

**Presentation to Social Theory Forum
Environmental Social Theory
Cardiff University, SOCSI, 10 December 2008**

**Environmental Timescapes of Modernity:
Conceptual Challenges**

Barbara Adam

Abstract

We tend to think of the environment in spatial and material terms. This presentation argues the need to take account of the multiple temporal dimensions of the environment and develops a time-sensitive approach based on social science insights grounded in time theory and a complexity perspective. It then explores to what extent this approach can take seriously environmental futurity and shows where further work is required. Finally, it follows through some of the implications of the above for socio-environmental praxis.

1. Timescapes of Modernity: The Environment and Invisible Hazards

What comes to mind when we think about our environment?

- First we might think about rural and urban landscapes,
- then possibly about nature in the sense of plants and animals, mountains and rivers, earth, water and air.
- Letting our thoughts drift a bit further we might quickly establish associations with hurricanes and flooding, pollution and climate change.

My argument in the paper is that what these images and associations **share in common** is their *material* and *spatial* nature:

- we associate our environment primarily with matter in space.
- animals and plants, meadows, mountains and forests refer to the products of processes.

This means

- we are thinking of the *materialised outcomes* of processes rather than the processes
- and we are mostly thinking of their location in space but much less about their location in time.

If, on the other hand, we focus on the **processes** involved,

- we stress the **temporal** features of living.
- And **temporal** practices in their **unique temporal location** become tangible.

Such an understanding, I suggest, has tremendous benefits for environmental praxis and the potential to create sustainable futures.

When the **active and changing** nature of our environment is emphasised it becomes apparent that processes are contingent upon contexts:

- birds are nesting and migrating at specific places and times;
- a localised countryside is changing colour with the seasons;
- specific mountains are showing signs of erosion.

Without the contextual time-space of activity the environment remains abstract and remote.

- Without it we fail to take account of the immanent forces that **give rise** to the phenomena identified with it.
- We exclude the energy as well as the re/productive and re/generative capacities of nature that operate irrespective and despite of human activity:
 - the sprouting of new growth after a tree has been felled,
 - the mutations which emerge in response to herbicides and pesticides.
- As these capacities work invisibly below the surface and beyond the reach of our senses they tends to fall largely **outside** the remit of **scientific investigation** and **measurement** and, not surprisingly, therefore, tend to be **neglected** by both physical and social sciences.

In the paper I ask

2. How the understanding might change when we become sensitive to immanent processes?

And I give the example of what goes on when we look at and appreciate a landscape and argue that

- We would begin to recognise landscapes as **historical records of activity**: of wind, weather and climate, of the growth cycles of nature, of animal and human life.
- That consistently lopsided trees, for example, would indicate to us coastal winds and the nearby sea.
- And how hedges and stone walls would tell us about human agricultural activity even when there are no houses or people engaged in such activities to be seen.
- As well as telling us about the geology of the area and about its farming activity.

My argument is that a landscape

- is a record of reality-generating activity and a chronicle of life and dwelling¹.
- it tells a story of immanent forces, of interdependent, contingent interactions that have given rise to its existence.

This means that

- the visible phenomena have the invisible constitutive activities inescapably embedded within them;
- they includes spatial and temporal absences, the intrinsic sphere of creative processes.

Sensitized to immanent processes, we appreciate further that, from the point of view of the observer, a landscape can **never be an objective absolute**, since what observers can **see** depends on *their* prior knowledge, *their* power of deduction and *their* imagination.

The scape - be this a landscape, seascape, or cityscape - arises from the **interactive and contextual unity**

- of observer **and** observed,
- of material phenomena **and** forces inaccessible to the senses,
- of visible **and** invisible influences.

¹ For innovative writings on knowing landscape, see Ingold, 1993; Shama, 1995.

The following points are therefore of importance here:

our environment is a **record of constitutive activity**.

- It includes absences.
- It combines natural and cultural activities into a unified whole.
- It is relative to the eye of the beholder.
- It is inclusive.
- Beholding it, we gather knowledge from **both**, material **and** ‘immaterial’, visible **and** invisible sources.

Such an understanding becomes crucial when we want to understand a world of globalised local human activity that is capable of

- creating holes in the ozone layer,
- and changing the level of CO₂ in the atmosphere,
- activity that has the potential to damage the unborn and cause abnormalities at the level of cells in plants, invertebrates and humans alike for unspecified periods into the future.
- and where this acculturated nature **can return**, boomerang fashion, as actual and potential **hazards** which, in turn, form the inevitable, always-pressing conditions for re-action.

It seems to me, therefore, that this kind of processual, time-inclusive knowing constitutes an excellent base upon which to develop a sensitivity to the complex temporalities of contemporary socio-environmental existence².

3. The *Timescapes* Perspective

With the idea of the *timescape*, I seek to achieve an extension of the perspective that takes explicit account of processes and absences.

Through a *timescapes perspective* I seek to achieve

- a **shift** in emphasis not just from **space to time** but, more importantly, to that which is **invisible** and beyond the reach of our senses.
- an engagement with the **immanent processes world**, which is so central to the *understanding, conceptualisation* and *analysis* of contemporary hazards – real and potential -- created by, for example,
 - hormone-disrupting chemicals,
 - radiation
 - and genetically modified organisms.

And, as such, the timescape perspective is a crucial precondition to appropriate actions, reactions and considered responses to such potential hazards.

Since we have **no sense organ for time** -- we cannot see, touch, hear, smell or taste time – I suggest that we need the **entire complement of our senses** working in **unison with our imagination** before we can *experience* its operations in our bodies and the environment.

Such an effort at the level of imagination is needed if we are to be able to take account in our dealings with the environment

- with the the interrelation between product and process,
- with latency and immanence,

² My entire work is grounded in this way of seeing and understanding our world. With *Timescapes of Modernity* (Routledge, 1998) I have applied that perspective to socio-environmental analysis.

- with intergenerational impacts,
- and with the complex interrelation between the influence of the past and projection into an open future.

An environmental timescape perspective entails that we bear in mind the complexity of temporal features at any one moment of investigation. And it takes account of the following structural features:

TIMESCAPE		
=		
TIME, SPACE, MATTER & KNOWLEDGE PRACTICES		
Temporality	Past	Duration ⇔ Instantaneity
Time frame	Present	Sequence ⇔ Simultaneity
Time point	Future	Repetition ⇔ Rhythm ⇔ Beat
Tempo		Cause ⇔ Effect ⇔ Time lag
Timing		Reason ⇔ Action ⇔ Symptom

I consider this to be the **structure of time**, the ‘bare bones’ which, **together** with space, matter, and knowledge practices constitute the timescape.

These temporal features apply whether we are studying social, or biological, or inorganic systems. And, how these features are worked in practice depends on context.

Another way of encompassing and representing the same idea is as follows:

Time frames of action (days, months, years, life times etc)
Timing , synchronisation, the right time for (inter)action
Temporality , processes of creativity, ageing & decay
Temporal succession , chronology, order, priority
Temporal modalities of past, present and future
Temporal patterns of repetition, rhythmicity
Time point , the Now & moments in time
Tempo , speed, intensity & velocity
Temporal extension , duration
Temporal horizons

What is important to appreciate it that a timescape perspective brings together

- time,

- space,
- matter
- and cultural activity
- and is recognizes the importance of **context**.
- It encompasses **processes and their ‘productions’**, that is, their (eventual) material manifestations.

As such, it sensitises us to **activities** and **existence out of sight** – the vastness of the **iceberg** below the water’s surface –

- to absences, latency periods and immanent forces,
- to time lags of impacts and dispersal in time-space of eventual symptoms.

And, as I explained earlier, it confronts us with the **relativity of position** and framework of observation.

This in turn means that the shift in emphasis to process phenomena confronts us with the realization that we are inescapably **implicated** in the subject matter.

4. Complexity

Having outlined a timescape perspective, I then

- connect this way of understanding with a complexity perspective on the environment
- and show how a **timescape perspective** subtly changes complexity perspective on the environment.

I use Capra’s trans-disciplinary work on complexity and networked connectivity³ as my conceptual foundation on which I build the processual, time-sensitive perspective.

Capra proposes that a complexity perspective has to encompass four aspects of reality, and that we need to understand these in relation to each other. The four are:

matter, form, process and meaning.

Matter is our physical world:

the earth we live on,
 the soil that feeds us,
 the air we breathe,
 the water we depend on,
 the body we inhabit,
 the landscapes and cityscapes we dwell in,
 the other beings we co-evolved and co-exist with
 and the world of artefacts we created.

It thus includes our socio-culturally **produced world**

- such as buildings, clothes, books, tools, machines, vehicles, power stations, instruments, computers, laboratory products such as plastics, viruses and genetically modified organisms, etc.

³ Capra, F. 1996 *The Web of Life*. New York: Anchor, and Capra, F. 2003 *The Hidden Connections*. London: Flamingo. See also Byrne, D. 1998 *Complexity Theory and the Social Sciences*. London: Routledge; also my working paper on social complexity, Adam, B. 2005 *Futurity from a Complexity Perspective*, www.cardiff.ac.uk/socsi/futures

- and it includes the **socio-environmental effects** of the cultural products such as deforestation, resource depletion and degradation, pollution and climate change, etc.

However, from a timescape perspective, *matter* needs to be understood not just spatially, as frozen in time, **but also**

- as temporally extended and enduring,
 - decaying and regenerating,
- as exquisitely timed activities that leave a record,
- as a symphony of rhythms entailing the full scale of tempi,
 - projecting into the future and entailing for-ness.

Form encompasses the **spatially distributed**, patterned and networked relations

- of cells and organisms,
- single units and species,
- nature and culture,
- individuals and collectives, locally and globally.

It also covers all **infrastructural aspects of social life** such as

- institutions and communication systems (including transport),
- as well as political, economic, religious and knowledge-based associations.

However, from a timescape perspective *form* needs to be conceived not only **synchronically** as spatially constituted pattern and structure *but also* **diachronically** as **temporally** constituted pattern, that is,

- form as forming,
- relations as relating,
- networks as networking,
- patterns as patterning.

Process focuses on the temporal aspects of the world of matter and relations.

- It relates to the way this world is produced
- and to emergent properties arising from interactions.
- As such it includes the dynamics of
 - change **and** creativity,
 - continuity **and** discontinuity,
 - stability **and** novelty,
 - cycles of repetition, evolution **and** history.
 -

However, from a timescape perspective, *Processes* need to be grasped not merely as the dynamic that produces the emergent present **but, more importantly**,

- as processes that produce timescapes and *futurescapes*, where much of the on-goings are time-space distantiated and therefore often latent, immanent and invisible until, that is, processes congeal into matter and emerge as materialised phenomena such as
 - cancers,
 - mutations,
 - acid lakes or ozone holes
- sometime, somewhere.

Meaning, the fourth component of Capra's complexity, takes account of people as knowledgeable actors that mostly operate in conditions beyond their choice.

As such it encompasses products and processes of reflective consciousness and socially produced knowledge such as

- language,
- values,
- and beliefs,

what Karl Popper⁴ calls the world of 'intelligibles'. The focus on meaning entails that we acknowledge that humans interpret a pre-interpreted world, that they operate in a context of double hermeneutics.

However, meaning in its present form this fourth element is conceived largely in an a-temporal way.

From a temporal perspective it makes more sense to talk in terms of **knowledge practices** and thereby acknowledge the active nature of knowledge, its link to **doing**.

With **knowledge practice** as fourth element the

- active,
- reactive,
- interactive,
- creative
- and productive nature of knowledge is emphasised.

Focus on knowledge practices **further** acknowledges

- that people act in the light of knowledge
- and that their knowledge is constitutive, that is, that their knowledge practices as well as their knowledge-based *inaction* produce effects.

This shift in the interpretative perspective

- shows the productive nature of knowledge
- and it brings the **ethical dimension** of social life **to the fore**.

When the knowledge sphere is infused with temporality (i.e. with practice) then the **space- and present-bound** imaginary of Capra's meaning category is **overcome** and the **conceptual ground prepared** for a time-sensitive way of understanding, in other words, for a **timescapes perspective**.

The timescapes perspective on the environment takes account of the

- complex,
- interdependent,
- temporally extended

realm of

- matter,
- relations,
- processes
- and knowledge practices that produce **effects**.

Those effects, in turn, are recognized to

- reverberate through matter
- stretch across space
- and reach into an open future.

⁴ Popper, K. 1983/1972 *Objective Knowledge. An Evolutionary Approach*. Oxford: Oxford UP.

The greatest difficulty here is that what is visible and accessible is only the tip of the iceberg. The bulk of the effects is invisible.

In their **futurity those effects** are

- immaterial in the conventional sense.
- As the ‘not yet’ they do not count as real
- And as such they are inaccessible to the senses.

A timescapes perspective demands that we **come to grips**

- with futures in the making that have not yet materialised as symptoms,
- with deeds under way that have yet to congeal into matter,
- and with the processes that have yet to become products – sometime, somewhere.

It demands that we find appropriate theoretical, methodological and practical responses to the ‘**Not Yet**’ of socio-environmental futurity.

In the last part of the paper I briefly address the issue of futurity.

5. Complexities Intensified: Coping with the ‘Not Yet’ of Futurity

Contemporary industrial societies produce futures

- by scientific-technological,
- economic
- and political means

that range from the very short term to the very long term:

- So, for example, radiation associated with nuclear power reaches impact times of an estimated hundred thousand years,
- while genetically modified plant material **has the potential** to mutate to the end of time **or** wither on the day of its creation.

This capacity to **produce** socio-environmental futures, however, is **not matched** by the ability to

- either **foresee** effects
- or take **responsibility**

for potential and eventual impacts of those future-creating actions.

That is to say,

- our capacity to set these processes in motion

stands in no relation

- to the knowledge of the potential impacts of those futures in the making as they permeate matter, stretch across and reach into an open future.

Moreover, in a social world whose pace continues to accelerate, the future becomes an increasingly difficult terrain:

- While the focus of most aspects of social life is narrowing down to the present,
- the futures we create on a daily basis cast ever longer shadows.
- In this situation a chasm is opening up between
 - the technological production of these distant futures
 - and a predictive capacity that is getting ever shorter.

And because we conventionally **tie responsibility to knowledge**, actions associated with such time-space-and-matter distantiated impacts

- operate largely in a free-for-all realm irresponsibility,

➤ that is, in a realm of structurally constituted irresponsibility. This means that our socio-environmental politics of posterity (politics with a small ‘p’) tend to be **enacted in an ethical vacuum**.

As **socio-environmental scientists** we are charged to reflect on and explicate our conceptual tools.

We need to bring to the surface implicit assumptions and subject them to scrutiny. If we find them wanting, we need to argue our case for change.

To take futurity seriously requires the **entire conceptual edifice** of social and socio-environmental science to be **re-examined**.

Such comprehensive re-conceptualisation clearly **falls outside** of what is possible in this presentation.

Here I could do no more than make a start in this direction.

But in my books I have tackled this process in earnest. Two in particular are pertinent for environmental theory:

- They are my 1998 *Timescapes of Modernity. The Environment and Invisible Hazards*. (London: Routledge), based on research conducted during my ESRC Global Environmental Change Fellowship
- And the book that arose from the futures research of my ESRC Professorial Fellowship which I published together with Chris Groves called *Future Matters. Action, Knowledge, Ethics*. (Leiden: Brill)

Those books **not only** set out the theoretical problem **but also** identify openings for change and point out some paths to alternative practice. (2750 words)