

Key Principles of Sustainable Design subtitled We need to talk about development



Professor Sandy Halliday, Principal of Gaia Research gives her perspective on the awesome challenge humankind faces to reverse unsustainable trends and why the challenge is an exhilarating prospect. Sandy is a chartered engineer working in research and design of sustainable buildings and places. Her degree in Engineering Design & Appropriate Technology focussed on socially and environmentally responsible engineering, when such things were very unfashionable. She is the Royal Academy of Engineering Visiting Professor in *Engineering Design for Sustainable Development at The University of Strathclyde, Glasgow*.

'**Sustainable development**' has suffered from an image problem. It requires us to act in a sensitive manner towards natural systems, and has for many years been seen as a restraint on '**development**' per se.

A clue to the image problem lies partly in our use of language. Currently the 'S' word is rarely out of the press, lecture theatre or office. For something this ubiquitous it is remarkably poorly understood, and the source of much debate and disagreement. Many of those who take issue with the placing of '*which*' and '*that*'; engineers who justifiably splutter at their students' random use of '*power*' and '*energy*'; and politicians who can fit a bus between '*government*' and '*parliament*'; are content to use 'sustainability', 'environment', 'global warming', 'climate change', 'carbon' and 'energy' interchangeably. It doesn't help, and it does highlight a real confusion. It appears that increasingly people talk about sustainability like 10 year olds talk about sex, a lot, but without any great insight. We need to talk about the 'D' word. Sustainability is about how humanity *develops*.

Only recently, 40 years after the 1st meeting of The Club of Rome, 35 years after the 1st international conference on the environment, and 35 years after I first read about the impact of climate change (in my biology text book - 2.8°C increase by 2020 – much the same as current predictions) is it emerging that sustainability is a totally justified restraint on ***inappropriate development*** and a major driver of reversing unsustainable trends and hence improving quality of life for all.

We should be encouraged. Human skills and ingenuity have transformed the environment. The quality and quantity of life in recent decades has vastly extended, for many. However, for some, '*inappropriate development*', means that good life quality has become a distant collective memory, and for many others there have been unintended consequences that can take the edge off any urgency for celebration. Whether the unintended consequence is escalating knife and gun crime, disaffection, inequality, racial and religious tension, pollution, the rise in asthma, an obsession with consumerism, or erosion of the rights of the elderly - the list is endless – the extent to which our activities lead to unsustainability has become clearer.

There is much to do. This is equally true of Africa, Brazil and of deprived areas of the UK. Across the globe there is a realisation that pursuit of progress has unintended consequences that need to be recognised and avoided. Resolving the dilemmas that

result from human progress, and taking frequent reality checks to ensure that what we are doing is taking us in the right direction, is **the** most progressive, positive agenda, and perhaps the most awesome challenge we face. Yet for years it has not been seen as such.

However, I find clients, designers and students most responsive to the concept of sustainability when they are presented with the emergence of the fundamental principles, rather than a definition. A multi-dimensional perspective on the issues and challenges provides a good grounding and a basis for creativity and problem solving to emerge.

the history of international action

Much visual art, religion and poetry would suggest that concerns for the natural environment are deep rooted in the human psyche. Yet it was very recently that environmental protection became a respectable concern. In the 1950s such concerns were perceived as a preserve of the elite and the politically subversive– strange bedfellows in other times! A change in attitudes began in the 1960s mainly in developed countries, with concerns about pollution, disaffection, wealth imbalances and urban sprawl. Rachel Carson's work on toxicity played a seminal role.

The first Club of Rome meeting in 1968 opened up the international debate on "How we develop?" The resulting 'Limits to Growth' report stated – I paraphrase - "it is not the number of babies, cars or refrigerators that put stress on an environment, but the efficiency with which we use resources and minimise pollution and net waste". It delivered the, to my mind, optimistic conclusion "that there are limits to growth but no limits to development." Development being largely in our power of design, invention and creativity.

The UN meeting in 1972, at which 113 countries were represented, transformed the environment into an international political issue and signalled the birth of agencies and legislation to resolve the conflicting dilemmas of growth, development and environment. It was recognised as pragmatic and in every country's interest to do so.

By 1987, and the Brundtland Commission, sustainable development was firmly established as international policy underpinned by agreements on the precautionary principle, inter and intra-generational development, protection of bio-diversity and internalising external costs...and that's over twenty years ago, so where are we now?

sustainable design is that which delivers real benefits

Most countries have ignored the agreements and are adopting styles of development that are inappropriate and unsustainable. The quality of most built development, for example, is a disgrace. Global improvements are the exception, not the rule. There is ever increasing demand on the earth's limited resources, escalating pollution and growing inequity. In developed nations there is a growing tendency to nihilism. With evidence of massive environmental damage in developing nations it can seem pointless to try to do anything.

So, it is now more important than ever to appreciate that *sustainable design is that which delivers real benefits*. We need look no further than pedestrianisation to see that rules and guidelines reap instant rewards! And that there is much to be done!

The legislative context is unhelpful, and typically two decades behind best practice. Instead of seeking best value, healthy, efficient buildings our government and policy initiatives are looking for one-dimensional margin chasing technical fixes, which like the PFI initiative will leave a sorry legacy. Successful affordable, healthy new build and refurbishment initiatives, driven by and for communities, are being ignored by people who do not know what they do not know. Howard Liddell's book on "Eco-minimalism – the antidote to ecobling" (2008) covers the territory in depth based on 30 plus years of practice and applied research.

www.ribabookshops.com/site/viewtitle.asp?sid=&pid=9059&HID=

But, alongside the environmental destruction in developing countries there are very many exemplar projects evolving in Continental Europe and ecological towns developing in South America, Taiwan, India and the USA, which surpass the UK's puny initiatives. These will challenge people to think about what is *appropriate* development. Their design ambitions and success or failure may determine life quality for the majority in this millennium.

How good would it be if future development of land, buildings and the economy were *non-toxic, equitable, supportive of community and bio-diversity and resource-efficient*? **This is sustainable development.** It's about design. We have the knowledge we just need to commit to making development appropriate. It's up to us.

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Sandy initially worked on design of socially useful products. She moved into the building services sector as a research manager to develop & disseminate information on passive design, resource efficient & clean technologies, healthy buildings, and benign processes, products & materials. She established Gaia Research in 1996 to develop sustainable solutions for the built environment where she works collaborative with architectural, engineering, urban design and landscape practices in responding to the challenge of making sustainable buildings and places. Sandy's work now extends to policy guidance for government and private sector clients; training and a hand-holding service to assist clients and design teams to deliver their aspirations for more sustainable buildings.

Her experiences are summarised in The Green Guide to the Architect's Job Book RIBA Publications (2007), www.ribabookshops.com/site/viewtitle.asp?pid=7837 which is a guide for clients as well as designers and in Sustainable Construction (2008) www.get-sust.com/newsletters/issue35/35_reviews2.html published by Butterworth-Heinemann a resource guide to the delivery of a more sustainable built environment.

Gaia has an extensive range of other publications available, many on-line, including design and construction of sustainable schools, low allergy housing, dynamic insulation, solar air-conditioning and design for toxic chemical reduction in buildings.

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GAIA, Building, an ideal

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