

# A LEADING SUSTAINABILITY CONSULTANCY

WSP Environment & Energy is one of the world's leading sustainability consultancies. We have 900 specialists in over 65 offices around the world.

Our multi-disciplinary approach takes advantage of a strong local presence in the major regions of the world, and combines this with the delivery of global best practice, which comes from the expertise we can draw on throughout our business.

We have technical strength, and commercial and creative thinking. We understand our clients' businesses and the issues impacting them. And accordingly we design and deliver integrated solutions to environment, energy and sustainability issues that have real impact.

## Breadth of Expertise

We are proud to be part of the 9,000 strong WSP Group Plc, a leading design, engineering and management consultancy specialising in infrastructure, property, transport and sustainability.

Other areas of expertise across WSP to support our clients in their plans and developments include:

- Environmental Planning
- Energy & Emissions Management
- M&E Engineering
- Fire Safety Engineering
- Land Remediation
- Geotechnical Advice
- Green Building Design
- Acoustic Design
- Road & Rail Infrastructure
- Environmental Impact Assessments
- Water Management & Flooding
- Soil & Groundwater Assessments
- Transport Planning.

## CONTACT

### Let's Talk

We have a huge number of experts you can talk to, but let's start with these four global energy specialists.



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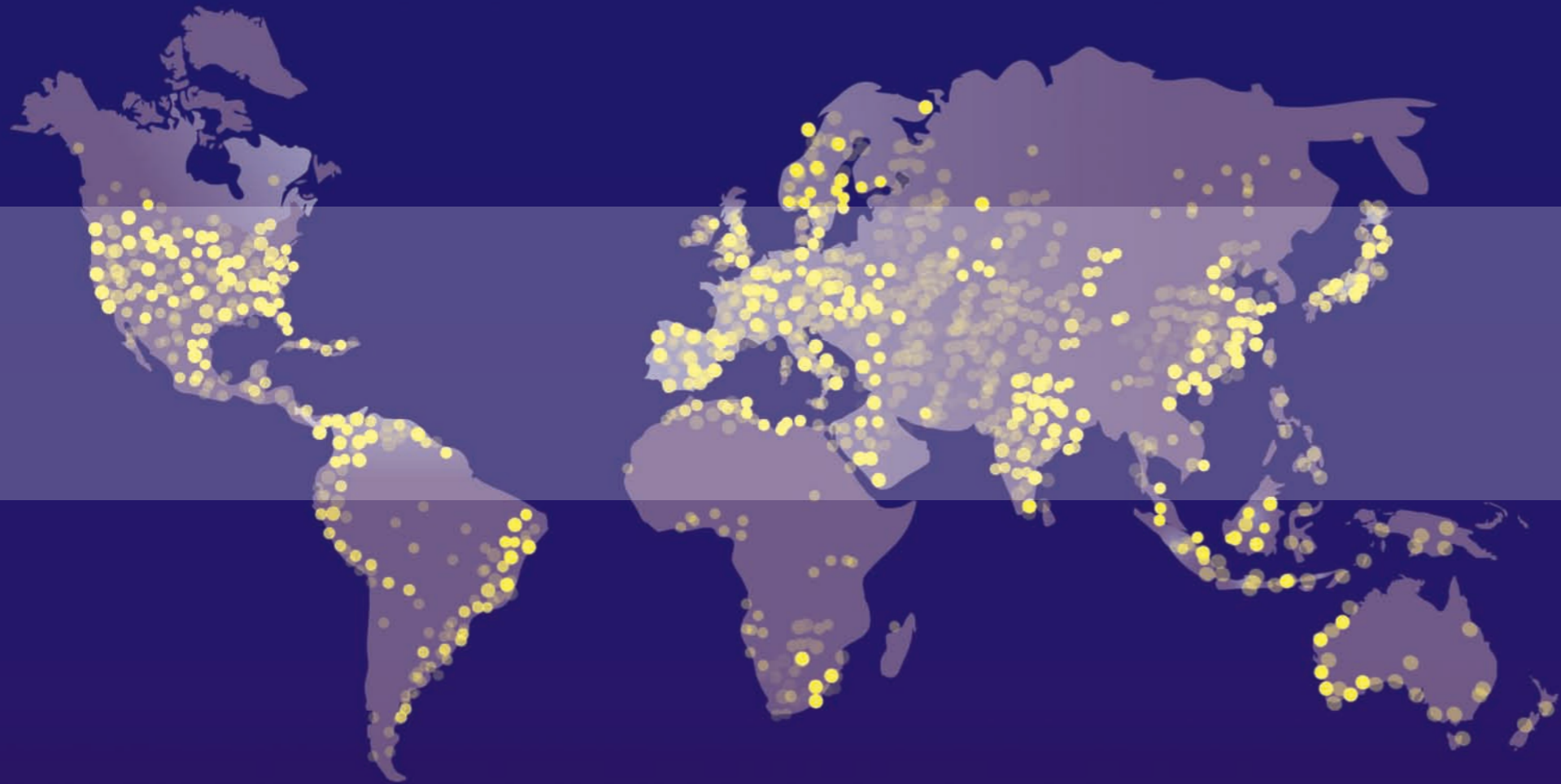


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## SUSTAINABLE DESIGNS & DEVELOPMENT





## URBANISATION

The majority of the world's population is living and working in urban areas, placing huge demands on energy, resources and infrastructure. Urbanisation is widely regarded as a key driver of carbon emissions, resource depletion and environmental degradation.

WSP provides strategic design and sustainability advice to mitigate the harmful impacts of human development on the natural environment, whilst maximising design quality, economic growth, social prosperity and investment returns.

# INTEGRATING SUSTAINABILITY

into every aspect of the built environment

WSP Environment & Energy is a leading international sustainability consultancy. We work to meet the highest standards of sustainable development whilst maximising investment returns. Our experience stretches from individual buildings and small developments, through to large regeneration schemes, and policy and strategy development for cities and regions.

We work with developers, architects, urban designers, masterplanners, corporations and governments. We understand their objectives and resource demands. We look carefully at the human, economic and ecological context of their projects. We bring together expertise across transport, waste, water, environmental impacts, renewable energy, carbon, and climate change and we design integrated sustainability strategies. We improve resource utilisation. We optimise land use. We manage user demand. We reduce carbon footprints. And most importantly, we integrate sustainability into every aspect of the built environment.

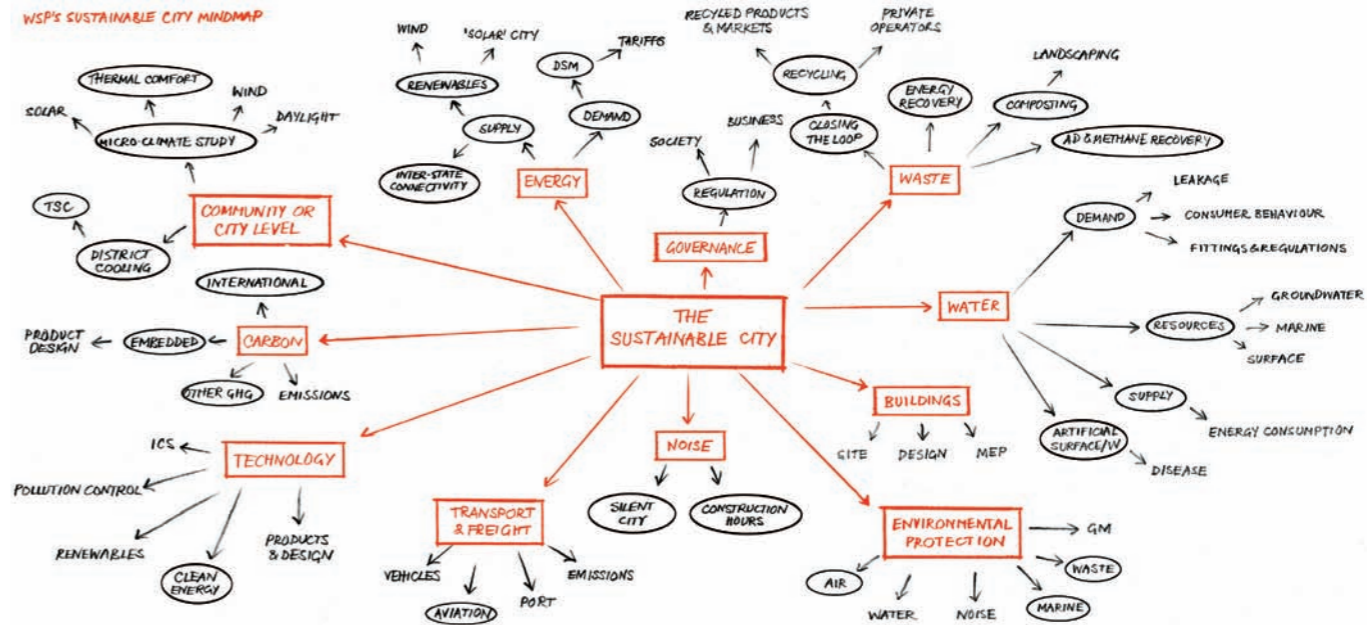
## Creating Inspirational Environments

We aspire to deliver urban environments that:

- are hubs of innovation and creativity
- take only their fair share of the earth's resources
- respond well to their location and context
- are quiet, clean, effective and healthy
- keep themselves cool in a warming climate
- are good neighbours with other species on the planet
- eliminate the concept of waste
- are powered by clean energy
- provide easy mobility for users
- create a sense of place and identity
- are managed and maintained well but cost-effectively.

## Delivering Profitable Progress

We bring a blend of vision and environmental empathy, allied with technical strength and commerciality. This is in addition to a track record that demonstrates that sustainability and profitability can go hand in hand. Planning for sustainability can not only be a catalyst for a better future, but also bring cost savings and new commercial opportunities. We work with our clients to set clear sustainability targets and to understand the approach, investment and infrastructure required to meet them.



# SPECIALIST SUSTAINABILITY EXPERTISE

delivered with commerciality in mind

Our expertise, experience and international office network enable us to have a unique and holistic perspective on both global and local sustainability considerations. Whether an architect, planner, or designer, our clients have the flexibility to use just one or many of our service areas to match individual project requirements.

## Sustainability Management & Planning

At the early conceptual stages of a project, we work with our clients to understand the vision and objectives. And we determine clear sustainability targets and outline the investment, infrastructure and criteria required to deliver it. This enables stakeholders to check feasibility, adjust plans, and have quantifiable performance requirements to feed the design and development stages. Undertaking this exercise early in the project ensures clear and realistic goals, saves time and money through more efficient upfront planning, and better protects project timeframes and delivery.

## Policy & Strategy

WSP creates sustainability strategies, policies, regulatory structures, and technical standards, whether for a development, corporation, or government. We integrate our technical expertise in areas including energy, waste, water and transport with our experience in establishing advanced models for modern regulation, using performance mechanisms, voluntary tools, and self-regulation. We assess the market or organisational impact of such measures and ensure they deliver real and efficient means of implementing change.

## Energy Supply

Securing a reliable, clean and cost-effective energy supply, is a key consideration in any project. WSP can estimate utility demand at regional, urban and site levels. We understand urban systems and building energy systems. We undertake technical and economic feasibility studies, including full-life costs, and present integrated technology options that maximise low-carbon and renewable technologies. We have extensive expertise across all renewables including; photovoltaic, ground source heat, wind turbines, solar collectors, co and tri generation, biomass, waste-to-energy, and geothermal.

## Masterplanning & Integrated Urban Systems

We work to understand sustainability targets, energy demands, and other infrastructure needs such as water, waste, transport and ICT and integrate those requirements into the planning framework. We future-proof strategies and integrate sustainability into both built and open spaces. Integrating sustainability into the masterplan identifies efficiencies and creates savings. And it brings to life aspirations of zero-carbon, zero-waste developments, of sites that can cope with flooding and drought through effective design, and which can re-plan existing urban areas for a sustainable future.

## Microclimate & Passive Design

We have valuable expertise in optimising natural assets such as sunlight, shading and wind flow. This enables us to optimise the passive design of any development or building and reduce carbon intensive energy systems and costs. We optimise site zoning and massing, and assess building height, form, fabric, ventilation and orientation. We provide designs that inhibit or encourage wind flows, provide or minimise shading, and incorporate elements of the landscape to minimise energy requirements and enhance occupier comfort. We understand the climate and environments and develop sustainable passive strategies.



Wuxi, China: Shaping an energy, waste and water strategy for city expansion

## Sustainability Compliance & Certification

We develop sustainability strategies that meet planning and building regulations, as well as corporate sustainability objectives. We understand where to take action to achieve excellence in certification against schemes including LEED, BREEAM International and Code for Sustainable Homes, and have in-house teams of qualified assessors. And we have strengths in designing new methodologies for individual objectives such as carbon neutral developments. These are supported through specialist archaeology, noise, air and odour studies, as well as environmental and ecological impact assessments.

## Carbon Management

Carbon poses both risks and opportunities for the success and financial viability of many developments and organisations. We use life cycle analysis and carbon profiling to develop carbon footprints that help clients to understand their true carbon impact and develop management programmes that address the right issues, across their site or organisation and the supply-chain. We can deliver carbon reductions through energy demand management and low-carbon energy supply; advising on alternative business strategies whilst leveraging emissions trading opportunities and ensuring compliance with relevant legislation.

# SCALABILITY OF SERVICES

We've contributed across a broad range of projects: from new cities to urban infrastructure to organisational change. Here's how:

## Small developments

We work with design teams to evaluate passive design solutions for ventilation, cooling, heating and daylighting. We assess small-scale on-site energy systems. And we assist in meeting planning regulations and building codes.

## Organisations

We produce carbon footprints and minimisation plans. We assess and improve the sustainability of real estate and operational processes. We advise on energy minimisation, improved renewable supply and sustainable investments.

## Large developments

We identify and set sustainability targets. We predict and assess energy and resource demands and infrastructure requirements. We can plan community-level energy installations and maximise passive design.

## Cities & regions

We create sustainability strategies, policies and regulations. We produce spatial plans, conduct city footprints, and plan for energy, water, waste and transport infrastructure. We look at climate change mitigation measures and adaptation strategies.



# TRACK RECORD

of innovation in sustainable design and development

We have drawn on the technical and creative strength of our team's multidisciplinary expertise to successfully contribute to some of the world's most challenging and innovative developments.

## Masdar City, Abu Dhabi

Commissioned by architects Foster + Partners, WSP developed the integrated infrastructure strategies into the concept masterplan for the world's first zero-carbon, zero-waste, car-free city – Masdar in Abu Dhabi.

Integral aspects included waste management; the supply, treatment and drainage of water; the distribution of energy and power; and the development of systems for IT, telecommunications and cooling.

## Wuxi, China

In collaboration with Danish architects Schmidt/Hammer/Lassen we provided site-wide energy, waste and water strategies for the expansion of the Jiangsu province to accommodate a further 20,000 people.

WSP has worked on several aspects of the site's sustainability, including minimising high energy consuming air conditioning through passive design solutions such as orientation, solar heating, natural ventilation and solar shading. Options for clean energy through integrated renewable systems were also evaluated.

## Graylingwell, UK

The first phase of this flagship 750 home development in West Sussex is due for completion in 2010. At WSP, we developed the 'net zero-carbon strategy' for the scheme for Linden Homes and the Homes and Communities Agency.

We are supporting the design team and client in developing and monitoring the net-zero-carbon strategy during the commissioning and construction of the first phase of the project and will continue to do throughout its nine year life.

Microclimate and passive design analysis have been applied to minimise the need for energy in each home, including high building fabric specification to minimise heat losses. An overshadowing study has been carried out to maximise the direct solar radiation for 2,000m<sup>2</sup> of PV panels spread across the roofs. Another carbon saving feature includes a low-carbon combined heat and power installation that could export excess electricity to adjacent institutions, developments or back to the grid.

## Marks & Spencer

As part of this leading retailer's 5 year eco-plan, WSP has been developing a carbon profile of their UK operations. This covers direct carbon output from stores, depots, offices and staff travel. It also covers indirect carbon outputs from suppliers and customers, including packaging and disposal, customers' use of products and plastic bags, and customers' travel to and from their stores.

## Norra Djurgårdstaden, Stockholm

The Royal Seaport is a new city district of Stockholm which will provide 10,000 new apartments and 30,000 new work spaces. Since 2008, WSP has been supporting the City of Stockholm with the sustainable planning for the district.

We have developed the goals for energy, water and waste management, working with the City and all associated parties. We are also assessing measures to adapt to climate change.

## Kidbrooke, London

This mixed-use development scheme covers approximately 109 hectares. WSP is working with the architects Lifschutz Davidson Sandilands to determine the impacts of the scheme on the local wind environment and levels of daylight and sunlight to neighbouring properties and also within the scheme.

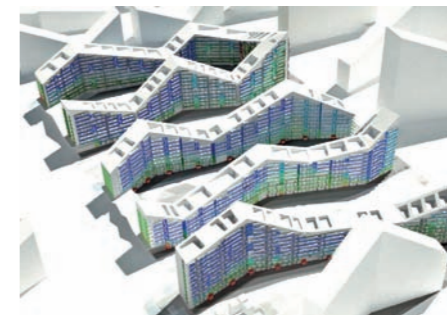
The studies are used to identify mitigation measures which are important to the planning process of a large scheme in the UK.

## Dubai Urban Development Framework

With international planning consultancy Urbis, we were commissioned by the Executive Council of Dubai to develop this Framework.

It provides an appropriate set of strategies, spatial plans, policies and guidelines that when combined will present a fully integrated long term planning and management framework. This is intended to support the sustainable growth of Dubai as a world class centre.

In this process, WSP is responsible for the city's climate response, environmental management, public and freight transport, infrastructure and sustainable urban design.



Right: Graylingwell, UK

Bottom left: microclimate modelling

Bottom right: Masdar City, Abu Dhabi