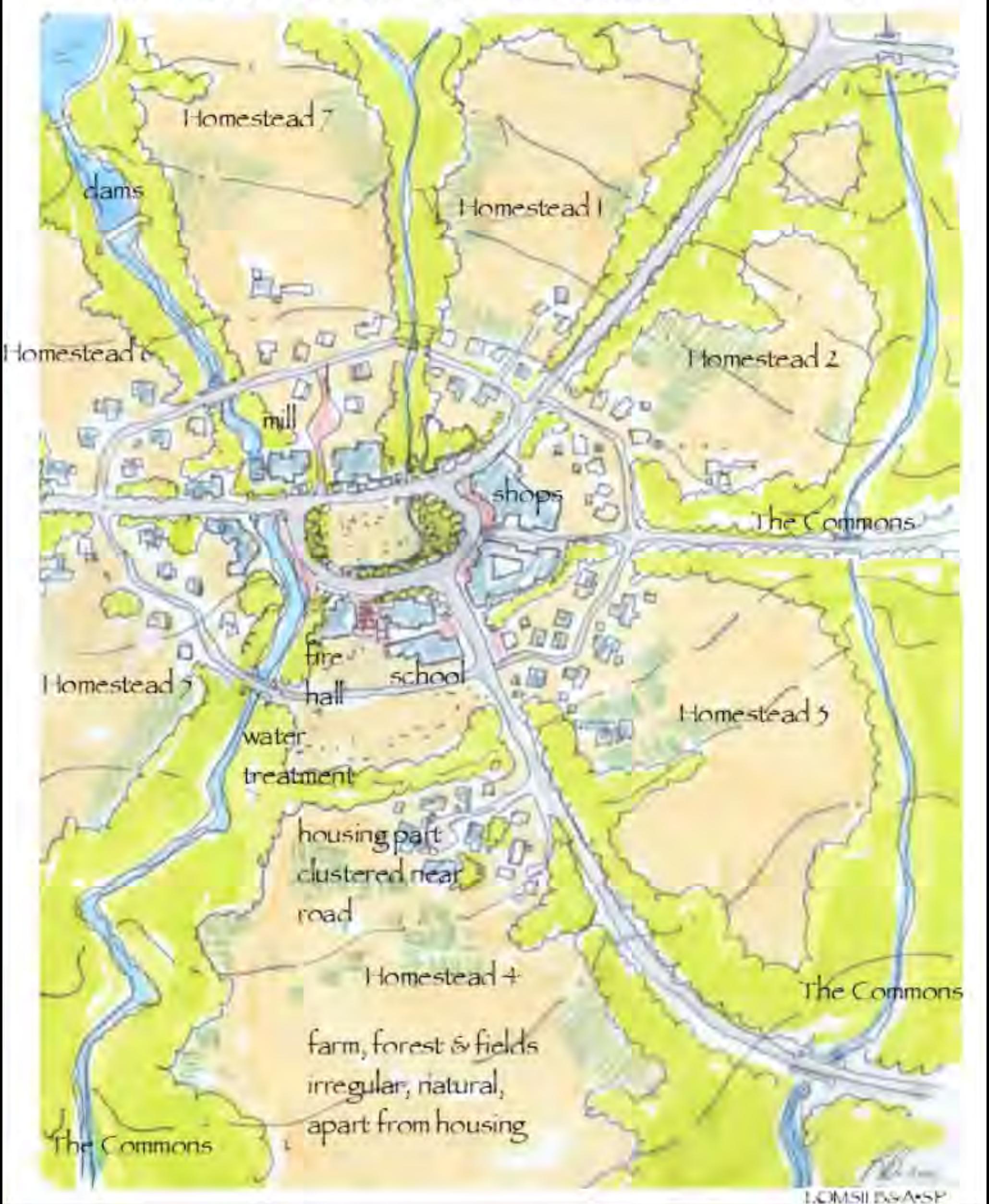
People will only comprehend this SLR problem when their insurance companies no longer want to underwrite their risks.
I was trying to explain what happens to steep banks when sea level rises, so I drew this diagram to show how a future
high-tide line is actually an extension of the beach slope, and implications for erosion thereof. David Shipway graphic, 2009.



Contingency: 6m Ocean Rise: Vancouver



Homestead Clusters to Hamlet Scale in Commons



Post oil hamlets: rural independence.

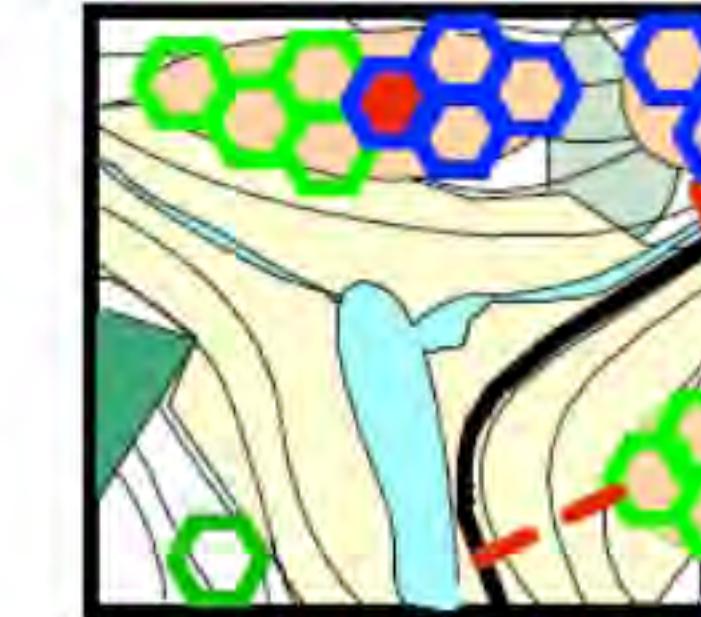
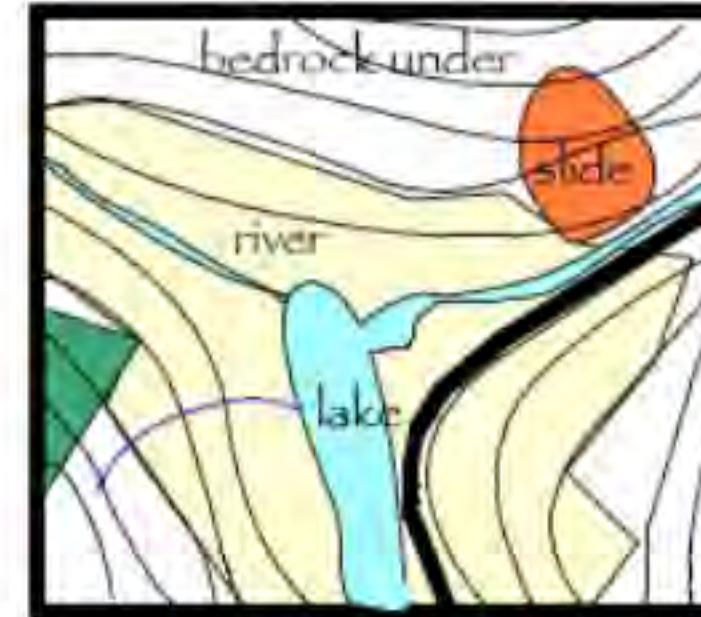
- Use existing rail, waterway and secondary road systems in place.
- Pre-plan to avoid problem areas, seeking out best siting options (Design with Nature exercise.)
- Interdependence of family and community recognized as safeguard to both and increase success of re-localization.

Avoidance: Not Development

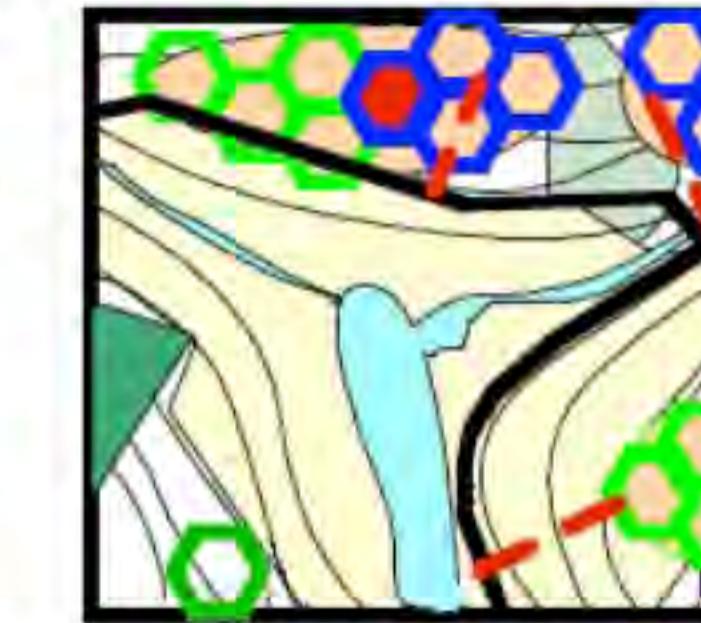
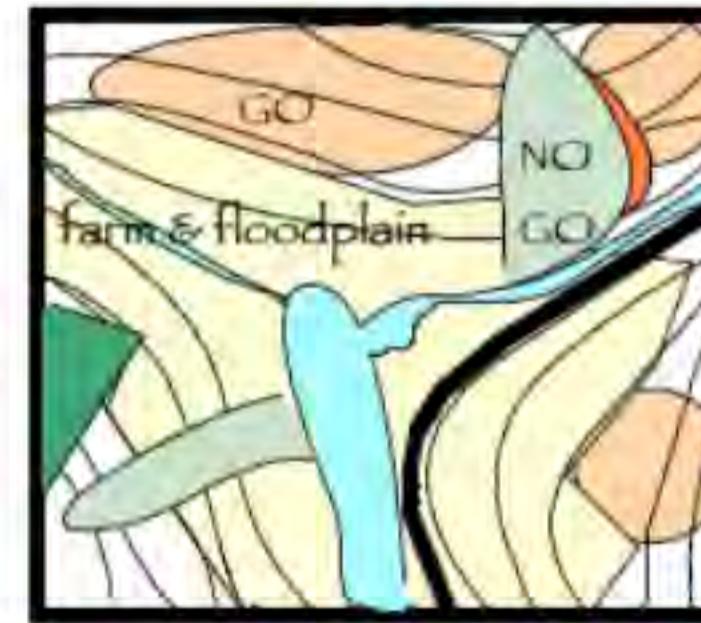
- Conditions of Homestead and hamlets are based on accepting an alternate standard of living, a new lifestyle and transition to a new economy. Land transferable only via family: birth, death & marriage.
- Homesteads are a group ownership model, with community stewardship of a ring of commons land.
- Nuclear family home and ownership indepence happens within the framework of the extended family homestead. The family lot is fee simple within a larger land grant. Abandoned land goes back to crown.
- Clustering of homes and hamlets minimizes impact on the land and increases joint security.

Canton Assessment

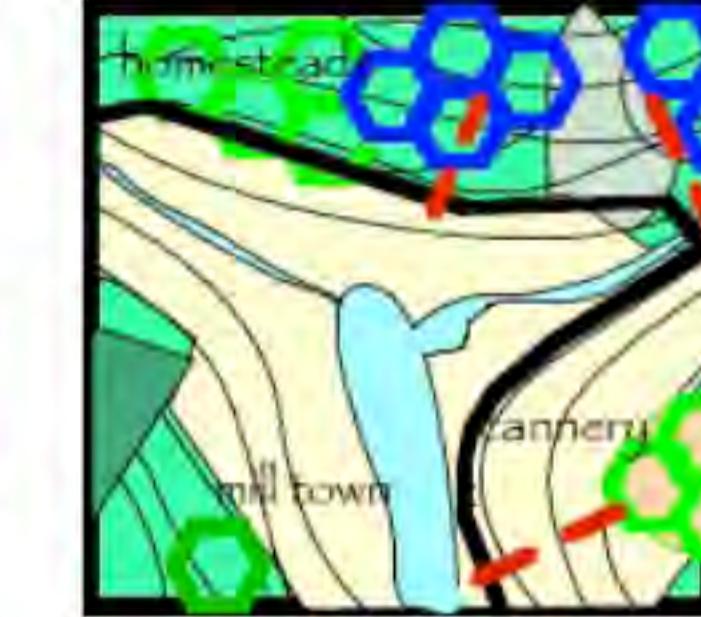
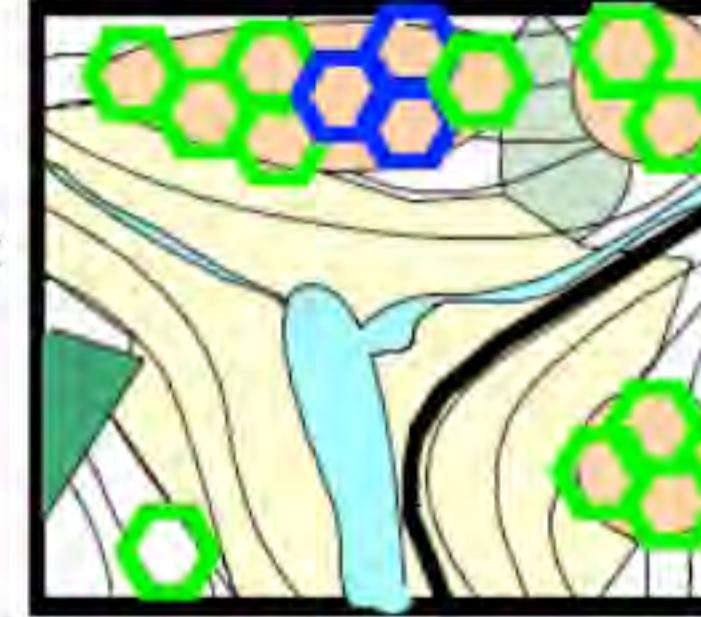
A: Geddes:
Assess the land for suitable uses, habitat: Canada Land Inventory for soils, geology, hydrology, topography, stable slopes, orientation to sun, micro climates, water courses, existing cultural uses.



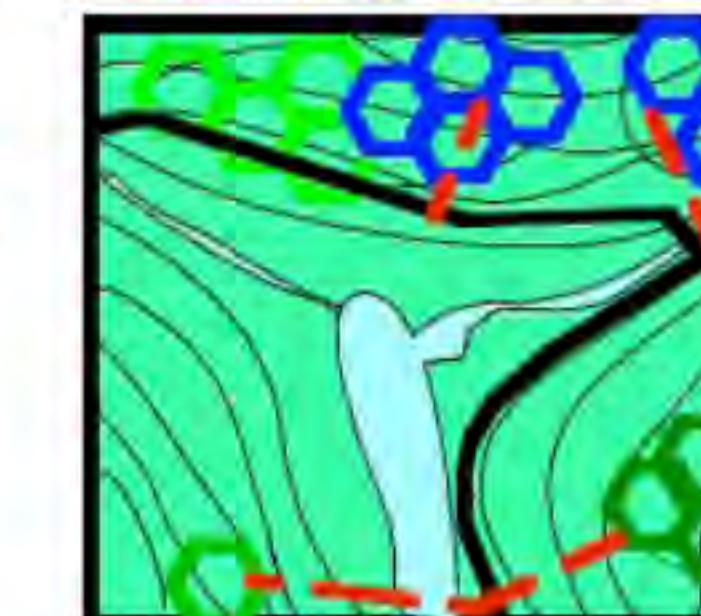
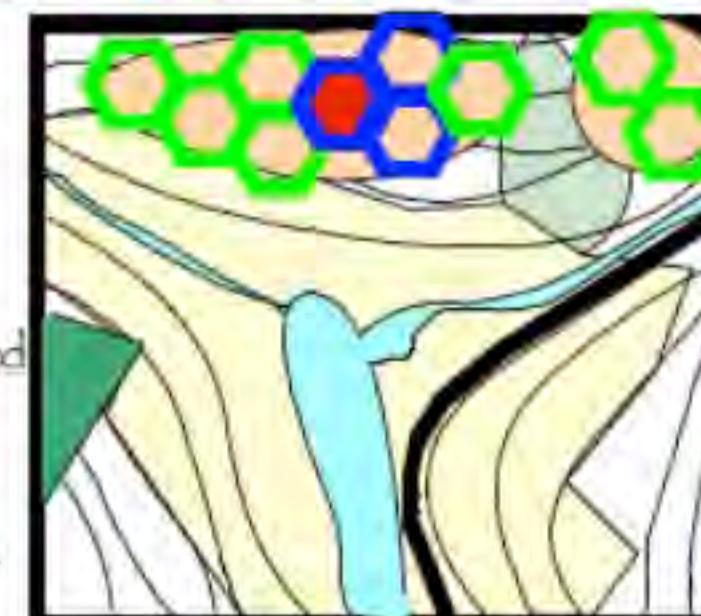
B: Design With Nature: McHarg
Assign Exclusion Zones, NO GO zones, unstable slopes, north slopes, habitat, water courses, archeology sites, and set aside all good soils for agriculture including Niche Farm sites on hillsides.
Inclusionary Zones: priority for farm and new settlement in low impact forms.



C: Rhizome Community form: Chrysteller
Do not apply massive homogenous land use but form network of small sustainable farm and hamlets with substantial green fingers of sustainable natural landscape.



D: Mountain Hierarchies: Spearing, Balfour.
No hierarchy is assigned but can form from the natural evolution of the eco-basin in transition. Steeper stable slopes allow for higher density urban form. Transport is based not on car and road but on train, boat, and on aerial gondolas for vertical transport. Mt Eikos or Sumas Mountain patterns apply.



E: Application of Programme:

1. River and rail main lines used for stage one 2010.
2. Local check for water & soils 2012.
3. New main roads put in for hamlets & farms 2013.
4. Homesteads and hamlets established. 2014
5. Evolution of villages, towns, local industry 2016 – gondolas and new rail spurs added.
6. Third wave migration: 2020, new towns and triage modification of oil age towns still viable.

F: Evolution of Programme:

Social, economic and ecology mix allows for differentiation, maturation of a few select hill towns on the rail network or on coastal routes. Rail access stage: hilltowns, 10,000 people. New Hill Arterials & homesteads: 100,000. Hamlets, and homesteads: 1,000,000. Villages, hilltowns, gondolas: 10,000,000. Cities: Triage and New towns: 30,000,000 in BC.

G: Evolution of Design: Timeless way of building: Alexander: Learning from the old world, re-learning local industry, new community formation, use of local natural building materials, low energy uses. Stewardship of forest, field and farm, local tree licenses, water management and hydro. Elected government at Canton level, the Eco-basin.

H: Evolution of Green Fingers of Sustainability (Balfour, Keenan, Rees). Compaction of our environmental footprint by multi stage retention of green areas at every scale.

This is not a development programme but an exercise in post oil emergency resettlement with as much preservation of nature as a first goal.

Canton Assessments

Design with Nature

Limits to Growth

Niche farms phase I

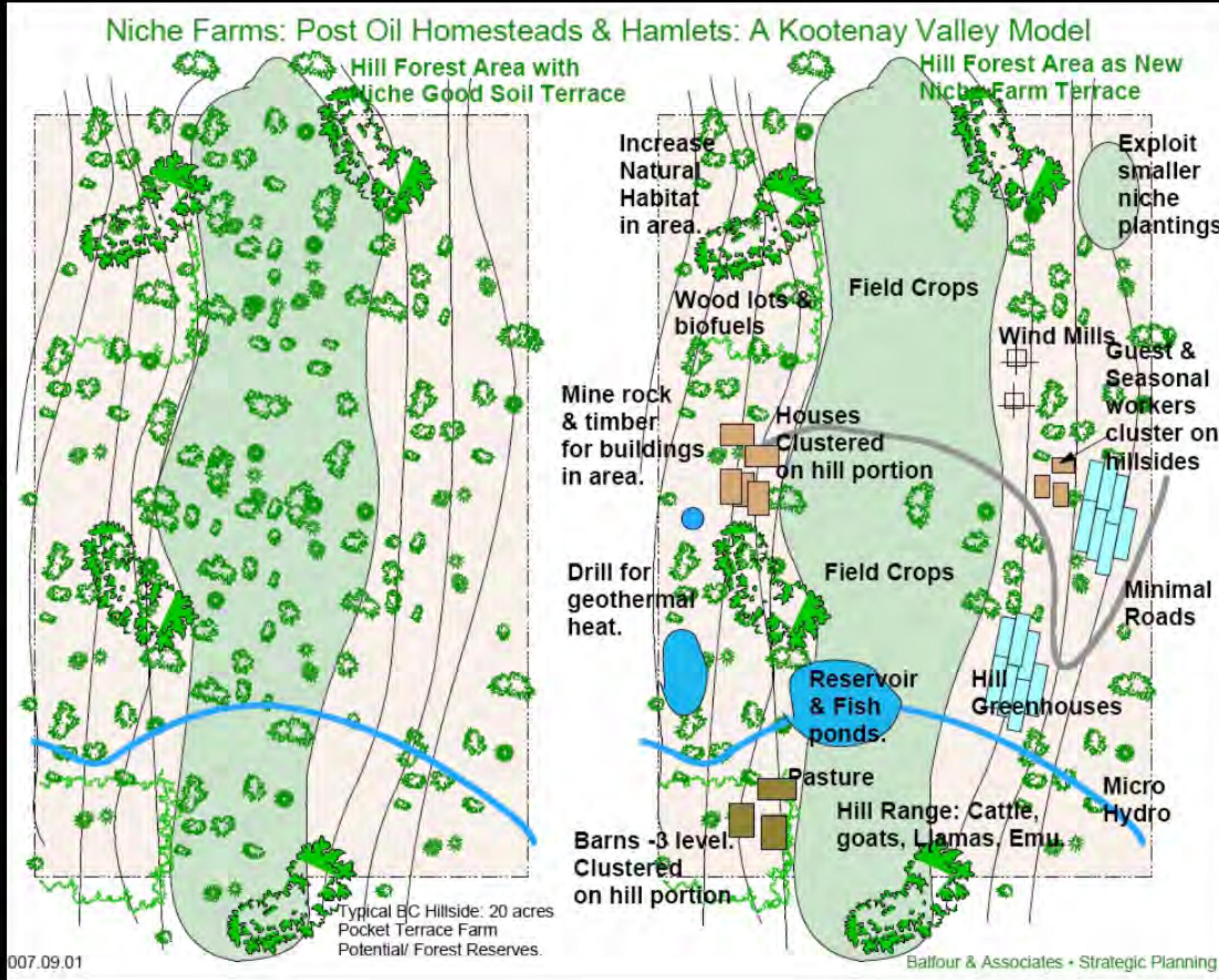
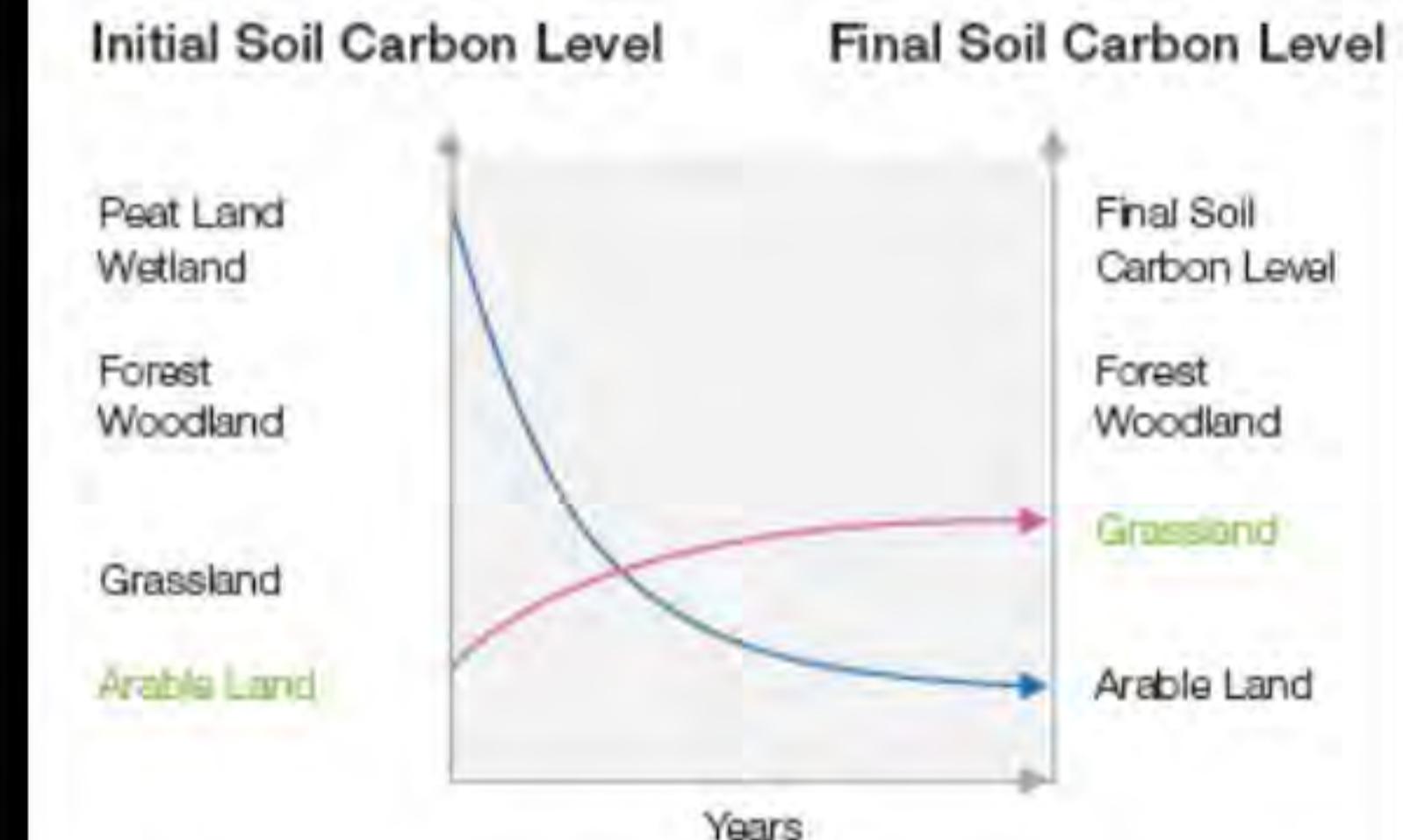


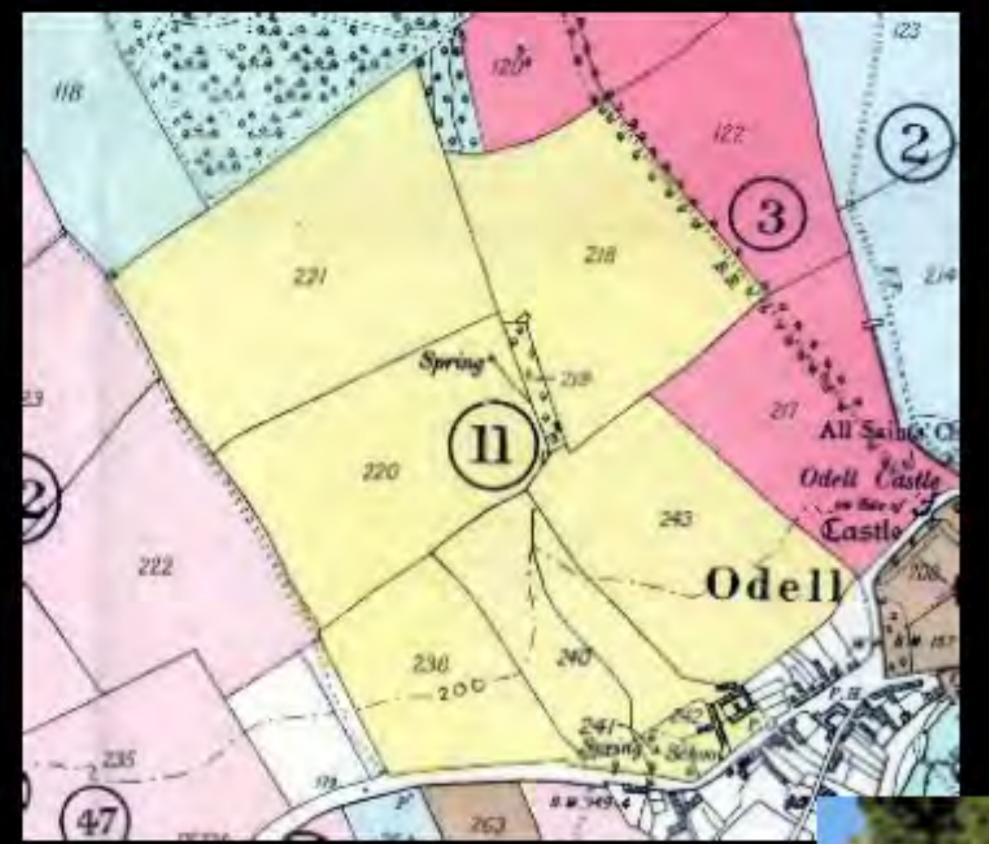
Figure 5. Changes in carbon stock from peat land to arable land and from arable land to grassland.



Changes in carbon stock from peat land to arable land (red/dark line) and from arable land to grassland (blue/light line). Each Eco-system and agro-forestry management crop system has a soil carbon equilibrium. Time constant of exponential change depends on climate change but averages around 33 years (see Table 5 for range of values). Source: IPCC 2001.

Bio-char needed for northern lands...

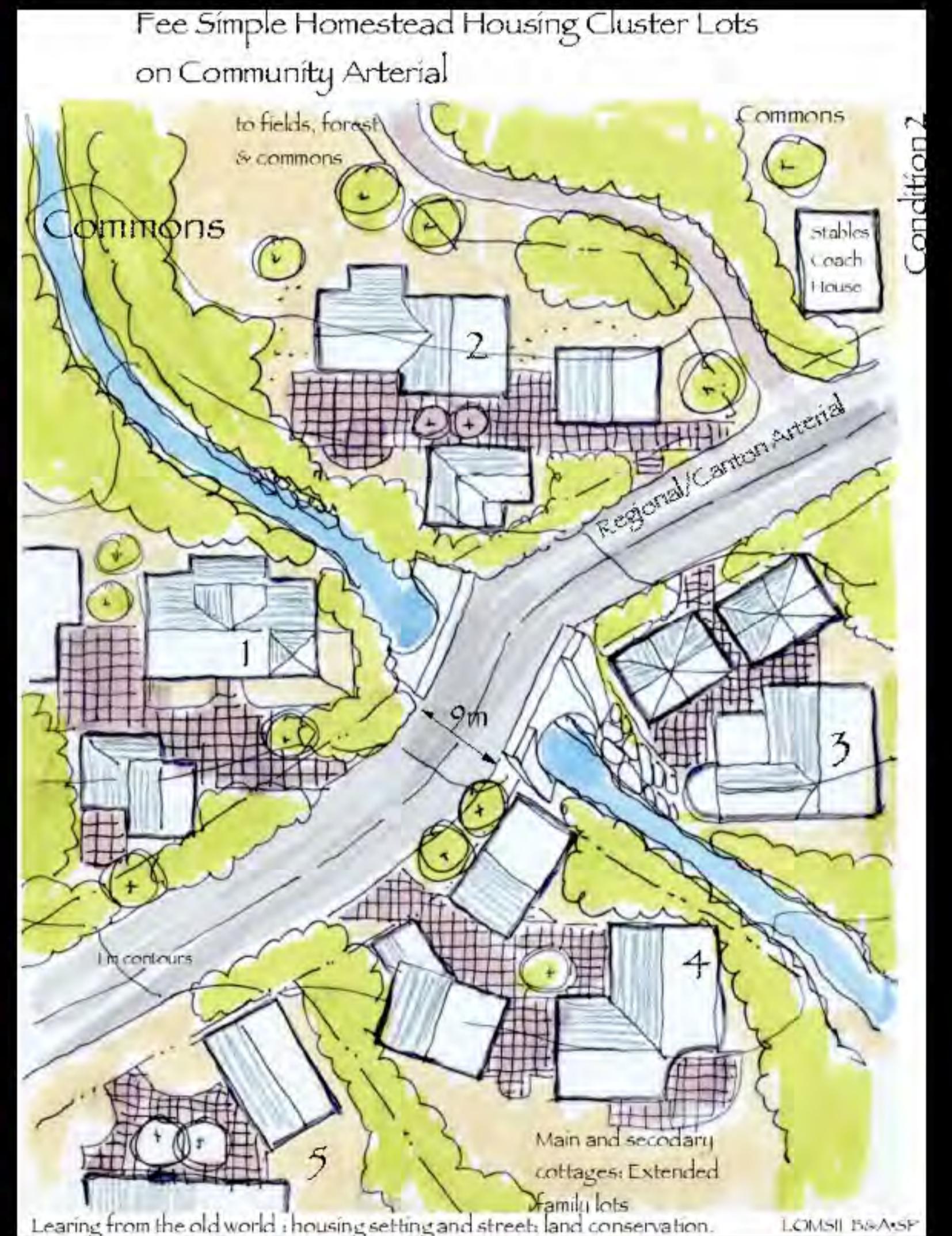
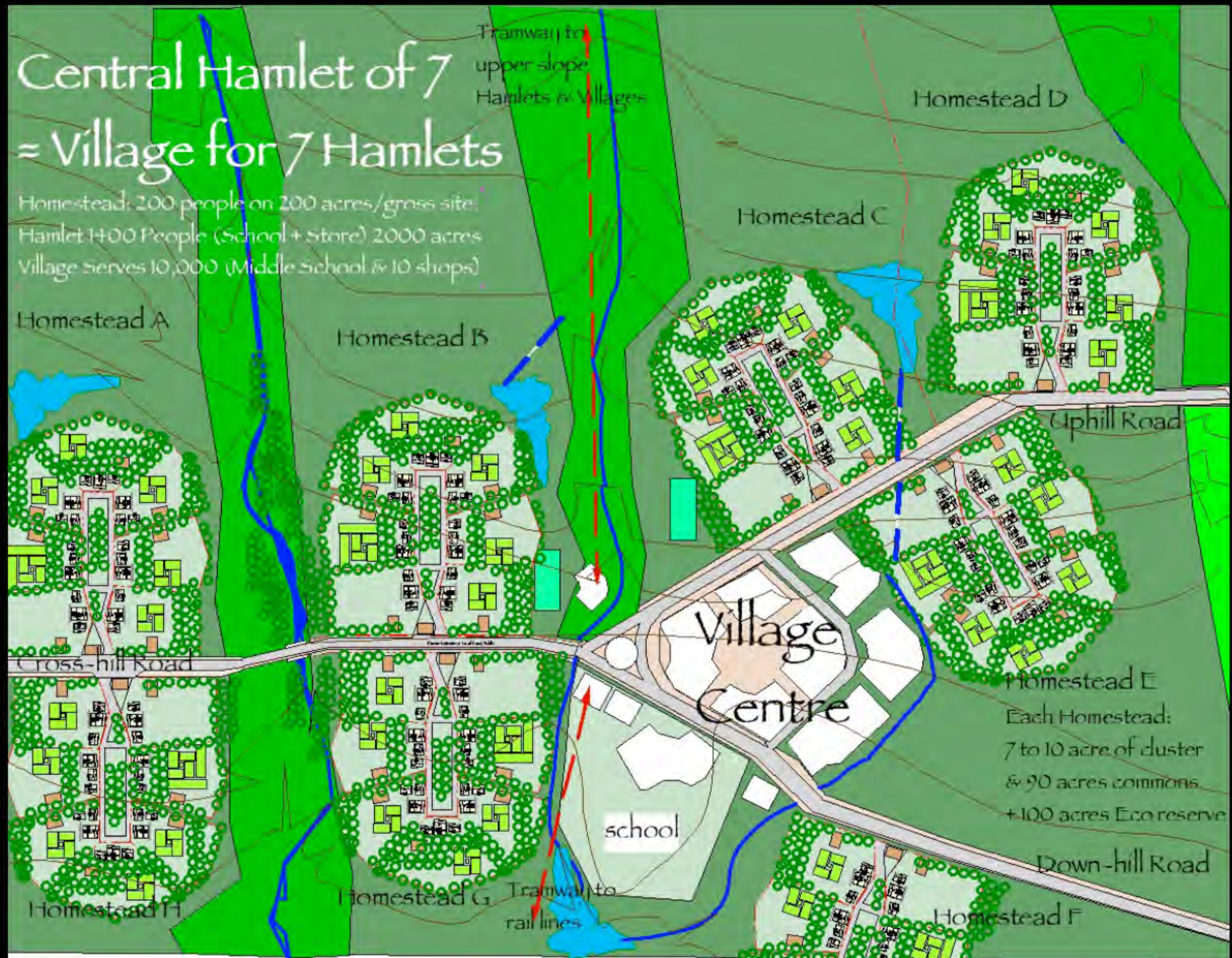
The Homestead

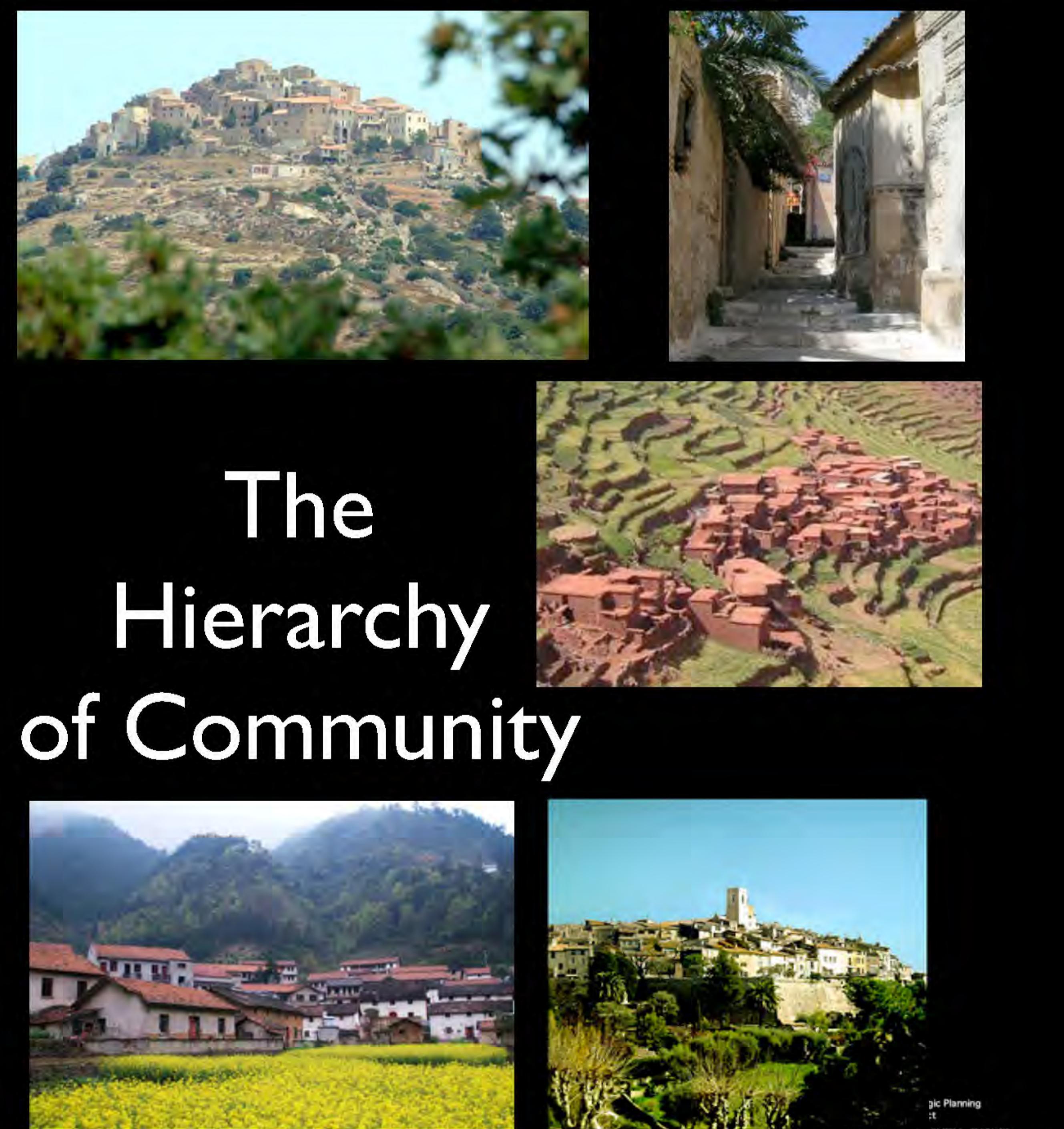
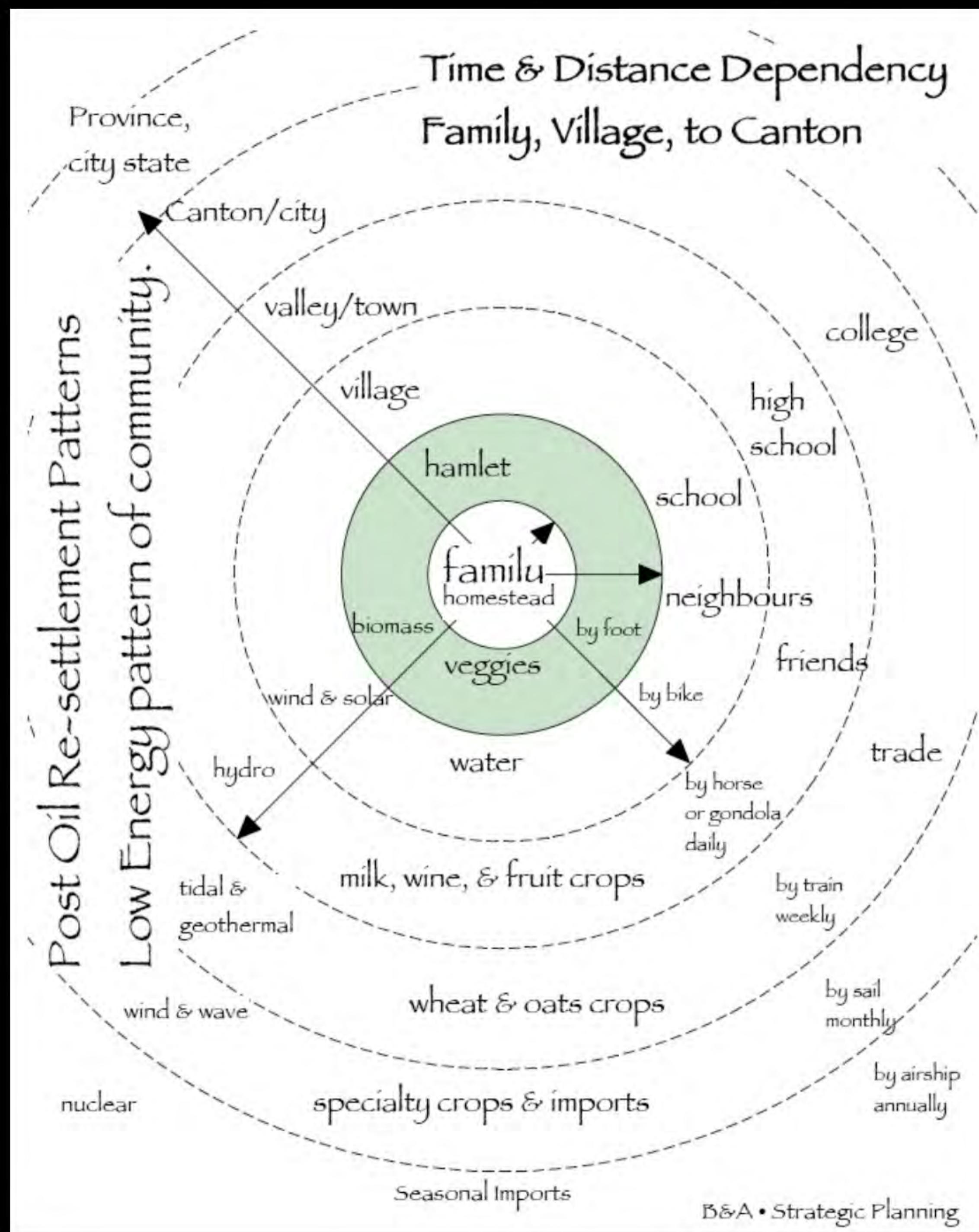


transition
design for oil
age first wave.

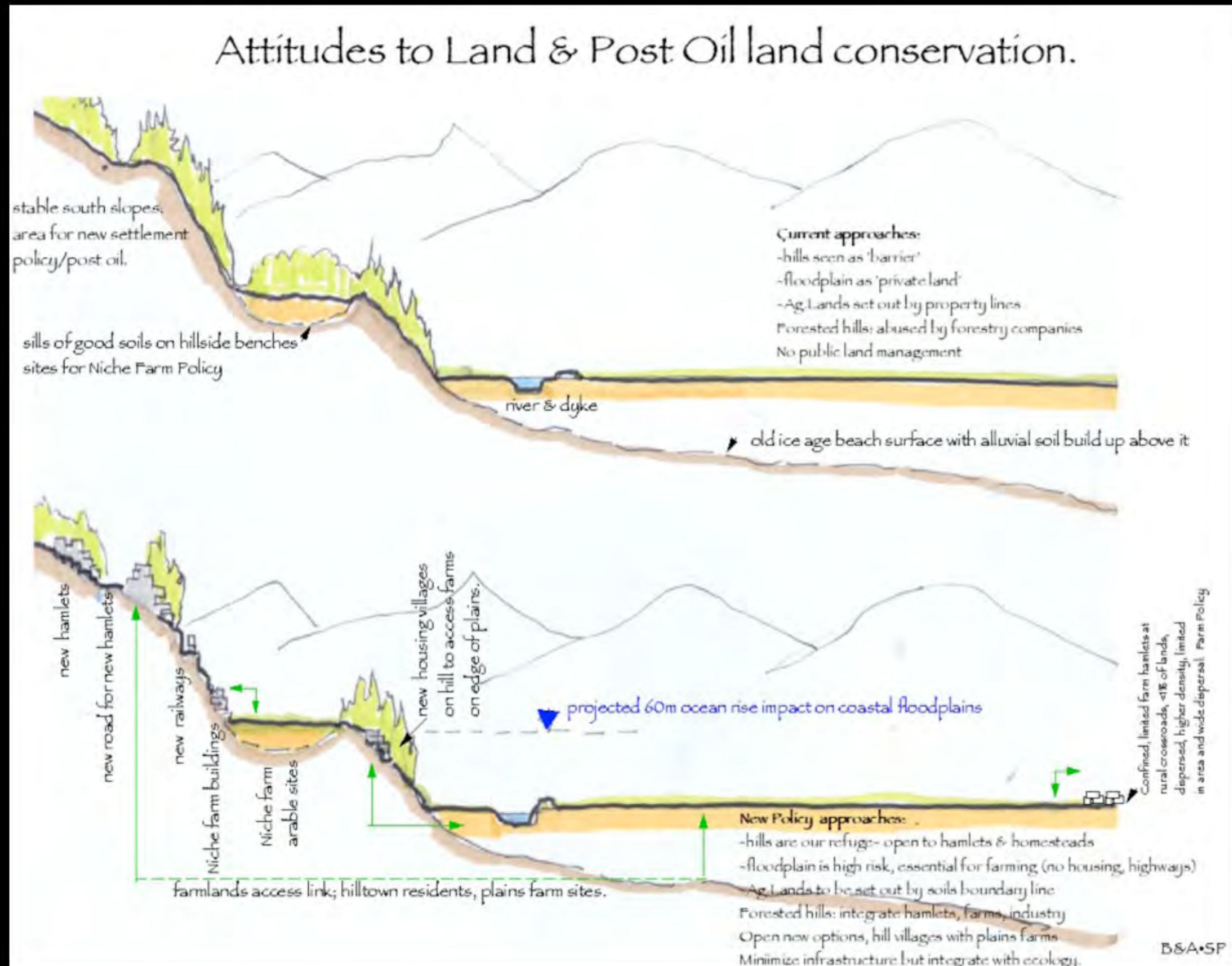


Hamlets





The Hilltowns Post Oil





Network



Defensible Village



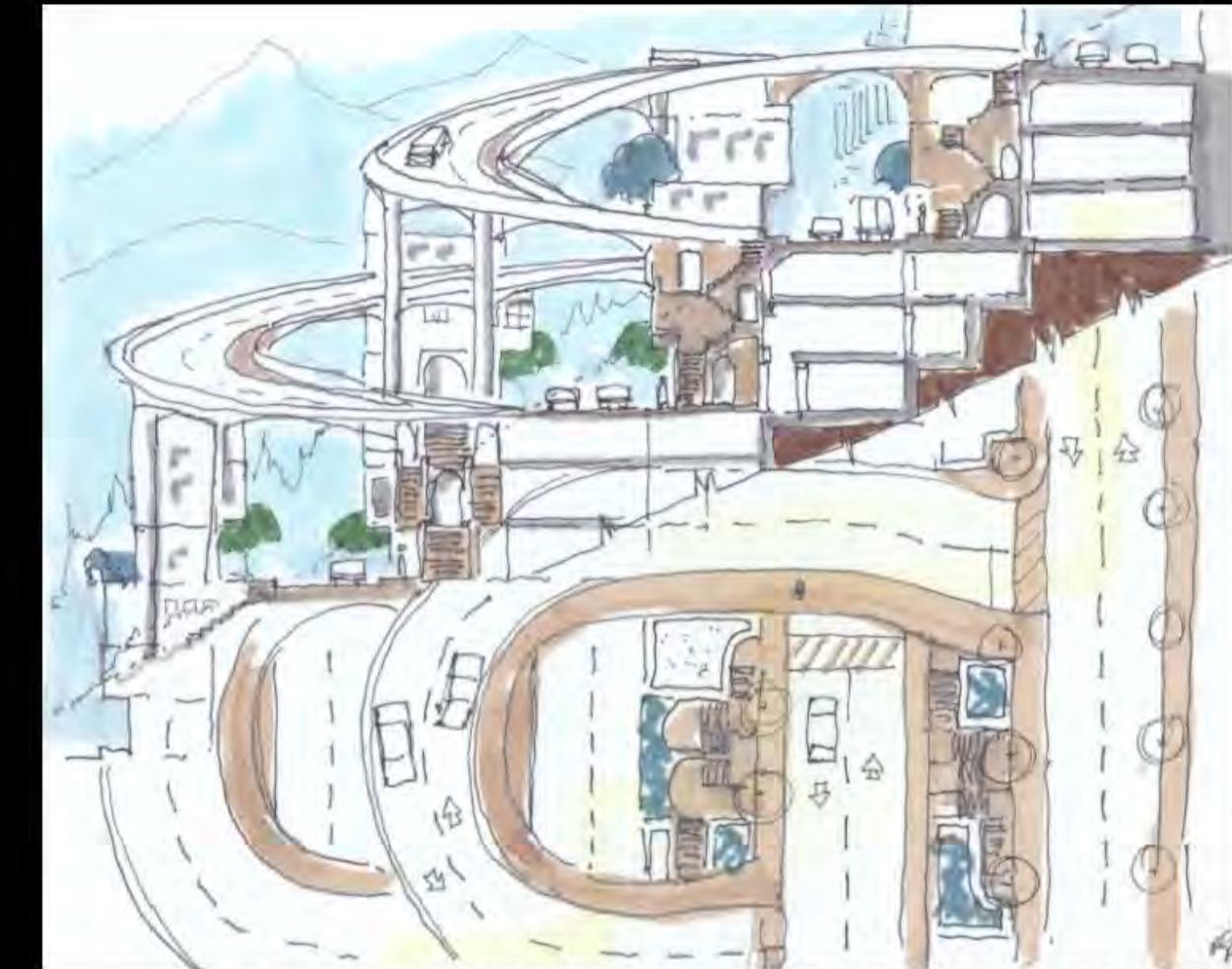
Defensible Farms

What Post Oil Settlement?

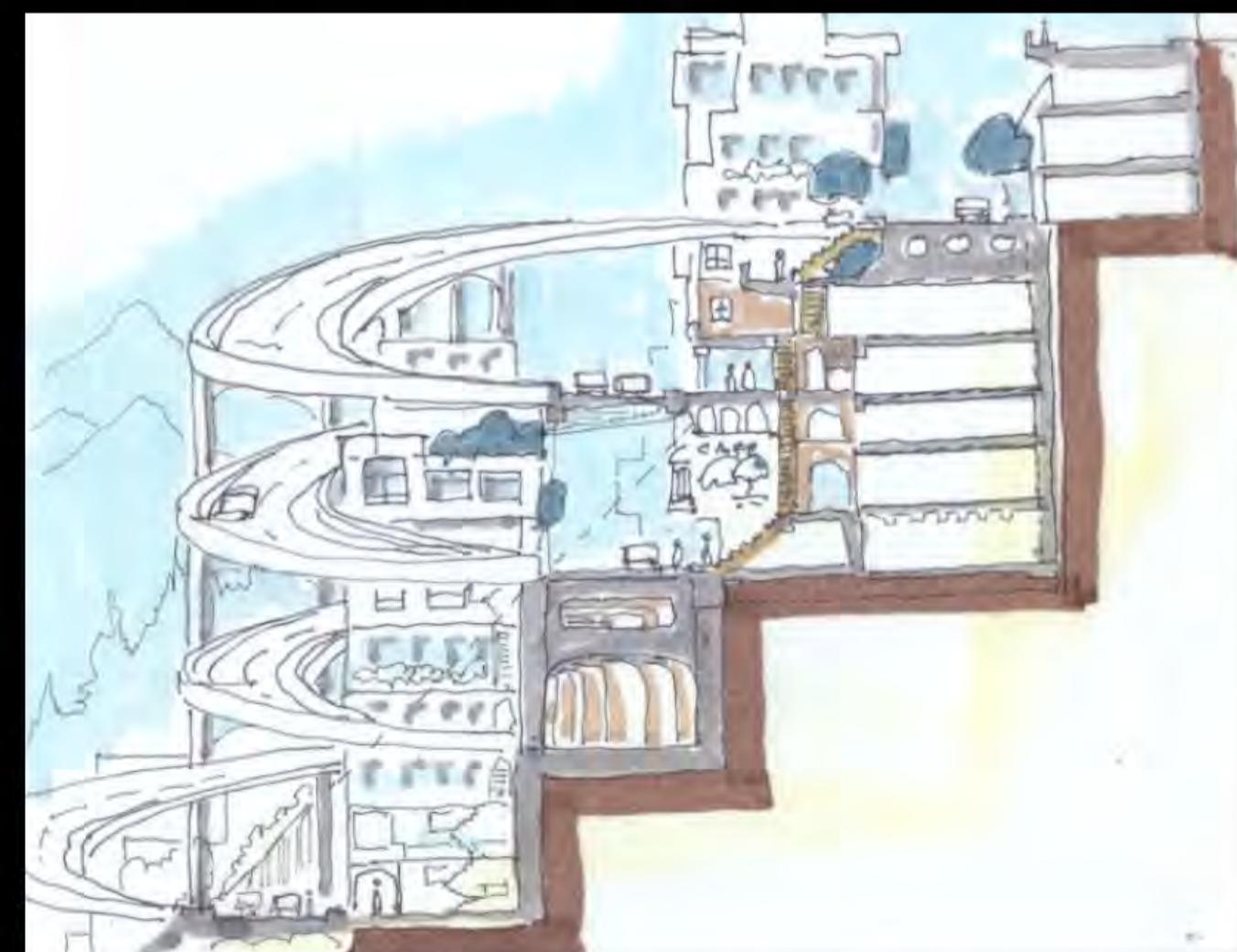
Characterising Energy Descent Scenarios

Scenario	Energy & Agriculture	Settlement form & mobility	Economy & wealth	Politics	Gender	Culture & Spirituality
Brown Tech	Central network High tech efficiency Nonconventional oil coal, nuclear, biodiesel etc	High density cities Electric private transport Regional wasteland Mass migration	National banks & currency	Fascist Nationalism Class structure price rationing population controls	Male dominated & blended	Super nationalist & fundamental dichotomy
Green Tech	Distributed network cold fusion gas, wind, water forest organic agriculture.	Compact towns & cities Electric public transport Telecommuting.	Regional currency trends	City State & infrastructure Electronic democracy Rationing	Balanced & blended	Humanist & Eco rationalist
Earth Steward	Distributed local wind, hydro, forest, organic & garden agriculture	Ruralization of suburbs Rural resettlement	Local currency & barter	Town & bioregion participatory democracy Rationing	femail dominated & gendered	Earth Spirituality
Lifeboats	Distributed local forest, nongrid industrial salvage organic agriculture	Harried & gated communities Nomads	Household barter & gold?	Feudal system Patricarchal authority.	maie dominated & gendered	Warrior Cult

2006
www.holmgren.com



not likely forms...



What new patterns for sustainability

- Loss of large unsustainable city centres (lean market adjustment)
- Marbelization in the suburbs- reclaiming from past mistakes
- new villages rail oriented and eco-basin managed (traditional)
- new northern tier of towns/new rail systems (visionary)
- new energy harvesting (techno-rescues)
- multiple pathways for maximizing food production
- new industries recycling, reusing, co-operative models (old world lessons.)



Scale of Solutions



Big footprint options not possible
Dispersed villages- need autonomy but cooperation
Housing clustering: energy & community fixes
Cooperative local economy vital
Seasonal survival: a new reality
Geothermal/earth sheltered towns
New wood & coal energy base
Extending growing conditions
Over-wintering - in crops & greenhouses
New animal husbandry vital
Self reliance: good insurance.



Old & New: alternate histories give more future options.

???????

Circle the
wagons
but let
people in?

Re-localization



SHIFT NOW

de-growth: an unavoidable part of the solutions
re-directing community form: = interim step

