BioRegional

Z SQUARED ONE PLANET LIVING COMMUNITY

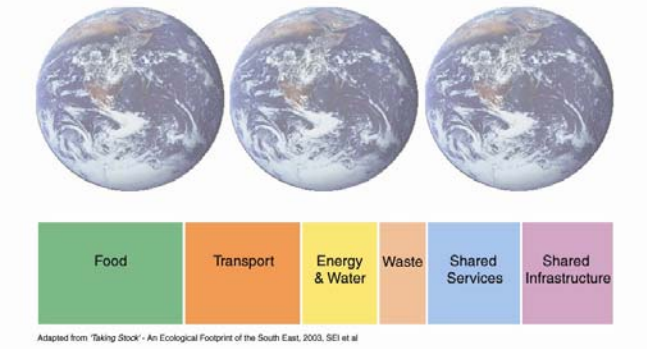
Guidelines for local authorities to encourage more sustainable developments

The aim of this document is to provide a checklist for local authorities of what to ask of developers to enable more sustainable developments. This involves looking at not only the buildings themselves, but also local infrastructure and developing strategies to encourage residents to lead more sustainable lifestyles.

Our current consumption pattern:

If everyone on the planet consumed as much as the average person in the UK then we would need three planets to support us all.

The diagram below illustrates one way of dividing up the Footprint of a UK individual into the component aspects of their lifestyle. The diagram highlights the relative importance of our lifestyle choices compared to the impact of our buildings (e.g. our Footprint associated with food consumption compared to the impact of the materials used in our home). The diagram also illustrates the importance of our shared infrastructure and services (e.g. the impact of airport buildings, hospital, financial services etc.), which are difficult to address as individuals, in terms of reducing their environmental impact.



Implications for developers:

This really highlights why any sustainability action plan for a development must aim to encourage the residents to lead lower impact lifestyles. Clearly it is impossible to insist that people walk to work or that they recycle all their waste, but unless these environmentally friendly options are made easy many people will choose the more environmentally damaging option by default.

Below are the ten 'One Planet Living' principles devised by BioRegional and WWF to act as guidelines about how to live within the planet's natural limits. The principles are neither discrete nor rigid; there is overlap between the principles and good practice in one area will often bring benefits to another. Some principles, such as zero carbon, are 'hard' technological options and therefore relatively easy to measure but other principles, such as local food, are 'soft' and the impacts or benefits are harder to quantify. Yet these 'softer' principles have as large a footprint as the construction of our shared services. Therefore it is imperative that developers understand these principles and not only show a real commitment to reduce the impact of infrastructure by using lower impact materials, but also put into place strategies to reduce the environmental impact of the resident's lifestyles.

In many cases there is often a lack of baseline data to compare the development against and therefore all developers should show a commitment to measuring the performance of the site in terms of input consumption and waste generation. This data can then provide baselines for future developments and also be used to develop targets in each specific. These targets should then be increased throughout the construction and occupation stages as part of an ongoing process to improve the performance of the site

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For further government guidance on building sustainable communities see:
Planning Policy Statements (PPS), particularly 1, 2, 3, 10,13, 22 and 25
The forthcoming Code for Sustainable Buildings (CSB)
OPDM's Sustainable Communities Plan

ONE PLANET LIVING

a joint initiative: BioRegional WWF

Context	Strategies and indicators
Zero carbon	
The energy used to heat, cool and provide power to our buildings is a significant component of global CO_2 emissions. *CO_2 contributes towards global warming which is predicted to result in a rise in global temperatures of between 1.4 and 5.8° by 2100, which will affect our weather patterns and sea levels.*	**Energy efficiency to reduce demand:** High thermal efficiency in built fabric; the average U-value should exceed building regulations. Energy efficient appliances and fittings; 'A' rated electrical appliances; low energy lights; drying spaces.
	Space heating and cooling and hot water: Building design to utilise passive solar gains and shading / passive ventilation to prevent summer overheating. District heating / cooling infrastructure for space heating and hot water, supplied from a renewable source. The option of aquifer thermal storage considered to store inter-seasonal heat.
	On-site renewable energy : Full assessment of renewable technology options to include solar thermal and PV, wind, and biomass thermal / CHP as a minimum. The aim should be to meet all on-site demand making the site carbon neutral locally. If all on-site energy has not been met, an energy strategy should be put in place to ensure ongoing management and a move to zero carbon as new technologies evolve.
Zero waste	
Across the World, our unsustainable linear consumption patterns result in the majority of our extracted and refined resources being used once and then discarded. *In the UK, nearly three-quarters of municipal waste currently goes to landfill. The Environment Agency estimates that there is only landfill capacity for another six years in the southeast region.*	**Reduce:** Low levels of packaging and waste during construction; all packaging and excess materials should be returned to the supplier enabling best practice in on-site construction waste minimisation to be exceeded. The design should be a compact mixed-use city form to reduce the built infrastructure required.
	Reuse: High levels of reclaimed and recycled materials and the use of green roofs to reuse excavated spoil.
	Recycle: Waste management strategy ensuring recycling facilities, both during and post construction, are integrated with the Local Plan and ongoing facilities management with a long-term target of zero waste to landfill. High levels of recycling and composting with aim of zero waste to landfill; houses designed with space for rubbish bins to facilitate easy source segregation of waste. The option of using 'clean' waste to energy recovery for any non-recyclable waste, such as anaerobic digestion or clean thermal treatment, should be fully investigated.
Sustainable transport	
Our global transport habits are accounting for ever-increasing amounts of energy consumption and associated emissions. *While there has been global progress in fuel and emission efficiency of vehicles, the number of vehicles has dramatically increased and consumers are driving longer distances.* *Motor vehicle traffic in the UK has grown more than nine-fold in the last 50 years, and CO_2 emissions due to transport are growing at roughly 4% each year.*	**Public transport:** High density development near transport nodes. Various steps taken to make public transport use straightforward; e.g. the provision of public transport times to residents, a sensible site location and a plan to aid the development of efficient public transport system.
	Local amenities: Need to travel reduced by the provision of high speed ICT to facilitate home-working, internet ordering and home delivery services enabling (bulk) delivery of goods, possibly though a centralised system and drop off. Provision of accessible facilities; all houses within 500m of a shop and post office.
	Personal transport: 'Mobility packages' developed to reduce car use, which include cycling, public transport, car club etc. Facilities and routes to make walking and cycling both safe and convenient; e.g. provision of a network of safe pedestrian routes and cycle paths and secure cycle lock ups. Private car ownership discouraged by the provision of fewer car parking spaces with the cost of each space being greater than the cost of joining the car club.
	'Green fuels': Facilities for electric, hybrid, hydrogen and bio-diesel fuelled vehicles, especially for the car club or public transport vehicles.

Context	Strategies and indicators
Local and sustainable materials	
The extraction, processing, manufacturing and transportation of materials impact on the environment. *Of the 420 million tonnes of construction materials used annually in the UK, about 10% are recycled materials, and less than 1% is reclaimed materials. The transport of construction materials accounts for 30% of road freight in the UK.*	**Local sourcing of materials:** Locally sourced (bulk) materials used with a pre-agreed target of a percentage by weight / value of materials sourced from within 50km of development site.
	The materials: Less processed and more 'natural' materials used; Life Cycle Analysis methodology to inform material specification choice for the lowest impact material. Renewable materials used from sustainably managed sources; all timber to be FSC certified. Reducing levels of embodied CO_2; use of recycled or reclaimed materials above current best practice.
	Building design: Buildings designed on 'long life, loose fit' principles and designed for safe deconstruction, reuse and recyclability. This will allow them to be adapted easily, if required, in the future and then for the maximum quantity of materials to be salvaged when the buildings are dismantled.
Local & sustainable food	
The growing, harvesting, processing, packaging and transportation of food have significant environmental impact. Around three-quarters of the food consumed in the UK is imported, and around one-third of a UK resident's carbon emissions are due to their food consumption.	**Local fresh food:** Provision of on-site facilities for food growing; window boxes, balconies, roof terraces or mini-allotments and community space for weekly farmers market; edible landscaping. Facilities put in place to encourage access to local and seasonal produce e.g. through a community supported agriculture scheme, i.e. centralised collection and ordering points for vegetable boxes, or a farmers market. This should allow increased access to fresh fruit and vegetables which are mainly organic or produced with low chemical intensity.
	Food education: Provision of facilities within community buildings to promote skills and interest in sustainable food and healthy eating. This could include on-site facilities for culinary skills training and provision of education to residents about the impacts of animal farming on the environment.
Sustainable water	
Worldwide water use is growing at more than twice the population rate, and many regions are already short of water. Water consumption in the UK has risen by 70% in the last 30 years and domestic water consumption is currently around 150 litres per person per day.	**Reducing and meeting the water demand:** Use of water efficient appliances and fittings; all fittings to be low water flow, thereby reducing water used for flushing WC's, personal washing, appliances and externally in landscaping. Study of feasibility of providing an on-site borehole for water to reduce the demand on the local network.
	Increased reuse: Exploration of opportunities to treat waste water and collect rain water and reuse them on-site.
	Flood risk: Water supply and flooding strategy to ensure ongoing management and water conservation, especially relating to the issues of climate change; sea level rise and increased storm surges. Flood management issues addressed, especially relating to any onsite waste water treatment facility with no waste water treatment facilities located in areas liable to 1 in 50 year flooding.
Natural habitats & wildlife	
Unchecked development can cause natural habitat destruction and result in species loss locally and globally. WWF's Living Planet Report states that in the last 30 years, we have lost 30% of the species from our planet.	**Ecological value of site:** Developments should primarily all be on brownfield sites and an independent assessment of the ecological value of the site by an accredited ecological consultant should be made.
	Management of the site: The development should be designed to support a rich biodiversity and a varied landscape and there should be a Biodiversity Action Plan to ensure commitment to ongoing facilities management and sustainable land use and to enhance the quantity and quality of habitats relating to specific species. Native trees and shrubs should be used for wildlife corridors and green roofs for landscaping if applicable.

Context	Strategies and indicators
Culture & heritage	
In our increasingly globalised world, acknowledging and learning from our past is an important element of understanding how we live in the future. As well as conserving our valuable culture, sustainable development needs to reflect social, cultural and religious diversity	**Cultural heritage:** Prior research into the historic uses of the site should be carried out including consultation with local people. The area should be developed with sensitivity and acknowledging the history of the site and local references and interpretation of history and heritage should be maximised, including preserving features of interest. There should be a cultural heritage strategy to ensure ongoing sustainable facilities management to help engender a sense of local identity and pride in the cultural and archaeological heritage.
	Local traditions: An investigation should be carried out into opportunities to revive local industries / crafts to boost local identity and offer local employment. Community activities to promote local heritage should be supported, including heritage education programmes.
Equity & fair trade	
Social equity is one of the principal values underlying sustainable development, with people and their quality of life being recognised as a central issue. Equity involves the degree of fairness and inclusiveness with which resources are distributed, opportunities afforded, and decisions made.	**Equity:** The design should provide access to a range of facilities and opportunities for all, including a disabled access strategy for the buildings, transport systems and open areas. Reduction of local/regional unemployment through the development of a Job Plan and a Training Plan, including the selection of developer partners and contractors being chosen to boost local employment and skills training. Establishment of a community trust, including an intranet, community spaces and places of worship to engender an inclusive community with a sense of identity and of place.
	Affordability: The developer must work closely with social housing providers to develop a strategy for integrating an affordable housing provision for key workers. Likewise a similar strategy must be implemented to ensure that there is sufficient social housing.
	Fair trade: Fair trade retailers and goods promoted by providing concessions for fair trade retailers and working with local stakeholders to achieve 'fair trade town' status.
Health & happiness	
There is a proven correlation between the state of our environment and our health; our buildings and our wellbeing. *Safe water supply and sanitation, proper nutrition and a safe food supply, unpolluted living conditions, the control of disease, and access to health services all contribute to healthy populations [UN Indicators of Sustainable Development]*	**Healthy lifestyles:** The design should promote healthy lifestyles including exercise, healthy food and community involvement by encouraging walking and cycling and the provision of welcoming and safe public open space. The developers should undertake ongoing monitoring of buildings and support services to measure levels of resident satisfaction and happiness. Community buildings for lifelong learning schemes, flexible work spaces, home worker support facilities and a community time-bank. These should also be used to for 'green lifestyles' induction information and ongoing support.
	Healthy environment: All homes should be well insulated so they can be heated to a healthy temperature at an affordable cost. The levels of daylighting, ventilation, sound insulation and private space should be above current typical practice. Use of toxic and 'unhealthy' materials eliminated or reduction below current best practice levels. If possible there should be in integrated system to reward sustainable behaviour; i.e. recycling credits redeemable on off peak public transport.

For more information on checklists and best practice see:

www.oneplanetliving.org
www.breeam.org
www.odpm.gov.uk
www.sustainability-checklist.co.uk