

JANIS BIRKELAND'S 'POSITIVE DEVELOPMENT' A STRATEGY TOWARDS A SUSTAINABLE BUILT ENVIRONMENT >

**PHILIPPE
VANDENBROECK**

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BIO

PHILIPPE VANDENBROECK

Philippe Vandebroeck
is co-founder and Partner
at shiftN.

www.shiftn.com/about

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This paper discusses an action-oriented framework put forward by Janis Birkeland (former Professor of Architecture, Queensland University of Technology, Australia and Auckland University, New Zealand) **as a way to turn the social, economic and environmental costs associated to our contemporary built environment into a sustainability dividend.** Birkeland's approach — labeled 'Positive Development' (henceforward PD) — will be situated against the background of the wider sustainability debate, and particularly in the way this debate relates to the built environment.

THE CONCEPT OF SUSTAINABILITY

Probably in the late 18th century man entered the anthropocene: a new era in the existence of the planet that is characterized by a decisive influence of human activities on the natural environment (Crutzen, 2000). Since, the process of global change has only accelerated with anthropogenic climate change, rapid urbanization, vast land use changes and dwindling natural resources as most distinctive features. In this present moment, the human species is looking ahead at an uncertain future. The medium-to-long term implications of climate change are very difficult to predict but potentially catastrophic (Stern, 2009). By 2050 more than 70% of the world's nine billion people are expected to live in sprawling megacities. And as regards natural resources we need to prepare for what has been called 'a perfect storm': the challenge to produce, over the next three decades, 50% more food, 50% more energy and 30% more fresh water to meet the basic needs of the planet's growing population.

Collectively we have been aware of our environmental predicament for at least half a century. Rachel Carson's 'Silent Spring' (published in 1962) was likely the first book in which man's impact on the environment (through the indiscriminate use of pesticides) was critically assailed. Ten years later, the 'Limits to Growth' report to the Club of Rome and the Stockholm UN Conference on the Human Environment were further milestones in developing humanity's collective consciousness regarding its impact on the natural environment. The basic argument put forward by 'Limits to Growth' was that humankind had to start preserving non-renewable resources and establishing an ecological and industrial equilibrium in order to avoid a sudden and uncontrollable decline in population and industrial capacity (Meadows et al, 2004). Other seminal publications such as

CRUTZEN, Paul. J. and STOERMER, Eugene F., "The 'Anthropocene'", in: *Global Change Newsletter*, 41: 17–18, 2000

STERN, Nicholas, *Blueprint for a Safer Planet: How to Manage Climate Change and Create a New Era of Progress and Prosperity*, The Bodley Head, London, 2009.

MEADOWS, Donella, H., RANDERS, Jorgen and MEADOWS, Dennis H., *The Limits to Growth: The 30-year Update*, Earthscan, London, 2004.

Buckminster Fuller's 'Operating Manual for Spaceship Earth', E.F. Schumacher's 'Small is Beautiful' and Nordhaus and Tobin's 'Is Growth Obsolete?' date from roughly that same period. Soon after, the world was hit by a (largely politically motivated) oil crisis and plunged into a recession. It took ten years for the environmental agenda to re-establish itself again. In 1983, the General Assembly of the UN set up an intergovernmental body, the so-called Brundtland Commission (officially the World Commission on Environment and Development, WCED), which launched its report 'Our Common Future' in 1987. It is this document that up to the present day anchors the debate on 'sustainable development' by framing it as a 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (UN WCED, 1987). Since, **sustainability has remained the governing paradigm in our effort to adjust humanity's presence on Earth in line with the planet's carrying capacity.**

UN World Commission on Environment and Development, *Report of the World Commission on Environment and Development: Our Common Future*, 1987, <http://www.un-documents.net/wced-ocf.htm> (inspected May 25th, 2009)

THE BRUNDTLAND REPORT

The Brundtland report has put forward **three fundamental, interdependent components as key in operationalizing sustainable development:**

- As indicated earlier, the Report emerged after a long period of economic stagnation which fell particularly harshly on developing countries. The Report acknowledged that "poverty reduces people's capacity to use resources in a sustainable manner; it intensifies pressure on the environment". Given these links between economic growth, the alleviation of poverty, and environmental conditions the Report held that one of the key pillars of sustainable development has to be a rapid rise in per capital income in Third World countries. A minimum growth of 3% per annum was deemed necessary to have an impact on absolute poverty. This requirement to spur economic growth to meet the basic needs of primarily developing nations has been referred to as '**economic sustainability**'.
- The Report also holds that 'if needs are to be met on a sustainable basis the Earth's natural resource base must be conserved and enhanced' (**environmental sustainability**). This functional, development-oriented requirement for environmental protection is reinforced by our moral obligation to other living beings and future generations. In the face of a requirement to keep up economic growth, the reorientation of technology — which needs to be deployed so as to

reduce material and energy intensity of our productive infrastructure — is seen as the key link between humans and nature.

- Finally, ‘Our Common Future’ calls for a social system that achieves an equitable share of benefits of economic activities across all sections of society and, hence, mitigates tensions arising from disharmonious development (**social sustainability**).

A CRITIQUE ON SUSTAINABILITY

In the 25 years that have elapsed since the launch of the Brundtland Report, the sustainability debate has deepened with a sequence of Earth Summits (Rio de Janeiro, 1992; New York, 1997; Johannesburg, 2002) and with the formulation of the Millennium Development Goals (2000). The debate has also become more complex and critical. **The perspective advanced by the WCED has been by no means uncontroversial. It seems the Brundtland sustainability concept has been predominantly criticized from three fundamental angles:**

- A first critique is that sustainability is too anthropocentric in that **it reduces the biosphere to a bundle of environmental assets at the service of human needs**. Opposed to this perspective is a fysiocentric or ecocentric perspective that holds that the environment should be protected for its own right and that this takes precedence over generating human benefits.
- Second, **sustainability does not question the principle of economic growth**. To the contrary, growth is seen as necessary for lifting large sections of the global population out of poverty and hence to reduce pressure on the environment. As indicated earlier, technology then becomes a key factor in decoupling growth from environmental pressure. However, we can assume that decoupling will never be perfect, implying that growth will always entail a certain erosion of natural stocks. Sustainability then becomes a matter of seeking an appropriate trade-off between growth and the associated environmental cost. An enriched concept of economics (‘environmental economics’) which is able to include non-economic variables in its cost-benefit calculus is needed to support decision-making. However, this perspective is countered by a more radical stance that opposes equating sustainability with ‘industrial growth

with less impacts' and the underlying substitutability of economic, social and environmental goals. This view refuses to see negative impacts as inevitable and argues that a productive infrastructure needs to be built that enhances our natural resource base, not merely minimizes our impact on it.

- Finally, although the WCED sustainability concept includes a social dimension – understood as a requirement to equitably share benefits across societal groups and generations – there is a critique that this is only an add-on to what is in essence a concern with resource management and preservation of the environment. In this view, **sustainability has not been truly the basis for the development of novel socio-political forms** (Acsehrad, 2003). Indeed, it has been observed that most sustainability programmes are top-down initiatives developed by transnational organisations such as the UN or the European Union. Very few are bottom-up initiatives piloted by grassroots organisations (Frey and Yaneske, 2007). A more extreme version of this critique sees in the sustainability discourse a danger for an 'evacuation of the political' and the establishment of a 'post-democratic space' that forecloses the properly democratically political. In this view ecology – piggy-backing on an uninterrupted stream of apocalyptic warnings (e.g. Al Gore's 'An Inconvenient Truth') – becomes the new opium for the people and a carrier for a post-politics of consensus (Swyngedouw, 2009).

So, although the notion of sustainability has been pivotal in the ongoing, collective process of envisaging and reframing our species' future on Earth, it clearly remains at the center of a contested discursive territory.

ACSELRAD, Henri, 'The multiple discourses on urban sustainability', 2003, web: <http://sedac.ciesin.org/openmeeting/> (inspected May 25th, 2009).

FREY, Hildebrand and YANESKE, Paul, *Visions of sustainability – Cities and regions*, Taylor and Francis, Abingdon, 2007

SWYNGEDOUW, Erik, 'Post-democratic urban environments?', 2009 web: http://www.socialpolis.eu/index.php?option=com_content&view=article&id=119&Itemid=218 (inspected May 25th, 2009)

SUSTAINABILITY AND THE CITY

In this debate, the city has emerged as a strategic locus of concern. In operationalizing the notion of sustainability it is impossible to avoid addressing the way our cities work because of the sheer scale of urban infrastructure and the basic datum that more than 50% of the world's population now live in urban areas. And the process of urbanization continues apace: every second the global pool of urban dwellers is expanded with two people. Almost all of this growth takes place in developing or emerging countries. China's urban population is now as large as the whole of Europe. Furthermore, urbanization is closely associated with

increased production and consumption. Compared with denizens of rural areas, city people in developing countries have much higher levels of consumption, with increased throughput of energy and materials and higher volumes of waste (Girardet, 2008). Hence, it is obvious that patterns of urban development are a decisive factor in the cumulative impact of human activities on planetary systems.

Inevitably, the controversies surrounding the generic notion of sustainability have resurfaced in the context of urban sustainability. The conceptualization of sustainability in an urban setting has been dominated by a metabolic understanding of the city as a complex, interconnected set of flows of energy, materials and information. Sustainability then is predicated on the transition from a linear to a circular or closed-loop metabolism, where environmentally damaging outputs (solid waste, wastewater) are re-used as productive inputs for other processes (such as energy generation). Eco-efficiency — seeking to reduce material and energy intensity and minimize waste and emissions — is the concept that underpins this metabolic perspective. This kind of thinking has been applied at different scales, from the individual building ('green architecture') to the neighbourhood and city scale ('ecocities') to a territorial scale where cities are seen as embedded in an extractive hinterland (or 'bioregion'). The concept of 'ecological footprint' — the amount of biologically productive land and sea area needed to regenerate the resources a human population consumes and to absorb and render harmless the corresponding waste — has been used to quantify how large that notional hinterland is for a given city (Rees and Wackernagel, 2008).

One critique of this dominant framework is that genuine sustainability requires more than ecological 'restoration'. It requires increasing the total amount of ecosystem goods and services, as well as increasing the health and resilience of the natural environment (Birkeland, 2008). This is a tantamount to a move from eco-efficiency to eco-effectiveness which architect William McDonough and materials scientist Michael Braungart have taken as the starting point for their 'cradle-to-cradle' (C2C) approach (McDonough and Braungart, 2002). This will be further developed later in this paper.

Neo-Marxist thinkers have been critical of the narrowly functionalist, biophysical nature of the metabolic concept underlying urban sustainability visions. They propose a dialectical reading denoting a mutually constitutive conception of relations between nature and culture in urban space (Gandy, 2004). The marshalling of 'natural' flows (energy, water, food) becomes then a part of a 'bio-political' dynamic that is never socially or ecologically neutral: "social-environmental metabolisms produce a series of both enabling and disabling social and environmental conditions (...) While environmental (both social and physical) qualities

GIRARDET, Herbert, *CitiesPeoplePlanet – Urban Development and Climate Change*, second edition, Wiley, Chichester, 2008

REES, William, WACKERNAGEL, Mathis, 'Urban ecological footprints: Why cities cannot be sustainable – and why they are key to sustainability, in: MARZLUFF, J.M. Et al. (eds.), *Urban Ecology, an international perspective on the interactions between humans and nature*, Springer, New York, 2008, 537-556

BIRKELAND, Janis, *Positive Development – From vicious circles to virtuous cycles through built environment design*, Earthscan, 2008.

McDONOUGH, William and BRAUNGART, Michael, *Cradle to Cradle – Remaking the way we make things*, North Point Press, New York, 2002

GANDY, Matthew, 'Rethinking urban metabolism: Water, space and the modern city', *City*, Vol. 8, No. 3, Dec. 2004

HEYNE, Nik, KAIKA, Maria, and SWYNGEDOUW, Erik, *In the nature of cities – Urban political ecology and the politics of urban metabolism*, Routledge, London, 2006

may be enhanced in some places and for some humans and non-humans, they often lead to a deterioration of (...) conditions and qualities elsewhere.” (Heynen et al, 2005). **Hence, socio-ecological sustainability can only be achieved by means of a genuinely democratically controlled and organized process of socio-environmental (re-)construction. Very often this condition is not met, turning urban sustainability for these thinkers in a yet another mode of social discipline.**

Finally, there has been a tension between the so-called ‘green’ and ‘brown’ agendas in sustainable urban development. These agendas correlate to an extent with the different sets of problems that developed and developing country cities respectively are faced with. The tension also overlaps with the difference between the anthropocentric and ecocentric perspectives on sustainability signaled earlier (McGranahan and Satterthwaite, 2000):

In view of these debates it is perhaps no surprise that there is no single urban morphology that has emerged as unequivocally ‘sustainable’. That being said, the archetype of the ‘compact city’ – as a reaction to the trend towards massive suburbanization – has in wide circles been accepted as tending more towards sustainability on the grounds that higher densities reduces energy use, the need for motorised transport and the loss of countryside. However, Breheny (1996) has shown that, when it comes to the sustainability of particular urban forms, ‘centrists’ have been vigorously opposed by ‘decentrists’ and ‘compromisers’. This is an indication of the fact that the controversy surrounding sustainable urban form will likely have to be resolved at a meta-level.

McGRANAHAN, Gordon and SATTERTHWAITE, David, 'Environmental Health or Ecological Sustainability: Reconciling the brown and green agendas in urban development', in: PUGH, Cedric (Ed.), *Sustainable cities in developing countries*, Earthscan, London, 2000

BREHENY, Michael, 'Centrists, Decentrists and Compromisers: Views on the Future of Urban Form', in: JENKS, Mike, BURTON, Elisabeth and WILLIAMS, Katie, *The Compact City: A Sustainable Urban Form?*, E and FN Spon, London, 1996

BIRKELAND'S POSITIVE DEVELOPMENT

With these contours of the sustainability debate in mind we can turn towards a critical assessment of Janis Birkeland's plea for 'positive development' in the built environment. In the planning community, Birkeland stands out with an eclectic and activist background in arts, architecture and environmental law. Born in 1945, she graduated in Architecture from University of California at Berkeley in 1972 (and, hence, must have been very much part of the contemporaneous revolutionary ferment on that campus) and in law in 1979. She worked consecutively

as an advocacy planner, architect, urban designer, city planner and attorney in San Francisco and, in 1981, moved to Tasmania where she raised children and did her PhD in environmental planning and governance. She is now Professor of Architecture of Queensland University of Technology in Australia. **In 2002 Birkeland published 'Design for Sustainability', a sourcebook for eco-designers and urban planners. In 2008 she followed up with 'Positive Development – From Vicious Circles to Virtuous Cycles through Built Environment Design'. It is an ambitious book**, at times strident in tone, written 'to leapfrog the intellectual and institutional barriers that are entrenched in the foundations of urban and regional planning'. The central notion is 'Positive Development' defined as a 'physical development that achieves net positive impacts during its life cycle over pre-development conditions by increasing economic, social and ecological capital.' Birkeland's approach to put this notion at the heart of an alternative planning approach is clearly reflected by the structure of the book:

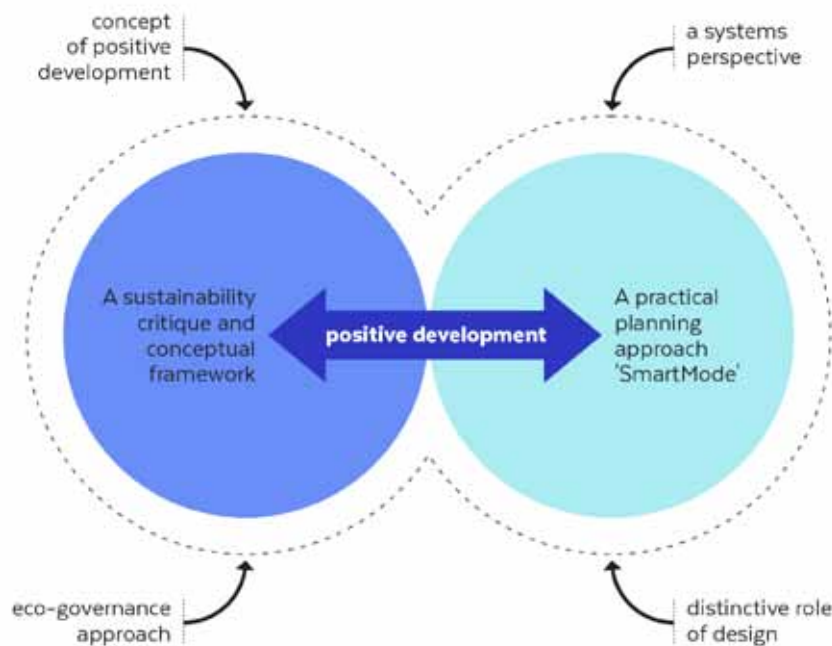
- Positive Development requires basic changes at the urban level
- Basic changes at the urban level require new kinds of planning and design
- Changes in design and planning need new environmental management concepts
- Changes in environmental management need new methods and strategies
- New strategies require new approaches to eco-governance.

This line of reasoning links a conceptual framework to a practical planning methodology which is called SmartMode (Systems Mapping And Re-design Thinking Mode).

Against the background of the wider sustainability debate, the 'positive development' approach offers four distinctive and interconnected features:

- The concept of Positive Development
- The systems perspective
- The distinctive role of design
- A novel eco-governance approach

Each of those will aspects will now be discussed in more detail.

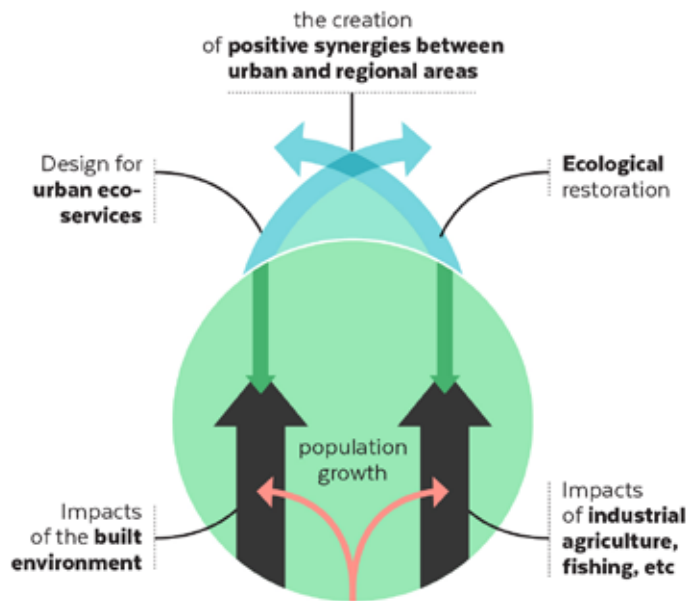


Birkeland's Positive Development

THE CONCEPT OF POSITIVE DEVELOPMENT

With the notion of Positive Development Birkeland puts in place a foundation that is critical of the Brundtland notion of sustainability. The criticism has a bearing on three key points. According to Birkeland:

- ... the WCED notion of sustainability marginalizes ecology from the main-stream sustainable development debate. It treats nature only as a resource, and frames the sustainability issue as one of resource efficiency and equitable distribution. The 3 per cent growth in GDP held to be essential to achieving social equity could lead to a geometric escalation of total resource flows. Here Birkeland clearly sides with the ecocentric perspective discussed earlier.
- ... it takes for granted that negative impacts and tradeoffs are necessary as “economic growth and development obviously involve changes in the physi-



Positive Development seeks positive synergies between urban and regional areas.

cal ecosystem, as long as we can assess the impacts.” This is an argument against the substitutability of economic, social and environmental goals.

- ... the Brundtland perspective presumes that negative impacts associated to economic growth can be mitigated through more knowledge and technology. For Birkeland only design is able to decouple growth from pressures on environmental quality. As we will see in the following section, this critique wants to take sustainability as an opportunity for design-based, activist socio-political forms.

So, in these key points of criticism Birkeland echoes the controversies surrounding the ‘traditional’ notion of sustainability discussed earlier. **Positive Development acknowledges the importance of the three key pillars – economic, social and environmental sustainability – but conceptualizes the relationship between them in very different way: sustainability is not about *balancing* but *integrating* economic and environmental goals.** Whilst the Brundtland Report sees economic sustainability (in the first place in the context of poverty reduction) as foundational and then goes on to formulate additional boundary conditions for growth in terms of social equity and environmental integrity, Positive Development starts from the non-negotiable imperative of creating healthier living environments (built and natural) for everyone – including future generations. So-

cial sustainability means public resources and means of survival are effectively in public control. Economic sustainability depends on social and environmental sustainability. The economy is merely a social construct, while the ecology is the basis of all life.

The central task for Positive Development, therefore is to come up with a design and planning approach that is able to increase natural capital: a ‘surplus’ of renewable resources provided by natural systems. PD is fundamentally anti-survivalist and takes its cue from the cornucopian view on nature which holds that redundancy is an integral part of natural systems’ resilience. Birkeland is sympathetic to the metabolic view on human-environmental systems, but not as it is usually applied in closed-loop designs which are yet another manifestation of the pervasive zero-sum thinking: “If what goes in must equal what goes out, we will not try to increase positive outputs to create surplus benefits.”

Thinking in terms of trade-offs is so deeply ingrained in the planning practice that it needs to be reconceptualized from the ground up. According to Birkeland building rating schemes and assessment tools tend to promote best practices, based on available and easily accessed data, instead of genuine sustainability standards. They also tend to supplant design thinking with managerial ‘displacement activity’ by requiring developers/designers to invest human and financial resources in measuring, monitoring, mitigating and managing negative impacts. Their analytical framework is essentially reductionist, data-intensive, aggregative and sequential: “They prioritize bean counting over design, accounting over accountability, and prediction over performance.” The same applies to Sustainability Assessments: “... they tend to be just Environmental Impact Assessments (EIA) with a triple-bottom-line framework. EIAs have their conceptual roots in cost-benefit analysis. The idea of tradeoffs is intrinsic to the cost-benefit decision framework. They were designed for project approval purposes. And projects are reliant on developers’ initial proposals. They were not intended to design better futures. Moreover both development control and advance planning tend to respond to and accommodate the market. It is still largely concerned with promoting growth.”

THE ROLE OF DESIGN

One of the most interesting features of Birkeland's approach is the distinctive role it allots to the activity of design. At a global scale one has to acknowledge that urbanization processes are largely driven either by profit-seeking actors or by low-income groups appropriating whatever land is cheap and available for settling. Large-scale infrastructural works are likely the only segment where governments have a decisive impact on the shape and logic of the development. But even there commercial and narrow functionalist motives often play a decisive role. According to Birkeland, in this setting design mostly doesn't figure, and if it does it contributes as a mere means of communication and self-expression. This amalgamation of opportunism, impotence, vanity and local, short-term optimization comes, however, at a very significant cost in terms of environment and quality of life. First, again, because of sheer scale: the cumulative impact of our built environment, both upstream and downstream, is monumental. Construction accounts for about half of national capital investment in many countries. Second, because this built environment context induces unsustainable, hard to change patterns of behavior from residents. Realizing that 90 per cent of impacts are determined at the design stage it follows that mere eco-efficiency cannot replace a value-adding by design.

However, for Birkeland design is more than the ability to come up proactively with smart, green engineering solutions. It is a powerful, positive intervention strategy in its own right, a fundamental alternative to both regulation and incentives: "The latter two suggest we do not know what to do, only what people should not do." Here the PD approach connects to an important contemporary debate around the notion of 'design thinking'. This is primarily driven by industrial (not urban) designers who want to move on from styling consumer products to much more strategic interventions, including developing solutions for the systemic, "wicked" problems of our time. In these settings design thinking provides an innovation process that emphasizes observation, collaboration, fast learning, visualization of ideas, and rapid concept prototyping. But beyond the process it is also an ethos. In Bruce Mau's seminal "Life Style", Sanford Kwinter argued that design's mission was "to free life of routine, to place it into syncopation so that it can find new, entirely unexpected patterns of unfolding" (Mau, 2000). This comes down to adopting a voluntaristic, pragmatically utopian stance. Design thinking is the desire to flee fatalism, 'analysis by paralysis', the straightjacket of

MAU, Bruce,
Life Style, Phaidon,
London, 2000

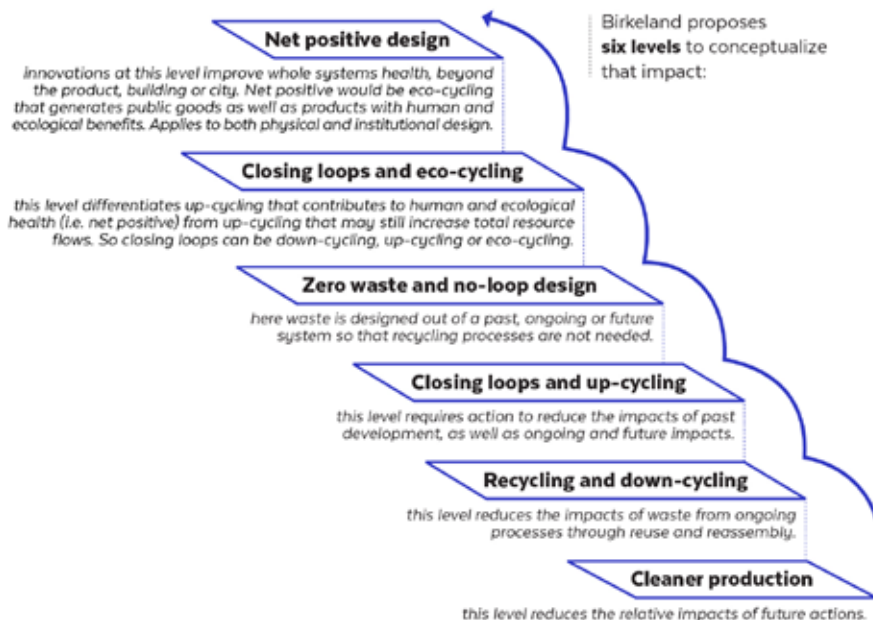
the bottom-line and ‘death by committee’ by taking on a radically affirmative position. Birkeland is very much in accord with this: “A direct design approach is intended as an antidote to the ‘managerialism’ that now dominates environmental planning, management and design.” She sees design as “an alternative way of thinking to linear, reductionist kinds of environmental problem solving. Many green design norms are rules of thumb that avoid innovation and can actually run counter to sustainability. Moreover, design tools largely predict, compare and measure the future impacts of given designs, which tend to reinforce failed templates.” As discussed earlier, for Birkeland, environmental management processes do not impede sustainability, but they supplant action. They impede change by diverting resources from problem solving and opportunity creating to ‘displacement activity’. Design, to the contrary, is ‘positive’, affirmatively supports nature and does away with the implicit view that the environment is a threat form which buildings and cities need to be protected. Good, critical and self-reflexive design has a unique ability to generate win-win-win solutions that, based on direct public involvement, expand both social choice and biophysical sustainability.

THE SYSTEM PERSPECTIVE

As highlighted earlier in this paper, there is no urban form that can be considered to be sustainable by default. Also Birkeland avoids to associate Positive Development with an ideal shape. Rather than to argue a case for a compact or dispersed, vertical or horizontal city, she proposes a series of systems (meta-) design principles:

- A first principle holds that **urban systems need to be conceptualized as ‘open systems’, connected by resource transfer (metabolic flows) to their hinterland.** The appropriate scale for urban planning is, therefore, at the bioregional scale. Densification approaches are not sustainable if they still use their regions as ‘sources and sinks’. Cities, to the contrary, need to ‘reimburse’ and support their bio-regions. Designers need to consider both natural and functional flows between regions and cities.

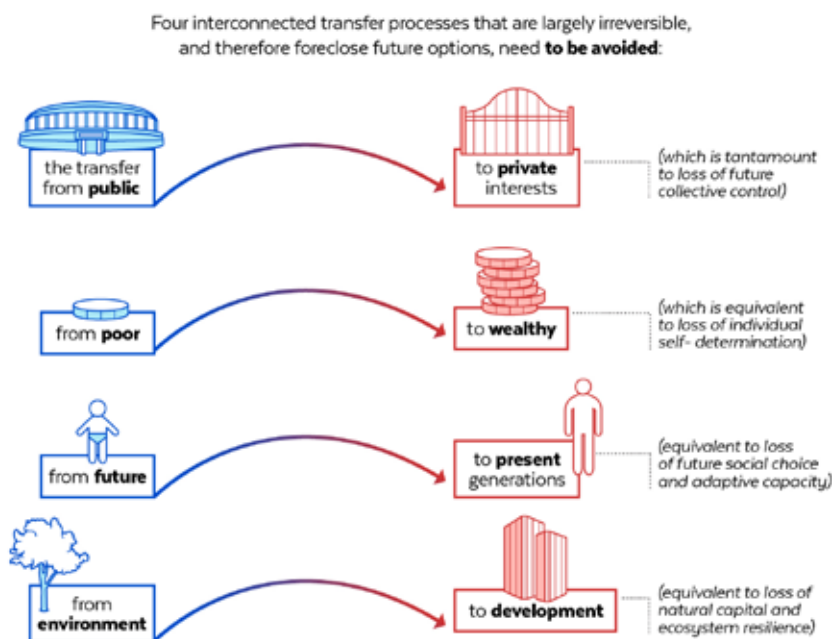
- Second, rather than banking indiscriminately on densification strategies, accommodating the myriad biophysical and social needs of an increased population requires multiple use of space for natural, residential, economic and social functions and more shared space. So **multifunctionality rather than density** is the variable to be optimized.
- Third, building and planning **solutions need to be evaluated in terms of their whole systems impact**. Birkeland proposes six levels to conceptualize that impact: 1} cleaner production, 2} recycling and down-cycling, 3} closing loops and up-cycling, 4} zero waste and no-loop design, 5} closing loops and eco-cycling, and 6} net positive design.



Six levels of whole systems impact of building and planning solutions.

- Fourth, as new construction is only about two percent of the total building stock, new green buildings have little impact on the growing rate of resources consumed by development. Given the resource flows embedded in existing development, **eco-retrofitting is a sustainability imperative**.
- Fifth, urban areas themselves must become ecologically self-sustaining and eco-productive. Planners should consider **food, water or energy self-sufficiency as realistic goals**.

- Finally, **designs need to be adaptive and reversible.** Incrementalism and masterplanning often lead to irreversible lock-ins. From a systemic, resource transfer point of view, four interconnected transfer processes that are largely irreversible, and therefore foreclose future options, need to be avoided: 1) the transfer from public to private interests (which is tantamount to loss of future collective control), 2) from poor to wealthy (which is equivalent to loss of individual self-determination), 3) from future to present generations (equivalent to loss of future social choice and adaptive capacity), 4) from environment to development (equivalent to loss of natural capital and ecosystem resilience).

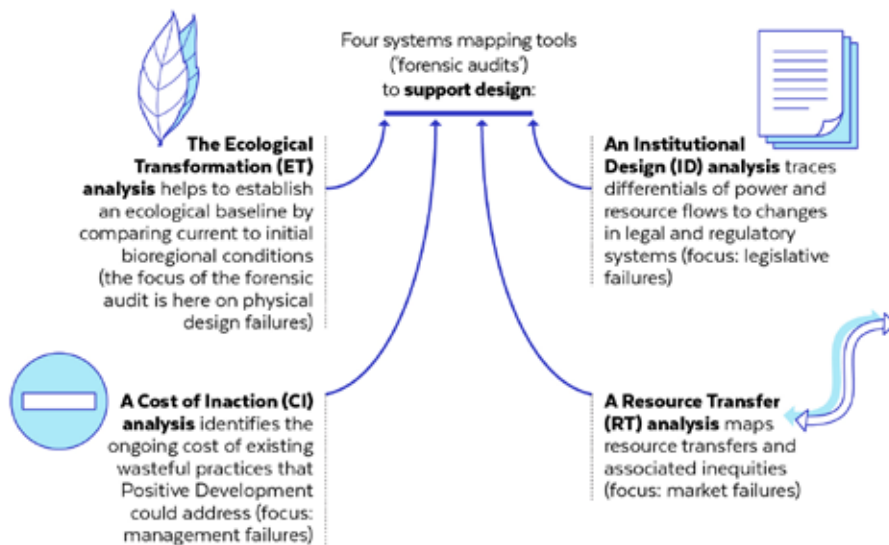


Four interconnected transfer processes to be avoided.

These six principles are at the heart of Positive Development. Methodologically, Birkeland puts forward a suite of systems mapping tools (she calls them ‘forensic audits’) to support the design and planning activity:

- The Ecological Transformation (ET) analysis helps to establish an ecological baseline by comparing current to initial bioregional conditions (the focus of the forensic audit is here on physical design failures).
- A Cost of Inaction (CI) analysis identifies the ongoing cost of existing wasteful practices that Positive Development could address (focus: management failures).

- A Resource Transfer (RT) analysis maps resource transfers and associated inequities (focus: market failures).
- An Institutional Design (ID) analysis traces differentials of power and resource flows to changes in legal and regulatory systems (focus: legislative failures).



Birkeland's four 'forensic audits' to inform design and planning activities.

Other tools, such as Lifecycle Analysis (LCA), Materials Flow Analysis (MFA), Ecological Footprint (EF) analysis and Environmental Impact Analysis (EIA) methods, all of which have their weaknesses, can function as potential subsets of the approach as they are subsidiary to design for democracy and ecology. They should definitely not determine the logic underpinning the complete design.

AN ECO-GOVERNANCE APPROACH

Birkeland is very conscious that achieving sustainability (by any definition) is a complex, multidimensional challenge that needs to be able to align many divergent interests. However, neither market nor bureaucracy are able to bring this alignment about as in both systems the fundamental ethical issues underpinning sustainability are out of bounds. Hence, **a decision arena is needed where the ethical issues surrounding resource transfers can be made transparent, debated and resolved.** The design scale underpinning this decision arena is important. As indicated earlier the appropriate perspective is the bioregional scale which purposefully goes beyond political jurisdictions, business interests or convenience (eg simply postcodes).

In addition, Birkeland calls for a constitutional approach that couches ecological issues in terms of long-standing and widely accepted ethical precepts. Obviously, Positive Development is very much driven by environmental concerns. But it is fundamentally not about foisting a 'green agenda' on urban planning. The spirit of planning ought to be a process of rigorously, discursively creating transparency about resource transfers between nature and the city and between various groups of constituents bounded by an ethical framework that can be naturally accepted as binding by all stakeholders.

Design, as indicated earlier, plays a crucial role in this endeavour: "Participatory design processes have often been useful in resolving conflicts but there is little evidence that they lead to more sustainable systems design. This is partly because participation has largely been an interest group struggle (...) even if some win and lose 'less' than they otherwise might have, the reality is a disparity of power (...) Community participation will not shift planning from interest balancing to value adding. (...) Design, however, is imagining and creating something that has never existed before. It's about the coalescence of interests and ideas, not compromise or 'balancing' powerful financial interests against disparate individual interests."

Hence, Positive Development is grounded in the establishment of a new, ethics-based, democratically-controlled and design-led planning sphere.

SMARTMODE: BRINGING IT ALL TOGETHER

The SmartMode (Systems Mapping And Re-design Thinking Mode) process brings all the elements discussed above together in an overarching framework consisting of 12 generic steps:

- 1 – Establish common ground on sustainability concepts
- 2 – Adopt a constitution for decision-making
- 3 – Articulate project objectives and criteria
- 4 – Conduct forensic audits for new information
- 5 – Consider ‘how’ and ‘what’ to trace and measure
- 6 – Select appropriate methods and tools
- 7 – Develop planning information, concepts and strategies
- 8 – Develop design strategies
- 9 – Apply self-assessment
- 10 – Apply external assessment
- 11 – Ensure relevant measurements
- 12 – Assess accountability and performance

This generic template is not prescriptive. As long as it supports a positive, action-oriented, community-based and opportunity-creating approach to bioregional planning, communities, cooperatives or public-private partnerships should feel free tailor it to the issue at hand.

CONCLUSION

Positive Development, says Birkeland, “is analogous to focusing on healthy food instead of dieting.”: it is a systemic approach to urban planning, both in the ‘hard’ and in the ‘soft’ sense. As a hard systems approach it offers a set of tools to diagnosticize design, institutional and market failures and rigorously map resource transfers at a bioregional scale. As a soft systems approach it provides an ethics-based, design-led and participatory process of enquiry into positive and integrative solutions that enhance the natural, social and economic capital embedded in urban environments. Positive Development embodies a cogent critique on a concept of sustainability that has been dominating international debate for 25 years. It is to be hoped that the approach is able to make its way into mainstream planning practices.

