Clean Growth

From mindless development, to design mindfulness

John Thackara

Introduction

This "White Paper" has been commissioned as part of a series whose aim is to stimulate thought and debate in the context of Design Innovation Scotland, which is a unique partnership of academia, business and the public sector with the common vision of developing radical solutions to real-world challenges. The core partners progressing this initiative are: Skills Development Scotland; Scottish Enterprise; The Scottish Government; Scotland's Futures Forum; Highlands and Islands Enterprise; The National Endowment for Science technology and the Arts (NESTA); The Lighthouse, Scotland's Centre for Architecture and Design; The Glasgow School of Art; Gray's School of Art, The Robert Gordon University; the University of Glasgow; and the University of Strathclyde.

Stuart MacDonald, Series Editor

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Eighty percent of the environmental impact of today's products, services and infrastructures is determined at the design stage. Design decisions shape the materials and energy required to make them, the ways we operate them, and what happens to them when we no longer need them. Design therefore has an enormous impact on resource efficiency in our economy, and can make a critical contribution in the transition to sustainability . We are not talking here about a few "green" consumer products, but of the structures, institutions and global systems that shape the ways we live.

And yet, when late last year an English regional development agency, One North East, published a public call for an organisation to run its new Design Centre of the North (DCN), the word sustainability did not appear once in the accompanying text. How could this happen?

The answer lies in the ecocidal rules which currently determine how regional development projects are funded. If it can be demonstrated that a capital project – such as a new design centre, or an airport, or a road, or a science park – will contribute to a region's growth, productivity, and Gross Value Added, then a project is likely to qualify for funding.

The trouble is that sustainability is not included as a necessary condition. The criteria used to evaluate most capital projects exclude so-called "external" costs such as energy, water, and use of the biosphere as a whole. The result is that development projects go ahead that add value on paper - but cause untold (because un-measured) damage to the ecosystem services upon which our wellbeing, indeed our very survival, depends. A distorted notion of value, in which growth and productivity are measured without reference to their impact on ecosystems, influences most development projects.

The problem is not limited to capital projects, but to all forms of productivity. Last year, for example, a new product was launched every three minutes. Did we need a new product every three minutes? I don't think so. On the contrary, the evidence in survey after survey is that we are in despair at the flood of often pointless products that we are told will make us happy. But it's not just an issue of how we feel. There are solid reasons to question new product development as a measure of success. According to Mintel, over half of the 182,000 new products introduced globally in 2006 were food and drink products. Each of these new products was the result of innovation, creativity and design - qualities that every development agency is eager to foster - and yet the result of these new product innovations was, in nearly every case, to decrease the resource efficiency, and hence sustainability, of global food systems.

It has to be said: creativity and innovation in abstract are no better than raw growth as indicators that an economy is progressing. In terms of sustainability, more innovation does harm, than does good.

The UK economy has doubled in size since the 1970s. Innovation, design and creativity have played an important role in that success. But the idea that to be better off we must consume more, and build more, no longer holds true. We need a new model of development in which renewed sensitivity to context, and proper accounting for social capital, and for environmental system services, demarcate a transition from mindless development, to design mindfulness.

New rules, new tools
The publication of the Stern Review of Climate Change Economics, by a former World Bank chief economist, marked the first in a series of radical changes to the rules by which we compete. For the first time a mainstream economist questioned the sense of perpetually accelerating growth and productivity as success criteria. Under the new rules anticipated by Stern, matter and energy flowing through the economic system, and the carrying capacity of the biosphere, will be properly counted and paid for at full price - rather than taken for granted as a freebie.

Following on from Stern, a compelling economic case for the conservation of biodiversity was recently published in a report, commissioned by the European Commission and sponsored by Deutschebank. The report, Economics of Ecosystems and Biodiversity (TEEB), specifies a range of economic tools that are needed to measure the contribution of biodiversity and ecosystem services to the quality of human life, and to help economic and development professionals better understand trade-offs between different possible uses of ecosystems.

http://idw-online.de/pages/en/news?id=262707

In parallel to TEEB, the World Resources Institute has launched a set of guidelines to help companies. The Corporate Ecosystem Services Review helps managers take more explicit account of their company's dependence and impact on ecosystems. The WRI pointing out that "ecosystem health goes straight to the bottom line", points out that the drinks industry depends on ecosystems to supply fresh water; agribusiness relies on grasslands for insect pollinators, nutrient cycling, and erosion control; and the insurance industry benefits from the fact that coastal marshes reduce the damage caused by hurricanes and that wetlands absorb water from floods.

http://www.wri.org/stories/2008/03/companies-respond-ecosystem-degradation

Social capital is also beginning to be measured and accounted for. A sustainable conception of economy necessarily includes the multitude of ways in which we create and maintain livelihoods in our families and communities. Myriad informal micro-economies, based on non-market social relationships, enable us to raise children, cook, sew, clean the house. Non-market economic life also encompasses barter economies in which we trade services and products with friends or neighbours, exchange plants or seeds, swap time, pool resources, support health care and more. Until recently we treated these social assets - like ecosystem services - as a free resource, but that is changing.

The first country to account for social capital formally is Bhutan. Prime Minister Lyonpo Kinzang Dorji has announced the formation of a Gross National Happiness (GNH) commission to re-shape the country's plans and policies, and to find a new method of economic calculation that will include quality-

of-life factors. Mr Lyonpo's government has criticised global yardsticks that only reward governments if they increase material production; even if a nation improves its quality of life, the government complains, the improvement won't show up in GDP unless material throughput also increases.

http://gnh-movement.org/press_sub.php?cid=18

If Bhutan sounds rather edge, what about France? President Nicolas Sarkozy has commissioned economics Nobel Laureates Amartya Sen and Joseph Stiglitz to develop new ways France might measure and value growth, and to figure out how France might include quality of life and ecosystem assets in its national accounts. The French president may well have it in mind to add France's wellbeing score to its existing GDP, rather than substitute one for the other - but his commitment to change the way a major nation measures economic success is nonetheless highly significant.

Less stuff...
The emergence of new these criteria for the measurement of economic value, and of new tools to do the measuring, raises important questions about the infrastructure and building projects that dominate regional development. If Richard Branson can admit, as he candidly does, that his airline is a "dirty business", then surely we should admit that airports and roads are dirty forms of infrastructure. Mobility infrastructures and single-purpose buildings are buildings that are not only incredibly resource-intensive to make and use; they also lock in, and accelerate, unsustainable patterns of daily life.

We now have the means to deliver their functions by other means. Wireless communications, in particular, enable infinitely flexible connectivity between people, resources, and places - in new combinations, on a real-time basis. The resource ecologies of cities can be transformed by demand-responsive services, location awareness, and dynamic resource allocation.These new tools and platforms have the potential to reduce drastically the amount of hardware—from gadgets, to buildings—that we need to function effectively in a city. Most of us are potentially both users and suppliers of resources and value. With networked communications, we can access and use everything - from a car, or a portable drill, to a meeting room - only when we need it.

People are the most valuable resource of all. Location-aware communication services enable person-to-person encounters. Proximity — getting people together in real space — is a killer application for tomorrow's cities.

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If the development objective is to enable people to meet and interact, why build a science centre? Deploy free wi-fi across your city for a fraction of the cost - and let Starbucks provide the meeting space. if the social objective is to ensure free access to vital services for all, why build roads? Help car and ride-share schemes accelerate their already significant growth. Does your region aspire to be an international business hub? Then don't expand your airport - it will make your region about as attractive as a service station on the M25. Hire Cisco to create the best telepresence suites in the world - and locate them in the old industrial buildings that you'd earmarked for apartments.

This is not to fetishise information technology as developmental cure-all. On the contrary, Information technology has added weight to the world that we now have to lose. Thanks to the internet, man-made flows of matter and energy have been growing faster in volume than ever before. We buy more hardware than ever. We print more paper. We package more goods. We move more stuff, and ourselves around at ever-increasing rates. Information technology is also heavy in itself. The amount of waste matter generated in the manufacture of a single laptop computer is close to four thousand times its weight on your lap. Technology is an important ingredient of sustainable development, but not as it's used now. The purpose of IT-enabled soft infrastructure is to help us re-localise the economy, and radically to increase its resource efficiency.

...more people
Traditional models of development tend to view the people, places and ways of life already there as obstacles to progress and modernization. But as the value of social and cultural capital grows, and the true environmental costs of hard infrastructure are charged against them, what would it mean for regional development to re-focus on social innovation and sustainability?

Most elements of a sustainable world aready exist. Social innovation is more about discovery than blue-sky invention. Some of those elements are technological solutions, such as the wireless networks mentioned above. Some are to be found in the natural world, thanks to millions of years of natural evolution: so-called biomimcry can deliver zero-energy buildings and bountiful ways to capture water. Most elements of a sustainable world are social practices - some of them very old ones - learned by other societies and in other times. From this insight flows the idea of sustainable development

as the adaptation of models, processes, and ways of living that already exist. Rather than design everything from scratch, this means searching far and wide for tried-and-tested solutions that others have already created. Who has cracked a similar question in the past? How might we learn from, or piggyback on, their success?

Resiience

It is not that top-down is bad, and bottom-up is good. We need both. An international effort is needed to coordinate standards, and perhaps to introduce a carbon trading systems. At national level, government can create incentives for micro-generation, decentralise the water infrastructure, or re-shape planning laws to accelerate relocalisation of economic activity. But even if they were to be introduced unilaterally, which is implausible, governmental top-down actions on their own will fail in the absence of broadly-based local level activity.

The good news is that bottom-up activity has already started, and is growing massively. The environmentalist Paul Hawken reckons there are at least one million grassroots environmental projects and groups in the world. His internet portal, WiserEarth, already lists more than 100,000 non-profit organisations in 243 countries. http://www.wiserearth.org/ The Transition Towns movement is growing virally. In aggregate, this global swarm of small projects is not only large, it is also highly innovative. If sustainable development means transformational change in a way that realises the potential of a place with the people who live there - well, it's already happening.

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How best, in this context, can mainstream development be aligned to help? If Growth, Productivity and Gross Value Added are unsustainable as development objectives, what are the alternatives?

A strong candidate, for me, is the concept of resilience. For ecologists, resilience refers to the ability of an ecosystem to withstand shock. Rob Hopkins, author of The Transition Handbook, says that in In development terms resilience refers to the ability of individuals or communities to hold together and maintain their ability to function in the face of change and shocks from the outside. http://transitionculture.org/

Resilience is not the same as self-sufficiency. It's not about heading for the hills in a pick-up truck filled with peanut butter ands guns. On the contrary, resilience is a condition of social and collective preparedness that necessarily involves a co-ordinated community effort through time. The Transition Towns movement launched by Hopkins, and countless other grassroots activities around the world, tend to be inclusive: their energy derives from citizen action, but their activities often involve planners, developers, farmers and other economic and social actors. We are all in the same boat and will not survice by hunkering in our professional or economic silos.

Resilence is hard, but not impossible, to measure. Transition Towns groups commonly calculate such variables as the percentage of food consumed

locally that was produced within a given radius; the number of 16 year-olds able to grow 10 different varieties of vegetable; the ratio of car-parking space to productive land-use; the percentage of local building materials used in new housing developments; the percentage of energy consumed in the town that has been generated by a local energy saving cooperative (ESCO); or the percentage of medicines prescribed locally that have been produced within a given radius. All these indicators can be measured, and action proposed when a number falls too low.

Mobilising the masses

Policy makers often tell me how hard it is to mobilise people around the sustainability agenda. And they are right. Telling people what to do seldom works - especially if you tell them to make marginal changes in consumption that everyone knows will make little difference on their own. A more promising approach is to start with existing grassroots activity and then to creating frameworks that enable these actions to grow and develop. The concept of enabling platforms is key here. A variety of tools and techniques has been developed by global business in recent times that can be re-purposed for ultra-local use. These range from service design, to technologes of co-operation, and systems for resource allocation - ranging from people, to water.

This was the approach we took with Designs of the time (Dott 07) in North East England, a project of One North East and the Design Council. (This writer was programme director of Dott 07). Over a two year period, a series of public design commissions brought together a variety of community groups, public and private partners. In Dott 07 we did not talk endlessly about abstract green futures; our activity was a search for practical solutions in site-specific projects. In each project, citizens from the community co-designed a practical aspect of their daily lives that it seemed feasible to improve.

As Dott 07 progressed, it became clear that practical solutions will depend as much on social innovation as on new technologies. The concept of enabling solutions turned out to be an important filter - solutions that put people at the centre of services.The role of the designer was to facilitate collaborative activity among larger groups of people.

Sensitivity to context, to relationships, and to consequences were key aspects of the transition from mindless development to design mindfulness that Dott explored. Dott 07 proceeded in four overlapping phases:

In Phase 1, which we called the discovery phase, our team worked with development officials and people on the ground to understand the links between regional economic and spatial strategies, and sustainability drivers. Within that framework, we went on to identify key projects, communities, and individuals already active in the territory. These key actors were notes on continuously update opportunity maps that described projects that can be augmented, and/or gaps that could be filled from scratch.

Phase 2 of Dott 07 involved the design of projects. A Senior Producer (SP) was appointed to articulates a meaningful question that the project would seek to answer. The SP went on to describe the purpose and desired outcomes of the project, and achieve the participation of stakeholders and partners that include the community and citizens as co-designers.

Phase 3 of Dott 07 was about the materialisation of outcomes. The SP planned and led co-design workshops whose outcomes were insights, propositions, and initial prototypes; these are documented on storyboards, and peopled on actor maps. System/service architectures are designed. It is decided what kind of artefact, mock-up, or thing, will be designed and produced to represent the solution.

In Phase 4 of Dott 07, the idea was that the emergent business plan of a start-up or social enterprise would be prepared. Together with visualizations and prototypes, this document would function as an attractor for funding. "Dragons Den" style pitches, and "First Tuesday" style marketplaces, would be organised to bring business plans and demos and funders and investors together to amplify the potential for early exploitation.

In the event, shortage of time curtailed most of this later phase. But with its high public profile and over 223,000 participants, Dott 07 demonstrated in practice that design can be an agency of transformational change. A strong aspect of the Dott legacy is that many projects are carrying on into a new phase after Dott itself has left. (The Design Council is currently exploring the possibiliy of a new Dott in South West England).

City Eco Lab

This writer is also the producer of a project in France, City Eco Lab. This two-week-long event will gather together live projects from the St Etienne and Rhone Alps region and put them side-by-side with best-practice projects from other parts of the world. Local projects, global suggestions. The idea is that showing these best-practice projects in one place - which in different ways

are the building blocks of one planet living - will inspire a broader public to become equally active, and to use design to improve their own projects.

City Eco Lab's food zone, for example, will feature a community service, AMAP, which enables people in towns to buy food directly from producers in the nearby countryside. A presentation will explain how AMAP works, and what service design actions needed to improve AMAP as service platform that could be used throughout France. There will also be a live demonstration in which Les Coursiers Verts, a bicycle courier service, will supply the City Eco Lab restaurant with fresh produce on a dailly basis. They will use prototype equipment and communications.

An energy and water zone in City Eco Lab will feature St Etienne's "Eco-Quartier" Cres de Roc. In this live project local citizen groups are already considering off-grid energy and recycling systems, the use of vegetation to moderate temperature, and a variety of car and ride-sharing services. The Eco Quartier team will encounter Invited benchmark projects for local area power sharing such Qurrent Local Energy Network (Netherlands). City Eco Lab will also feature a tool shed with resources to help people improve their projects: tools for designing, tools for communication, tools for monitoring local flows, tools for finding and sharing resources. Highlights will include Fluxstation, a one person micro-broadcasting system designed by Jean-Noel Montagne; and Memory Mirror, designed by United Visual Artists (UK).

Design plays three key roles in City Eco Lab. First, it explores and gathers together existing resources - natural, human and industrial. Second, it makes visible grassroots projects and people who are engaged in innovation for
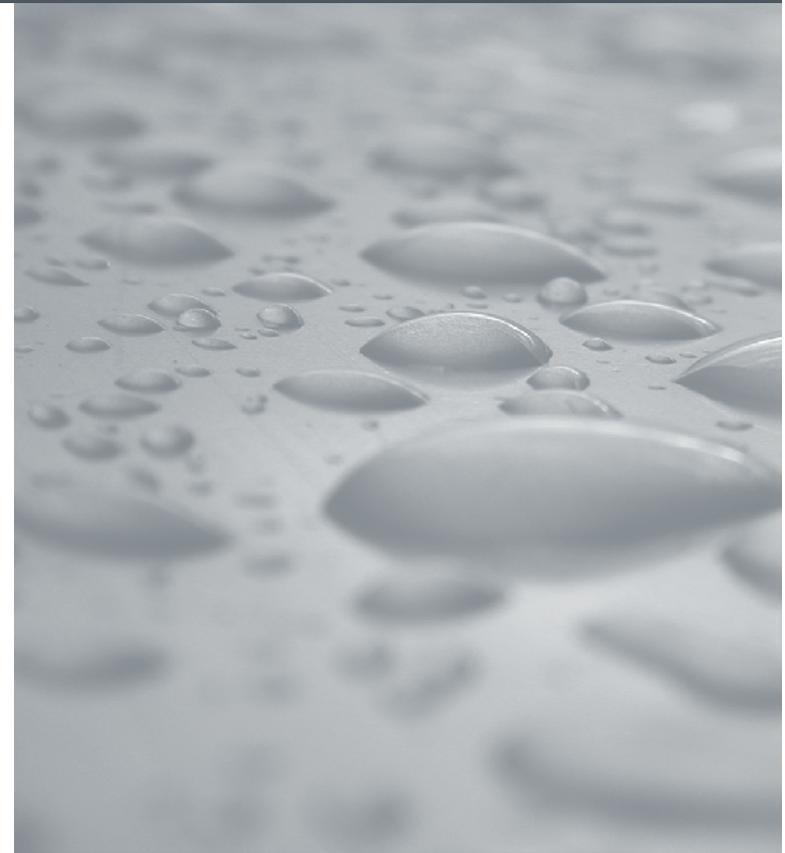
sustainability and but do not appear on the radar of mainstream media and politics. And third, design expertise is used to improve the performance and value of these exemplar projects.

Neither Dott 07 nor City Eco Lab is about telling people how to behave sustainably. The idea, instead, is to create a platform, and a place, to showcase projects already under way. The expectation is that when any of these small design steps succeed, even in part, other people and communities can quickly adapt them for their own situations and multiply them on a larger scale. Change on this scale is not something for designers to tackle on their own. Dott and City Eco Lab are about citizen co-design. The idea is that if we can improve things for real people, in a particular context, then the tools, methods and services we develop can be scaled up, and multiplied.

We are all emerging economies now.

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