

By Tom Barker



The system-wide transformation necessary for society to progress towards ZCB will bring many changes to the way our communities, industry and infrastructure are organised and operated. These will include changes that apply locally to energy sources and supply, transport, resource and waste management, the built environment, food and farming, water and flooding, and the suite of community characteristics that colour our lives, such as community cohesion, our use of open spaces and nature in built-up areas, food growing and managing floods and droughts. The urgent need to respond to the constraints of climate change and the depletion of resources, especially oil, will change the way we manage many aspects of our lives.

The future can be an unprecedented challenge or it can be an exciting and beneficial transformation to an enlightened and efficient world. For every unsolvable issue that causes us problems, there will also be some new development that brings the promise of a better life. Many of these transformations will become integral to our daily lives. In the urban environment, the overwhelming majority of buildings standing now will still be here in 20 years time, but innovations in architecture, building construction and standards, energy generation and infrastructure planning will need to be accommodated into new designs and

refurbishments. The use of local materials and recycling will have to increase.

The development of local food markets will grow in importance as we rely less on internationally traded, out of season food. Provision will have to be made for food production by the commercial sector and informally in communities, e.g. urban based food production on green spaces. There will probably be more opportunities for community supported agriculture, in which the public are customers and workers together. Open space is a capital resource whose careful management can yield a range of benefits. Specifically, the local management of open spaces within residential areas for multiple uses, such as recreation, timber crops, fruit and vegetables, can facilitate provision of a range of societal benefits.

Central to the creation of a sustainable, low carbon economy is the local recirculation of money (North 2010). This will help to fund community regeneration and local services and promote local job creation. The reliance on the internet for business can only grow, and video conferencing for businesses is likely to be widespread. Promotion of resource efficiency is very likely to rely on 'closed loop' manufacture and recycling as part of what is known as a 'circular economy' (see [www.ellenmacarthurfoundation.org](http://www.ellenmacarthurfoundation.org)), in which the design of the product and manufacturing process ensures reduced waste arisings and reuse of discarded materials in further manufacture. This will involve a significant reduction in the throwaway culture that necessitates frequent, large volumes of refuse collection. The use of natural resources, and re-use and repair businesses using the circular economy, will probably be important.

The roads are likely to look different because our transport and, more importantly, our access to the facilities we need are likely to change. As fuel and carbon costs increase, the transport needs of residents are likely to become more localised because there will be a greater proportion of local employment, and local businesses will have shorter supply lines. The enhancement of localised and integrated systems of public transport in conjunction with cycling and pedestrian infrastructure is expected to encourage people to travel more efficiently using less carbon-based fuel. Measures will probably include the careful planning of new developments and the re-designation of existing buildings to minimise transport needs, coordination of travel planning by major employers, and activities to engage communities in the design of local cycling and walking opportunities.

Transport and resource restrictions will lead to greater emphasis on local arrangements and the need to provide more personalised support services to an increasingly older and more stable population. Communities and individuals

are likely to be encouraged to take responsibility for their own needs, with public agencies becoming catalysts and facilitators rather than just providers. Steps towards empowerment include support for low carbon groups and promoting democracy and participation within the school curriculum. This will help facilitate more cohesive communities with most of residents needs provided locally, frequently with the involvement of local people. We can expect improved general levels of health and well-being because of increased walking and cycling and improved air quality.

The efficient use of energy, including renewable sources and small-scale electricity generation local to our communities, will be central to local communities. This will probably involve incentives for supporting community energy schemes, improving the energy efficiency of existing housing stock, supporting new energy start up businesses, introducing energy education and control into homes and schools, and engaging partners in planning for energy reduction.

With local provision of part of our energy and food needs, and local treatment of waste and water, land use will have to be managed sensitively in the interests of the residents, which involves a shift away from prioritising large projects from national or international companies in the context of increasing globalisation. The high costs of shipping will mean that imported goods will increase in price making local production more competitive, and this is likely to lead to a vibrant and dynamic local economy.

Reduced use of imported goods will make home grown materials more valued. Timber, and other plant materials such as hemp, flax and reeds, will become increasingly important for use as building materials and in textile manufacture. The economic and environmental benefits derived from ecosystems, for example in water retention and purification, will surely be widely recognised, and opportunities taken for re-naturalising land to capitalise on what managed ecosystems can offer.

Water planning needs to consider supply, flooding and sewage control. Areas of land upstream of communities can be managed for water retention by allowing rivers to flood into wetlands and woodlands, thereby cleaning the water, and providing small areas to treat locally-produced sewage wastes using natural processes.

### About the author:

An ecosystems scientist at The University of Liverpool, Tom studies the effects of environmental degradation on ecosystem quality, in particular ecological stabilising mechanisms and functional indicators of environmental change in lakes and wetlands. He lectures on sustainability, resource management, biodiversity and ecosystem services at Liverpool and CAT's GSE.

### References

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