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# Sustainable Business | The Future of Cities

## Business needs nature's diversity

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aware of how much their wealth depends on preserving natural ecosystems.

Mr Sukhdev, formerly head of Deutsche Bank's global markets business in India, led a study called The Economics of Ecosystems and Biodiversity (TEEB), intended to estimate the costs of neglect and degradation of natural environments.

He says: "All economic activity and most of human well-being whether in an urban or non-urban setting is based on a healthy, functioning environment. Nature's multiple and complex values have direct economic impacts on human well-being and public spending."

The TEEB study found that preserving biodiversity in some areas most at risk of species loss would yield about \$4,000bn to \$5,000bn a year in benefits.

Environmental degradation can have far-reaching effects. Deforestation, for instance, causes floods and mudslides, but also water shortages and dust storms, because the trees create catchment areas for water, and help to hold soil together. Restoring forests can yield enormous benefits.

The TEEB study looked at the transformation of Hiware Bazaar, a village that now has one of highest average rural incomes in India.

In the 1970s, the village suffered severe water shortages, partly the result of increased run-off owing to deforestation and vegetation loss.

Then villagers started to regrow trees. The shortage was alleviated, agriculture saved, and poverty drastically reduced.

Businesses must play a big role in maintaining biodiversity, says Dax Lovegrove, head of business and industry at WWF UK.

"There's a dangerous assumption that companies can continue to rely on ecosystem services, especially when those ecosystems are in such rapid decline," he says.

He warns that the rate of decline poses a real economic threat. "Businesses need to think differently or fail. The increasing competition around the globe for natural resources and ecosystem services, which are already in steep decline, means companies have to adapt fast to the declining availability of natural capital."

These views are not confined to green campaigners. This summer, the consultancy McKinsey identified biodiversity as "the next environmental issue for business".

The company's survey of top executives found just over half thought biodiversity should be one of the top 10 items on the corporate agenda – "the same share that, in 2007, said climate change should be a priority".

Water scarcity headed the list of concerns, but respondents also mentioned other risks, including infectious disease, food insecurity, flooding, droughts and desertification, and soil degradation.

Their reasons for worrying were also revealing. Only 12 per cent said their companies faced a significant risk of a shortage of crucial inputs resulting from biodiversity problems. Many more said they expected to face pressure to change their operations to reduce their impact on biodiversity. Overall, companies also saw a positive side – about six in 10 saw protecting biodiversity as more of an opportunity than a threat.



Upwardly growible: an SOA architect plan for a high-rise with a farm

## Multi-storey farms in a city centre near you

### Urban agriculture

Projects are small for now. Being able to show economic impact would help. Jane Bird reports

With agricultural land under pressure from climate change, soil erosion and population increase, the solution is to create "vertical farms", high rise buildings in or near cities that could be used to grow food.

This is the view of Dickson Despommier, professor emeritus of public health at Columbia University, New York, who invented the concept in 1999.

He argues that it would enable year-round crop production safe from droughts, floods and pests, make efficient use of water, and reduce fossil fuel consumption by avoiding the need for heavy machinery and transport. Rural land could be returned to nature.

But when he asked his students to design some prototypes, the results were discouraging. To feed 50,000, the building would need to be the size of a football stadium and 30 storeys

high, the students concluded – clearly impractical for many cities.

More recently, Prof Despommier has designed smaller farms that could be constructed incrementally. "They might start in research departments of universities with sponsorship from local government, gradually integrating with schools, hospitals and apartments in a series of smaller iterations that would spread out throughout the city," he says.

Fitting farms into old cities without damaging their culture and history is the main challenge, says Augustin Rosenstiel, chief executive of SOA, a Paris-based architect. "We can't restrict urban farms to such places as Dubai," he says.

SOA is working on alternative models for urban agriculture. "A few farms could be the size of large industrial sites, others on the scale of a Carrefour shopping mall, and some 300 sq m properties suitable for small businesses."

Such buildings could deploy a range of growing techniques including hydroponics (soil-less growing), which uses tubes of liquid, aeroponics – air and mist – and more recently ultrasonic foggers to deliver a thicker brew of nutrients.

In the Netherlands, farmers are growing plants on plastics, rockwool, perlite and vermicu-

lite using small amounts of nutrient-charged liquid.

As yet, a real vertical farm doesn't exist, says Mr Rosenstiel, who refuses to count restaurants growing their own tomatoes and garlic. The barrier is not technology, he says, but political will and the fact that land is so expensive.

Unless city authorities are prepared to allocate land exclusively for agricultural use, it will not be economic he argues. "The tomatoes will be too expensive."

In northern Europe and the



US, urban farming tends to be seen as an aesthetic issue or a hobby, says Mark Redwood, programme leader of Canada's government-funded International Development Research Centre.

But in lots of developing cities, urban agriculture is fundamental," he says. "It's rare to see an empty space that isn't being put to productive use in places such as Ahmadabad, India, or Cairo, Egypt."

IDRC is helping schools in Santiago, Chile, grow produce to sell in local supermarkets, and is working on urban farming projects in Lima, Peru; Dakar,

Senegal; Fortaleza in Brazil; and Ammam, Jordan.

One problem is a trend to use untreated waste water, which being nutrient-rich saves on fertilisers but contains pathogens that can spread disease.

In Accra, Ghana, and in Bamako, Mali, communities are learning to reduce contamination by avoiding specific parts of the plants, washing, and cooking them. In Mexico City, urban farmers are using raised beds known as *chinampas*, and, when the water is particularly contaminated, growing flowers rather than food.

Urban agriculture was an oxymoron 15 years ago, but now it is recognised as having a big role in food security and the economy, says Mr Redwood.

"The problem is that nobody has done any proper accounting to see much value is tied up in urban farming. Being able to demonstrate its economic impact would be enormously helpful," he explains.

In addition to securing the food supply, urban farming is increasingly seen as a way to create a green city.

"If you're going to have parks, why not make them productive?" says Mr Redwood.

This is beginning to happen with the integration of agriculture into the design of cities such as Beijing and Rosario, Argentina, he says.

## Political spending does not always match CSR values

### Lobbying

Sarah Murray says companies have not involved their government affairs teams in this area

In January this year, a US Supreme Court ruling removed limits on corporate spending in political campaigns.

The decision, which is expected to release into the election process a wave of corporate and special interest money, has revived questions about how companies claiming to espouse principles of corporate responsibility should behave when it comes to their lobbying and political activity.

Even before the decision was made, some had been questioning corporate behaviour with respect to influencing politics and legislation.

A 2005 report produced by Accountability, the UK research and advisory institute, and the Global Compact, the UN citizenship initiative, identified a gap between the public corporate responsibility statements and sustainability commitments of many companies and their lobbying activities that push for narrow commercial interests.

"You've got to be consistent in making these commitments," says Bennett Freeman, senior vice-president for social research and policy at Calvert, the socially responsible investment management company.

"It just doesn't cut it to be saying one thing in a CSR report and then directly or indirectly lobbying in Washington, London or Brussels to undermine the same objectives."

Much of the indirect lobbying companies engage in is conducted through business associations. Here too, contradictions have been emerging between companies' sustainability agendas and what the business associations are pushing for.

In the US, the Chamber of Commerce has come under the spotlight, with several companies – including Apple and Nike – withdrawing from the chamber or expressing dissent in other ways at the organisation's opposition to the introduction of a cap and trade system to tackle global warming.

Moreover, few trade associations – beyond those focused on sustainability – are members of the Global Compact. "We have yet really to penetrate the ranks of traditional business associations," says deputy director Gavin Power. "This is a strategic imperative for the next 10 years."

Bruce Freed, president and a founder of the Center for Political Accountability (CPA), a Washington-based non-profit organisation, points out that for companies, the gap between their policies and those of the business associations that represent them can be about more than values.

"The whole area of risk is central to this," he says. "On climate change, for example, some companies have developed a business strategy based on carbon trading."

Reputational damage is also a risk for companies, when their political spending does not match their broader values.

For example, Target, the US discount retailer, has faced public ire over its contributions to a gubernatorial candidate in Minnesota opposed to gay rights.

"The company has very good

policies on diversity yet when they made a political spending decision they didn't look at how it would impact the company more broadly," says Mr Freed.

Mr Freed argues that transparency and accountability on political spending should be considered part of a company's responsibility credentials.

To start the ball rolling, the CPA has launched a corporate political accountability and disclosure database to track direct and indirect corporate political spending and allow comparisons between companies.

Meanwhile, shareholders are starting to put more pressure on companies to align their values and their political spending and lobbying activities, and become more transparent about how spending decisions are made.

In August, investors including Calvert, Walden Asset Management and Trillium Asset Management filed shareholder proposals with both Target and Best Buy, which also made donations to the Minnesota gubernatorial candidate. The resolutions drew attention to the mismatch between the contributions and the companies' corporate values and requested a review of political spending.

"We've seen dozens of shareholder resolutions focused on disclosure of political contributions, and I think we'll see an upsurge in resolutions focusing on closing the gaps in companies' CSR positions and their lobbying," says Mr Freeman.

Part of the reason behind these gaps is organisational.

Over the past decade, companies have gradually been bringing a wider range of departments – from legal to procurement – into discussions about CSR and sustainability. How-



**Bennett Freeman:** 'You've got to be consistent in making these commitments'

ever, their government affairs teams rarely participate.

Mr Power notes: "The inconvenient truth here is that the vast majority of companies still have government affairs disconnected from their CSR strategies and policies. Typically, they haven't been brought to the table."

And while companies have committees on compensation, governance, auditing and compliance, says Mr Power, "very few have board-level committees devoted to looking at key global issues as defined in public policy terms".

One of the ways the CPA hopes to help change this is through the publication of a handbook on Corporate Political Activity by the Conference Board, a research organisation.

"It's about how to infuse this throughout an organisation," Mr Power says. "And how to ensure senior-level executives understand that their decisions have to be driven by these types of values."

Greater transparency and accountability on political funding and lobbying will help companies protect themselves against reputational and business risks, yet the corporate sector also has the potential to use its lobbying as a positive force on labour standards, climate change or corruption.

"Companies should get on the front foot and lobby for positive action on issues that will benefit not just society but also their bottom line," says Mr Power.

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## Data will be crucial to the better use of energy

### IT & urbanisation

Jessica Twentyman on smart meters and other initiatives

More than half the world's population lives in cities.

That level of urbanisation is unprecedented and, according to the UN's Population Division, the trend is set to continue.

By 2050, the UN estimates, the urban population will grow by 2.5bn, reaching 70 per cent of the total. City-dwelling on this scale will bring many challenges. Minimising the impact on the environment is just one and there is much to be done.

In a recent survey of 2,250 residents of 15 cities worldwide, conducted by

the Economist Intelligence Unit, one-third of respondents said poor air quality had a severe negative impact on quality of life. One in two cited congestion as a big concern.

On a more positive note, almost three-quarters (74 per cent) claim they would probably change their energy and water consumption if they had better information about their usage.

That points to the significant role that the information and communications technology (ICT) sector has to play in making cities more sustainable.

Technology companies such as IBM, Cisco, Microsoft and Google clearly sense a bonanza.

A large element of their prescription for sustainable cities involves a transformation of the power grid from a largely electro-

mechanical system to a digital network, or "smart grid", across which information about consumption flows seamlessly between utilities, consumers and government.

The smart-grid opportunity, Cisco chief executive John Chambers has said, "may be bigger than the whole internet".

IT companies will provide the networks, hardware and software needed to store, analyse and present consumption data in ways meaningful to both utilities companies and the consumers they serve.

However, a vital prerequisite will be the installation of "smart meters" capable of taking these readings, says Andy Slater, Emea marketing director at US-based meter company Sensus.

Sensus provides meters for electricity, water and

gas and is working as part of a consortium, alongside BT, broadcast signal distribution specialist Arqiva and BAE Systems subsidiary Deticia, on a pilot project to roll out smart meters to 200,000 homes in Reading, UK.

'Different sections of the population will respond to different incentives'

This trial, he says, will form the basis of the consortium's pitch for the UK-wide, government-backed Smart Metering Initiative.

The idea behind the consortium's proposal, says Mr Slater, is simple. "It's a single, intelligent network that can measure water, electricity and gas to homes and businesses

across the UK and collect the data in a central repository, from where it can be sent to the relevant utilities companies."

But to make a real difference to the environment, information collected by smart networks must find its way into the hands of corporate and residential end-users, says Darrin Hill, an energy specialist with PA Consulting, the management consultancy.

"Different sections of the population will respond to different incentives," he says.

"Some may wish to curb their consumption purely for the good of the planet; others will be motivated by the prospect of a lower electricity bill.

"Either way, users need the information to help them make the right choices."

Much will depend on the

willingness of energy providers to share data with corporate and residential customers and to introduce variable pricing rates that reflect real-time demand.

For example, they might offer a cheaper rate, encouraging consumers to run washing machines or companies to perform vital computer backup routines during off-peak hours.

With that in mind, both Google and Microsoft have unveiled online energy management tools that promise to connect customers to utility companies' systems and allow them to monitor how much electricity they are using – and at what price band.

Meanwhile, in San Francisco and Amsterdam, Cisco Systems has launched Urban EcoMap, an interactive website that helps raise citizens' awareness about carbon

emissions in their area.

Users can look up emissions by neighbourhood in categories such as transport, energy and waste management, set goals and chart their progress.

In the rush by technology companies to sell systems and software to the largest utility companies – often lured by the prospect of the generous government funding such companies are receiving – initiatives that focus on the end-user seem small.

But they could be the ones that make the real difference.

"We can talk a lot about smart cities, but in the end, it's all about people having the information they need to make choices, behave differently and use energy and transportation differently," says Mr Hill.

"That's what makes a city smart."



