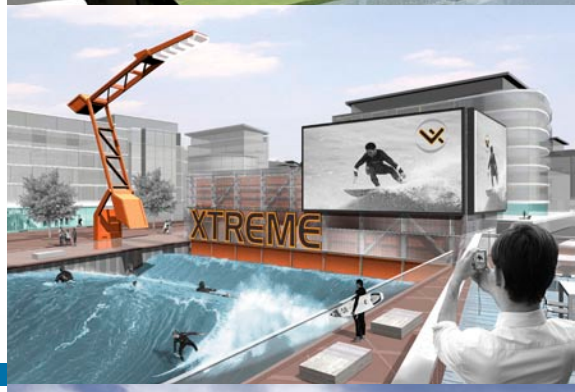
baca

ARCHITECTURE
STRATEGIC PLANNING
ENVIRONMENTAL DESIGN

WORKING WITH WATER



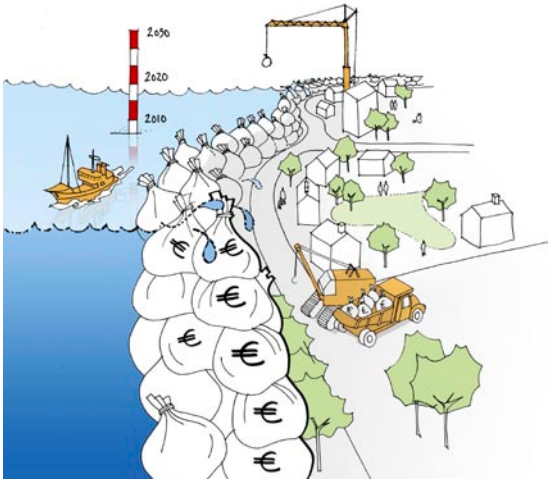
defra — **Innovation Fund**
The LifE Project

RIBA — **RIBA President's Award for**
Professional Practice Research 2009

IULA '09 — **International Urban Design Award 2009**
Bronze Medal

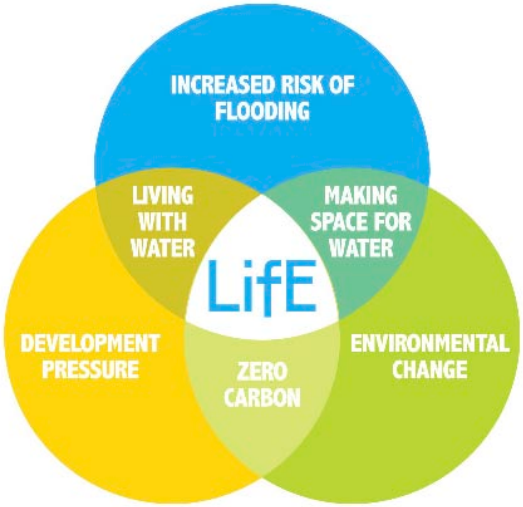
GREEN DOT AWARDS — **Green Dot Awards 2009 (US)**
Bronze Medal

Homes & Communities Agency — **HCA Sustainability Framework**
Consultant 2010



CONTINUAL IMPROVEMENT OF FLOOD DEFENCES COMES AT A COST AND STILL FACES RISK OF POTENTIAL FAILURE.

HOLISTIC DESIGN IDEAS ARE REQUIRED TO AVOID DEFERRING PROBLEMS TO OTHER AREAS.



DESIGN APPROACH TO THE LifE PROJECT

Opening the floodgates

With few obvious sites available for new development and existing towns hemmed in by protected Green Belt land, pressure to build new homes on floodplains is greater than ever. However, floodplains are expanding. Rising sea levels and stormier weather, caused by climate change, are putting more land at risk of flooding. Compounding this problem, each new home built results in more greenhouse gases emitted, leading to further global warming.

In recent times flood protection has been concerned with keeping water out, defending property from water and living on dry land. Globally, there has been a change in attitude towards flood protection in response to the growing risk and uncertainty generated by climate change. The future of flood protection is in part a return to that of the past. Focus has shifted to more traditional flood management techniques that allow land to be sacrificially flooded.

"These changes [in attitude] are required because traditional water management methods are reaching their limits: technical measures alone are insufficient." www.levenmetwater.nl

Barker and Coutts Architects (Baca) developed the LifE project (Long-term Initiatives for Flood-risk Environments) to explore how to resolve the conflicting ambition for new development and making space for water. This initiative is based on 3 key principles.

An Integrated Solution
The solution is to combine 'natural' ecological flood management and sustainable construction. Land and water assets become multi functional, integrating selective and innovative development with land for recreation, renewable energy production, local food production, water storage and flood alleviation.

Longevity & Adaptability

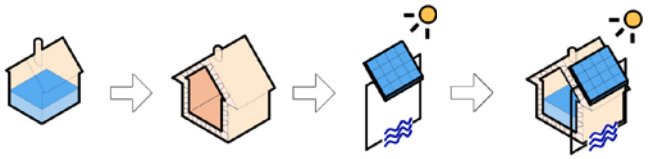
A versatile and adaptable flood alleviation strategy is required, which through a multifarious response to risk and vulnerability, can cope with the increasing unpredictability and severity caused by climate change. Secondary and tertiary mechanisms to cope with flooding need to be integrated into design and planning so that protection is not just reliant on a singular fallible line of defence.

Continuity of LifE

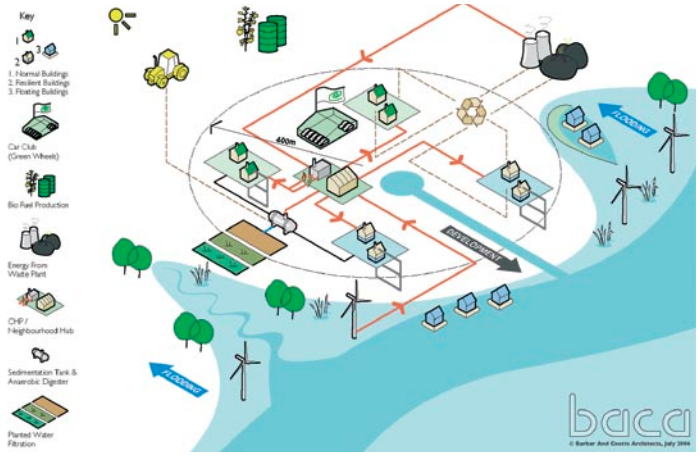
A further shift in concept is that increased flood occurrences should not disrupt life and business. Design should be based on providing 'continuity of daily life' - before, during and after a flood, to avoid the detrimental economic and social impacts that would otherwise result. A development that intrinsically provides flood resilience, through intelligent design and planning, should give insurers and financiers the confidence to offer affordable, long-term policies and investment.

This holistic approach could potentially release land for development that would not otherwise be available, allowing urban growth without creating urban sprawl, and improving links with existing communities.

The principles of BACA's approach are illustrated in the adjacent diagram.



INTEGRATED DESIGN. THE LIFE PROJECT EXPLORES WHAT CAN BE INTEGRATED, WHY AND WHAT IT MIGHT COST



The LifE™ Project

Baca with the Building Research Establishment (BRE) and an Expert Team (Cyril Sweett, Halcrow, Fulcrum Consulting & LDA Design) were awarded a grant by DEFRA as part of the 'Making Space for Water' programme 'Innovation Fund' to develop a set of generic planning and design principles for the integration of sustainable development with ecological flood mitigation; and a concise illustrated handbook.

The team developed 3 conceptual masterplans on sites around the UK to determine these generic principles and to provide illustrations of these principles at work. The LifE handbook will help to empower designers and developers alike to positively implement environmentally sound developments that have a lasting and positive legacy.

The next stages of the project will involve a range of pilot projects to develop the integrated tools and technologies required to deliver the LifE approach on different sites.

The LifE handbook is available from the BREbookshop.com

Site 1: The River Wandle, Hackbridge

An upper catchment urban site. Multi-use amenity space, rain gardens and river naturalisation are explored to slow and store floodwater away from people's homes

Site 2: The River Nene, Peterborough

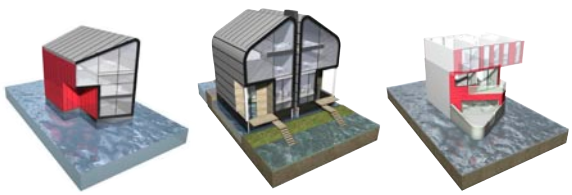
A middle catchment sub-urban site. Adaptable buildings, integrated flood conveyancing energy corridors, and fast recovery landscape are explored, to allow floodwater to flow through the site, without disruption to use.

Site 3: The River Arun, Littlehampton

A lower catchment rural site. Integrated tidal lagoons, incremental regional flood management and aquatic buildings are explored to create development opportunities, new habitat, flood protection and energy generation.

Dordrecht Floodproof Pilot

Baca were commissioned to develop a 'Pilot Scheme' for an integrated flood-proof development for a Brownfield site in Dordrecht, Holland. This scheme will include a combination of innovative designs, including a suite of floating, amphibious and resilient homes, fast recovery landscaping and an integrated renewable energy strategy.



WORK IN PROGRESS >

LifE STAGE 2 - INTEGRATED TECHNOLOGIES
CLIMATE CHANGE ADAPTABLE DYNAMIC PLANNING
OFF-PIPE DEVELOPMENT
HIGH DENSITY FLOOD RESILIENT DEVELOPMENT
INTEGRATED AMENITY & FLOOD STORAGE
SEA LEVEL RISE LINKED PLANNING AND TRANSITIONAL GROWTH
MODULAR ADAPTABLE CONSTRUCTION

Clockwise from top left

Docklands Barges Competition > Joint winner

Ashford Canal District & Nature Park > A mixed use development and water meadows will reduce flood risk overall and create a gateway into the town.

Architecture Week 2007 > Graphic installation at City Hall to raise awareness about flooding.

Eiland Veur Lent, Nijmegen, NL > Plans for an 'eco resort' are combined with a major room for the River project and architectura innovation.

London docks are reanimated by the new Venture Xtreme surf centre at Silvertown Quays.

Baca is an award winning research led design practice specialising in integrated environmental and high quality design.

The practice has a diverse array of projects that includes, one off houses, social housing, master planning, memorials and commercial projects.

Baca is internationally recognised for innovation in flood resilient and adaptable architecture and spatial planning.

Baca are the project leaders of the LifE project, exploring innovative ways to tackle flooding and climate change through the built environment.

baca

Baca Architects Ltd
Unit 1, 49-59 Old Street
London EC1V 9HX

tel: +44 20 7250 3873
fax: +44 20 7251 6297
e-mail: mail@baca.uk.com
web: www.baca.uk.com