

# **Environmental Review of the London Buddhist Centre**

19 February 2007

## ***2007 – the LBC’s Year of Environmental Action***

The London Buddhist Centre is committed to taking action on environmental issues – through reducing its direct environmental impacts, by working in partnership with others on environmental issues, and by raising awareness of why and how we can all take action on the environment. In 2007, the year of Amoghasiddhi, the Green Buddha of Action and Fearlessness, the LBC is focusing its attention on taking practical action to address environmental issues, and exploring how Buddhism teaches us to lead a more simple and less wasteful life, more in harmony with the environment.

As part of this year of action, over the last few months a series of ‘environmental audits’ have been carried out in and around the ‘Buddhist Village’, covering many of the businesses and communities that are linked to the LBC as well as the centre itself. This report summarises the main findings of those environmental audits.

### ***What is an environmental audit?***

In simple terms, the environmental audits were a structured way of collecting and analysing information about our everyday behaviour and environmental impacts – covering issues such as energy use, water use, transport, purchasing and waste. They have helped us to develop a detailed understanding of how we manage the environmental impacts that arise from the Buddhist Village (uncovering good and bad practices along the way!), and this information has been used to develop actions that will hopefully reduce those environmental impacts over the next year. In 12 months time, we plan to update the audits, to see what has changed and what difference our actions have made to our overall environmental performance.

### ***Where were the audits carried out?***

Audits were carried out at:

- The London Buddhist Centre
- Vajrasana, the LBC’s retreat centre in Suffolk
- Three ‘right livelihood’ businesses – Bodywise (natural health centre), Friends Organic (natural wholefood and remedy shop) and the Wild Cherry (restaurant)
- Six communities – Sukhavati, Indrajala, Samaggavasa, Maitrikuta, Samayakulya, 86 Lauriston Road – with approximately 50 residents

### ***What did the audits find out?***

The following sections summarise the main findings from the audits under six themes – energy use, water use, waste and recycling, transport, purchasing and biodiversity – as well as providing some background information on each issue. Each section concludes with a brief review of what the Buddhist Village will try to do on each issue over the next year. A review of the overall ‘sustainability’ of life in the Buddhist Communities is also provided.

## 1. Energy Use

### Context

The energy that we use to power, heat and light our homes and workplaces can cause significant environmental impacts – primarily through the burning of fossil fuels which are responsible for emissions of carbon dioxide (CO<sub>2</sub>), the most important ‘greenhouse gas’ which causes global climate change. In 2005, 9.1 tonnes of CO<sub>2</sub> was emitted for every person living in the UK as a result of the energy consumed by households, businesses, industry and transport, compared to an average of 4 tonnes for the world as a whole and 1 tonne for ‘developing’ countries like India. It is generally thought that the Earth can absorb approximately 2 tonnes of CO<sub>2</sub> per person per year, a sustainable level which would not cause atmospheric concentrations of CO<sub>2</sub> to rise any further – but achieving this would require us in the UK to lower our CO<sub>2</sub> emissions by over 80%.

Reducing our energy use, and switching to ‘renewable’ sources of energy which do not emit CO<sub>2</sub>, is essential if we are to address climate change, the greatest and most urgent environmental challenge facing our generation.

### *Where are we now?*

Many living and working within the Buddhist Village have already taken steps to reduce their energy consumption and their CO<sub>2</sub> emissions.

Some of the communities, as well as Vajrasana (the LBC’s retreat centre), have switched to renewable electricity suppliers, providing them with 100% renewable, CO<sub>2</sub>-free electricity. In addition, many simple measures have been taken to reduce electricity consumption, for example:

- Where possible, inefficient incandescent lightbulbs have been (or are being) replaced over time with energy efficient CFLs (compact fluorescent lightbulbs). These bulbs generally use 20-25% of the energy of incandescent bulbs, and each can save up to £35 over its 8,000 hour lifetime.
- Where possible, the most energy efficient appliances are purchased when replacing old ones, eg ‘A’ rated washing machines and fridges. An energy efficient fridge freezer can save up to £45 in electricity each year.
- In many cases, appliances are switched off between use, rather than left on stand-by. A VCR can use up to 85% of its total energy requirements when it is on stand-by.
- By sharing appliances such as washing machines and fridges, communities are able to use them very efficiently, for example only using washing machines when they are fully loaded.

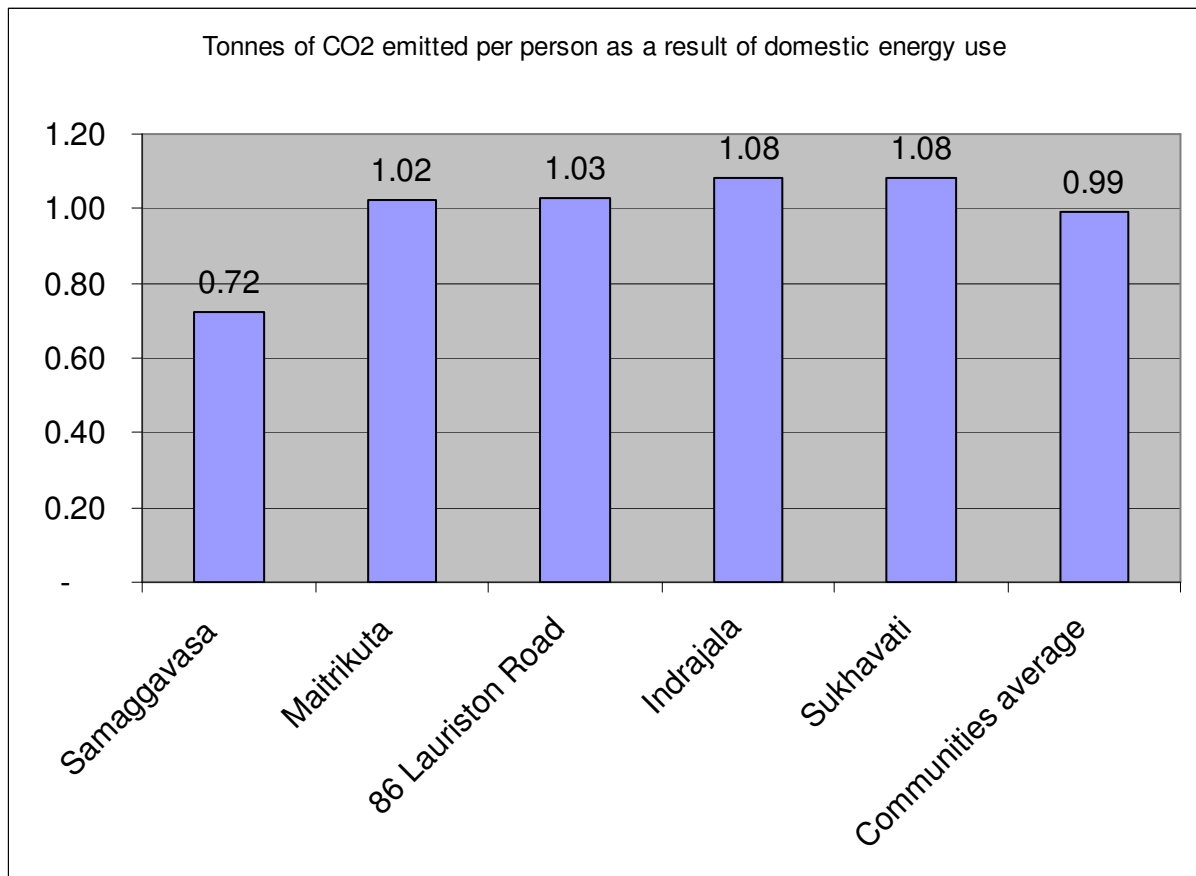
Energy use for space heating has also been reduced through (for example) the use of timers on central heating and setting lower temperatures on thermostats, the installation of more efficient condensing boilers and a properly insulated hot water tank, and draft proofing of old windows.

However, there are still some problems and areas where practice could be improved:

- Many lights in communities and around the LBC are on dimmer switches, which cannot be used with standard CFLs. It may be useful to review the use of dimmer switches in some locations.
- Many of the communities are still badly insulated and drafty. In some communities where central heating is not installed, stand-alone electric convection heaters and radiators are used to heat poorly insulated rooms.
- The LBC uses approximately 4 times as much energy every day during the winter than in the summer (associated with increased space heating).
- Only Vajrasana is supplied with renewable electricity. None of the LBC businesses generates any of its own electricity.
- Friends Organic has recently installed air conditioning equipment. This was necessary to keep the shop cool in the summer and to prevent fridges and freezers from failing in high temperatures, but has resulted in an increase in the shop's energy use. The shop uses more energy in the summer than the winter, through use of fridges, freezers and air conditioning.

Data on electricity and gas consumption has been collected from many of the audited communities and businesses, as well as the LBC. Some key facts about the environmental impacts arising from energy use in the Buddhist Village include:

- The total annual CO<sub>2</sub> emissions for the LBC, the Wild Cherry, Friends Organic, Vajrasana and five communities is approximately 114.4 tonnes. It would cost £858 to offset these emissions with Climate Care.
- CO<sub>2</sub> emissions from energy use in a typical year:
  - 35 tonnes at the LBC (electricity and gas)
  - 23 tonnes at the Wild Cherry (electricity and gas)
  - 16 tonnes at Friends Organic (electricity and gas)
  - 17 tonnes at Vajrasana (electricity and propane)
- If all of these businesses and communities switched to 100% renewable electricity, total annual CO<sub>2</sub> emissions fall to 44.5 tonnes, a reduction of 61%.
- On average, every member of the communities covered by the audit uses 4,095KWH of gas and electricity each year, compared to 7,810KWH for residents of Tower Hamlets and 9,498KWH for the UK as a whole.
- On average, every member of the communities emits 0.99 tonnes of CO<sub>2</sub> through gas and electricity consumption every year, compared to 1.96 tonnes for a typical resident in Tower Hamlets and 2.33 tonnes for the UK as a whole.
- An individual living in an LBC community therefore uses only 43% of the gas and electricity that would be used by an individual in a typical British household, and emits only 43% of the CO<sub>2</sub>.
- If all the communities switched to 100% renewable electricity, CO<sub>2</sub> emissions per resident could be reduced from 0.99 tonnes to 0.59 tonnes (26% of the UK average of 2.33 tonnes).



*What more will we do?*

Some of the measures which will be implemented on energy use are as follows:

- The LBC will shortly move to a renewable electricity provider. Support will also be provided to all the businesses and communities to help them switch to renewable electricity.
- The feasibility of installing a woodchip boiler at the LBC is being investigated. This type of boiler would replace the gas boilers and use woodchips grown and produced in the South East, providing a lower carbon alternative to gas for heating.
- A new central heating system for two communities at the LBC (Sukhavati and Navasamaya) will be installed in the next 12 months, to replace the need for stand-alone and inefficient electric heaters.
- Some other communities are planning to install new heating systems, including new boilers and more sophisticated controls to heat space more efficiently.
- In badly insulated and drafty communities, where possible, work will be carried out to draft-proof windows and doors, and to investigate the use of loft insulation and other measures.
- All communities and businesses will be encouraged to collect data (through regular meter readings) on their energy consumption, so that more accurate information can be obtained and seasonal consumption patterns can be understood.

## 2. Water Use

### Context

Every day, a typical London household consumes approximately 160 litres of water – used in kitchens, bathrooms, toilets, washing machines and gardens. Businesses also consume large quantities of water. The Thames Water area already has problems with the security of its water supplies (evidenced by the recent hosepipe bans), and as London's population increases and demand for water in the region grows, increasing pressure is being placed on existing water supplies. Thames Water is working to develop new supplies and to use existing ones more efficiently (eg by repairing leaks), but consumers must also look to reduce their demand through behavioural change and the use of water efficient appliances.

### *Where are we now?*

Some simple water conservation measures have been implemented around the Buddhist Village.

Typically, many of the communities and businesses have installed volume reducers in toilet cisterns, which reduce the quantity of water used in each toilet flush by approximately 20%. Given that toilet flushing accounts for 30-40% of household water usage, these simple devices can make a useful contribution to reducing water consumption. In addition, some communities are:

- Recycling washing-up and rinsing water for watering plants
- Not flushing toilets unless necessary
- Purchasing washing machines with water efficiency ratings, and using them in ways to minimise water use

There is no data on water consumption within the communities around the LBC, as none have a water meter. Current daily water consumption rates on metered businesses are as follows:

- Friends Organic, 150 litres/day
- LBC, 2970 litres/day
- Wild Cherry, 2260 litres/day

Once again, volume reducers have been installed in most of the LBC businesses, although at Bodywise these have not been installed for health/hygiene reasons.

Drinking water at Vajrasana is supplied from its own borehole. The grounds are not routinely watered, although plants may be watered during drought periods. Rainwater run-off is collected from the roof of the main barn and diverted to supply a pond on the grounds. Rainwater is also collected from the main farmhouse, stored in an underground tank and accessible through a tap, but this resource is not often used.

### *What more will we do?*

Some of the measures which will be implemented on water use are as follows:

- Water butts will be installed in more of the communities around the LBC to collect rainwater for watering plants.
- Businesses and communities will be encouraged to install and test out volume reducers in toilet cisterns.
- The possibility of installing water meters in communities will be investigated.
- The feasibility of using water from the underground tank at Vajrasana for watering plants during drought periods will be investigated.

### 3. Waste and Recycling

#### Context

London's homes and businesses produce 19 million of waste every year, with enough produced to fill Trafalgar Square every week. Even though London's recycling and composting rates are on the rise, almost half of our waste is still dumped into landfills or incinerated. In particular, only 26.7% of household rubbish is recycled or composted, which means that every year roughly 330kg of waste is burnt or thrown away for every London resident. In Tower Hamlets, only 9% of household rubbish is recycled or composted, the third lowest rate in the UK.

The environmental impacts of transporting, managing and disposing of these huge quantities of waste are significant – using up valuable land, potentially contaminating soils and water, and contributing the climate change. The first objective of every household and business must always be to reduce the amount they throw away. Where waste is unavoidable, it's vitally important to reuse, recycle or compost as much of that waste as possible.

#### *Where are we now?*

As part of the environmental audits, basic data was collected on the volume of waste generated by each business/community, and information was gathered on how that waste was disposed.

In general terms, all of the businesses are taking some action to reduce the amount they throw away:

- All have established recycling collection systems which enable them to collect waste for the local authority recycling scheme. Materials which are collected for recycling include paper, glass, steel cans, cardboard, plastic bottles. Some recyclable materials are not recycled as the Tower Hamlets Council recycling scheme does not currently accept them (eg plastic packaging). Estimated recycling/composting rates achieved by businesses range from 10% to 65% by volume.
- Some businesses collect uncooked food waste for composting, although the Wild Cherry restaurant does not currently have facilities to compost its food waste. Approximately 50% of the unsellable (past 'use by' date) fruit and vegetables from Friends Organic is given to LBC communities rather than throw away. All compostable kitchen and garden waste at Vajrasana is composted on site.
- Some simple waste minimisation measures are used across most businesses, typically double-sided printing and the use of scrap paper.

All of the communities also have recycling systems, with many having access to composting facilities for their kitchen waste, and some divert a large proportion of their waste away from the council's rubbish collection system – up to 90% in some cases. Many recycle or reuse items not collected by the council, including toner cartridges and clothes. In addition, many communities implement simple measures to reduce the amount they throw away, eg by reusing plastic bags.

In addition, businesses and communities often make redundant furniture and other equipment available for refurbishment and reuse – sometimes by leaving items in the street, where they are usually quickly salvaged and given a second home.

*What more will we do?*

As already explained, all of the communities and businesses are making use of the Council's recycling system, and many have access to composting facilities. Some small additional measures which may be implemented on waste and recycling are as follows:

- Information on good practice on recycling will be shared between the communities so that everyone is aware of how those materials not covered by the Council's scheme can be made available for recycling.
- A full recycling system will be established at Bodywise, and contact will be made with Tower Hamlets on behalf of Bodywise on collecting items for recycling.



## 4. Transport

### Context

Technology gives us the freedom to travel and to transport the things we need around the world quickly and cheaply, bringing us new opportunities and more choice about what we consume and how we live. However, these opportunities come at an environmental cost – a third of all the energy used in the UK is consumed by transport, more than the energy used to power, heat and light our homes. Much of the time, our modes of transport are fuelled by non-renewable, climate change-causing fossil fuels – driving 12,000 miles in an average size petrol-fuelled car produces 3.6 tonnes of CO<sub>2</sub>; a single flight from London to New Zealand will produce 2 tonnes of CO<sub>2</sub> per passenger. Private car use is also clogging up our towns and cities, reducing local environmental quality through noise and air pollution, and contributing to inactive lifestyles and poor health.

We need to reduce the amount we travel, and use more environmentally-sustainable forms of transport, if we are to address these problems. Public transport offers a more environmentally-friendly alternative to the car; cycling and walking is greener and healthier still. Limiting our air travel also makes a major contribution to reducing our global environmental impact.

### *Where are we now?*

The environmental audits looked at how people living and working around the Buddhist Village travelled to and from work, plus other regular journeys that they make. Headline findings include:

- Very few private cars are owned by the businesses and communities, and those which are owned are shared.
- Almost everyone living in the communities commutes on foot, by bike or on public transport. Efforts are also made to reduce regular non-work journeys, eg by having bulk orders of food delivered from a wholefoods supplier rather than making regular trips to the supermarket.
- Very few community members regularly travel by air, although a small number occasionally make air trips to fulfil work commitments.
- There is little formal provision for bikes (eg storage, locking facilities, showers for cyclists), although many people cycle to the Buddhist Village for work, although the businesses work around these shortcomings. For example, staff bikes are stored in the courtyard of the Wild Cherry.
- Retreatants at Vajrasana are encouraged to travel by public transport, by the provision of information on train times and with a minibus service that provides transfers to and from the local train station to Vajrasana. However, many people still drive to the retreat centre.

### *What more will we do?*

People living and working around the Buddhist Village tend to use very sustainable forms of transport – cycling, walking and public transport – and do not tend to travel far to work. Some small additional measures to support sustainable transport around the LBC include:

- Investigating the installation of proper bike storage for the communities on Approach Road.

- Investigate the feasibility of developing a 'Travel Plan' for the LBC, to develop a better understanding of how visitors travel to and from to the centre and if appropriate to identify ways of promoting more sustainable transport patterns among visitors.

## 5. Purchasing

### Context

Every product and service that we consume has environmental impacts determined by the materials it is made of, how it was manufactured, how far it has been transported, how it is used during its lifespan, and finally how it must be disposed. By spending our money with care, we can significantly reduce our environmental impact.

Ideally we should try to reduce our consumption of all products and services – this is the most direct way of reducing our ‘Ecological Footprint’. In addition, we also often have a choice between a conventional product and one with ‘environmental credentials’ – eg made from recycled materials, energy efficient, organic, locally-produced, biodegradable, recyclable etc – and where possible as consumers we need to buy eco-friendly products as often as we can (although sometimes the environmental credentials of different products can be confusing!). Of course, in some cases the initial cost of environmentally-friendlier products and services is higher. However, by purchasing goods that are more durable, reliable or efficient, the ‘whole life’ cost of many environmentally-friendlier items can often be lower than conventional, disposable, inefficient products.

### *Where are we now?*

Many of the communities and businesses try, where possible, to purchase (and sell) products which have good environmental credentials – locally-produced, organic, recycled, biodegradable etc – although none has a formal ‘policy’ which requires them to do this. For example, almost every business and community uses ‘green’ cleaning products (such as Ecover), and many of the businesses use recycled paper for printing. More importantly, everyone takes steps to reduce the amount they consume of regular items, by for example:

- Reusing scrap paper and printing double-sided where possible
- Using email for communications, rather than regular mail

Other headline findings from the audits include:

- Fresh fruit and vegetables used at the Wild Cherry have been supplied by a local supplier for the last 20 years. Although all beverages are organic, most of the food is not (for cost reasons). The restaurant has also switched to from plastic to wooden cutlery for take-aways and recycled paper napkins.
- Friends Organic aims to ‘buy and stock organic’. However, where organic products are not available, they sell non-organic alternatives. Fruit and vegetables are organic, although much of the product range is not UK-produced, to meet customer expectations. The shop sells a wide range of ‘green’ products, including biodegradable bin liners, and Ecover cleaning products which are sold from dispensers enabling customers to refill their old product containers.
- As a natural health centre, a relatively large amount of money must be spent at Bodywise on hygiene and cleaning, and the business uses the Ecover cleaning products range for this purpose. However, while recycled paper is used in the office, Bodywise does not currently use recycled products for couch rolls, hand towels or toilet paper. Furthermore, over a six month period, 912 litres of bottled water was supplied through a drinks dispenser.

- The LBC uses recycled paper for the photocopier, and buys organic and fairly-traded food products where possible. However, trips to Costcutter for emergency supplies means that conventional food products are also served at the centre some of the time.
- Retreat leaders at Vajrasana are responsible for purchasing fresh food for their retreats, and there is no formal procedure to encourage them to buy local or organic food. However, dried food in the larder is largely organic and fair trade where possible.
- Businesses and communities are generally not buying electrical and electronic goods on the basis of their environmental performance, even though information on energy and water consumption is readily available for many white goods.
- Many of the communities buy food in bulk from wholefoods retailers. As this is cheaper than making smaller, regular purchases from supermarkets, it enables them to buy a wider range of organic and fairly-traded products than would otherwise be possible. No communities buy exclusively organic food, although most try to do this where it is affordable.
- The Approach Road communities use some of their communal garden space to grow organic fruit and vegetables – tomatoes, runner beans, courgettes, lettuce and rocket.
- The overall environmental impact of conventional food consumption patterns (ie someone who eats meat, regularly buys air freighted fruit and vegetables, eats out etc) is approximately double that of 'green' food consumption patterns (ie a vegetarian who generally buys locally-produced, seasonal food). As everyone living in the communities is a vegetarian, they are likely to have a lower than average 'ecological footprint' from their food consumption.

#### *What more will we do?*

Some of the measures which will be implemented on purchasing are as follows:

- When the audit results are fed back to each of the businesses, they will be encouraged and supported to look at whether/how they might improve their purchasing, eg increasing the use of organic food in the Wild Cherry, stocking more locally-produced fruit and vegetables in Friends Organic, looking at the availability of recycled paper products and the use of water dispensers at Bodywise, ensuring that organic and fairly-traded food and drink is served as regularly as possible at the LBC etc.
- A meeting will be held for communities so that they can compare purchasing activities and share information about good practice (as well as looking at other environmental issues).
- A weekend retreat will trial the exclusive use of local fruit and vegetable suppliers, to assess the implications for cost, feasibility etc. It may also be possible to trial the exclusive use of organic fruit and vegetables.

## 6. Biodiversity

### Context

'Biodiversity' is short for 'biological diversity' and refers to the variety of all living things on our planet – plants, animals and habitats. We depend on the natural environment and biodiversity to provide us with all our resources for life – air to breathe, water to drink, food to eat and materials to use in our daily lives. Biodiversity is also a vital part of our quality of life, and even in inner London, biodiversity is all around us and enhances our lives.

Complex and diverse ecosystems tend to be more stable and healthy, but our lifestyles can have very negative impacts on the stability and health of the world's biodiversity. For example, air and noise pollution can reduce the ability of species to breed successfully, and intensive food production can damage or destroy natural habitats. Climate change is likely to be the greatest threat to global biodiversity, as many species will not be able to adapt in time to changes in climatic parameters.

However, there are immense opportunities for protecting and promoting the development of biodiversity assets around us in London and elsewhere across the world. For example, by improving our local environment and supporting the development of local biodiversity assets (eg creating new habitats and supporting wildlife in our gardens and the open spaces available to us), by buying biodiversity-friendly products (eg organic food, sustainable timber, peat-free compost), or by reducing our 'Ecological Footprint' and our contribution to climate change, we can all make a contribution to protecting our planet's natural environment.

### *Where are we now?*

The audit specifically focused on what businesses and communities are doing to maximise the potential for biodiversity in their neighbourhoods. Many of the businesses and communities do not have private open space, and opportunities for supporting biodiversity are somewhat limited. However, where space is available, actions include:

- As well as gardening organically, the communities on Approach Road use their communal garden space to support local wildlife in a number of ways. For example, the garden holds a wildlife pond and residents are trying to build up a frog population, and ladybird larvae are bought every year to build up an annual ladybird population.
- The grounds at Vajrasana are managed organically, and the use of peat-based compost is avoided. Rather than using any chemical pesticides, some plants are specifically grown to attract insects and natural predators. In some areas, grass is deliberately left to grow to provide a different habitat for wildlife. In addition, the large numbers of fruit trees attract many types of birds to the garden.
- A birdbox has been purchased for the LBC courtyard.

### *What more will we do?*

In addition to actions on energy use and purchasing (which will have general benefits for biodiversity), we will seek advice from an 'expert' on the potential for maximising the biodiversity value of the outdoor space around the Buddhist Village. Contact will be made with the Sustainability Officer at Tower Hamlets to see whether a visit can be arranged.

## 7. Our overall 'Sustainability'

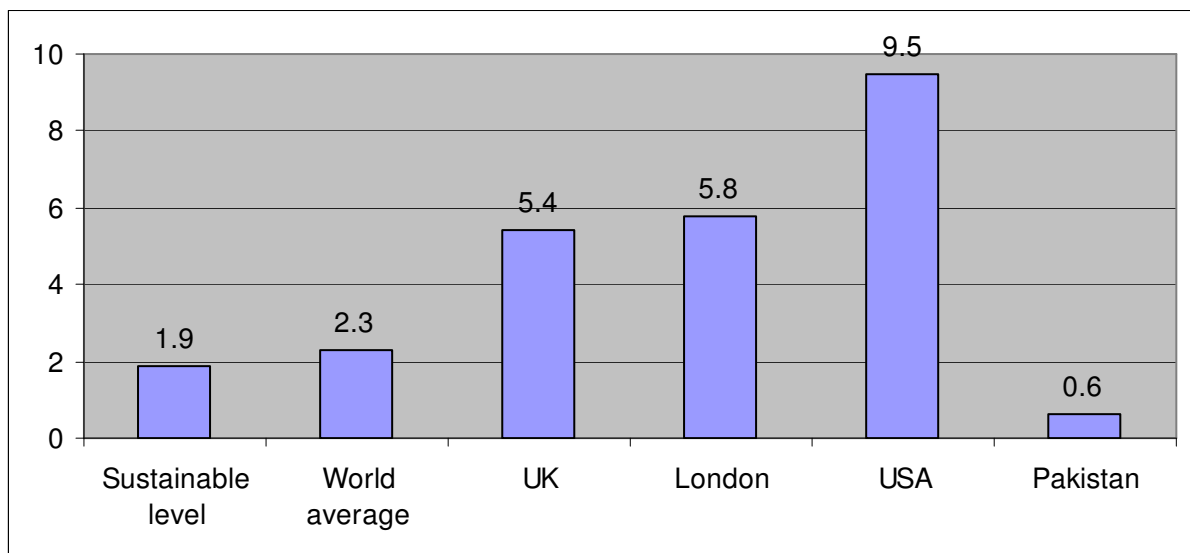
The preceding sections look at how the Buddhist Village is performing on a range of environmental issues. While each section tells us something about specific impacts, it is often helpful to get a sense of how environmentally 'sustainable' our lifestyles are in a broader sense. Ecological Footprinting is a widely used 'indicator' for illustrating overall sustainability.

### *What is an Ecological Footprint?*

The 'Ecological Footprint' is a measure of the extent to which our lifestyles and economies stay within the regenerative capacity of the environment. In simple terms, it tells us how much ecologically productive land in hectares is required to support us, and is a useful way of seeing our overall environmental impact and understanding whether our lifestyles are sustainable.

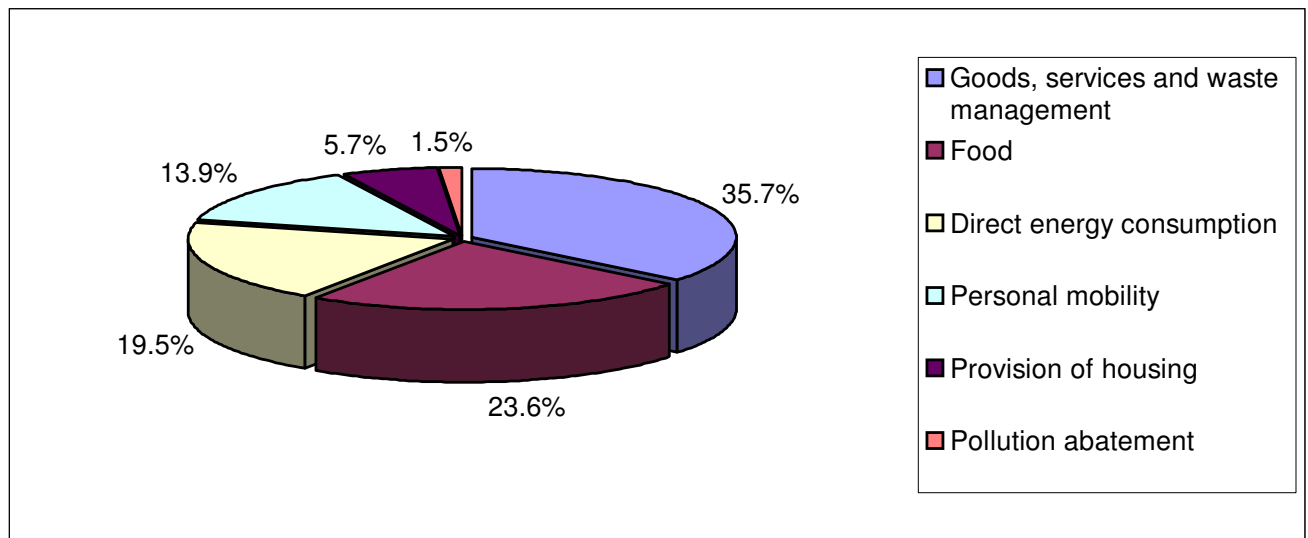
According to the most recent Ecological Footprint calculations, the average 'earthshare' available to each human citizen is approximately 1.9 hectares per person. This compares to 5.45ha currently being used by each person in the UK as a whole, and 5.8ha for each resident of London. In simple terms, we in the UK are using roughly three times more of the Earth's resources than we are entitled to. As average world demand is 2.3ha per person, 20% higher than available biocapacity, we are depleting our planet's living stocks faster than nature can regenerate them.

The Ecological Footprints of a selection of countries, compared to the 'sustainable' level, are presented below.



*What is the typical Ecological Footprint of the London resident made up of?*

A typical Londoner's Ecological Footprint – 5.8ha – is broken down below.



In summary, the goods and services that we consume – eg household products, clothes, entertainment, healthcare, schools, waste management and all the other public services – accounts for the largest proportion, almost 36% (2.07ha). Energy consumed at home is responsible for 20% (or 1.13ha) of a typical Londoner's Ecological Footprint, food accounts for 24% (or 1.37ha), and our personal transport (cars, flights etc) accounts for 14% (0.81ha).

*Where are we now?*

It isn't possible to accurately calculate the Ecological Footprint of all the businesses and communities in the Buddhist Village without access to complex computer software and lots of data. However, there are very simple Ecological Footprinting calculators available online, including one at [www.bestfootforward.com](http://www.bestfootforward.com), which can be used to calculate the footprint of households and communities. According to this calculator, assuming that the communities around the LBC...

- walk or cycle for most of their journeys
- do not holiday abroad
- live in a large, shared house
- have low heating bills
- use renewable energy
- conserve energy
- are vegetarians
- eat mostly fresh, locally-produced food
- produce less than average quantities of waste
- recycle...

then **the Ecological Footprint of a resident of a Buddhist community would be approximately 2.6ha per person**. This is only 45% of the typical Londoner's footprint. However, we would still need 1.35 planet Earths to sustain us if all of human society lived in this way.