

A Footprint Guide

for Scottish Local Authorities and
Community Planning Partnerships



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The footprint guide signposts you to information about measuring and reducing your area's environmental impact - including greenhouse gas emissions.

This guide has been written to provide sustainable development and climate change practitioners in local authorities and community planning partnerships with:

- An understanding of the footprint approach and its application to local authority and community planning partnership duties, policies and services.
- A step by step guide to using the footprint approach: to raise awareness; as an outcome indicator for performance management; and to inform policy.
- The lessons learned from the Local Footprints Project
- Useful contact information for support with footprinting.

Who should use this guide?

Sustainable development and climate change practitioners should use this guide to assist in awareness raising, and to ensure that policies and plans set the right framework for reducing global environmental impact.

This guide is designed to provide a general understanding of the footprint approach with signposts to further resources and more detailed information. The [Sustainable Scotland Network](#)¹ will update this guide regularly to ensure that the most accurate information is provided. Visit the [Local Footprints Project](#)² website to download the most recent version.

The footprint approach is also useful for **community groups and schools**; however this guide does not provide information for these groups. Communities wishing to use the footprint approach can use a tool called [REAP Petite](#)³ and the schools footprint calculator, including teacher resources, are available on the [Learning Teaching Scotland](#)⁴ website. Both of these tools are aligned with the approach in this guide.

Why use the footprint approach?

The footprint approach provides information for community planning partners to measure and reduce their area's environmental impact - including greenhouse gas emissions. It provides evidence and context to make policy decisions that will reduce global environmental impacts, including greenhouse gas emissions.

Footprint data and information provides evidence for performance management, helping practitioners to meet ambitious targets and priorities in:

- Single Outcome Agreements (SOAs)
- The National Performance Framework
- The Climate Change Act (Scotland)
- Scotland's Climate Change Declaration
- Best Value duties in the Local Government in Scotland Act
- Strategic Environmental Assessment Act.

¹ www.sustainable-scotland.net

² www.localfootprints.org

³ <http://resource-accounting.org.uk/reap-petite>

⁴ www.ltscotland.org.uk/sustainabledevelopment/findresources/globalfootprint/index.asp



*footprint support
for local authorities*

The Local Footprints Project commenced in April 2007 and has assisted 80% of Scottish local authorities. The purpose of the Local Footprints Project is to help local authorities and schools make an effective contribution to reducing Scotland's footprint through the use of footprint analysis to inform policy and practice, to raise awareness and to change behaviour.

The Local Footprints Project is a joint project between WWF Scotland¹ and the Sustainable Scotland Network, with funding and support from Eco-Schools Scotland, the Improvement Service, the Scottish Government and ScottishPower. The Sustainable Scotland Network and Eco-Schools Scotland are both programmes of Keep Scotland Beautiful².

The Project's key successes include:

- Improved understanding of ecological and carbon footprinting among Scotland's local authority officers working on sustainable development and climate change.
- Strategic engagement and collaborative working with some of the UK's leading technical experts and tool providers on local authority area-wide emissions.
- Development of a Scottish 'centre of expertise' on the footprint approach, based with Sustainable Scotland Network.
- Policy engagement with a number of Scottish local authorities, contributing to the development of Single Outcome Agreements and scenario planning on Community Growth Areas, housing strategies and transport planning.
- Coordination of the efforts of local authorities and footprint experts to develop a support spreadsheet for officers working on housing scenarios, resulting in the Scottish Housing Calculator now available for all REAP license holders to use.
- Provision of a national footprint education service with teacher training, teaching manuals and case studies.
- Parliamentary reception hosted by Bruce Crawford MSP with speeches by John Swinney MSP, Cabinet Secretary for Finance and Sustainable Growth, and Archie Strang, Chief Executive of South Lanarkshire Council.

¹ WWF-UK, charity registered in England number 1081247 and in Scotland number SC039593 and company limited by guarantee, registered in England no 4016725.

² Keep Scotland Beautiful is the operating name of Environmental Campaigns (Scotland) Scottish Charity Number SC030332.

Local Footprints Project Councils' involvement

Since its launch in 2007, the Local Footprints Project has worked with Scottish local authorities to develop their capacity to use the footprint approach. A core group of fifteen councils have received customised services to form a network of practitioners. These Local Footprints authorities are listed in the table on the right.

	Awareness raising	Schools training	Language and/or indicator in SOA	REAP license	Footprint analysis and policy formation
Aberdeen	✓	✓	EF & CF	✓	Footprint Report, SEA Housing Strategy Structure Plan
Aberdeenshire	✓	✓	EF	✓	Footprint Report, SEA Town Housing Strategy Structure Plan
City of Edinburgh	✓	✓	EF	✓	
Clackmannanshire	✓		CF	✓	
Dundee City	✓		CF	✓	Worked with Dundee University to identify opportunities
East Lothian	✓	✓	EF	✓	
East Renfrewshire	✓	✓	EF & CF	✓	
Fife	✓	✓	CF	✓	Housing Strategy
Glasgow City	✓				
North Lanarkshire	✓	✓	EF	✓	Footprint Report Ravensraig Phase II Motherwell College
Renfrewshire	✓	✓	EF & CF	✓	
South Lanarkshire	✓	✓	EF	✓	Local Plan: Community Growth Areas
Stirling	✓	✓	EF	✓	
West Dunbartonshire	✓	✓	EF & CF		
West Lothian	✓	✓		✓	

The information provided in the table is accurate as of November 2009.

Local Footprints uses the term footprint approach to describe a methodology to quantify and monitor the global environmental impacts of resource consumption and the greenhouse gas emissions related to that consumption. These impacts are then attributed to a geographic area (e.g. local authority boundary). When calculating resource consumption and consumption-related emissions it is important to understand the scope and boundary of the method used.

An ecological footprint (EF) is a measure of global resource consumption. This is a measure of the total environmental burden humans place on the planet. The EF represents the area of land needed to provide raw materials, energy and food, and to absorb pollution and waste created - in this case by the population of each local authority. It is measured in global hectares and is expressed as a per person measure (gha/capita).

When calculating resource consumption and consumption-related emissions it is important to understand the scope and boundary of the method used.

The [Global Footprint Network](#)¹ (GFN) calculates that the world average ecological footprint is 2.2 hectares per person. The GFN have also calculated the amount of biologically productive area on earth, and divided it equally amongst the world population. This provides them

with a figure of 2.1 hectares of land with world average productivity. Currently, Scotland is living beyond our fair share - requiring three planets (4.8 global hectares²) of resources. WWF and GFN produce the [Living Planet Report](#)³ every two years with all countries' ecological footprints and the global capacity figures.

Traditional methods of accounting for an area's **greenhouse gas emissions** measure the direct emissions of all the industries, homes, vehicles and land use within the area's boundary. These are known as **territorial** or **production impacts** and are the emissions targeted in the Scottish and UK Climate Change Acts.

In addition to counting territorial impacts, the footprint approach also considers the impacts associated with the production of goods and services, and attributes the impact to the place and person where goods are bought and consumed. These are known as **indirect impacts**. Many of the goods we purchase are produced, and impacts caused, in other parts of the world. In order to fully account for the impact of a good or service, the footprint approach takes into account the full supply chain of production, summing the impacts through the chain. See page 7 for an illustration of the impacts that occur

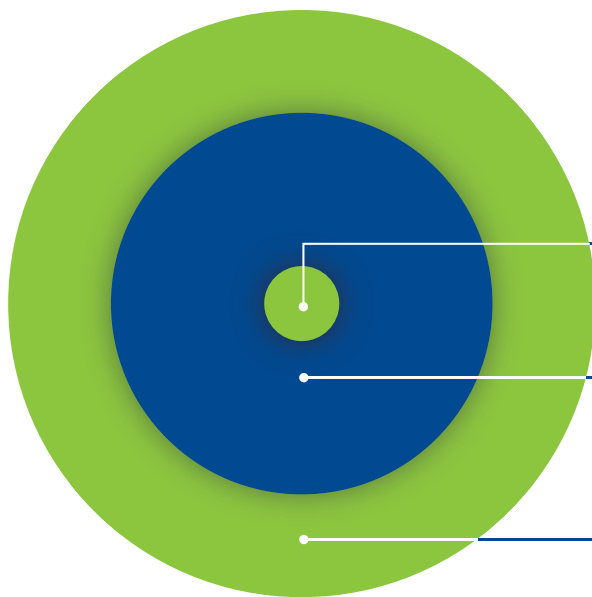
Remember that the consumption approach is not suitable for measuring the impacts of local government operations as required by the Carbon Reduction Commitment⁶.

within supply chains that are allocated to the end users of the products.

The footprint methods are still being improved, becoming more consistent over time. For detailed information on the methods used to calculate the most recent Scottish footprint download the [Scottish Government footprint study](#)⁴. Remember that the consumption approach is not suitable for measuring the impacts of local government operations as required by the Carbon Reduction Commitment and supported by the Carbon Trust's Local Authority Carbon Management Programme, amongst others. To find out more about carbon accounting download the [SEI policy brief on carbon accounting for Scotland](#)⁵.

1 www.footprintnetwork.org
2 www.scotland.gov.uk/Resource/Doc/289580/0088635.pdf
3 www.panda.org/about_our_earth/all_publications/living_planet_report/
4 www.scotland.gov.uk/Publications/2009/10/28101012/0
5 <http://sei-international.org/?p=publications&task=view&pid=1097>
6 Speak to the Carbon Trust for support on reducing energy use of your council buildings. Visit www.carbontrust.co.uk/carbon/PublicSector/

Footprint boundaries and responsibility



This bullseye diagram illustrates the different levels that a footprint can be calculated and gives some indication of the control and influence that local authorities and community planning partners have to try to reduce footprints.

Organisation Footprint

This layer includes burning fossil fuels to heat and power your council buildings and transport fleet. Councils have accounted for these impacts through their Carbon Management Programme.

Extended Footprint

This layer includes staff commuting, emissions from waste collection and disposal, resident and commercial energy use in your council area. The UK Government publishes these estimated accounts for greenhouse gases allocated to local authority boundaries.

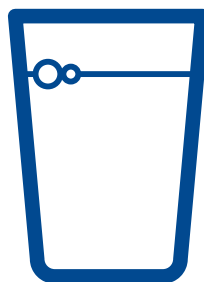
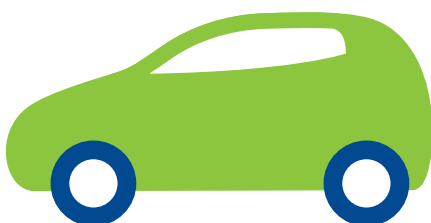
Council Area Footprint

This layer includes both previous layers and all other environmental impacts, directly and indirectly caused by residents in your council area. See examples below.

Examples of allocating council area footprint impacts

Transport

A Renault Clio manufactured in France is transported to a Scottish car dealer, purchased in Glasgow and driven as part of a daily commute to North Lanarkshire. ALL of the impacts - from the steel used to manufacture the car, the electricity used in the dealer show room, and the petrol used to run the vehicle are included in the footprint of Glasgow City Council area because Glasgow is where the car's owner resides.



Food

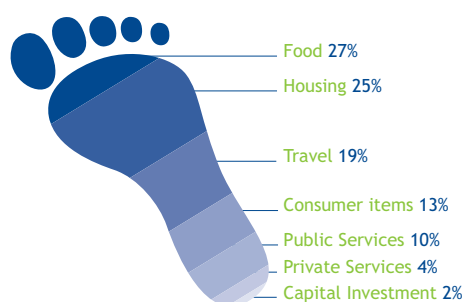
A glass of milk produced on a farm in Dumfries and Galloway is processed in a dairy in Stirlingshire, but later consumed in Inverness. The footprint approach allocates all the impacts in this supply chain to the person drinking the milk in Inverness. These impacts are therefore included in the Highland Council area footprint.

Housing

A family living in Perthshire uses electricity that is produced in Longanet power station in Fife. All of the kilowatt hours that the family use AND the power required to produce electricity in Longanet is attributed to the family's footprint and is calculated as part of the Perth and Kinross Council area footprint.



The footprint methods can be measured at an individual level, a household level, and a defined geographic area - a local authority boundary or a country level. It is a very powerful metaphor to illustrate the complexities of the global environmental impact of our lifestyles. As a result, the footprint approach is useful for raising awareness with a variety of audiences, from school groups to politicians. The following sections provide guidance on using the footprint approach to raise awareness and in education.



The makeup of Scotland's Ecological Footprint 2006

Know your footprints

In order to use the footprint approach to raise awareness, always be very clear which measure you are using. There are three key indicators or measures of the footprint approach: ecological, carbon and greenhouse gas footprints.

An Ecological Footprint (EF) represents the area of land and water required to produce the resources we use and absorb the wastes we produce. The EF is measured in global hectares per capita (gha/capita). EF is measured in a land value and therefore can be equated to the number of planets required for various levels of impact.

Scotland's 2006 Ecological Footprint is 4.8 gha/capita²

A Carbon Footprint (CF) represents the total amount of carbon dioxide emissions that are directly and indirectly caused by human activities. The CF is measured in carbon dioxide tonnes per capita (tCO₂/capita). **Scotland's 2006 CF is 12.7 tCO₂/capita.**

A Greenhouse Gas Footprint (GHGF) represents the total amount of greenhouse gases that are directly and indirectly caused by human activities. The GHGF is measured in carbon dioxide equivalent tonnes per capita (tCO₂e/capita) and includes carbon dioxide, methane, nitrous oxide and other harmful greenhouse gases.

Scotland's 2006 Greenhouse gas Footprint is 16.7 tCO₂e/capita



The Local Footprints Project has developed awareness raising presentations for practitioners to use. Visit www.localfootprints.org¹ to download the templates.

¹ www.localfootprints.org

² The Scottish Ecological Footprint was calculated by SEI using the revised National Footprint Accounts (NFA) 2008 from the Global Footprint Network (GFN). A change in this input data has resulted in a change in our results compared to previous releases. However, the underlying model remains the same and the NFA have been improved. The changes to NFA are explained on page 29 in the 2008 GFN Ecological Footprint Atlas. http://www.footprintnetwork.org/en/index.php/GFN/page/ecological_footprint_atlas_2008

Schools are a considerable part of a local authority’s estate and using the footprint approach in education can be a good complement to a council’s work on reducing carbon emissions. Footprinting allows schools to examine, measure and take action to reduce their impact on the environment locally and globally. This complements the monitoring and evaluation component of the Eco-Schools programme and provides opportunities for schools to deliver on the purposes and principles of the new Curriculum for Excellence. See the Aberdeenshire School case study below to see how schools are using the footprint approach.

Case study

An Aberdeenshire School

Markethill Primary School used the [Schools’ Footprint Resource](#)¹ to raise awareness and enthusiasm for sustainable development issues across the school. By collecting data and entering it into the online calculator over a one-week period, P7 pupils were able to measure their school’s footprint and then take steps to reduce it. The activities linked with *A Curriculum for Excellence*, involving cross-curricular working and providing pupils and staff with real-life experiences. The footprint work was also used to start their Eco-Schools initiative.

materials “Making Connections” unit. Pupils then worked in groups to develop presentations to introduce the concept of footprinting to each class in the school. Allison Bremner, teacher of class P7, was delighted with the ability of the resource to engage pupils in sustainability issues. “Working on Schools Footprint has had multiple benefits, financially, educationally and environmentally. Engaging in decision-making on relevant real-life issues has

improved the pupils’ motivation and confidence, while the work supports *A Curriculum for Excellence*. There have been numerous opportunities to link to the curriculum, particularly English language, mathematics, ICT, expressive arts, science and social.

For more information on schools work visit the schools pages on the [Local Footprints Project](#)² website.

Pupils gained understanding of the concept of footprinting using activities from the Schools’ Footprint teachers’

“The pupils are now very aware of how their actions can make an impact - at the round-up exercise I asked them what they thought of the project and one child said ‘We made a difference and it will last’.”

Allison Bremner, P7 teacher.



MARKETHILL PRIMARY SCHOOL

¹ www.ltscotland.org.uk/sustainabledevelopment/findresources/globalfootprint/
² www.localfootprints.org/index.asp?pg=5

Footprint is an aggregate indicator, and a useful high level compass to measure progress towards an important dimension of sustainability. Footprint data provides high level area-wide environmental impact data on transport, housing, energy, food and more. The footprint data provides an average per capita figure that can be used to provide a baseline from which to monitor the direction of travel in future.

Practitioners can use footprint data to illustrate that residents' behaviour and consumption is the central determining factor influencing footprint impacts.

The footprint data described throughout this guide is freely available to download at www.resource-accounting.org.uk and has been calculated by the Stockholm Environment Institute at York University using the footprint analysis software Resource Energy Analysis Programme (REAP).

Your local authority area's [footprint data](#)¹ provides useful management information to support a case for action to reduce footprint. The following section provides an overview of how to use the footprint data and present it to colleagues across services.

In order to benchmark progress, practitioners can use the footprint data to illustrate that residents' behaviour and consumption is the central determining factor influencing footprint impacts. Footprint data can also be disaggregated into themes, such as housing, transport and food. This can help practitioners to identify priority categories for their area.

Reducing footprint is a long term outcome that will require partnership working. Partnerships across Scotland can deliver footprint reductions through the community plan, structure plans, local plans, transport strategies, local housing strategies and more. By using the footprint data in Single Outcome Agreements, partnerships can ensure

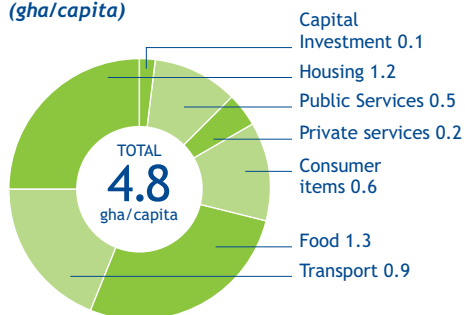
that their plans and policies are working together in a joined-up and strategic manner to reduce environmental impact. 'By using the footprint approach, partnerships can assess the probable environmental impact, resource use and emissions of their strategic policies. For example, councils are using footprint data to assess developments outlined in local plans. Using footprint reduction as a local outcome or indicator can provide a strategic framework under which many policy priorities that ultimately influence local consumption patterns, the use of resources and greenhouse gas emissions can sit.

See the South Lanarkshire case study on page 16 for an example of a council using this strategic framework to target footprint reductions through the planning system.

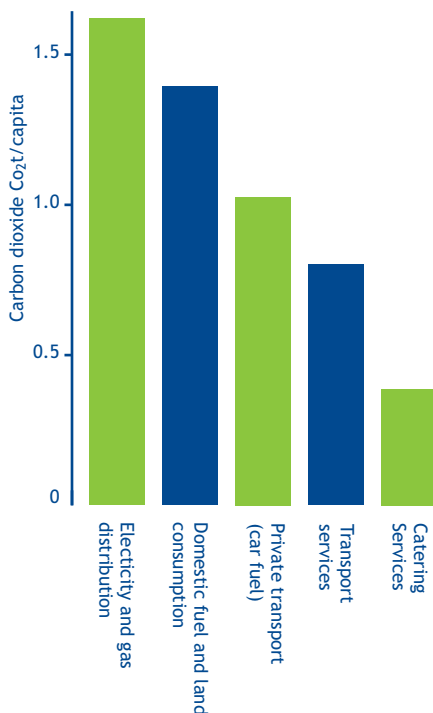
The footprint data described throughout this guide is freely available to download at www.resource-accounting.org.uk and has been calculated by the Stockholm Environment Institute at York University using the footprint analysis software Resource Energy Analysis Programme (REAP).

¹ <http://resource-accounting.org.uk/downloads/scotland/?page=downloads&area=scotland>

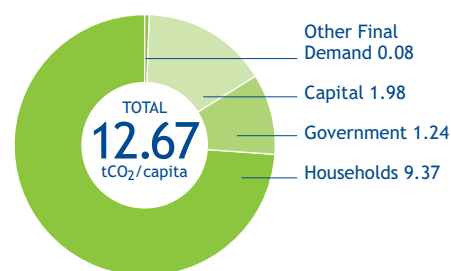
Scotland's Ecological Footprint 2006 by theme (gha/capita)



Top 5 highest carbon footprint components for households in Scotland



Typical council carbon footprint by end user (tCO₂/capita)



The graphs above illustrate some of the ways that practitioners can use the footprint data to establish a benchmark and to prioritise actions based on their footprint contribution.

Click [here](#)¹ to download a presentation explaining how to extract the footprint data and graphs in the figures above using the footprint software REAP for your council area.

Examples of Government using footprint indicators

Data generated by REAP has been used in a range of government publications and reports including:

- [Defra Environment in Your Pocket](#)² since 2006
- [English Regions State of the Environment Reports](#)³
- [Regional Outcomes Reports \(Yorkshire Futures Progress in the](#)

[Region: High Level Outcome Indicators](#)⁴

- 2009 Community Planning Partnerships [Single Outcome Agreements](#)⁵ - 23 in Scotland included footprint language and/or area indicators on ecological or carbon footprint.

1 www.localfootprints.org/documents/2754_homework%2022%20April%20ppt.pdf

2 www.defra.gov.uk/ENVIRONMENT/statistics/eiy

3 www.stepsforward.org.uk/index.htm

4 [www.yorkshirefutures.com/siteassets/documents/YorkshireFutures/F/5/F5D5C578-D13E-4C3D-B30A-F1DC9CC51E4B/Revised Progress in the Region 2008 A Guide to Indicators.pdf](http://www.yorkshirefutures.com/siteassets/documents/YorkshireFutures/F/5/F5D5C578-D13E-4C3D-B30A-F1DC9CC51E4B/Revised%20Progress%20in%20the%20Region%202008%20A%20Guide%20to%20Indicators.pdf)

5 www.improvementservice.org.uk/library/577-single-outcome-agreements/681-phase-2-single-outcome-agreements-2009-onwards/view-category/

Once a community planning partner or local authority has an understanding of the components of the area footprint, practitioners can use footprint analysis to test reduction actions and to understand the organisation's ability to influence and reduce footprint components.

The following questions are a guide for discussions with your partners to begin developing footprint scenarios and prioritising reduction actions.

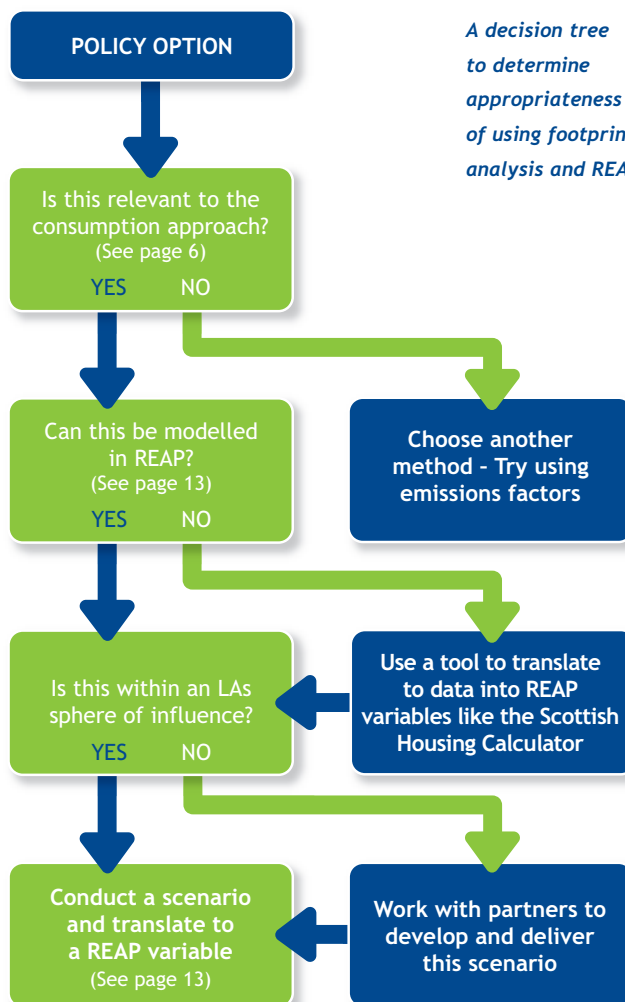
1. What are the key policies and strategies that impact the following top footprint components?

Start with one or two strategies for each of the following themes.

- Transport
- Housing
- Food

2. What are the key policy measures and targets in each of the above strategies that will influence resident's consumption?

- Transport - road building and maintenance, park and ride facilities, school travel plans, parking charges, behaviour change campaigns, fuel efficiency improvements, etc.
- Housing - retrofit energy efficiency and low carbon technology investments per tenure, new building regulations, uptake of private sector schemes to reduce energy consumption, behaviour change campaigns etc.
- Food - consumption of organic and non-organic, amount of food thrown away uneaten, potential to grow food in the local area, healthy eating campaigns etc.



A decision tree to determine appropriateness of using footprint analysis and REAP.

3. Which partner is most responsible for the delivery of the measures chosen above?

Does that partner have data on the impact of the measures? For example, how many schools have travel plans and by how much have these plans increased walking and cycling to school?

Remember to make certain that your policy question requires full analysis using software such as REAP. For example, if you wish to know how an improved technology (e.g. biofuel)

will affect your council fleet vehicles, you may wish to use the GHG conversion factors rather than develop a REAP scenario. This is because your policy will only impact a very limited number of vehicles in your area. If you were to develop a transport policy that will impact many or the majority of car users in your authority, then you should develop a REAP scenario. The diagram above provides a quick decision tree to determine whether your policy measure requires full scenario analysis.

Think of developing a scenario like telling a story, with your residents as your main characters. Develop the story by thinking about the following key questions and then finding data to support your narrative.

- Who will the policy impact?
- How many residents will take up the policy and change their behaviour?
- What change do you expect from the policy?

Once you have a story, you will need to translate the narrative and corresponding data into REAP variables. The table right provides a list of key variables that you can change from the REAP baseline to correspond with your scenario story.

Theme	Variable	Unit
Transport	Distance travelled	Kilometres per person per year
	Occupancy rates	Percentage of vehicle occupied
	Efficiency of vehicles	Percentage operating efficiency
	Car ownership	Number per 1,000 people
Housing	Energy use in the home	kWh/person/year
Food	Food consumption	Kg/person/year or £/person/year
	Organic food consumption	Kg/person/year or £/person/year
Consumables	Expenditure on goods	£/person/year
Demographics	Population	Total number per year
National Grid energy mix	Fuel type (nationally and by industrial sector)	Fuel type as percentage of total fuel use

Key variables that you can change from the REAP baseline

Sample scenario story

Developers are seeking planning permission to build 200 new homes with an estimated population of 500 residents. These homes will have energy efficiency measures and a some on-site micro renewable technologies. Due to improved building standards and these energy measures, the homes are expected to have 20% lower energy needs. In fact, the developers are considering building 25 of these homes to a higher standard than current regulations. If they build 25 homes to a 'Low Carbon' standard, as described in the Sullivan Report, the homes could have up to a 50% reduction in energy use. All 200 homes in the development will be supplied with smart meters and information leaflets to encourage occupants to use their efficiency technologies appropriately and to decrease their energy use. The occupants will have improved access to transport options including safe walking and cycling paths to school. Strict parking restrictions near the school will also reduce car use.

Lets take the transport aspect of the scenario story on page 16 and identify the data and calculations required to translate this into REAP variables. Remember that this policy will impact only a portion of residents in your council area and it is unlikely, without very strict regulation, that all of the town will take up the policy. So, now you need to determine what proportion of the total area population you expect this to impact.

To translate this policy into a transport variable in REAP (passenger kilometres) you will need to carry out the calculations shown right. First, extract your area's average passenger kilometres from REAP. For our area the average annual vehicle kilometres is 8,000 km. We need to calculate the new average annual vehicle kilometre figure if we assume that the town population of 1,000 reduces their distanced travelled by 20%.

Reliable data will strengthen a scenario and the assumptions made within it. Data collected from other studies and historical time series are very useful for developing a scenario. For example, census data on the average distance travelled for school journeys in your council area could be useful to set your assumptions.

Local Footprints Project and SEI have prepared a training course to assist you in developing scenarios. Download the training course [here](#).¹

Calculating the transport policy's impact

LA area population = 10,000 (100% of the population)

Population of town = 1,000 (or 10% of the total population)

9,000 = population unaffected by policy (10,000-1,000 or 90% or .90)

Average annual vehicle kilometres = 8,000 km

Policy target = To reduce car use in town by 2015

Expected uptake of the policy = ALL town population because strict no parking regulations in place (1,000)

**Expected impact of the policy =
20% reduction in annual distance (km) travelled by car**

If everyone in town reduced their distance by 20%, they would all be travelling 80% of their original annual vehicle kilometres

8,000 x 0.8 = 6,400 km

8,000 - 6,400 = 1,600 km

So each person in the town would reduce their annual travel distance by an average 1,600 km

However only 10% of people in the council area live in the town, so the reduction is just 10% of 1,600 km

1,600 x 0.1 = 160 km

So, the impact on the council area average distance travelled will be 8,000 km - 160 km = 7,400 km

This will be the new total average passenger kilometres to be inputted into our REAP transport scenario.

¹ http://www.localfootprints.org/documents/4806_SNN%20REAP%20Workshop%20II.pdf

This case study provides an example of how one council in Scotland has worked with partners to prioritise footprint reduction and is working to take actions forward.

Case study

Fife Housing

Housing is the largest component of Fife's carbon footprint, and the council is currently working with partners to develop a new Local Housing Strategy. Fife Housing, similar to other Scottish housing services, required a solution to measure and monitor carbon and energy savings from domestic properties to develop the next Housing Strategy.

Following purchase of REAP and training, Fife Housing Officers used The Scottish Housing Calculator to explore different housing measures to reduce energy. The calculator allows the user to investigate the impacts of future house building, retrofit and demolition programmes, improved technologies and behaviour change.

Fife Housing Officers identified the following objectives for measuring and prioritising reductions in the housing footprint:

- Compare the REAP data and housing calculator with the Housing Energy Conservation Act (HECA) spreadsheet results for Fife
- Determine how existing data and REAP baseline compare and complement
- Identify additional data needed to conduct scenarios.



The housing team used the calculator to establish a baseline across housing tenures and to test likely kilowatt hour reductions using various energy efficiency measures and behaviour changes. The officers assumed that investment in these measures would be similar to the actual capital investment in 2006-7.

Local Footprints Project verified the data and modelling results, which were presented to housing stakeholders as part of a Housing Strategy workshop. Modelling identified potential reductions of 16% in council houses' energy consumption, and that boiler upgrades and loft insulation were the most efficient footprint reduction measures. Fife Council is now

consulting housing partners and their Energy Savings Scotland Advice Centre to identify actions to take forward to reduce footprint.

Some quick wins have been identified. For example, the workshop with stakeholders identified a need to provide frontline staff with energy awareness training in order to help householders to reduce their energy demand. Longer term ambitions were also identified, including working with partners to find innovative solutions to energy and carbon reduction. For example, a housing stakeholders workshop identified working with energy services companies (ESCOs) or creating an ESCO to provide energy for householders in Fife.

Once an authority is using footprint data to monitor progress and prioritise reductions, further analysis can be used to interrogate and model policies and their potential footprint impacts. The following case study illustrates how South Lanarkshire is using footprint analysis as part of their development plan.

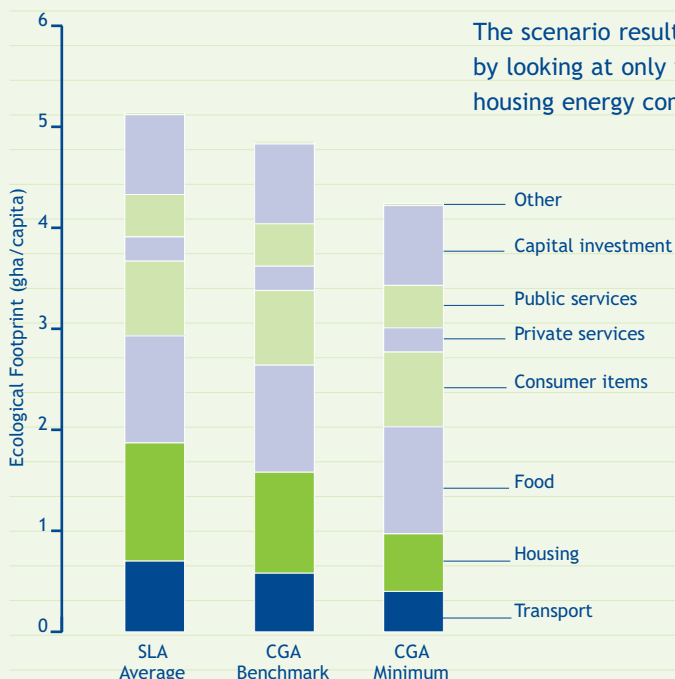
Case study

South Lanarkshire Local Plan

Using the REAP tool, South Lanarkshire Council modelled footprint scenarios and developed an assessment framework to monitor new developments in the community growth areas (CGA). The council is using this framework to assess development briefs, and encourage dialogue with developers to agree measures that will reduce footprint and market energy efficient homes.

Through REAP modeling, planners developed a range of scenarios with a selection of building regulations, according to the Low Carbon Buildings Strategy for Scotland ([The Sullivan Report](#))¹, energy efficiency technologies, transport alternatives and behaviour change. The assumptions and data used to develop the scenarios were checked in consultation with the developers of the sites.

the ecological footprint, reductions of up to 18% of SLC's footprint could be achieved - reducing the ecological footprints by as much as 1 global hectare per person. The community planning partnership has set a 20% reduction target for the CGAs compared to the South Lanarkshire average footprint in their 2009 single outcome agreement.



The scenario results demonstrated that by looking at only the transport and housing energy components of

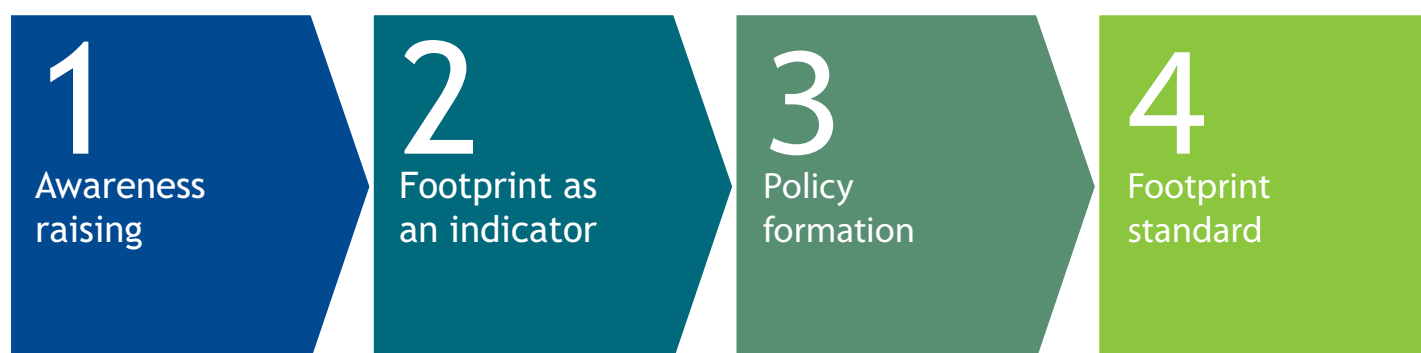
In order to assess the developments against the footprint framework, SLC requires the CGA developers to complete a checklist with data and pertinent information about the development. SLC has received two CGA development briefs with check lists and is currently assessing them.

The South Lanarkshire [Ecological Footprinting for Community Growth Areas](#)² report sets out the methodology and scenarios that planners used to analyse the new developments proposed.

By focusing on transport and housing, reductions of up to 18% of SLC's footprint could be achieved

1 www.sbsa.gov.uk/sullivanreport.htm
 2 [http://www.localfootprints.org/documents/3562_Final draft 090203 \(Hi Res\).pdf](http://www.localfootprints.org/documents/3562_Final draft 090203 (Hi Res).pdf)

This guide is designed to assist practitioners to use the footprint approach in each of the four stages outlined in the figure below. Using the descriptions below practitioners can self assess their progress and consider their support needs.



This first stage includes the councils using ecological or carbon footprint language to raise awareness of consumption issues. These councils are using the ‘one planet’ metaphor, recognising consumption implications and/or global environment impacts within strategy documents. This level includes using the footprint resources in schools.

City of Edinburgh Council is currently at this stage. They are developing a footprinting leaflet and working with colleagues in Corporate Communications to incorporate footprint messages into the Council Newspaper ‘Outlook’.

This stage includes those councils using a footprint indicator in policy documents or outcome agreements. These councils have identified priority areas of the footprint to tackle. These councils are likely to have set footprint targets.

East Lothian Council and their community planning partners have targets to reduce their Carbon and Ecological Footprints by 80% by 2050 in their Single Outcome Agreement.

These councils are using the footprint data and tools to develop scenarios and inform policy and/or projects. These authorities require detailed, service-specific training and support on footprint data and scenario development to build internal capacity to use the footprint data and tools without external assistance.

Several councils have reached this stage. South Lanarkshire and Fife Councils were cited earlier in this document. Aberdeen City, Aberdeenshire and North Lanarkshire Councils are also using the footprint approach to inform policy decisions.

Councils who have used the footprint approach as described above could be considered a ‘Footprinting’ Council. These councils are able to use the footprint data and metaphor to provide an evidence base for policy making. Local Footprints is working to develop this ‘standard’ for use in future.

South Lanarkshire Council have an ambition to achieve this standard by monitoring the progress and footprint reduction of their community growth areas.

Footprint services will remain part of the core work of the Sustainable Scotland Network (SSN) in 2010.

As a Sustainable Scotland Network (SSN) programme priority, Local Footprints is directly accountable to the service users and embraces the SSN ethos to encourage knowledge sharing and capacity building. The core components of the 2010 SSN Footprint Service will be offered free, and a business plan will be developed to provide a subscription based service in 2011, as part of a *Footprint Club*.

Support for schools will be provided through face to face and, increasingly, on-line teacher training and guidance through Scotland's education intranet GLOW. In 2010 SSN will be working to train and support those who are better placed and resourced to provide teacher training and direct teacher support.

The core components of the ongoing footprint services will include:

- National One-Stop-Shop for councils and CPPs requesting footprint information. The service will maintain a website and provide published information on area-wide agenda
- A national interface between local footprint application and Scottish Government agendas on ecological footprint and GHG emissions reduction

- Coordination, networking and communications on area-wide emissions agendas, bringing together technical experts and support organisations in order to provide a more coordinated national service for local authorities and CPPs.

The subscription-based Footprint services offered from 2011 will include:

- Coordination of a Footprint Consortium to share good practice between practitioners
- Service or project-specific training for individual councils or community planning partnerships.

For support and advice on using the footprint approach and to register for future events, contact the Sustainable Scotland Network Footprint Officer, Amie Fulton on:

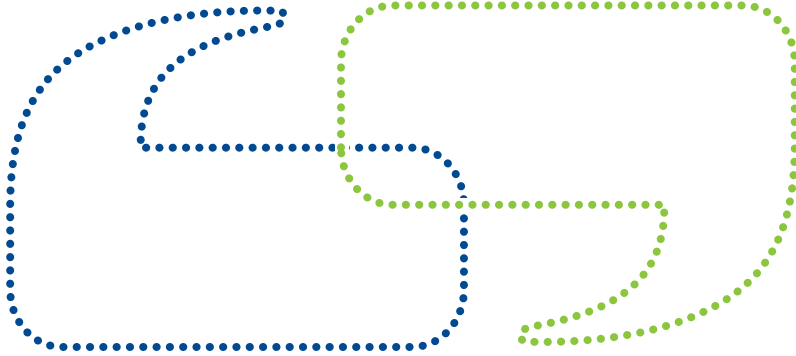
01786 468 770

or by email at:

amie.fulton@ksbscotland.org.uk

- 1 [2006 Scotland's Global Footprint Project - Towards a Low Footprint Scotland¹](#) (Full report)
- 2 [2006 Scotland's Global Footprint Project - Towards a Low Footprint Scotland²](#) (Executive summary)
- 3 [2006 North East Scotland Footprint Reduction Report³](#)
- 4 [2006 North Lanarkshire Footprint Reduction Report⁴](#)
- 5 [2007 Local Footprints Project - Right Climate for Change - Carbon Footprinting for Scottish local authorities⁵](#) (Full report)
- 6 [2007 Local Footprints Project - Right Climate for Change - Carbon Footprinting for Scottish local authorities⁶](#)(Executive summary)
- 7 [2007 Local Footprints Project - Six Steps to Footprinting⁷](#)
- 8 [2009 Local Footprints Project - Single Outcome Agreement briefing⁸](#)
- 9 [2008 Living Planet Report⁹](#) WWF UK
- 10 [2008 Consistent Area Wide Profiles hosted by the Improvement Service and the Sustainable Development Commission Scotland](#) (workshop summary). To download all the presentations and proceedings visit [SDC Scotland website¹⁰](#)
- 11 [International Ecological Footprint Standards 2006¹¹](#)
- 12 [2007 Stockholm Environment Institute - Carbon Footprint of Housing Leeds City Region Making Homes More Energy Efficient¹²](#)
- 13 [Stockholm Environment Institute Counting Carbon Emissions Policy Brief for Scotland¹³](#)
- 14 [Scotland's Ecological and Carbon Footprint Study 2009¹⁴](#)

1 www.localfootprints.org/documents/6677_SGFFinalReport2007.pdf
 2 www.localfootprints.org/documents/2668_SGFExecutiveSummary2007.pdf
 3 <http://tinyurl.com/NEfootprintreport07>
 4 www.localfootprints.org/documents/6383_NLPFOOTPRINTREPORT2006.pdf
 5 www.localfootprints.org/documents/1252_WWFScotlandFullReportARTForWeb.pdf
 6 www.localfootprints.org/documents/2668_SGFExecutiveSummary2007.pdf
 7 www.localfootprints.org/documents/5225_6steps.pdf
 8 www.localfootprints.org/documents/7739_Local Footprints SOA briefing 26 Jan 2009.pdf
 9 www.panda.org/about_our_earth/all_publications/living_planet_report/lpr_2008/
 10 www.sd-commission.org.uk/news.php/158/scotland/consistent-emissions-reporting-workshop
 11 www.localfootprints.org/documents/9030_Footprint_Standards_2006.pdf
 12 www.resource-accounting.org.uk/uploads/Reports/Leeds%20City%20Region%20Report.pdf
 13 www.censa.org.uk/docs/SEI_Carbon_Accounting_Scotland.pdf
 14 www.scotland.gov.uk/Resource/Doc/289580/0088635.pdf



Carbon Footprint or CF is a measure of the exclusive total amount of carbon dioxide emissions that is directly and indirectly caused by an activity or is accumulated over the life stages of a product.

Direct emissions are greenhouse gas emissions from sources that are owned or controlled by the reporting entity.

Ecological Footprint or EF represents the area of land and water required to produce the resources we use and to absorb the wastes we produce. It can be measured at any level - individual, organisational, regional, at a country level or even at a product level. It is measured in global hectares per capita (gh/cap).

Global Hectare is a common unit that encompasses the average productivity of all the biologically productive land and sea area in the world in a given year. Biologically productive areas include cropland, forest and fishing grounds, and do not include deserts, glaciers and the open ocean.

Greenhouse gases or GHGs are the atmospheric gases responsible for causing global warming and climate change. The major GHGs are carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O). Less prevalent, but very powerful, greenhouse gases are hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆).

Indirect greenhouse gas emissions are GHG emissions produced as a consequence of the activities of the reporting entity but which occur at sources owned or controlled by another entity.

Overshoot is shorthand for ecological overshoot, and is said to occur when a population's demand on an ecosystem exceeds the capacity of that ecosystem to regenerate the resources it consumes and to absorb its wastes. Source [Global Footprint Network](#)¹ website 2009.

REAP stands for Resource and Energy Analysis Programme. REAP is the footprint software tool used by 16 local authorities in Scotland. This software tool has a database of all the footprints in the United Kingdom, and allows users to develop scenarios based on local policies and data to model their impact.

¹ www.footprintnetwork.org



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or by email at:
amie.fulton@ksbscotland.org.uk

Local Footprints is a joint project between WWF Scotland and the Sustainable Scotland Network, with funding and support from Eco-Schools Scotland, the Improvement Service, the Scottish Government and ScottishPower.

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