

# The Ecological Footprint of Kingston upon Thames

A  Project

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## Sustainability and the Ecological Footprint

The Ecological Footprint measures how much nature we have, how much nature we use, and who uses what. Kingston upon Thames' Ecological Footprint represents the amount of biologically productive land and water its residents use. We use land for the natural resources it can provide, such as food and timber, for its ecological services, such as absorbing waste, and to build and live on.

In today's global economy, where just the food for our breakfast may come from half a dozen countries, we exert impacts all over the planet. The Footprint sums these areas, wherever they may fall. Put another way, the Ecological Footprint measures how large a garden a person, city, or country, needs to sustainably support them.

This report documents the Ecological Footprint of Kingston upon Thames' residents. It provides a complete picture of the environmental impacts of their consumption patterns including transport, consumables and waste, services, food, building and residential energy as well as shared resources such as the health service. For the first time, the analysis provides a complete picture of the impact of consumption wherever the resource came from. The analysis allows comparison with the national average and other local authority areas, an initial baseline assessment of environmental impacts and a comparative analysis between consumptive items, such as transport and waste.

This report follows the emerging set of standards. It starts from using the "National Footprint Accounts"<sup>1</sup> of the UK as a baseline and uses an allocation method, in this case an economic 'input-output' (IO) analysis, to allocate the overall demand to various activities. In this study, we used household expenditure data along with local data where available<sup>2</sup>.

While national Ecological Footprint accounts are essential for quantifying the amounts and types of land required to sustain an economy, they do not describe the ultimate cause for the use of such land. For example, we know that the UK places demand on pasture lands, but how much of this demand is for leather products, which eventually find their way to seats in new automobiles, and how much of the demand for pasture is for beef for human consumption? The former use of pasture would clearly be part of a Transportation consumption category, and the latter Food & Beverages.

For policymakers, it is important that the final consumption categories be properly mapped to land areas (i.e., Footprint), because policymakers' influence is generally on final consumption, through taxation, subsidies, public infrastructure, trade regulations, etc.

These accounts provide an initial assessment of the Ecological Footprint that the residents of Kingston upon Thames place on the planet. It is hoped that in the future you can use this information to inform the policy process and communicate the ideas of sustainability to a wide audience.

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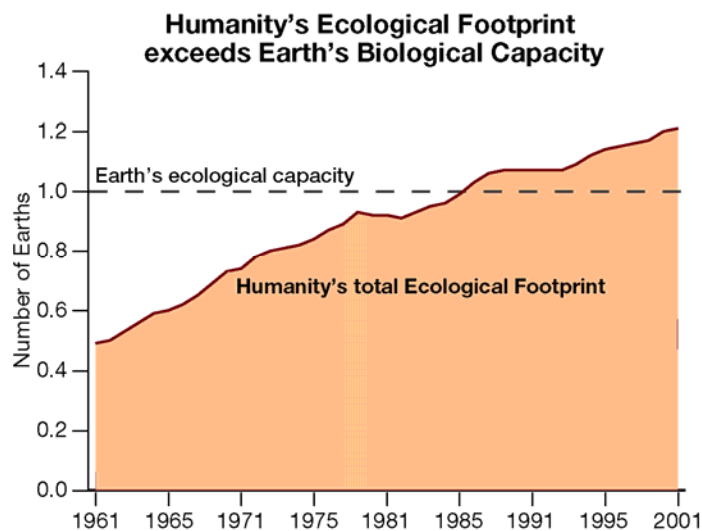
<sup>1</sup> For more information on the National Footprint Accounts please visit: [www.footprintnetwork.org](http://www.footprintnetwork.org)

<sup>2</sup> For more details of the methodology please refer to 'REAP Report 2' which can be downloaded on the following site: <http://sites.wflearning.co.uk/ecobudget/downloadcentre/>

## Introduction to the Ecological Footprint

The world average Ecological Footprint is 2.2 global hectares per person. In contrast, dividing the total biologically productive surface area of the planet by the current population gives us our budget for sustainable living: 1.8 hectares per person (some of which we may want to share with other species). Our global Ecological Footprint is larger than available productive land because we are using natural resources more quickly than they replenish. This is called *overshoot*.

Today, the world is in ecological overshoot. Humanity's Ecological Footprint exceeds the Earth's biocapacity by over 20 percent ( $2.2 / 1.8 = 1.2$ ). Overshoot means using resources more quickly than they can be replenished. Trees can be harvested faster than they regrow, fisheries can be depleted more rapidly than they restock, and CO<sub>2</sub> can be emitted more quickly than ecosystems can absorb it. It is possible to exceed ecological limits for a while, but this 'deficit spending' leads to the destruction of ecological assets, on which our economy depends, such as depleted groundwater, collapsing fisheries, CO<sub>2</sub> accumulation in the atmosphere, and deforestation. With humanity's current demand on nature, overshoot is no longer merely a local, but a global phenomenon.



**Figure 1: Humanity's Ecological Footprint (1961-2001)<sup>3</sup>**

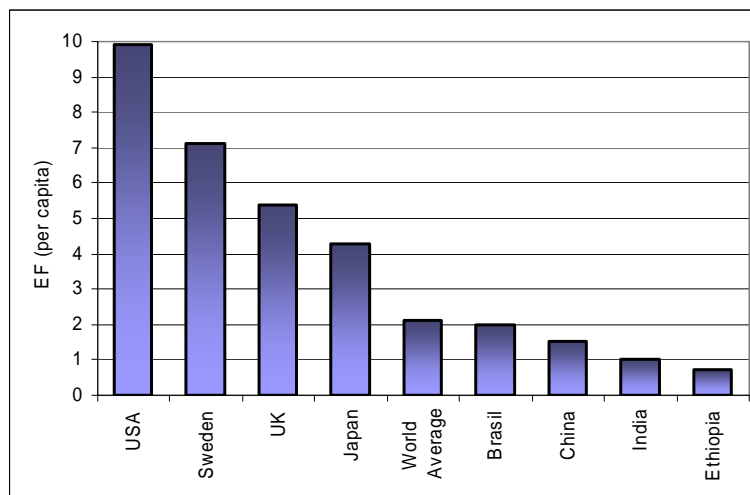
Sustainability means living well, within the Earth's capacity. Ecological Footprint accounts report humanity's demand on nature in specific, understandable terms, using official government data. The accounts are helping hundreds of individuals, business managers, government administrators, and sustainability practitioners around the world effectively manage our ecological assets and move society toward sustainability.

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<sup>3</sup> WWF (2004) Living Planet Report.

## Ecological Footprint of the UK

The Ecological Footprint of the UK is 5.4 global hectares per person. This is 65% higher than our ecological budget and the UK has an Ecological Footprint among the highest 15 countries on a per person basis. You can see every country's Ecological Footprint in the Living Planet Report<sup>4</sup>. A few can be seen in Figure 2 for comparison.



**Figure 0 Ecological Footprint of Selected Countries (2001)**

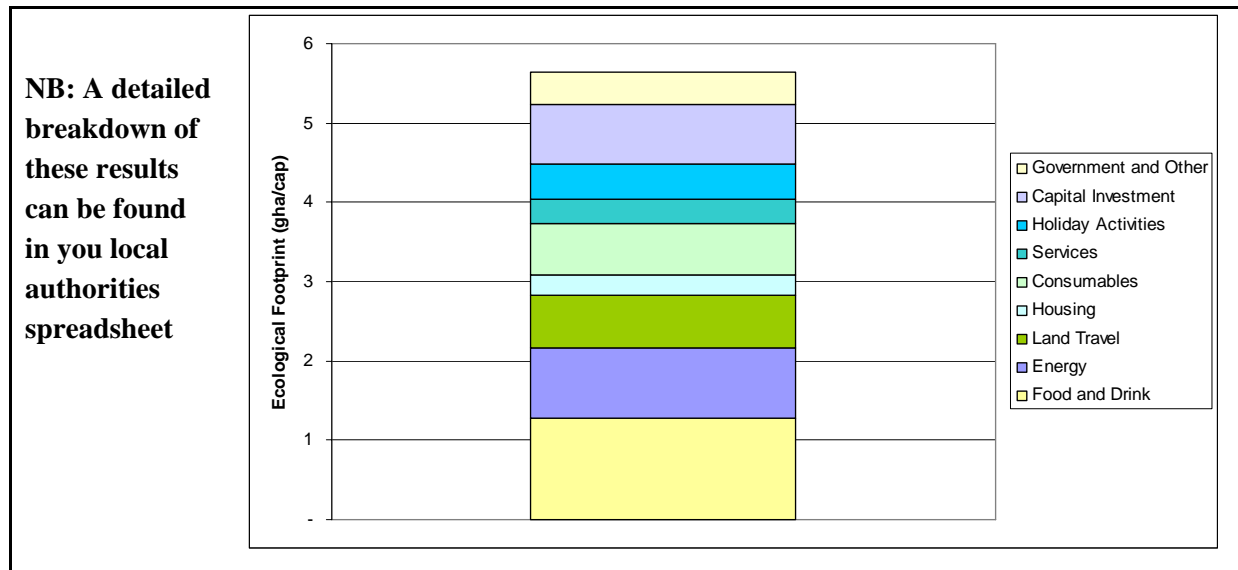
While the Ecological Footprint of the UK is high there are countries where consumption patterns have led to an even higher Footprint, the USA being an excellent example. A common pattern exists between the wealth of a nation (measured in Gross Domestic Product) and the size of the Ecological Footprint. As well as raising an ecological concern the Ecological Footprint raises the issue of equity. The ability of rich countries to access resources in comparison to poorer countries can be clearly seen in the subsequent size of the country's Ecological Footprint.

This highlights the key sustainability challenge. Is it possible to achieve wealth creation that improves the quality of life for all, while reducing an Ecological Footprint? This is a challenge that has been accepted by a large number of national governments across the world, including the UK. Now that the Ecological Footprint of your local authority is available, for the first time it is possible to provide a complete assessment of local impacts. This allows local agencies to consider how they can contribute to "Footprint Reduction" through the various policies that shape and influence the consumption patterns of Kingston upon Thames' residents. Before we consider what local authorities can do to reduce the Ecological Footprint, let's explore the results for your local authority.

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<sup>4</sup> For a copy of the Living Planet Report please visit: <http://www.wwf.org.uk/filelibrary/pdf/lpr2004.pdf>

# Ecological Footprint Results



**KINGSTON UPON THAMES' ECOLOGICAL FOOTPRINT = 5.64 gha. / per person**

Activity Category	Main Consumptive Items included in Category	Ecological Footprint (gha/capita)
Food and Drink	Food and drink purchased for home consumption, alcoholic drinks purchased in a public house, restaurants and other eating out establishments as well as take-aways.	1.28
Energy	Domestic fuel including gas, electricity and other fuels such as oil or bio-fuels	0.89
Capital Investment	Investment in tangible fixed assets such as plant and machinery, transport equipment, dwellings and other buildings and structures	0.76
Travel	Car fuel, the impact associated with purchasing and maintaining private vehicles and public transport (bus, train, coach, air travel etc.)	0.66
Consumables	Includes durables and non-durables items including newspapers, clothing, appliances, glassware, tools, medical products, audio-visual equipment, personal effects etc.	0.66
Government and Other	Includes the resources used by national and local government, universities and colleges and balances the Ecological Footprint by taking out overseas tourists in the UK and changes in stocks	0.40
Services	Includes private hospital and education, postal, telephone, water supply, recreation, insurance, financial services etc.	0.31
Housing	Building, maintenance and repair of dwellings	0.24
Holiday Activities	Any consumption by UK residents overseas, from hotel energy requirements to eating out and shopping	0.43

## Conclusions

At the UK level we have witnessed some stabilisation in the Ecological Footprint since the 1990s. However, if every one in the work were to live like the average person in the UK we would need three planets to provide all the resources and absorb all the waste. There is concern that it is the “easy picking” that has allowed this to happen. For example, changing from coal to gas for electricity generation has reduced carbon dioxide emissions, but household energy is continuing to rise. There is every possibility that the Ecological Footprint will rise over the next ten years, albeit at a relatively slow rate.

The results from this study raise some interesting points;

- The food sector produces the largest single impact at 23% of the Ecological Footprint (EF). There is great scope for localising food production, reducing energy intensive processing and meat content which can all reduce the Ecological Footprint of food consumption. If there is a possibility to link a healthy eating campaign and reduce the environmental impact of food consumption, two important dimensions of sustainability are being addressed.
- Household energy consumption is responsible for 16% of the total Ecological Footprint. Here, while the technological potential for almost zero energy buildings exists, achieving it depends on lifestyles and institutions (for instance, the problem of split responsibilities between landlord, utilities and tenants)
- Manufactured durables and consumables contribute to 12% of the total Ecological Footprint. Each shows opportunities for demand management, supply chain management, process efficiency and localised production.
- The transport sector is responsible for 12% of total Ecological Footprint.

## How can Local Authorities use the Ecological Footprint?

Some local authorities across the UK are now using the Ecological Footprint as a tool to address many issues. North Lincolnshire Council is using the Ecological Footprint to develop a community- based approach to sustainable development. This involves the integration of the Ecological Footprint into the community planning process through “Local Strategic Partnerships” (LSPs) and the “Community Strategy”. Cardiff Council constructed a range of scenario to provide an indication of future policy direction. A similar process is currently being undertaken in Scotland (North Lanarkshire and Aberdeen). These local authorities are currently developing scenarios that will help develop an “Ecological Footprint Reduction Strategy”. The strategy has political buy-in at the highest levels of the council. The Ecological Footprint could help inform a range of policy areas, feeding directly into and linking to the Local Transport Plan, sustainable procurement policies, waste strategy and local food initiatives.

The main options Local Authorities have to use Ecological Footprint data are summarised below.

- Linking with current Quality of life indicators: The Footprint is the only indicator that indicates consumption at the local level and gives an overall picture of ecological sustainability
- Assessment of current policies and the development of future policy scenarios: Below is a list of examples of different policy areas and measures that can be analysed using the Ecological Footprint. Most of these examples draw from a project conducted for the Welsh Assembly where REAP for policy analysis<sup>5</sup>:

### **Best Value / Procurement**

Best Value governs the purchasing of goods and services by a Local Authority and a key principle is that it should promote sustainability. The Ecological Footprint can help assess whether purchasing decisions are indeed contributing towards this sustainability goal, providing quantified data that can be used as evidence as to the real effect of procurement decisions.

Sustainable public procurement is also highlighted in the UK Sustainable Development Strategy and there is a commitment within the strategy to develop key performance indicators on sustainable public procurement. The LAA EF can provide an indicator for use within procurement policies and the Best Value regime.

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<sup>5</sup> Please see <http://www.walesfootprint.org> for more details.

## **Comprehensive Performance Assessment – CPA (England)**

CPA is about helping local councils improve services for their communities by assessing the performance of councils and the services that they provide for local people. Currently the Audit Commission does not specify what other additional or local data local authorities should use beyond what's in the Performance Indicator (PI) data pack. Non-standard data will not be used for comparative purposes.

If council's are collecting other PIs whether as part of a pilot (e.g. Area Profiles) or for local purposes they can of course choose to cite these as evidence in their CPA self-assessment where they believe it to be valid and robust and helps provide a richer, more accurate picture of local performance. LAA EFs at this stage are more likely to be used locally for awareness raising and context.

The Audit Commission has publicly stated that it sees the future of (CPA) beyond 2008 as being essentially locality-based and has been working on a new project called Area Profiles to help provide a comprehensive picture of the quality of life and services in a local area. LAA EFs could provide a useful source of information and a potential indicator for this work.

## **Community Planning / Strategies**

Local Authorities now have the power to promote the social, economic and environmental well-being of their community (Local Government Act 2000 in England). A duty exists for areas to produce a community strategy/plan in partnership with other strategic partners with the responsibility to monitor its effectiveness. Quality of life indicators were developed to help with the monitoring of these plans. A revised list of QoL indicators were launched in August 2005 and made reference to Ecological Footprinting as a potential indicator. ODPM provide support and guidance for local strategic partnerships and there is the opportunity for LAA EFs to link in here.

## **Quality of Life Indicators**

A recent Audit Commission report launched in August 2005 introduces the new Quality of Life indicator set which aims to address the key issues associated with sustainable development. The report recognises that individual indicators cannot always provide the 'big picture' or reflect cross-cutting issues adequately and it makes reference to Ecological Footprinting as an aggregate indicator that can help provide this perspective.

## **Vision of Sustainable Communities**

The government's vision (ODPM) of sustainable communities is one that delivers sustainable development at the local level and works to:

- balance and integrate the social, economic and environmental components of their communities;
- meet the needs of existing and future generations; and
- respect the needs of other communities in the wider region or internationally to make their communities sustainable.

The Ecological Footprinting tool can help to understand and interpret these three commitments and can provide a baseline measure. Work needs to be done to promote these links further.

## **Sustainable Development Strategy**

In March 2005, the government launched a shared framework for sustainable development, common to all parts of the UK, and the new UK Sustainable Development Strategy. The strategy sets out five new principles, including a more explicit focus on environmental limits for which the Ecological Footprinting tool can provide a baseline measure. The Strategy also sets out priority areas for immediate action which the LAA EFs support:

- sustainable consumption and production;
- climate change and energy;
- natural resource protection and environmental enhancement; and
- sustainable communities.

The LAA EFs can provide an important tool to support the work of local authorities in delivering and reviewing their sustainable community strategies.

## **England Local Area Agreements**

The government (ODPM) launched its prospectus for LAAs in July 2004. It aimed to improve how effectively the government works with local authorities and their partners to improve local services. These LAA pilots may find the LAA EFs helpful as a source of local information and a potential indicator in developing and implementing their agreements. The Government has announced that the piloting of Local Area Agreements between LSPs and the Government over national and local targets for local areas will be extended to 66 areas for 2006/07 and rolled out to all upper tier authorities from 2007.

## **Public Service Agreements (PSA)**

Public Service Agreements are an integral part of the Government's public expenditure framework, helping to ensure value for money from public services, and that outcomes are delivered in return for resources. The PSA framework provides targets (supported by performance information) which seek improvements in key national priority areas.

PSA objectives and performance targets exist on sustainability issues, including climate change and work to support the headline indicators of sustainable development. There is an opportunity here for LAA EFs to become a key indicator and the basis of future targets as it links into several objectives. The most pertinent is objective 5 to promote sustainable management and prudent use of natural resources domestically and internationally. The LAA EF could help to fill a gap where there is a lack of consistent data at local authority area level for this and other sustainability objectives.

## **Local Development Plans/ SEA Directive**

The LAA EFs may prove useful for strategic planning and SEA (ODPM), as well as providing baseline information for sustainability appraisals. There is a key link to Development Plans and the Quality Initiative encouraging better design through planning. Since 2004 it has been a legal

requirement that a Strategic Environmental Assessment (SEA) is undertaken on many Local Authority and LSP plans and strategies as they are being developed and reviewed.

SEA, and the associated process of Sustainability Appraisal, require the production of a baseline environmental assessment to highlight the key environmental challenges facing a community. SEA also requires that indicators and a monitoring process be developed to assess whether the plan or strategy is having the impacts predicted by the Assessment or Appraisal. The information gathered to calculate the Ecological Footprint of an area can often be useful in providing baseline data for an SEA. The Footprint is also useful as an indicator, particularly as unlike other indicators it can help assess the global environmental impacts of local policies

## What Next: Resources and Energy Analysis Programme

Now that a base line set of data has been generated (details of which are in this report and in the associated excel files), you might want to think about developing scenarios for your local authority area. Scenarios are visions of the future, telling a coherent, multi-dimensional story about how events might unfold. The use of scenarios is varied. They can be used to expand a range of perspectives and options under consideration, explore and explain competing approaches to problems or uncover assumptions and rigorously test them. It is often the case that scenarios identify inconsistencies in thought where different policy levers pull in different directions. Ultimately scenarios should provoke debate and identify plausible choices for the future.

The Stockholm Environment Institute, in collaboration with the Centre for Urban and Regional Ecology (Manchester University) and Cambridge Econometrics is currently developing the Resource and Energy Analysis Programme (REAP) – an integrated resource-environment modelling tool based on policy scenarios. REAP considers consumption by households and members of the public as well as commercial services, wherever the consumed products may come from and wherever the environmental impacts may occur. The three main indicators that exist within REAP are Material Flow Analysis, greenhouse gas emissions and the Ecological Footprint. Together, these three methodologies provide the user with the opportunity to explore the impact of consumption at the individual, organisation, Local Authority, regional or national level.

Due to REAP's flexibility it is possible to update this modelled data using local data and so far this has been done within the categories of food, transport and waste. The REAP database allows the user to explore the effects of locally specific policies and a number of important issues related to the sustainable consumption and production debate:

- To analyse potential scenarios to determine targets and predict Footprint reductions
- To assist in sustainable development and environmental strategy formation
- To provide baseline data set from which future projects could be performed
- To provide useful information to undertake public awareness and education campaigns
- To use the Ecological Footprint as a key performance indicator

For further details please refer to the REAP summary reports detailed on

[www.sei.se/reap](http://www.sei.se/reap)

<http://www.regionalsustainability.org/>.

<http://sites.wflearning.co.uk/ecobudget/>