Community Sustainability Audits

Redressing the Balance 2
Working towards environmental justice in Scotland

Environmental Justice

No less than a decent environment for all;
no more than a fair share of the Earth's resources

Friends of
the Earth
Scotland

How to use this handbook

This handbook is part of a series entitled *Redressing the Balance: working towards environmental justice in Scotland*. The series is intended for people who are new to the issues. Each handbook is meant to stand on its own, but as a whole provide a range of practical advice. The first three in the series, in particular, will be cross-referenced as appropriate:

Environmental Campaigning   *Community Sustainability Audits* (this publication)   *Setting up a Community Sustainability Project*

The handbooks are just the starting point. Each references other books, pamplets and websites in Appendix i. These are accurate at the time of press (2002) but over time will become out of date, particularly those on the internet. References to sources in Appendix i are in the following format:

i 1

Inevitably there is a great deal of jargon, acronyms and other language which can get in the way of under-standing. Appendix ii of each handbook explains these terms.

In addition, pointers to other key publications of Friends of the Earth Scotland are made in the margins:

Protecting our Environment
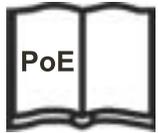
PoE
This useful guide, published in its 2nd edition in 1997, provides much practical information on knowing your rights, details on common problems such as waste or pollution, and practical campaigning tips, in a easy to read format. Inevitably some parts are out of date, particularly since the guide was written before the new Scottish Parliament came into being.

Resources for the Future
This series of seven booklets was written as part of the Catalyst project which provided support to local people tackling environmental problems. The pack provides background material, resources and checklists for people working towards sustainable development in their communities. Icons pointing to the individual booklets are also used in this series:

RFF *How to use this pack Explorations in sustainable development*

RFF *Educational activities for adults and young people*

RFF *Investigate your locality for sustainability*

RFF *Influencing economic activity*

RFF *Practical action for sustainable development*

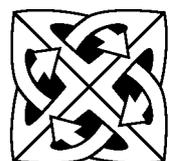**RFF** *Taking things further*

RFF *Criteria for sustainable development*

COMMUNITY SUSTAINABILITY AUDITS

Redressing the Balance: working towards environmental justice in Scotland

Handbook 2

Friends of
the Earth
Scotland

COMMUNITY SUSTAINABILITY AUDITS

Redressing the Balance: working towards environmental justice in Scotland. Handbook 2

Contents

1. Introduction

The purpose of this handbook is to take you through a step by step guide to doing a community sustainability audit. It is not a definitive guide – there are many ways of doing such an audit – but it will hopefully fit most situations in which you may find yourself. If parts of the audit do not fit with your community, it is quite feasible to miss out those bits. In most cases the activities can be carried out by a small group of people in a community.

At various points in this handbook, reference will be made to a booklet called 'Investigate your locality for sustainability', from the resource pack *Resources for the Future* published by Friends of the Earth Scotland in 1998 (hereafter known as RFF). RFF was compiled from activities which were carried out in a range of communities over a two year period. Perhaps ironically, given its title, some of the material in RFF is out of date. Since its publication Scotland has elected a Parliament, resulting in a number of legislative changes. However, much of the content of the booklet is still very valid. You can use this handbook without a copy of RFF, but if you do have access to it, then it will contain additional information and activities.

Many of the activities in the audit are designed to be used with groups of people in sessions ranging from fairly organised to very informal. Most use a mixture of visual material and discussion, and assume an ability to read English and do basic arithmetic. Clearly this does not represent everyone in a community. The handbook contains a mixture of activities which require different skills from the community but any of them can be easily modified for use by people without these skills. Most exercises have both a visual and discussion component, so an emphasis on one or the other can ensure the inclusion of people with visual or hearing difficulties. Appropriate timing can be used to include sign language users in both discussion and visual activities, and for users of other written languages or poor literacy skills, line drawings can usually substitute for words. If sufficient time is devoted to the exercises, most of them can be modified for use with people with a range of learning disabilities.

1.1 What is a community sustainability audit?

A sustainability audit is like a 'health check' of your community. It looks at as many different aspects of the community, seeing what is healthy, what is not so healthy, what impact you are having elsewhere, and what are the prospects for the future. Some of you will be familiar with health and safety audits in the workplace which are designed to make the workplace a healthy and safe place for people to work in. A community sustainability audit is similar. A sustainability audit is also an opportunity to find out where you are, so that you can make plans to get to where you should be, or indeed want to be.

There are potentially so many things which you could audit in your community or workplace, and it is rarely possible to audit absolutely everything. It is important however to include:
- things which are important to the community.
- things which might be important to the community but are not known by the community.
- things which are important to other communities, which your community may not be aware of.
- things which cover the broad range of areas significant for sustainable development with environmental justice.

For this reason, the sustainability audit described in this handbook will focus on a particular range of aspects of sustainability. Even the limited range of issues covered here may not all be relevant to your community, so you may have to be selective. The handbook is arranged in such a way that it should make that selection easier.

1.2   Types of knowledge

The aim of a community sustainability audit is knowledge: you want to know something about your community. You may already know quite a lot about your community, but the purpose of the audit is to know more, or to know better – in other words to learn. Knowing about your community can also be a disadvantage, since what you already know could get in the way of what you want to find out. In this respect, it is important to recognise that there are many different kinds of knowledge which are valid. The audit focusses on five different kinds of knowledge.

1.2.1   People's knowledge

This is what we can learn from the people who live, work and play in the community, the kind of knowledge which you have already and which is an important component of an audit of the community. It is partial and biased, which does not detract from its usefulness. It is important to value this kind of knowledge but it is not the only kind, or even the best kind.

1.2.2   Unheard knowledge

This is a particular kind of people's knowledge held by those whose voices are not often listened to. These are the people who are usually most marginalised by society and most silenced, and who are often suffering most from the lack of sustainability in society. These people are often the most difficult to reach, but they will have a particularly important knowledge about the community, from the 'underside'.

1.2.3   Published knowledge

This is the formal knowledge usually resulting from surveys, scientific monitoring or some other form of research method, carried out by people with specialist training, and usually published in reports or academic papers. Some knowledge of this kind is collected routinely by the authorities responsible for providing services and is available for the public to consult (though often the public may not be aware of this). One of the purposes of the audit is to demonstrate that this knowledge is publicly available, to make it more accessible and explore its use for communities. Some of this kind of knowledge is published but is not available to the public, usually because it is regarded as 'commercially confidential'. In some cases, this knowledge would be useful to the community and you might seek to obtain such information even if the public currently has no legal right to it.

1.2.4   Discovered knowledge

This is the kind of knowledge which can be researched by ordinary people with just a little bit of thought or training. Everyone tries to find things out in their day to day lives by logically thinking through how to do it. If you give some systematic thought to the kind of knowledge you want and how you might obtain it, and what kinds of expertise can be drawn on, then research can be carried out by amateurs.

1.2.5   Reflective knowledge

This kind of knowledge emerges when these other kinds of knowledge are assembled and contrasted, and we analyse them by asking searching questions. Does this knowledge concur with other views of the community? Are there any patterns in what has been discovered? Is any of the knowledge surprising to us? Why is this the case? Have

we learned enough about particular things? What might be missing? Why are things the way they are? What is the reason for the differences in the knowledge? Which kinds of knowledge is most useful to whom? What is the implications of knowing these things?

When we start asking and answering these questions, drawing on some of the analytical tools we might obtain from our experience and our learning elsewhere, we start building new knowledge, which is a kind of reflective knowledge. Knowledge of this kind can help to lead us into taking action to change things, ideally towards sustainable development in the community.

1.3   Sustainability: folk work place space

Because this is a sustainability audit, it will be looking at the range of issues which relate directly to sustainable development. This includes certain things that other community audits or profiles would not look at – we want to know how sustainable the community is. In order to do this we will be looking at the community through the lens of 'Folk, Work, Place and Space'.

Sustainable development is often described as being about keeping the social, economic and environmental aspects of our lives in good balance. If we improve one of these three to the detriment of one of the other two, then our whole society will be out of balance. A century ago, the Scottish botanist, designer and popular philosopher Patrick Geddes used a similar construction to describe the balanced development of human societies, but he used the more Scottish terms folk, work and place. In our audit, we will be looking at these aspects of your community. This will help us to look at the cultural and social well being, public health and participation in democracy (folk); the volume and use of financial and human resources and the balance and quality of what people do in the community (work); and the surroundings in which people live and work, the natural and built environment, managed and unmanaged (place).

However, a thorough understanding of sustainable development is not complete by looking at the folk, work and place of our own communities, because what we do in our community affects and is affected by other people, other communities and other environments in Scotland, and elsewhere in the world. It affects the communities which will come after us. Indeed, if you look behind the folk, work and place which describe our quality of life here and now, then you will see that our community occupies a space in the world. It is the space which the community occupies, the size and the nature of that space and how it fits in with other communities' space, which really gives us a good idea of how sustainable our community is.

1.4   Taking sides: environmental justice

Achieving a balance between folk, work and place, and occupying the right space, sounds like it is a question of management – 'if we could only manage things right then sustainable development would just happen'. But the lack of sustainability in our communities is not just a problem of poor management. If we start to ask *why* things are the way they are, we discover that imbalances are caused because some groups benefit whilst other groups lose, that there are injustices going on. Thus we should be asking questions of the folk, work, place and space of our community, but also of other communities.

Some of these injustices are fairly obvious, or at least they appear to be obvious. Other injustices are hidden, however, and the same community might be benefiting from some

injustices and losing out on others. In fact, probably most injustices are maintained, not because the people who benefit are bad people, but because people get used to enjoying the privileges of benefiting from injustices, and start not to see the injustice it causes to others. This is one of the important reasons for carrying out an audit: to identify injustices and see opportunities to work for justice. It is not a neutral, descriptive audit. Instead it aims to take sides with those who suffer from the injustice.

1.5   Resource use

The term resources is being used to refer to physical or natural resources rather than finances or services. We are looking at the material resources which go into the production and energy used by the community. In order to understand the impact which our resource use has on others' quality of life, and to identify any injustices resulting from any detrimental impact, we need to draw on several models, using the metaphors of rucksack, footprint, space and debt.

1.5.1 Ecological rucksack

All of us, as individuals and as communities, use natural resources in our daily lives. When we switch on the light, the electricity most likely comes from gas, coal, oil or nuclear fuels, all natural resources which have been extracted from the ground. The food we eat has been grown using water, fertilisers, and possibly pesticides, and the packaging is made from steel or aluminium tins (mined) or cardboard (trees) or plastic (extracted from oil). The goods we use are made from a range of resources which are either natural or derived from natural materials, and the energy used in producing them is usually generated from natural fuels. This is fairly obvious, but when we measure this, and think through the implications, it demonstrates that we are carrying a 'burden' on the earth, from which the resources are obtained, and into which the waste and the by-products of pollution go. This burden can be thought of as a rucksack which we are all carrying around with us, and some communities carry larger rucksacks than others. What is the impact of the size of the rucksack on other peoples' rucksacks and lives? How big should our rucksacks be?

1.5.2 Ecological footprint

The use of the resources can have an impact on others. A scarce resource, such as the aluminium which make up our drinks cans, can only be used sparingly (otherwise it will run out). If we are using it then others will not be able to. The food we eat is likely to have been grown in another part of the world, which therefore has an impact on the people who grow it (and don't grow something else instead). Land, water and fertilisers are all scarce resources in some parts of the world. The unwanted byproducts or pollution, and the waste which is produced in the production of goods, all have an effect on someone's community either directly or through the damage it causes to natural systems. Indeed, it is impossible to have no effect. The size of the impact can be thought of as a footprint, which our communities make on other communities. It is even possible to measure the impact and convert it into the productivity of land, therefore giving an actual size of the footprint of different communities. Footprints therefore give a sense of the impact we make. How big a footprint should we be having?

1.5.3 Ecological space / environmental space

A further development of the impact we are having on the earth, identifies the amount of 'space' on earth which people could occupy, if everyone had the same right to occupy the same amount of space. This space, which can be estimated for each of the earth's resources which we use, is limited by many things, such as the scarcity of the resource, how it is extracted, how quickly it can grow or be renewed, what damage it causes

through extraction and how easily absorbed or broken down is its pollution and waste. Thus, for each of the earth's resources, it is possible to measure the right space which can be occupied. The fairest thing to do is to divide this space amongst the people who have to use that resource. This is known as the environmental space or ecological space, and we can measure the amount of resources which are used by our community, and compare it with this space. If we are using more than our fair share of the space, then we are either preventing someone else using it, or we are damaging the earth for the generations who come after us.

Friends of the Earth has done this calculation for a number of countries throughout the world. For Scotland, as for many western, industrialised countries, the space we occupy is considerably larger than the environmental space. To achieve this target, for most resources we need to reduce our use by about 80%. It has been estimated that this can be done within about 50 years. However, communities vary, and some communities have a higher resource use than others. This usually represents the unjustifiable inequalities in our society, in wealth, power and capacity to control resources and their use. What is also unjustifiable is the overall resource use being higher than the ecological space. From the point of view of the sustainability audit is useful to identify the space occupied by our community. Then, when we are identifying ways to overcome injustices in our community, we do so in a way which takes steps towards living within our space.

1.5.4 Ecological debt

Is this enough, to live within our fair share of environmental space? Whilst we in the western world are living beyond our fair share, we are continuing to exploit others' share of the space. Many Friends of the Earth and anti-poverty groups in the poorer countries of the 'third world' are calling for the rich countries to repay the cost of the damage caused by this history of exploitation – the ecological debt – owed by the rich countries to the poor countries. It has been estimated that the value to the G7 countries of exploiting more than our fair share of oil alone, amounts to $13 trillion per year.

There are various debates about the ways in which the rich countries should be repaying the debts to the poor, and who in the rich countries should be shouldering the burden of these repayments. This might form the basis of a useful debate which you could have with your auditing team, and perhaps wider than that in the community. For the purposes of the audit, we will focus on the distance which the community is from the environmental space, especially for key resources. This is often referred to as the 'sustainability gap'.

1.6 Three phases of the audit

The sustainability audit described in this handbook is organised into three phases:

- Phase A   The audit team
- Phase B   The reference group
- Phase C   The wider community
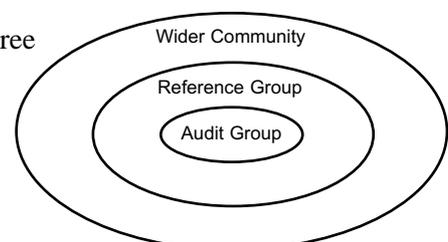
This has been done simply to make it easier to carry out, and ensure that you are building up the amount of knowledge in a fairly systematic way, beginning from your own work and that of close colleagues, through wider and wider reference points into the wider environment. At each stage you will be able to carry out an exercise in reflective knowledge building, to ensure that the efforts which you are putting in are indeed contributing to your knowledge of the community and its environment.

2. Phase A: the auditing team

2.1   Forming an auditing team

The first task is to gather together a small group of col-
leagues who will be willing to work with you on the audit,
at least in phase A. This group will be known as the audit-
ing team. A small group of about three or four would be
adequate but probably the ideal number would be about six
or eight. You may find it easiest to work with a group
which you are already part of, for example a community group, Friends of the Earth
local group, women's group, youth group, parents' group or community council. On the
other hand, a group of representatives from a range of such local groups could also form
an auditing team which would make the transition to phase B easier, when you consult
with a wider reference group in the community. You will be asking the audit group to
attend a few meetings in phase A of the audit, and hopefully, many of them will also
work with you in the other phases.

You may find that people are reluctant to get involved in a community sustainability
audit because they expect to be lectured at about their behaviour, such us how much
recycling they do, what kind of transport they use and so on. Unfortunately, many envi-
ronmental organisations have adopted this kind of approach. However, you can assure
people that this is not what the audit is all about and this is not the approach which
Friends of the Earth would support. People's behaviour is their own business, and we
will assume that people make sensible and responsible decisions most of the time in the
situation in which they find themselves. What we want to do is to change that situation.

Once you have persuaded a group of people to become the audit team, gather them
together for a series of activities.

Activities	*sustainability*	*knowledge*
Map the community	place	people's
Group discussion	folk	people's
Picture the community	place	discovered
Researching your community from published sources		
Local ward profiles	work	published
Development plans	place	published
Water quality	place	published
Contaminated land	place	published
Litter survey	place	discovered
Measuring air quality	place	discovered/published
Reflect together & prepare for phase B	all	reflective

The following is a suggestion of how you might plan the first three sessions, based on a
series of weekly, two hour meetings. It is certainly not the only way and you may wish
to spend more time on the activities of phase A.

Session 1	*Session 2*	*Session 3*
Introduction	Looking at pictures	Compiling materials
Mapping	Sharing published material	Reflecting on phase A
Group discussion	Selecting material	Preparing for phase B
Sharing out tasks	Identifying themes	

In your first session, you will probably need to introduce the idea of the audit and explain what is the purpose. You will probably need to introduce people to ideas such as sustainable development and environmental justice. You may find it useful to use the prepared overheads included in Appendix iii or to prepare some using the terms in Appendix ii. Following your introduction, you will need to focus the group onto the community, and a useful way of doing that is to draw maps.

2.2   Map the community

Thinking about maps

A useful way to start is by making a map of your community. One of the most interesting things about maps is that they are a representation of an area. Maps are not the same as the area they represent; they reflect some aspects of the area accurately, some other aspects symbolically, and yet other things are ignored. What a map represents depends on who has made it, and what its intended use is. Maps therefore become a very interesting model of the very many ways in which we might try to understand our community and its environment.

This is also a helpful way of thinking for those of you who are doing an audit of a community which is not primarily geographical. If you are making a map of your community, then it is you who select what is important to go into the map. If you are a shop steward for example, you may focus on the workplace and the area around about where the workers live, or the various workplaces where you and your members work, even if these are not in the same area. If your community is Scottish Muslims of Pakistani origin, you might map an area of Glasgow and an area of Punjab.

Whether you are active in a geographical community or a community of interest, in drawing a map you are starting to think about what is important to your community and where the boundaries are. Remember you and your community decide what goes in the centre, and where the sea monsters are!

Drawing a map

Materials needed: pieces of paper, including some large pieces; flipchart, wallpaper lining etc.; coloured pencils, pens or crayons; post-its
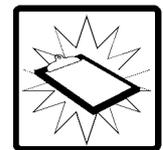
Start with some pieces of paper and some pens or crayons. Each of you in the auditing team starts by drawing your own map of your community. Don't worry about accurate representation, artistic skill or precise scale, and treat the exercise as a bit of fun. Simply draw a representation of the things in the community which are important to you – perhaps the community centre, the school, the main source of employment, where the shops are, the doctor's surgery, the beach, the main roads, a woodland footpath. Also think about the boundaries of the community. Where do you feel the community finishes or another community starts? Where do people in your community go less often? Again, the boundaries may not be geographical, or only partially so. They are likely to change and may be based on what you don't know as much as what you do know.

When you have each drawn a map, compare it with those of your co-auditors. Describe what you have included and what you have deliberately excluded, and where you have put the boundaries to the community. When each of you has discussed why you have draw your maps in the way you have, move towards preparing a joint map.

For the joint map, spread out a large sheet of paper and agree how much of the community you are planning to cover. Try to agree on the things which are important to your-

selves as a group, and perhaps what you think others in your community regard as important. Try to agree a boundary which is shared by as many of the group as possible. You are starting to build up a shared, community view of your local environment.

When you have drawn the joint map, you can use it to help you and your community explore the community and its environment. Here are a few suggestions.

Trace regular journeys

Are there areas which everyone in the group uses a lot, and other areas of the community which nobody in your group ever visits? Are these latter areas 'out of bounds' by convention? Do other groups of people use these areas? Is there a significant difference in the journey traces between different groups of people – between people with children and those without, between men and women, between people of different ages?

Likes and dislikes

Write on different coloured post-its what you like and don't like about the community, and put them on the map. Explain your likes and dislikes to your colleagues. How much agreement is there? You might reflect on whether the dislikes are universal in the community, or whether some people might like what you don't like and vice versa. You might want to think about how the community can celebrate and enjoy the things which are liked, and change the things which are not liked.

Time scale

Look at the things which you have drawn on the joint map. How long have they been there? Have they changed in the memory of the group? Put post-its on the features which have been built new in the memory of the group, and different coloured post-its on things which have changed significantly. Is your community changing quickly or slowly? Is it changing for the better or worse? What is causing the change? Can you remember a time when you had a different attitude to the same things – the same old building can be intimidating to a child, fascinating to a teenager and grotesque to an adult! Thinking about the past of your community can help to think about the future. What changes would you like for the community, and how quickly would you like it to change?

Thinking about needs

Your needs might include basics such as food and clean water, access to services such as health professionals or public transport, means of relaxation such as recreation centres or pubs, or spiritual needs, formal or informal. Perhaps you could mark these with coloured post-its. How many of your needs come from outwith your community? How sustainable are the ways in which your community meets its needs? Can any of your needs be met in other, better or more sustainable ways?

Common themes

When your group has explored your community through maps for a little while, write down some of the themes which have come up in your discussion. On which areas was there agreement and where were the disagreements? How fluid is the boundary to your community? Did you think about any groups of people whose needs and aspirations are not being met? Did you identify any particular groups of people who are powerful enough to make changes or to prevent changes? These themes are likely to be useful in exploring your community more deeply. This may require a bit more detailed study, in order to find out what underlies the community and what might make it more sustainable.

2.3   Group discussion: folk, work, place, space

Materials needed: map from Mapping your Community exercise, coloured pencils, pens or crayons; post-its; balloons (optional)

After the first stages of a community map, the group will probably already be having a good discussion about the community. People are probably mostly discussing the aspects which we might call 'place', since these are what a map mostly focuses on, although you may have also started exploring aspects of folk and work and even space.

You could help this discussion along by encouraging the group to think about the positive and negative aspects of the community, through looking at each category in turn. One such way of doing this is by adding positive and negative aspects of the community onto post-its, and then sticking them on four separate pieces of paper (see page 50). A fun version of this might be to take a marker pen and write your positives and negatives onto four balloons stuck together into the shape shown on page 46.
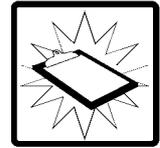
2.4   Picture the community

A useful way to learn about the community is to have pictures of it. You don't need to be an artist or have fancy equipment (although if you are and do then make good use of it). The main aim is to get both photographer and viewer to think about the community by looking at the images.

Materials needed: paper and drawing materials and/or camera and film. If you or one of your colleagues have the skills, then you could do drawings or paintings of the community, but most people will probably use photography (this description will refer to photography, but most of it will also apply to other forms of pictures). Find out who has a camera in the auditing team, or see if you can borrow one from a community centre.

Have a discussion in the group about what kinds of things in the community you might want to photograph. If you are following the format proposed at the beginning of this chapter then you would probably have this discussion at the end of the first session, and it will be informed by the themes of the community which you are starting to identify through the mapping exercise and the group discussions. In your preparations, make sure that you leave enough time to take the photographs, develop and print them before the following session.

It is worth giving some thought to the kinds of pictures which might be useful in gathering and giving knowledge about your community. A good picture for the audit will capture something about your community – something good maybe or something bad, but especially something which is ambiguous. Try to look for images in your community which tell a story. Look for pictures which raise questions rather than just portraying what you see. Elements of a picture which can be useful in this regard might include:
- Movement: what is happening; has just happened; is just about to happen.
- Mood: expressions on faces; contrasts between objects or people; unusual camera angles.
- Ambiguities: unusual combinations; what is in or out of focus.

You may want to go around taking photographs alone, or else as a group, discussing what would make a good photograph as you go. It is often the discussions which go into choosing the photographs which are just as important as the photographs themselves.
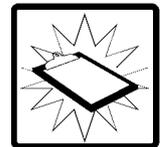
When you have taken a few films, meet back together again and the process of selecting photographs from the full range can start. Ask yourselves what each photograph tells us about the kind of community in which we live (or work or identify with). Sort through the images and start selecting those which tell you interesting things about the community. Also analyse each one you want to reject. Is it because it doesn't tell you much, because it's not a good photograph, or because it says something about the community that you're not comfortable with? If it is the last, then keep it to one side. That also tells a story about the community.

2.5   Researching from published sources

At a fairly early stage in phase A you should start to investigate the published sources available about your community. Some of these, such as the ward (or area) profiles and the Development Plan, are designed to be accessible by the public. Other sources may be a little harder to dig up. Some may be available free or for sale by the local authority whereas others will need to be consulted in the local library or planning office.

Some published information may relate to small sections of your community, while others are concerned with the wider environment. Friends of the Earth Scotland's publication *Protecting our Environment* (PoE) and RtB Handbook 1 describe in some detail many of the available sources, your environmental rights and how to exercise them.

It may be easier for you to identify and gather these publications, or at least the information which they contain. On the other hand it may be more useful for a small group to collect this information, so that the knowledge of where to get it can be shared, and the confidence of a group can help if you have to confront a potentially difficult bureaucrat. If you are following the format described for this section, you might want to put some time aside in the first session to divide up the tasks of collecting published information.

Remember when using published sources to be aware of the quality of the information. No information, however authoritatively published, is ever perfect, and you should try to gauge the weakness in them and the assumptions used. Scientific papers may include a note of the assumptions of the method.

When you look at less authoritative sources, it is even more important to consider the quality. Think about how the data were collected, for what purpose, how they have been interpreted, who conducted the research, who funded it, and how well the claims are backed by arguments or other sources. Assessing the quality of information on the internet is especially difficult, because anyone can place any information there. Whatever the source of your published information, keep good notes where you obtained the information, including author, title and page numbers. Be prepared to defend it, and be aware of its weaknesses.

2.5.1 Local ward profile

Most (but not all) local authorities produce summary statistics of the social and economic data of their area, often produced on a ward by ward basis. The information is largely drawn from the ten year census which gathers information from every citizen in the U.K. Statistics usually include a breakdown of the adult population into employed, unemployed and retired, numbers of school age and pre school children, and other information of interest to the agencies which provide a service. Some profiles include information on housing. Others will include significant minority ethnic populations. Remember when using this data that trends can change in time, some people are inevitably missed and the information is affected by the questions asked.
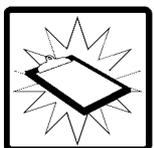
Some councils charge the public for these profiles, normally only a few pounds, whereas other provide them for free. Most will keep copies in local libraries or local government departments where they can be consulted. If you are unable to locate this information in the local library, a telephone call to the council should help to locate what is available and where.

2.5.2 Development Plans

All local authorities are required to produce Development Plans. Currently (2002) these are in two tiers: the Structure Plan which covers a wide area usually encompassing several local authority areas; and Local Plans of which there are usually several for each local authority area. The Scottish Executive is currently considering revising this so that many areas will have only one tier of Development Plan.

You will be able to consult the Development Plan in the local library or planning office, or buy it, but will probably not be able to borrow it. Probably the most useful section of the Development Plan is for the area in which your community is situated. This will tell you what the current land use is, and plans for development in the area. Remember when looking at Development Plans that they rely on predictions which may be accurate, but make certain assumptions about trends.

2.5.3 Water quality

Domestic water quality is the responsibility of the Water Authority (except for private supplies). To see the records in the Public Register, contact the Customer Services Manager of the Water Authority for your area. You can ask for a member of staff to be there to help you interpret the information. Remember that the records rely on samples which are quite often small in number.
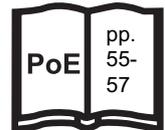
2.5.4 Contaminated land

Localised pollution and contamination are among the more obvious threats to the sustainability of a community. However, they may not be easily noticeable. Air pollution may not be traced if the pollutant has no smell or colour, and water contamination may only be identified when somebody becomes ill. A register of contaminated land is only now being compiled by local authorities, and the effects of environmental pollution on health, productivity and ecology may take a long time to be noticed, by which time its source may not be identifiable, and the effects irreversible. Contact your local authority.

2.6 Litter survey

If you have an unacceptable amount of litter in the community, it is probably the first environmental issue that many people will think of. One way of recording the amount of litter in the area is to walk around the community along a fixed route at several times during your investigation, and count the number of items of rubbish which you see. You could even record what you see to give some indication of whether it could have been reused or recycled.
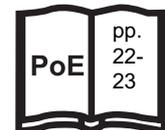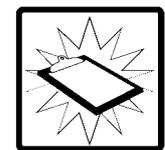
2.7 Measuring air quality.

You have a legal right to know the results of any air pollution monitoring carried out by the Government or your council. See PoE for details on where to find this information. The damage to air quality from vehicle exhaust can be measured directly and easily without any technical knowledge.
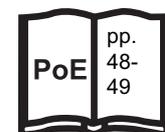
Materials needed: Passive diffusion tubes, from Friends of the Earth Scotland. There is no cost for these but please give four weeks' notice (to allow them to be ordered).

lists the availability of such publications in 1998

has more details on Structure Plans

PoE pp. 55-57

PoE pp. 22-23

PoE pp. 48-49
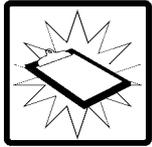
When left exposed to the air for about two weeks the tubes can give an indication of the level of nitrogen dioxide which is a good indicator of traffic pollution. They should be taped to stationary objects at about head height in areas of suspected high traffic pollution (e.g. bus stops) or vulnerable places (e.g. children's play areas). After two weeks they can be sent to Friends of the Earth Scotland who will forward them to a laboratory. You will normally receive results within a few weeks.

2.8 Reflect together and prepare for next phase

If you are following the proposed programme, then by the second session you will have information from the published sources as well as pictures. You will also have themes recorded from the discussions around the maps and the group discussions which followed. You can start to select material which you think is interesting or useful for your audit, especially paying attention to the four areas of folk, work, place and space. By the third session you will have compiled the selected material together. You may have decided to mount it on a display or keep it in a portfolio. Try to compile it in a way which mixes up different kinds of knowledge, so that, for example, photographs are placed at the appropriate place on the map, alongside the comments made by the group, and the relevant information from the local plan and the ward profile.

At this stage you can start asking more pressing questions of the material, such as: ***how*** did it get to be like that?; ***why*** is it the way it is?; ***when*** did it become like that?; ***where*** might it change?; ***who*** benefits and who suffers from this?; ***what is it like*** to be in that situation?; ***in what way*** is it like other situations which we have heard of?

You should take notes about the themes which are being identified, as these are likely to be significant to understanding what is going on in the community, and what might be done to change things. Themes are the issues underlying the more immediate factors. Without being prescriptive, they could include:
  • conflicts between young people and older people.
  • the shift from the country to the city.
  • different types of employment.
  • the changing influence of the mosque.
  • differences between native Gaelic and English speakers.
  • differences between natives and incomers.
Themes are likely to vary between communities and even between groups of people, at least in the early stages of the audit.

It is worth recording many themes and then to narrow them down on the basis of whether they really do emerge in a range of different places, or raise questions about what is going on behind the things which you are noticing.

Phase B will require some more detailed investigation of a wider section of the community. Have a look through phase B (Chapter 3) and identify issues which would usefully be discussed in the audit team at this stage. For example you may want to:
  • identify groups who could form the reference group.
  • try out the calculations for the transport energy measurement.
  • work out how you can provide containers for different kinds of waste.
  • measure the relative time spent by the group in different types of work.

3.   Phase B: the reference group

Phase B builds on the knowledge you have gathered and started to analyse in phase A, by gathering knowledge from the wider community. Some of the knowledge you will be collecting is in more detail than you currently have. Other knowledge will be similar to what you have already brought together, but you will be testing it with the wider community to see how valid it is or what alternatives there are. Still more knowledge will be targeted from people who represent a particular angle on the community, either because of their role in the community, or because they represent a group which is not well represented in the audit.

3.1   Finding a reference group

The reference group is going to be your tentacles into the wider community. What you are looking for is a broader cross section of the community than the small group of people in the auditing team. The reference group would include people who are involved in some kind of organised activity. You might want to contact a range of such groups, from community regeneration groups to religious organisations, to lunch clubs to youth clubs, informal pub gatherings to formal uniformed organisations. What you are aiming for is about 20 to 100 people, depending on the nature of the community, and a reasonable cross section of the community, at least in terms of the more obvious categories of gender, age and employment. Start by thinking about the people you know, your friends, relatives and work colleagues, who may be willing to take part in this stage of the audit, or who are part of other groups who might.

You will be asking people in the reference group to participate in a group exercise and/or fill in handouts for measuring use to gather information about the community. In particular you will need to follow up on the themes which you have identified in phase A, and be on the lookout for new themes. Some people may be interested enough to do both the group and the handouts, but probably most will do one or the other.

You will need to select several exercises from the list below, perhaps add some of your own if you prefer. Two activities (energy from domestic use and resource consumption) need to be followed up, so are only suitable if you will be visiting a group twice, or have ongoing contact with the members.

Activities	*sustainability*	*knowledge*
Group meeting		
Map the community	place	people's
Community time line	folk	people's
Picture show	place	reflective
What's sustainable?	all	people's
Measuring resource use		
Energy from transport	space	discovered
Energy from domestic/workplace use	space	discovered
Resource consumption and use	space	discovered
Measuring the economy	work	people's
Questions of democracy	folk	people's
Reflect and prepare for phase C	all	reflective

It is less easy to suggest a format for phase B because it depends on how many groups you will be visiting or gathering together. It is useful, however, for the auditing team to

meet together in between to assess how things are going and to share the knowledge gathered. You may find it useful to keep a chart which you can fill in as you go, recording all the exercises you plan to carry out with each group.

Group:	youth club	lunch club	women's group	tenants association	environment project
Date:	*3rd May*	*1st May*	*12th May*	*17th May & 2nd June*	*29th April & 27th May*
Team members:	*Jim &Ali*	*Ali*	*Morag & Kirstie*	*Kirstie &Ali*	*Morag, Ali & Jim*
◊ Map the community	√		√		√
◊ Community time lines		√			√
◊ Picture the community	√	√	√		√
◊ What's unsustainable?				√	√
◊ Energy in transport			√		√
◊ Energy domestic use (visit 1)		√			√
◊ Energy domestic use (visit 2)		√			√
◊ Resource consumpt (visit 1)		√			√
◊ Resource consumpt (visit 2)		√			√
◊ Measuring economic activity		√		√	
◊ Questions of democracy	√	√	√		√

3.2   Activities in group meetings

Try to get yourself invited to have a discussion with an organised group. This will probably be easier if one of the auditing team is a member of that group. However, some groups are keen for someone new to come along, just to add a bit of variation. For some groups you may need to plan some time in advance, particularly when they have a programme of activities which you will be trying to slot yourself into. Beyond the groups known to the auditing team, you should be able to get hold of lists of other groups from local community workers, local directories, religious leaders and councillors in the local authority or community councils. You will need to explain what the audit is all about, and that it is gathering information which will be used to start a new project to promote sustainable development.

When you get to the group you will need to explain the audit again, possibly using overheads if this is appropriate. After an introduction, you will need a few exercises prepared which will stimulate discussion and gather information which will be useful to you. Try to gauge how much time you will have, and prepare for enough exercises (it is usually useful to prepare for a little longer than the time you have, and keep one or two exercises in reserve, just in case). Some exercises are described in this section, but others can be found in RFF or other community work books. What you are aiming to do, however, is to ensure that you collect information across the range of folk, work, place and space, so plan to incorporate these.

3.2.1 Mapping the community

You might want to use the map exercise which the auditing team carried out in phase A (see Chapter 2.2), particularly where you ask people to think of likes and dislikes in the community. Explore folk, work and space as well as place.
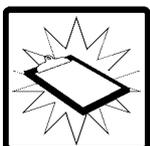
3.2.2 Community time lines

Materials needed: large piece of paper/flipchart, pens

Draw a vertical line in the middle of a large piece of paper, with a cross in the centre, representing the now, the present time. The bottom end of the line is the community in the past, and the top end is the community in the future. Ask people what they remember about the community in the past, and how they think it has changed. Usually people will compare the past with the present and give indications of what things are better or worse than they were before (you may need to prompt people to think of what is better now). Write a note about what they remember at the bottom of the line, and what it's like now around the middle. On the left of the line write the things described in positive terms, things that were good or are good, and on the right, write the negative things.

Then ask what will happen to the community in the future. Again, these are written up at the top of the line, the positive things on the left and the negative things on the right. Future predictions could be interpreted in several ways: what they know will happen, what they think will happen, what they fear will happen or what they hope will happen. These different interpretations could be marked in different colours or marked in other ways if necessary.

In some communities there may be a single momentous event which changed so many other things in the community, and in this case you may want to mark that event on the time line as well. Wait until the group suggests it. Sometimes what you think is a momentous event might not be so important for the group with which you are working.

Keep the time lines and label it with the group name, so that different groups can be compared later.

Variations:

Lines can also be used to measure other continuous variables, such as how important different issues are to various people, or how difficult people think it would be to change something. If a great deal of time is available, longer time scales can be investigated, for example the history of a whole community, or town, or industry.

3.2.3 Picture show

The pictures which you selected at the end of phase A have started to tell a story to the auditing team, which can now be expanded with the reference group. Select a small number of pictures. Avoid the temptation to include lots of photographs. Your aim is to look at a few pictures in a great deal of depth, and if you have too many then you will not get that level of depth. You may want to restrict the exercise to two pictures only, which contrast with one another. Depending on the number of people in the group, you may need to have one or two photographs enlarged to be seen by everyone, or select enough to be handed round to be looked at in smaller groups.

The exercise involves the same questioning approach that you took in phase A, but recognising that this is the first time the group has seen the pictures. Ask the group to shout out the answers to your questions. You will need to arrange for notes to be taken. Ideally bring someone else from the auditing team to do this, but you can do this your-self if necessary, or get someone from the group to do so.

The progression of questions should start with descriptions, followed by helping the group to identify themselves with aspects of the picture. Then start to think about what
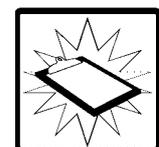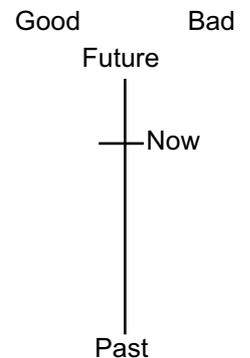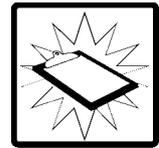
is behind the picture in the processes and cultures of the community, and move to a more critical perspective of potential conflicts which are underlying the community. One approach is to start with the 'what' questions:

What?
- What can you see?
- What is in the picture?
- What is happening?

When you have exhausted these, move onto the more penetrating questions, based on the questions what like, who, how and why:

What like?
- What is it like to live here?
- What do the people in the picture feel like?
- What is likely to happen next?

Who?
- Who are the people in the picture?
- Who else's influence can you see?
- Who is benefiting and who is losing out?

How?
- How did it get to be like this?
- How has it changed?
- How could it be different?

Why?
- Why did this happen?
- Why are things the way they are?
- Why can't things be different?

An exercise such as this is unlikely to provide complete answers to these questions, although it should bring out a great deal of the community's knowledge about what is going on. It may help participants to start to interpret these things, through discussion with the colleagues.
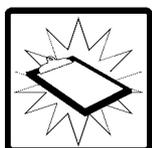
3.2.4 What's unsustainable?

Materials needed: flipchart, with diagram, pens, post-its
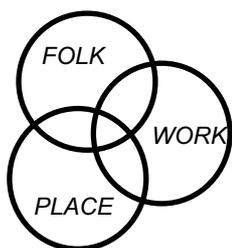
Draw three interlocking circles on a flipchart. Label the circles 'Work', 'Folk' and 'Place'. Ask the group to write on post-its any local problems or concerns which they have for their community. Ask them to stick each post-it on the interlocking circles, in the section in which it best fits. This could be in one of the circles, or in one of the interlocking sections. For example, poverty might be a work problem, unemployment could be work or on the intersection between work and folk. Racial prejudice would probably be folk, as would drug or alcohol problems. Bad housing, litter, unlit streets might be place. If you look hard enough there is probably a folk, work and place component to anything. After participants have written their first post-its, if there is an area of the circles which doesn't have any post-its on it, or very few, then the group could collectively think if there is anything locally which fits there.

Now, for each concern or problem, discuss in the group as many explanations they can think of. Ask the group: why is this as it is? what has caused it to be? It should be explained that issues or problems can have two kinds of explanations which we could call individual and social. Individual explanations are based in the individuals who cause, or are directly affected by, the problem. Social explanations are based in the society or social context. There is probably some validity to both types of explanation, but the individual often gets used as an excuse for not looking at the social. It is the social explanations which we are particularly interested in here. Write the social explanations on the left hand side of a flipchart.

When you have discussed all the problems, put a tally of the number of problems explained by each explanation. Your discussion about some of the underlying reasons behind the problems – the causes of unsustainability – will have added to your list of themes, and you will also have started to prioritise amongst them in terms of the number of problems which they are implicated in.

3.3   Measuring resource use

In Chapter 1 sustainability and environmental justice were described in terms of the folk, work, place and space of our community and the impact this has on the folk, work, place and space of other communities, now and in the future. A number of models relating to resource use were also explained. In practical terms within our audit, we are looking for areas where sustainability is lacking, as well as where injustices are being perpetuated on this community, or by this community on other communities. One important area, but often most difficult to identify is in the resources used by the community.

The exercises below will look at ways of estimating the sustainability gap for certain key resources, in particular, the resources used in producing energy for transport; those used in energy in the household or workplace; and the materials used in the house or workplace.

3.3.1 Fossil fuels, carbon dioxide and climate change

There is now little doubt that the temperature of the earth is increasing, causing disruptions to the climate throughout the world. This is caused primarily by the rapid increase in the amount of carbon dioxide in the atmosphere, as a result of human activity in the burning of coal, gas, oil (and its derivatives, petrol, diesel, plastic etc.) and other 'fossil fuels'. The biggest restriction to our use of fossil fuels is the emission of carbon dioxide at a higher level than can be absorbed safely by the environment. In terms of fossil fuel use we are certainly living beyond our space.

Scotland's carbon dioxide (CO_2) emissions have been calculated to be the equivalent of 8.7 tonnes per person per year, compared with our fair share of environmental space which would be 1.7 tonnes. African countries average 1 tonne per person. We need to reduce our fossil fuel use by at least 80% to meet our global obligations to live within our space.

3.3.2 Energy from transport

Materials needed: worksheets, flipchart, pens/pencils, calculators

Information on the use of transport in the community can be estimated by finding out what kinds of transport the people in your community use, how often and how far. Solutions to transport problems in the community will have to come from changes to the structure and availability of transport, or to the requirements to be mobile. This exercise will therefore tell us something about the patterns of transport use in this particular, and give us an average figure for carbon dioxide emissions from transport.

In the groups that you visit, you will need to explain why we are doing this exercise: the importance of carbon dioxide which is produced by petrol and diesel fuelled vehicles; and the objective of obtaining an average figure for the community, so that you can attempt to tackle problems of sustainability. Some groups might be confident with basic arithmetic, whereas other groups will need you to give them some help.

Ask each member of the group to complete the following questions on a worksheet:

Some key Scottish statistics:

1/3 of CO_2 emissions come from transport
80% of this is from road transport

1/4 of CO_2 emissions come from domestic energy
80% of this is from heating
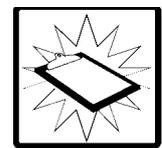
Remember, although we have to collect information from individuals, we do not want to identify them, nor to make any assumptions about why and how people travel. People will tend to travel by a convenient and affordable means, and it is not our business to tell them what they should do.

Transport emissions worksheet

Estimate how many miles **per year** you travel by the following forms of transport.
(If you don't know, think of how many trips you did last week. How long were they? Is that a typical week? How many long trips (through work, need or leisure) did you do last month / last year? How long were they?)

- driving a car alone ?   miles
- in a car with / as a passenger?   miles
- by bicycle ?   miles
- by bus ?   miles
- by taxi ?   miles
- by coach ?   miles
- by train   miles
- by aeroplane ?   miles

As people complete their worksheets, ask them to fill in all the distances on a flipchart (see below). When everyone has transferred their mileage to the flipchart, add up the total miles travelled by each form of transport by the group, and divide that by the number of people in the group to get the average distance for the group.

Annual CO^2 emissions by transport

	Bicycle	Car (driver)	Car (passenger)	Taxi	Bus	Coach	Train	Aero-plane
Person 1								
Person 2								
Person 3								
... Person N								
Subtotal								
Subtotal / number of people								

= total annual CO^2 emissions from transport per person for the community

Once you have calculated the average mileage travelled by each of the different means of transport in a year, you can calculate the carbon dioxide emissions, expressed as kg of carbon dioxide per person per year, using the following calculations:

- driving a car alone   average mileage x 0.363
- in a car with / as a passenger   average mileage x 0.121
- by bicycle   average mileage x 0
- by bus   average mileage x 0.272
- by taxi   average mileage x 0.642
- by coach   average mileage x 0.272
- by train   average mileage x 0.082
- by aeroplane   average mileage x 0.235

Finally, add up the total carbon dioxide emissions for the group. It is interesting for the group then to compare this figure with the Scottish average carbon dioxide emissions from transport (2,595 kg per person per year), and with one third of the environmental space for fossil fuels (since one third of current total is from transport).

Each time you carry out this exercise with a group, keep a record of the figures for the total carbon dioxide emissions and the number of people in the group. When you have several groups' figures, start to average them together by adding results, and dividing by the number of people in the groups combined. Each time you add more groups' figures you will get closer to the average for the whole community.

You will now be able to compare the carbon dioxide emissions from transport for your community with the Scottish average, and to the target of a fair share of the environmental space, although remember that the environmental space is a limit to carbon dioxide emissions from all sources, not just transport. As with the individual groups, a more realistic comparison for the community is 30% of environmental space, since currently 30% of carbon dioxide emissions in Scotland come from transport.

Annual CO^2 emissions per person per year

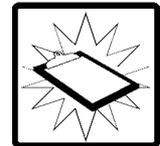|		
From the community's transport use	=	...........kg
Total Scottish average	=	8,650 kg
Scottish average from transport use	=	2,595 kg
Total environmental space	=	1,700 kg
Transport share (30%) of environmental space	=	510 kg

i 2

3.3.3. Energy from domestic / workplace use
Materials needed: worksheets, flipchart, pens, calculators

To estimate the carbon dioxide emissions from the domestic energy used by the whole community you will need to obtain information on energy used by a sample of households in the community. Most energy usage can be measured by reading electricity and gas meters on two days separated by at least two weeks. The sample of households from the community is probably best made up of the auditing team, plus some of the groups whom you have an opportunity to visit more than once. The bigger the sample, the more accurate will be your estimation.

Some people save all their bills. In these lucky cases, simply add all figures to get a yearly total.

If you are auditing your workplace, you will need to obtain access to meter readings for the buildings in which you work. You will also need to estimate the proportion of the electricity which is obtained from fossil fuel sources.

As with transport use, we are interested in the community's use of domestic energy, not that of individual households. Community use will tend to make us think about social patterns, such as whether the housing in the area is well insulated, whether people live closely together or far apart, how much of the day the houses are occupied, whether the people have access to energy efficient appliances. Again, the purpose of the audit is not to lecture, or even advise on, ways that individuals can save energy, and the data from individual households will be averaged for the community. Of course, if individuals want to keep a record of their own energy use with a view to improving their own efficiency, then the same technique can be used by them.

i 3 Free energy audits and advice can be obtained from several sources.

Electricity

Factorisation Formula

January	10.90%
February	9.44%
March	10.44%
April	7.32%
May	7.56%
June	5.85%
July	6.05%
August	6.73%
September	6.96%
October	9.08%
November	8.78%
December	10.90%

Electricity meters record use in kilowatt hours, i.e. the kilowatts of electricity used in one hour. If the number of kilowatt hours is known for a short period, it can be estimated how much would be used for a whole year. Since energy is not used evenly throughout the year, the estimate of the whole year needs to be corrected by using a 'factorisation formula' as is shown in the table to the left. This calculates the monthly proportions of annual domestic energy use.

In order to get the average electricity use for the community, it will be necessary to calculate the annual electricity used by each of the people for whom you have a complete meter reading, add them all together and then divide by the number of people who have given you meter readings.

Thus, the calculation for the amount of electricity used follows these steps:

EXAMPLE
(household of 4)

19023   30 August
20185   2 October

1.   Each household returns with two meter readings from two dates separated by at least two weeks:

      Meter reading 1: ………..   Date 1: ………..
      Meter reading 2: ………..   Date 2: ………..

20185 - 19023 = 1162

2.   Subtract meter reading 1 from meter reading 2. = ………..

33 days

3.   Calculate the number of days between date 1 and date 2. = ………..

1162 / 33 = 35.2

4.   Divide the meter reading difference (step 2) by the number of days (step 3). = …..

35.2 * 92 = 3238.4

5.   Now multiply this number calculated in step 4 by the number of days in the full calendar months covered by the period during which meter readings were taken. = ……..
(For example, if meter readings were taken between 3rd and 23rd January, multiply by 31 (the number of days in January). If meter readings were taken between June 27th and July 19th, multiply by 61 (the number of days in June and July together). If they were taken between 30th August and 2nd October, then multiply by 92 (the number of days in August, September and October).

3238.4 / 22.77 = 142.22
142.22 * 100 = 14,222.2

6.   Divide this number calculated in step 5 by the estimated % of annual electricity use (read this off from the factorisation formula chart, and add the figures for each of the calendar months covered. The examples given above would be 10.9, 11.9 and 22.77) and multiply by 100 (for the household). = ………..

14,222,2 / 4 = 3,555.55

7.   Divide this figure calculated in step 6 by the number of people in the household. This gives estimated annual electricity use per person. = ………..

8.   Add together all the results obtained at step 7 from all the households that have given you information, and divide by the number of these households. = ………..

The next thing to work out is the carbon dioxide that this amount of electricity represents. This depends on how the electricity is generated, since oil, gas and coal fired power stations produce carbon dioxide, whereas hydro-electric and wind generators do not, and nuclear powered electricity produces carbon dioxide only in the extraction and transportation of the fuel (of course nuclear generation creates waste much more dangerous than carbon dioxide). If you live in the Hydro Electric Board area (North of Scotland), then more of the electricity will be from hydro electric than if you live in the Scottish Power area. If your entire community generates its own electricity, or buys electricity from one of the few companies that only distribute energy from renewable

sources (e.g. The Renewable Energy Company) then you already know that you do not contribute to CO_2 emissions in this way.

However, what is more likely is that the community buys electricity from a range of 'mainstream' companies and it will be reasonable to use an average figure for the mix of electricity generation types in Scotland. If you do not know where the community buys its electricity from, use a reasonable figure for the average amount of carbon dioxide produced in Scotland as 0.37 kg per kilowatt hour. Thus, to get an estimate of the community's contribution to carbon dioxide emissions, multiply the average electricity use for your community by 0.37.

9.   Figure calculated in step 8 * 0.37 = ...

Now you can compare this figure with the environmental space for total carbon dioxide emissions, of 1700 kg per person per year. Perhaps a more realistic figure to compare it with is one quarter of the environmental space for carbon dioxide, since domestic energy currently accounts for one quarter of the total carbon dioxide emissions in Scotland, i.e. 425 kg per person per year.

Gas

People in your reference group who use gas for domestic heating will need to do the same calculation as for electricity, but use a different formula for calculated carbon dioxide measurements. One m^3 of natural gas produces 1.94 kg of carbon dioxide. The households contributing will first need to check whether their gas meter measures gas in $feet^3$ or in $metres^3$. They will then measure the number of units over a period of time, by recording the meter reading on two different dates, as with electricity:

1.   Each household returns with two gas meter readings from two dates separated by at least two weeks:

      Meter reading 1: ………..   Date 1: ………..
      Meter reading 2: ………..   Date 2: ………..

2.   Subtract meter reading 1 from meter reading 2. = ………..

3.   Calculate the number of days between date 1 and date 2. = ………..

4.   Divide the meter reading difference (step 2) by the number of days (step 3). = ...

5.   Now multiply this number calculated in step 4 by the number of days in the full calendar months covered by the period during which meter readings were taken. = ... (For example, if meter readings were taken between 3rd and 23rd January, multiply by 31 (the number of days in January). If meter readings were taken between June 27th and July 19th, multiply by 61 (the number of days in June and July together). If they were taken between 30th August and 2nd October, then multiply by 92 (the number of days in August, September and October).

6.   Divide this number calculated in step 5 by the estimated % of annual gas use (read this off from the factorisation formula chart on p. 24, and add the figures for each of the calendar months covered. The examples given above would be 10.9, 11.9 and 22.77) and multiply by 100 (for the household). = ………..

7.   Divide this figure calculated in step 6 by the number of people in the household. This gives estimated annual gas use per person. = ………..

EXAMPLE
(household of 4)

1864   30 August
1953   2 October

1953 - 1864 = 89

33 days

89 / 33 = 2.70

2.70 * 92 = 248.4

248.4 / 22.77 = 10.91
10.91 * 100 = 1090.91

1090.91 / 4 = 272.73

272.70 * 1.94 =
529.04

8.   Now calculate the carbon dioxide emissions from this gas use as follows: if the meter measures in metres^3, multiply by 1.94; if the meter measures in feet^3, multiply by = 5.49 (this is 2.83 * 1.94)

9.   Add up the figure for each person who uses gas, and multiply by the total number of people who have recorded domestic energy information. This will give you an estimate of the carbon dioxide emissions for the community from gas.

Coal and oil

Burning coal directly emits about 3 kg carbon dioxide per 1 kg of coal. If any of the people giving information uses coal, estimate the total amount of coal used by each household in one year, divided by the number of people in the household, then add these figures and multiply by 3. Then divide by the total number of households who have given information on domestic energy. This gives the carbon dioxide emission from coal from the community as a whole.

Fuel oil is made up of a mixture of chemical fuels derived from oil (hydrocarbons). If you use fuel oil, or a similar oil based fuel, use an average figure of 2.68 kg CO^2 per litre of oil. First estimate the amount of fuel used in the year, which can be done by looking at the receipts of fuel purchases or by measuring the amount over a shorter period and using the same formula as for electricity. Divide the annual oil use by the number of people in the household, and then multiply this figure by 2.68 to give CO^2 emissions per person per year. Add this figure for all the oil using households and then divide by the total number of housholds who have given information, for a community figure for oil use.

The additional CO^2 emsissions from coal and oil can be added to the CO^2 emimisions from other sources in the community.

Wood

Photosynthesis converts carbon dioxide in the atmosphere into the carbon which makes up wood in trees. So using wood fuel does not add any extra carbon dioxide to the atmosphere. There may be other environmental problems associated with wood burning, such as smoke in a densely populated area, where the wood has been transported from and how quickly it is planted, but people who use local wood as an energy source add no carbon dioxide to the atmosphere from this source.

Totals from all sources

You are now in a position to add the total carbon dioxide emissions from domestic energy use from all sources, and compare them with the Scottish average and with that proportion of the environmental space which is reasonable to consider as for domestic energy consumption.

Environmental Space for CO^2 emissions	1,700 kg per person per year
Total CO^2 emissions for Scotland	9,630 kg per person per year
CO^2 emissions from Domestic energy (1/4 of total for Scotland)	2,400 kg per person per year
Sustainable Domestic Energy consumption (1/4 of environmental space)	425 kg per person per year
CO^2 from domestic energy for our community ....kg per person per year	

3.3.4   Resource consumption and waste

Up til now we have looked at one resource only, that of fossil fuel, which is largely consumed in the production of energy. There are of course many other resources which we in Scotland consume more than our fair share of the environmental space.

Some of the other resources which we use are derived from fossil fuel, particularly through the refining of oil. This includes plastics, nylons and most materials regarded as 'synthetic' or 'artificial'. However, many other materials are also familiar, including wood based products, various metals and aggregates (such as stone). It is helpful to distinguish between renewable and non-renewable resources (also called 'flow' and 'stock' resources). Renewable resources can regenerate themselves or are continuous, so provided they are not used too rapidly, their 'stock' will not be depleted by using them. They include things that grow, such as wood and other plant material; and things that are continuous (at least within a reasonable timeframe) such as wind and tides. Non renewables have a fixed stock which cannot be replenished (again within a reasonable timescale) so as they are extracted, the stock becomes less, to a point where they could run out. These resources include metals, minerals and aggregates as well as the fossil fuels.

It is a basic scientific law (the first law of thermodynamics, since you ask) that matter cannot be destroyed or created. All the resources which we use have been extracted from the earth at some time (usually in a different form from when we use it) and will continue to exist in some form after it has been consumed, thus becoming waste. Because of this, resource consumption and waste are two sides of the same thing. We can therefore use the amount of waste as an indicator of the amount of resources we consume.

Many of the resources which are used in products go into their manufacture and processing, packaging and distribution. They are consumed and disposed of well before we receive the products, so it is very difficult to get a sense of the full impact of the consumption of the community on resource use. However, as an indicator of consumption, the materials passing through the home is useful.

In this audit, we are looking at the patterns of consumption in the community. Again, we are certainly not looking to blame individuals or communities for their consumption choices. People make choices about their consumption on the basis of a complex range of factors, which are the subject of exploitation by advertisers. Probably the biggest factor is economic, the wealth or spending power of the community. Community consumption patterns give an idea of what structures, restrictions and opportunities there are in any community and how the people of the community respond or react to this.

This exercise focuses on just a few of the more common resources: aluminium, iron and steel, glass (and other aggregates), plastics, wood based and compostable materials.

### Community waste collection

The most direct way to obtain information about the amount of waste produced is from the local authority domestic and business waste collection service. Local authority environmental services departments must keep records of the total weight of waste collected because they need to pay landfill tax. They may also keep more detailed data on waste collected for smaller communities, or per lorry per journey, but this information may not be useful if it does not coincide with your community. It may be worth enquiring from the local authority environmental services department whether any data are available, especially data about special uplifts, which will be difficult to collect directly. However, in most cases you will need to build up an estimate from those people in your reference group with whom you can have more than one meeting.

As part of the Area Waste Strategy Plans being formulated throughout Scotland, most areas will have undertaken detailed research on waste for their areas. This information is generally available from SEPA.

i 4

Measuring individual consumption

Materials needed: Record sheets, pens, calculators, scales
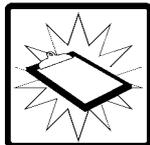
Once you have found a few volunteers from this group, ask them to segregate all their waste into the following seven categories, and put them in separate plastic bags:

- Aluminium
- Steel and iron
- Glass
- Plastics
- Paper, cardboard and wood
- Kitchen waste and other compostables
- Others

Before volunteers throw the rubbish out (or take it for recycling), they should either weigh each bag and record the weight themselves, or it may be easier for you to visit people and weigh their rubbish for them. Volunteers should continue to segregate their rubbish for a period of time, perhaps a month, and over time you should be starting to get an idea of the amount of waste the community gets rid of each month.

This method obviously misses out the larger and less frequent waste items such as white goods (e.g. fridges), furniture or cars. Ask people to estimate how frequently they buy new items and throw out old ones (though most people will probably not remember). You may have got some information from your local authority. Between various sources of information, at least you should be able to get a 'guesstimate'.

As data are collected, record them on a record sheet, and convert to weight produced per year per person, then transfer these data to a central record (see p. 29). Each time you add a new average waste production record, you get a better idea of the average for the group (and an indicator for the community). If your new data are not modifying the total average then you probably have enough data. Then you can compare the data for your community with average domestic waste data for Scotland, and, where appropriate, with the environmental space for the particular resources.

The environmental space and information about these materials is given below:

Aluminium

See for sources of data and quotations *i* 4

0.99 kg per person per year   Reduction targets: 90% by 2010

'Around 35% of aluminium is used for packaging, 18% in construction, 11% in engineering and 6% in transport, including car manufacture. Aluminium smelting accounts for 1% of the world's energy use. In 1993 the UK's apparent consumption of primary aluminium was 8.21 kg per capita, equivalent to 2.5% of world production. Over the last ten years total aluminium consumption has increased by 54%, and primary use by 47%. The UK has by far the biggest aluminium can market in Europe. We consume 6.79 billion cans ... 13% of our aluminium use. Increasing our recycling rate from (the current) 28% to 90% would save 71,000 tonnes of primary aluminium each year.'

Steel

25.7 kg per person per year   Reduction target: 50% by 2010; 90% by 2050

'Apparent primary steel consumption in 1994 (in the UK) was 8.9 million tonnes or 153 kg per capita. Over 90% of steel is bought by manufacturing industry either as plant, or as raw materials for products, notably for use in vehicles and domestic white goods. Around 5% of steel…is used by the construction industry.'

Household Waste Record Sheet

Record number ……..   No. of days (D)………… No. people in household (H) ………

	Weight (W)	Weight per year $Y=W/D \times 365$	Weight per year per person Y/H
Aluminium			
Iron/Steel			
Glass			
Plastics			
Wood, paper			
Compost			
Other			

Central Waste Record Sheet   (figures in weight per person per year)

Record no.	Aluminium	Steel	Glass	Plastics	Wood	Compost	Other
1							
2							
3							
4							
... n							
Total							
Total/n							

Glass

    No environmental space figure has been calculated. The main raw material from which glass is made is sand, which in theory is plentiful but highly locally destructive in its extraction. Moreover, glass containers are easily reused and fairly easily recycled (although the energy saved in recycling glass, compared with manufacturing virgin glass is only 8%). 'With a comprehensive reuse scheme, glass bottles would be a more sustainable option (than aluminium cans). The leaders in this area are the Danes: beer and soft drinks can only be marketed in returnable containers in Denmark.'

Plastic

    Again, plastics do not have an environmental space allocated. Plastics are derived from the refining of oil and do not degrade naturally. They are a permanent component of landfill and if incinerated contribute to carbon dioxide emissions. Some plastics contain chlorine (e.g. PVC) which is highly toxic and difficult to dispose of safely. Recycling is possible for some kinds of plastics; this is the most appropriate use for plastic waste where it cannot be phased out altogether. 'Western European recycling rates for plastics have dropped as waste generation has increased by 29% between 1990 and 1994, outstripping the 13% increase in volume recovered. In 1994, 76% of plastics waste went to landfill.'

Wood

0.24 m^3 per person per year   Reduction Targets: 50% by 2010; 80% by 2050

'The UK needs to cut consumption of wood by between 67 and 89%. Using conservative estimates, current UK consumption of primary wood products is 51.5-52.8 million m^3 Wood Raw Material Equivalent, equivalent to 0.88-0.91 m^3 per capita, compared with a world average of 0.32 m^3 per capita. Paper and paperboard form almost half of the total demand for wood products in the UK. Domestic production, imports and exports have all increased significantly. By 2010 the UK's consumption of paper is forecast to have increased by 63% over 1990. In 1990 packaging accounted for 40% of paper consumption and printing and writing paper for 32%.'

3.4   Measuring the economy

Information about the economy of a community is often the most commonly used indicator of the quality of life in the community, for the obvious reason that if there is less money to go round then access to goods and services will be limited. In general an increase in income leads to an improved quality of life and a decrease leads to a reduction. Employment statistics often describe people who are not in employment as 'economically inactive'. It is of course more complex than this and the sustainability audit looks at the economy in a more subtle and positive way.

In order to analyse the economy of your community and estimate the extent to which the local economy contributes to sustainability and environmental justice, we will look at the full range of productive and constructive work which people do, and how people spend their time.

3.4.1 Looking at the formal economy

People in the community participate in the formal economy as consumers of goods or services, through employment, and for a few, as employers or self-employed. You will have already tried to gather information on the formal economy from the published ward profile or equivalent in phase A. This will give you proportions of the community who fit into certain categories of employed, unemployed, retired, in receipt of benefit, and may also give a social class breakdown of the community. These are useful broad categories and give an indication of the amount of money coming into the community. What it doesn't show you is where the money comes from and what happens to it.

In the groups and others in the reference group, you might want to explore this aspect a little more, in particular where people work and where people spend their money. A measure of this is the availability of local shops and businesses, whether people use them, whether local people are employed in them and who owns them. Most of this information can only be obtained informally, since businesses are usually reluctant to disclose information, but some are more co-operative and may be willing to tell you their employment policy, or provide you with some promotional material. There is no harm in asking local firms for such information to encourage them to be more accountable to the local community. If the community has a local enterprise trust then they may collect information about local employment patterns.

3.4.2 Looking at the social economy

The social economy incorporates a broad range of organisations outwith the state or local authority, which exist for social benefit rather than for profit. Many have paid staff but the resources stay within the community, and they often have much wider social benefit including volunteers. They include community groups, voluntary organisations,

charities, self help groups and babysitting circles. Religious organisations are part of the social economy, and often organise local social care and community work. Local trade union branches and trade union councils are also likely to be involved in the local economy beyond their representative function of defending workers' interests in employment. Co-operatives and mutual companies are a significant part of the social economy and may include local housing co-ops, workers' co-ops and consumer co-ops such as food co-op and credits union. People in the community will engage with the social economy as users of services, consumers of goods as well as employees and volunteers.

If you are lucky, an up to date register of voluntary organisations and community groups in the area may already exist. If not, you may need to do a bit of research, perhaps starting with the local authority, Community Council, Enterprise Trust or Council for Voluntary Service. It would be useful to get an idea of the kind of impact these organisations have on the economy. Are they locally funded, do they receive funding from some outside source, or are the totally unfunded? How many volunteers are involved and how much time do they put in?

3.4.3 Looking at the caring economy

This is perhaps the most important part of the economy, and much of it goes unnoticed. Many activities which we do to improve others' quality of life and our own make a contribution to the local economy. These include the more obvious work like caring for dependent children or elderly relatives, preparing food for the family or cleaning or mending things in the home. Some caring is done for a wider group of people, such as neighbours or others in the community that people might 'look out for'.

Traditionally, this section of the economy was seen as 'women's work', and despite some changes in attitude, more women working outwith the house, and higher male unemployment, it is still carried out significantly more by women than by men. You will be able to get an indication of the caring economy from the Measuring the economy activity below (3.4.7).

3.4.4 Looking at the informal economy

Many people work voluntarily for others without recognising it as voluntary work. They will help a neighbour fix the car, give someone a lift to church, collect a friend's children from school, share the produce from the allotment, feed the cat whilst someone is away. Not only is this a measure of economic activity which doesn't get a recognition in formal statistics, it is also an indicator of the amount of social cohesion and trust which exists within the community.

Some of this economy is based on a culture of mutual aid – it is carried out for the community, not in order to get something in return, but there is a sense that we all get something out of a community which does this kind of thing. We talk about asking a favour or calling in a favour. In some situations, the mutual aid is more formalised, and this can help to stimulate the informal economy. This may be as simple as an exchange of favours, or more organised, such as a babysitting circle or, at its most sophisticated, a Local Exchange Trading System (LETS).

LETS schemes involve members doing work for one another without paying official money, but at a fixed rate for a local 'currency'. A register of members' skills and work offered is maintained. Other members are able to use these services and their local account is debited. When a member carries out work for another member, their account is credited. Thus, although no money changes hands or moves outwith the system, work is carried out by members for members on a mutual exchange basis.

For the purposes of getting some idea of the informal economy in the community, it is worth finding out some information about its extent from your reference group, even though it is likely to be informal and subjective.

3.4.5 Looking at the autonomous economy

This section of the economy is perhaps the most difficult to identify. It includes all the self-directed work carried out for its own sake, either for the enjoyment of doing it or the benefits it brings directly to the person doing it and their immediate family and friends. It may include studying, reading, writing, learning or creating on the computer, working on the allotment or garden, philosophical and religious enquiry, creative activities such as arts and crafts, music and dance, making things, and tinkering with things.

This counts as economic activity because it requires work, effort and skill, benefits a section of the community, and in some ways reduces the need for buying things. Time spent growing food or making furniture for self-satisfaction, also reduces the need for money to buy food or furniture. You will be able to get an indication of the autonomous economy from the Measuring the economy activity below (3.4.7).
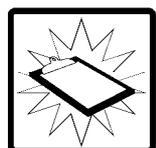
3.4.6 The illegal economy

Another section of economic activity which has an impact on communities is illegal. Probably most illegal activity is a cost to the community since it is usually driven by gain for a few at the expense of others. However, some activities which benefit the community are illegal, and there are communities which are excluded from the formal economy that rely on an illegal economy to some extent. 'Cash in hand' payments for undeclared work, dealing in goods that 'fell off the back of a lorry', entrepreneurial activity around soft drugs or smuggled or counterfeit goods, all these may have local benefits for the economy in an unequal society, even though not sustainable.

Illegal economic activity is virtually impossible to gather information on for obvious reasons, even from the victims. However, it may be important and you may know, or be able to pick up, a sense of the importance of the illegal economy in the community.

3.4.7 Measuring economic activity

Materials needed: handout (as prepared below), pencil

One way to get an indication of the economy of the community is to look at a person's different kinds of economic activity (or 'work'). Prepare everyone in the group a handout which constitutes a piece of paper with a line on one side and a clockface on the other. Give each person a copy of the handout with the line face up, and a pencil. One end of the line is the time when they get up, and the other end is when they go to bed. The line in between is their day. Ask everyone to divide their line up into the kinds of things they do in a 'typical' day.

Explain that this should include the activities that they 'typically' do, even if you don't do them every day. The easiest way to do this is to average it over a week. So, if you work 9-5, Monday to Friday then fill in 9-5 on the typical day. If you pick up the kids half the week then put 'picking up the kids' on a typical day. If you pick up a neighbour's kids sometimes, and look after them until the neighbour gets home, then put that down too. If you go swimming first thing in the morning once a week then put that down, or if you visit the allotment on the way home, or meet someone for lunch, or cook dinner for your flatmates, or go to a night class or a meeting in the evening then fit that in too. The final time line will probably look pretty untypical! But it will be a record of your typical activities. You could call it your 'average day' because you have averaged out all your typical activities.

A Sample time line

| 7am | get up get kids ready for school |
8.30am	go to office
4.30pm	collect kids from friend
5.00pm	cook kids' tea play with kids
7.30pm	go to meeting (Tues) or evening class (Thurs)
9pm	return, eat own tea
10pm	read a book
11pm	go to bed

Now ask everyone individually to group together their different activities under the headings below (you will need to explain these from the descriptions above):

1. work in the formal economy which you get paid for
2. work in the social economy which you get paid for
3. voluntary work
4. caring work (looking after children or immediate family or friends)
5. participating in the informal economy
6. autonomous work
7. any other time spent

It might be difficult to allocate some activities, and others may appear to fit more than one category, but this is not a problem since you are only looking for trends. Encourage people to try to fit all activities into categories as best they can.

Now ask people to estimate what amount of their time they spend on each of the different categories of activity each week. Be sure to include weekend activity. The total hours will come to about 120 hours, the amount of time people on average might spend awake in an average week, although it will obviously vary from person to person.

The next task is to divide up a circle according to the proportions of time spent on different activities. Turn the paper over to reveal the clockface. Tell the group that each of the numbers on the clock, instead of representing minutes and hours, represent 10 hours, so that the whole clockface covers 120 hours – their waking week. Starting from midnight, ask each person to divide up their circle according to the number of hours spent on each activity in the week.
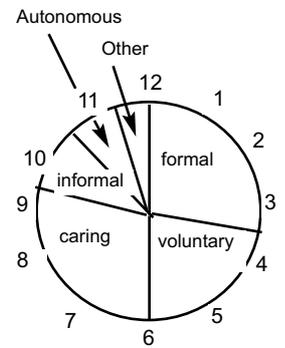
You will now need to transfer everyone's figures into a common clockface for the group (and ultimately a common clockface for the community). For the group, add the number of hours spent on each category of activity and divide by the number of people in the group. Then transfer these these figures large clockface on a flipchart.

	Person 1	2	3	4	…	N	Total/N
1 Formal economy							
2 Social economy							
3 Voluntary work							
4 Caring work							
5 Informal economy							
6 Autonomous work							
7 Other							

This clockface may be considered a measure of the group's participation in economic activity. When you have averaged for all groups, and other information, you will have a measure of the community's participation in economic activity. This is much more accurate and informative than the statistics on employment, and certainly a more positive representation than the statistics which record people as 'economically inactive'.

Variations:
When you have all these data, you may want to analyse them in different ways. The most obvious way is to produce two clockfaces for the men and women in the community to compare the division of work between the sexes. You may also want to divide the community's time up in other ways, according to age for example. This method gives a good visual indicator of economic activity in the community.

3.5   Questions of democracy
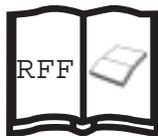
discusses the nature of participation, drawing on Sherry Arnstein's 'ladder of participation' model. It demonstrates how opportunities for participation are often inadequate and sometimes little more than manipulation.

Sustainable development involves the community's participation (women, young people, indigenous people, oppressed people, workers etc.) in decisions about their local environment. Participation is generally regarded as a good thing, and it is a common complaint that those who make the decisions don't listen to the people who will be affected by them. This is often a cause of environmental injustice, that communities were not consulted, involved or listened to. Low levels of participation in decision making is a threat to democracy, sustainable development and environmental justice. Part of the problem is that participation, in itself, is not always 'a good thing'. It needs to be understood in the wider context of democracy – what we are looking for in sustainable environmental justice is a participatory democracy.

One way to explore the balance of democracy between participation, power, accountability and responsibility in the community is by doing a 'Democracy exercise'. Ask people in your reference group to mark an X on four lines indicating how much participation they think there is in decision making, how much power they think the people have, the degree of accountability which the decision makers have and how much responsibility the people carry for the outcomes of the decisions.
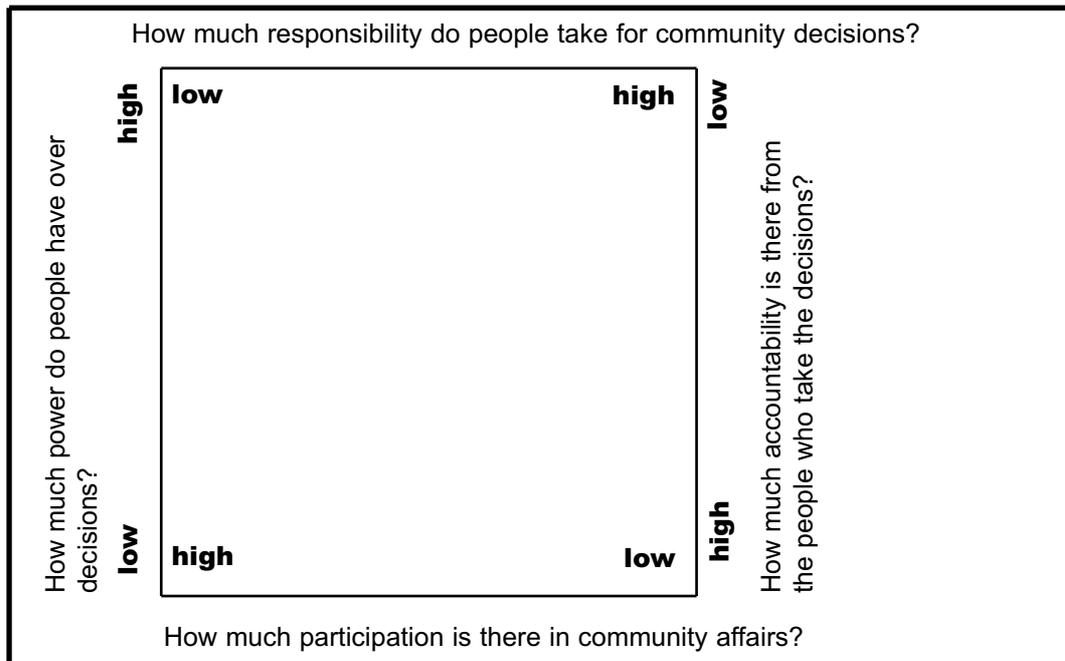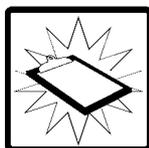
These four lines can then be turned into the axes of graphs, and then linked together into the shape of a quadrilateral (a four-sided shape). See p. 51 for some examples.

This same exercise can be repeated for subsections of the community, such as young people. It is particularly revealing for groups in your community who are experiencing discrimination, such as minority ethnic groups or people with disabilities. You might also want to put the crosses in the place where you would most like for your community, and see what shape that produces.

3.6   Reflect together and prepare for phase C

At the end of phase B, take the opportunity to reflect on the themes that have emerged. Refer back to the process you used at the end of phase A. You may want to remind yourself of the value of this kind of reflection (see pages 6 and 16.)

4.   Phase C: the wider community

By now you will have gathered a great deal of knowledge about the community, and may find that you have covered enough. This may be suitable for the purposes of your audit. However, you have still only surveyed a relatively small section of the community. The following techniques look at ways in which you can go into the wider community, test out some of the themes and theories about the community which you have started to elicit, and identify any glaring issues which you might have missed.
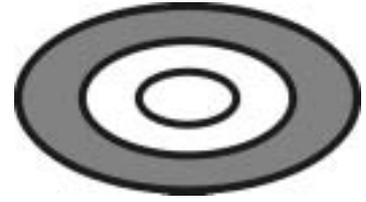
| *Activities*	*sustainability*	*knowledge*
Community survey	various	discovered
Key informants	folk	people's/unheard
Outreach	folk	people's
Volume of traffic	place	discovered
Skills audit	work	discovered
Reflect together	all	reflective

4.1   Community survey

A questionnaire is a good way to collect certain kinds of information which individuals can provide. The questions you ask should be devised by yourself in collaboration with the auditing team. They should follow up the themes which you have already identified, as well as gathering information across folk, work, place and space. You might also want to gather background information about the people who are completing the questionnaire, especially the printed ones, such as age, sex, race and employment status.

Questionnaires allow you to get a little more detail about the community, especially from people who don't go to groups. Also questionnaires can either be used by the auditing team to ask people for the information, or else it can be printed out and handed to people with a place for them to return it when they have completed it. The advantage of asking people directly is that ambiguous questions can be clarified, you don't rely on people's ability to read, and you ensure that you get the answers back. The advantage of the printed questionnaire is that it can be confidential, and doesn't take up so much of the audit team's time. You will probably want to do both, starting with a few direct interviews (which should highlight any difficulties with the questions) and following up with printed questionnaires.

Another important factor when devising the questionnaire is the use of both closed and open questions. Closed questions are those which have only one choice of answer (e.g. yes or no). Open questions encourage the respondents to come up with their own answers. You should aim for closed questions wherever they are appropriate, and as narrow as possible, because they are easier to deal with in the end. Only ask open questions where you really want people to come up with their own ideas or to get extra information. For example, you may want to ask the open question 'what is good about living here?' and leave space for people to give their answer. Alternatively, you might want to ask people to say 'I'm glad about living here all the time, most of the time, sometimes, seldom or never', and circle the most appropriate answer. You may also want to narrow the range of answers which someone can give (e.g. age in the following example).

The following chart describes some of the questions you may want to ask. You do not need to use them all, although it is recommended that you do include the measurement questions, unless you have a great deal of that type information already from groups.
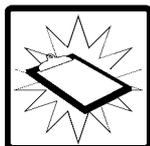
Sample Community Survey

Background information

Age:
under 10.......   10-16.......   17-25.......   26-50.......   51-65.......   over 65…….

Sex:
Male……   Female……

Race /ethnic group:
White British….   White other….   African/AfroCarribbean/Black…..
South Asian/British Asian……   Chinese……..   Other……..

Employment:
Unemployed…. Employed…..   Self employed…..   Retired……   Other……

Folk

Do you like living in this community?
        Yes.......   Most of the time.......   Some of the time.......   No.......

Is there a good community spirit?
        Very good.......   Quite good....... Not so good.......   Poor.......

Do you feel involved in decisions that are made about the community?
        Very much.......   Fairly.......   Not very.......   Not at all.......

Are there plenty of things to do in the community?
        A great many.......Enough.......   Not enough.......Nothing.......

Are you aware of any particular health problems in the community?

How would you gauge the level of crime in the community, where 10 = very high levels
and 1 = none at all   1   2   3   4   5   6   7   8   9   10

What would you like to change in the community?

Work

Would you say that unemployment is a problem in this community?

Are most people able to use their skills to benefit themselves and society?

What proportion of your time do you spend on the following activities?

- •   Work which you get paid for   ...... %
- •   Housework and caring for family members   ...... %
- •   Work which you do for friends   ...... %
- •   Hobbies, study or activities for their own sake   ...... %
- •   Relaxation   ...... %

Would you say that people help each other out a lot in this community?

A lot.......   a fair amount.......   not a lot.......   hardly at all.......

Would you say that illegal economic activity goes on in the community? (e.g. cash in hand work, benefit dishonesty, sale of stolen goods, drug dealing, tax evasion)

If yes, do you think that the community, on balance, benefits or suffers from this illegal activity?

Would you say that most people in this community are adequately housed?

Are there parts of the area which you do not like to go to?

Are the physical surroundings in the community improving or getting worse
        Improving.......   Getting worse.......   Staying the same.......

Is there much in the way of wild plants and animals in the area? Give a mark out of 10, where 10 = a large amount of wildlife, and 1 = none at all
        1   2   3   4   5   6   7   8   9   10

Would you say that the overall impression of the environment in this community is:
        Wild   dirty   clean   well looked after   neglected.......

Space

Estimate how many miles you travel per year:
- driving a car alone ?   .... miles per year
- in a car with / as a passenger?   .... miles per year
- by bicycle ?   .... miles per year
- by bus ?   .... miles per year
- by taxi ?   .... miles per year
- by coach ?   .... miles per year
- by train ?   .... miles per year
- by aeroplane ?   .... miles per year

Please give information about how much energy your household uses by giving two meter readings at least two weeks apart.

Electricity meter:
Reading 1   date

Reading 2   date

This question can only be asked if you hand out questionnaires for people to take away with them.

Gas meter:
Reading 1   date

Reading 2   date

Do you use other fuels in your household?

How many people, including children, live in your household:

4.2   Key informants

However big and diverse your reference group is, it is unlikely to represent the full range of views and knowledge in the community. It will most likely be biased by the people whom you know and the groups with whom you already have contact. In fact it is quite likely that particular perspectives can be missed, and it can further be predicted that some of the missed voices are of people whose voices are regularly missed. In order to learn from as wide a range of knowledge as possible in the community, it is useful to identify some 'key informants', to give you new perspectives.

'Key informants' are people who have something distinctive to say about the community. Almost anybody could be a key informant but you should be guided by the themes which you have identified up to now, and by understanding the way in which power is distributed in a community. There are two kinds of key informants which you should consider: 'knowledge-led' informants and 'people-led' informants.

Knowledge-led informants have knowledge which is distinctive and relevant to the audit. You probably identified them by reflecting on the themes you have identified and the various aspects of sustainable development which you have been describing. These informants may live in the area, work in the area or have some other connection with the community. They may include, for example, elderly people who have lived in the community for a long time, or community workers, or elected officials, or someone with a particular interest in the wildlife of the area. The significant thing about this type of informant is that they are selected for their knowledge.

People-led informants on the other hand are selected for who they are, and it is for this reason that their knowledge is important to us. You should think about the range of people who are in your reference group and then think about who, in the community, is not amongst them. This may be simply because of divisions in the community, perhaps between 'locals' and 'incomers', but it may also involve people who do not have power in the community, whose voice is seldom heard or listened to. In any community there will be some groups that are less influential than others.

Think this through in terms of age, race, ethnic group, gender, exclusion and lifestyle. Have you had the opportunity to learn from children, or from older people? Are there ethnic groups in the community who are not represented in the reference group, Black and Asian groups, Travellers, refugees? Have particular groups of women or men been missed? Are there groups who are particularly excluded from society in your community, perhaps drug users, or people whose language is not dominant, whether Scots, sign language, a minority ethnic language or other languages than English? What about people with different kinds of disabilities?
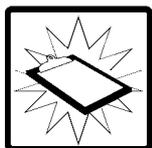
Once you have identified people you would like to speak to, it is best to prepare for the discussion through a short, 'semi-structured' interview. The semi-structured interview will involve no more than about six to eight open questions, in order to encourage your informant to talk about issues you are interested in and to steer the discussion into the subject areas required. You should also prepare a check list of other points which you may want to make sure to raise. During the interview, as well as the open questions be prepared for the discussion to range onto other issues, and ask other questions to expand on particular points, and to develop promising areas of interest.

You may want to record the interview with a tape recorder, if the informant is willing. Take notes during the interview and listening to the tape, looking out for particularly

interesting quotations or angles on the themes which you have identified. The results of these kinds of interviews are usually not so hard and fast as from other means of gathering knowledge. The principal points which you are looking for are new themes which have been overlooked in the audit so far, interesting perspectives on the themes already identified and aspects of sustainable development, and quotations to support any of these issues.

4.3   Outreach

The majority of people in a community do not get involved in organised community activities. They are too busy, they don't see them as being relevant to themselves or they see other things as more important. However, many people will get involved if it is made easy for them, if you go to them rather than expecting them to come to you. Most people can be found on the street, at the shops, in the pub, in the post office or at the school. Outreach work is about going to where people are and making that interaction into a 'getting involved'. It is a two way process: they give their view and you give yours. Such subjective information, gathered in a relaxed and informal setting is very important for learning from people who traditionally do not attend groups or public meetings. It also has the potential for stimulating thought and debate about issues related to sustainable development and environmental justice, especially when more than one person is part of the discussion.

Map out the community according to where likely or actual gathering places are at different times of the day. This may have been done by a local organisation with responsibility for detached or outreach work (such as a detached youth project or drugs project). Otherwise make an informed guess. Plan a route around the community on foot, taking in the gathering places at the appropriate times.
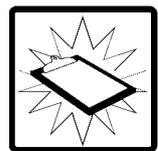
There are many techniques for collecting information informally from people out in the community. They include:
- drawing maps and asking people to point out what they like or don't like.
- doing a community time line (see Chapter 3.2.2).
- prepare two or three key questions for an informal chat.
- showing people photographs of the community.
- asking people to draw or dictate what they consider to be the most important resources in the community.

The methods are not questionnaires or surveys, but they do require preparation, partly to think through what you want to get out of the interaction, and partly to rehearse the skills of approaching people 'cold'. Often it is good to go as a pair, in part for personal safety, in part to allow one person to record what is being said. If you don't record the knowledge while the person is speaking, do so as soon as possible afterwards.

Further information on outreach techniques can be found in:

4.4   Volume of traffic

Transport is a major cause of injustice and sustainability gap in many communities. The increased availability and dependence on cars and other forms of motor transport, and the roads they run on, has transformed just about all aspects of our lives. Most of us are more mobile than even a generation ago, and our aspirations for freedom of movement have grown. On the back of this is our dependence on greater movement, as the services we need for a decent quality of life are increasingly situated at a distance from where we live. Where we work, the shops we use, where we study, how we relax and where we go to maintain our health, all these can be, or need to be, at some distance from where we live.

This is where some of the problems lie. Some people, and some communities, can chose to travel more and select where they go for services to maximise their quality of life. Other people are increasingly forced to work, shop or visit a doctor some distance from where they live, and settle for a poorer quality of life, with reduced choice and a more polluted environment. There is a clear injustice in transport, in which some people are forced to live with the consequences of decisions which other people benefit from.

Whilst vehicle registration in Scotland is increasing (by 33% between 1981 and 1991), even today, one third of Scottish households do not have access to a car, and 49% of women over 17 (and 34% of men) do not have a driving licence. In the UK, road transport is predicted to increase by a further 50% in the next 30 years, but who is making these journeys? The fifth of the population with the highest income travels three times further than the fifth with the lowest income. Moreover, child pedestrians in the lowest socio-economic group are more than four times more likely to be killed on the roads than their counterparts in the highest socio-economic group.

There is a difference between the use of transport by a community and the use of the community by transport! Some communities use transport a great deal, but are in a situation in which little traffic passes through. Other communities, however, may use transport little and be situated on a busy road. This is a potential source of grievance for a community, an unfairness based on access, inequality and planning failure.
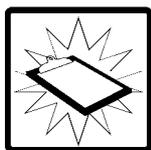
A simple way to measure the volume of traffic passing through your community is simply to count the different kinds of vehicles at a particular point in the road over a period of about 10 minutes, several times per day. This is best expressed as numbers of vehicles per hour, i.e .multiply the number of vehicles in ten minutes, by six.

4.5   Skills audit

An extension of what work is carried out in a community, is to look at what could be done: the potential economy of the community. This is an interesting exercise in its own right but is particularly useful in developing ideas for improving the economy of the community, in terms of jobs in the formal sector, and stimulating the economy outwith the formal sector, for instance with local exchange trading systems.
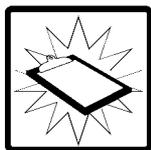
At a basic level, a survey could be carried out which records the trades, experience and educational achievement of the members of the community. Further, people could be asked to assess themselves against a list of potential human skills such as 'good with children', 'good at writing letters', 'good at standing up for myself', 'practical'.

As a snapshot, these questions could be asked of representative groups, such as groups with which the investigators have contact. A more detailed skills audit could be carried out using a questionnaire which could be delivered or posted to a section of the community, and then returned anonymously. Questionnaires could provide quantitative as well as qualitative information, such as the proportion of people in the sample who are good with children.

4.6   Reflect together

At the end of phase C, take the opportunity again to reflect on the themes that have emerged. Refer back to the process you used at the end of phases A and B. You may want to remind yourself of the value of this kind of reflection, with the section on reflective knowledge on pages 6 and 16.

5. From audit to project

What to do with all these data! At this point it is worth remembering why we have been doing a sustainability audit. Our goal was a community health check, looking at:
- things which are important to the community.
- things which might be important to the community but are not known by the community.
- things which are important to other communities, which your community may not be aware of.
- things which cover the broad range of areas significant for sustainable development with environmental justice.

We gathered different kinds of knowledge from the community, giving value to that which is people's, unheard, published, discovered and reflective knowledge. We have worked our way through the community from the easiest groups to contact through to the missing groups. We have explored the four aspects of sustainable development – which we have called folk, work, place and space – and we have tried to identify areas of injustice, so that we can take sides in our work for social, economic and environmental justice.

The next task is to turn this knowledge into a project which will tackle the sustainability gap, and work for environmental justice. First you should consider how to present the findings of the audit back to the community in a creative way. There are essentially five stages to this:
- selecting the data to be presented.
- deciding on a creative way to present it.
- obtaining feedback from the community.
- identifying sustainability gaps and environmental injustices.
- identifying a project to tackle these issues.

5.1   Selecting the data to be presented

This is probably best done by the auditing team, who already will have formed views on the significant issues in the community. The themes which you have been identifying throughout the audit are likely to form the criteria for selecting the information, but make sure that you select
- a balance of the five different kinds of knowledge: people's, unheard, published, discovered and reflective.
- a balance of the four aspects of sustainable development: folk, work, place and space.
- material which highlights any injustices both to and by the community.

The information gathered from the audit will probably be a collection of things like quotations from local people, points of view, letters from officials, tables of figures, graphs, photographs, sketches, hand drawn maps, time lines, sorted cards, sticky post-its, etc. This in itself is a selection from what is there in the community, and it will need to be further selected for presentation.

The act of selecting is very important. If you over-select, and just pick out the bits which exactly agree with your version of things, then the message becomes simplistic, lecturing and boring. If you under-select, and just put in as much as possible, or a random selection, then it can become unfocussed, too much information and confusing.

Between these two extremes is a wide range of potentials for selecting to give the message of what you want to say. However, the audience is still a free agent and may not hear what you are saying. That is what makes the whole process creative.

The combination of materials is often significant. Different materials representing various pieces of information or kinds of knowledge can be compiled together in such a way that it encourages the observer to ask 'why'. Why do two different people disagree with one another? Why does researched information come up with a different perspective than local information? Why is there so much traffic pollution when so few people seem to have cars? Why is the community using so much energy when they still can't keep warm? Why does this community produce more waste than the average?

5.2   Deciding on a creative way to present it

The way of presenting a message, the 'medium' that is used to communicate with others, has to be appropriate to the audience for whom it is intended. In presenting information about your audit, it is important to get some idea from the community about what kind of medium is best for them. Some communities are familiar with public singing, others like street theatre and still others prefer photography.

The medium should also be appropriate for the message. Sustainable development is about quality of life, participation and a fair distribution of resources without destroying them for the future. A glossy publication on non-recycled paper is not the best way to advocate sustainable development. The medium needs to reflect the issues and themes. Greenham Common women's peace camp is a good example of how the opposition to nuclear weapons took the form of decorating the fence of the military base with objects which were bright and beautiful and hopeful: coloured wool, streamers, mirrors, photographs of loved ones, all things which were a complete contrast to the destructive weaponry inside.

5.3   Obtaining feedback from the community

You need to present the information in a way that will encourage the community to give you feedback, highlight the issues which are important, and to allow you to test the ideas which you have. A good way of doing this if you have a captive audience is by asking them a series of ever more probing questions, as you did in the decodification of the photographs in Chapter 3.2.3. In this case it will be for a whole audit, which may include pictures, exhibitions, slide shows, drama, song, and all kinds of creative things. The principle however is the same: start with **what?** questions, then **what like? who? how?** and **why?**.

5.4   Identifying sustainability gaps and environmental injustices

Sustainability gaps are those areas where the community is not sustainable, and you should try to identify the issues which have a highest priority. Go through the four aspects of sustainability and for each of these identify the issues which your community falls down on the most. On the basis of the audit and the feedback you have received from the community, list the issues in which your community falls down:

Folk: in what specific ways are there gaps in the social cohesion in your community?
Work: what are the biggest economic gaps in the community?
Place: what aspects of the local environment constitute the biggest gap from the ideal?
Space: how is your community taking resources from others or future generations?

When you have listed these, you may want to try to rank them. For each category, get the auditing team to vote for the three issues which they think are the most pressing, which will give you the priorities which to tackle through your project.

5.5   Identifying a project to tackle the issues

You have now audited your community. You have a better knowledge of a wide range of background information, and the community's support from the participatory way in which you have gathered knowledge and incorporated feedback. You have interpreted this information in terms of sustainability and environmental justice. The next stage is to do something about it – in Karl Marx's famous comment 'philosophers have only interpreted the world in various ways; the point is to change it'. At the community level, this means starting a project.

You are now probably brimming with ideas of projects which will tackle the issues you have identified and will create a more sustainable and just community. This leads neatly to Handbook 3 in the series, *Setting up a Community Sustainability Project*. You will find that much of the hard work you have done during the course of the audit will be of immediate benefit when setting up the project.

Appendix i   Contacts and further information

$\boxed{i\,1}$ Sustainable Development and Environmental Justice

Friends of the Earth Scotland
72 Newhaven Road, Edinburgh EH6 5QG
0131 554 9977;
e-mail: info@foe-scotland.org.uk
http://www.foe-scotland.org.uk
Publishes a range of material. In particular,
Towards a Sustainable Scotland is a thought-provoking and readable book, now out of date
due to the new political structure in Scotland, but
well worth reading nonetheless.

Sustainable Scotland Network (SSN)
Tel: Alan Speedie, secretary, 01786 443 335
http://www.sustainable.scotland.gov.uk/who/ssn.
html
Can provide local LA21 contacts, and other
information at a local level. Publishes monthly e-newsetter.

Sustainable Development: an introduction, by
David Reid. (Earthscan, 1996).

Sharing the World: sustainable living and global equity in the 21st century, by Michael Carley
and Philippe Spapens. (Earthscan, 1998).

Believing Cassandra: an optimist's guide to a pessimist's world, by Alan AtKisson. (2000)

Just Sustainabilities, by Julian Agyeman, Robert
D. Bullard and Bob Evans. (Earthscan, 2000).

Earth Summit 92: The United Nations Conference on Environment and Development.
(1992).

$\boxed{i\,2}$ Sources of information for Chapter 3.3.2

Transport statistics Great Britain 1997 (HMSO)
Transport statistics Scotland 1997 (HMSO)
Towards a Sustainable Scotland 1995, published by Friends of the Earth Scotland; see above, $\boxed{i\,1}$
FoE EWNI website (http://www.foe.org.uk)
Transform Scotland

$\boxed{i\,3}$ Energy Conservation and energy audits

Energy Efficiency Advice Centres
0800 512012
http://www.natenergy.org.uk/leac1.html
Gives information and links to regional advice
centres.

Envirowise
0800 585794
http://www.envirowise.gov.uk
Energy saving advice for businesses, small and
large.

$\boxed{i\,4}$ Waste and consumption information for Chapter 3.3.4

All figures and quotations are from:
Tomorrow's World: Britain's Share in a Sustainable Future, by D McLaren, S. Bullock &
M.Yousuf. (FoE/Earthscan, London, 1998).

Scottish Environment Protection Agency (SEPA)
Erskine Court, Castle Business Park, Stirling
FK8 4TR
01786 457700
http://www.sepa.org.uk
Contact head office for regional office details.
Waste Strategy documents are available on the
website.

Appendix ii Jargon, acronyms & technical terms

Biodiversity	Short for biological diversity. One definition is: 'the variety of life forms, the ecological roles they perform, and the genetic diversity they contain.' The more, the better! Each council in Scotland is producing a Biodiversity Plan.
Closed question	In a questionnaire, a question which allows only specific answers. Opposite of open question.
Ecological debt	See Chapter 1.5.4
Ecological footprint	See Chapter 1.5.2
Ecological rucksack	See Chapter 1.5.1
Ecological space	The amount of a resource that may be consumed without damaging the capacity of the planet to support ourselves and other species. See Chapter 1.5.3
Environmental Justice	As defined by FoES: 'no less than a decent environment for all; no more than a fair share of the earth's resources'. See Chapter 1.4
Environmental Space	See ecological space.
FoES	Friends of the Earth Scotland.
G7	Group of the seven most developed countries.
Knowledge, discovered	Knowledge reseached by ordinary people. See Chapter 1.2.4
Knowledge, people's	Knowledge from people in the community. See Chapter 1.2.1
Knowledge, published	Formal, published knowledge. See Chapter 1.2.3
Knowledge, reflective	Knowledge gained by assessing other types. See Chapter 1.2.5
Knowledge, unheard	Knowledge held by silent people in society. See Chapter 1.2.2
LA21	Local Agenda 21. Sustainable development at a local level.
Open question	In a questionnaire, a question which invites any response. Opposite of closed question.
PoE	*Protecting our Environment*. See inside front cover.
RFF	*Resources for the Future*. See inside front cover.
RtB	*Redressing the Balance*. Series title for these handbooks.
Sustainability gap	The distance the community is from the environmental space, especially for key resources. See Chapter 1.5.
Sustainable development	Meeting the needs of the present without compromising the ability of future generations to meet their own needs. FoES links this with environmental justice. See also Chapter 1.3 and Appendix iii.

Appendix iii   Sample overheads and diagrams

FOLK

WORK

PLACE

SPACE
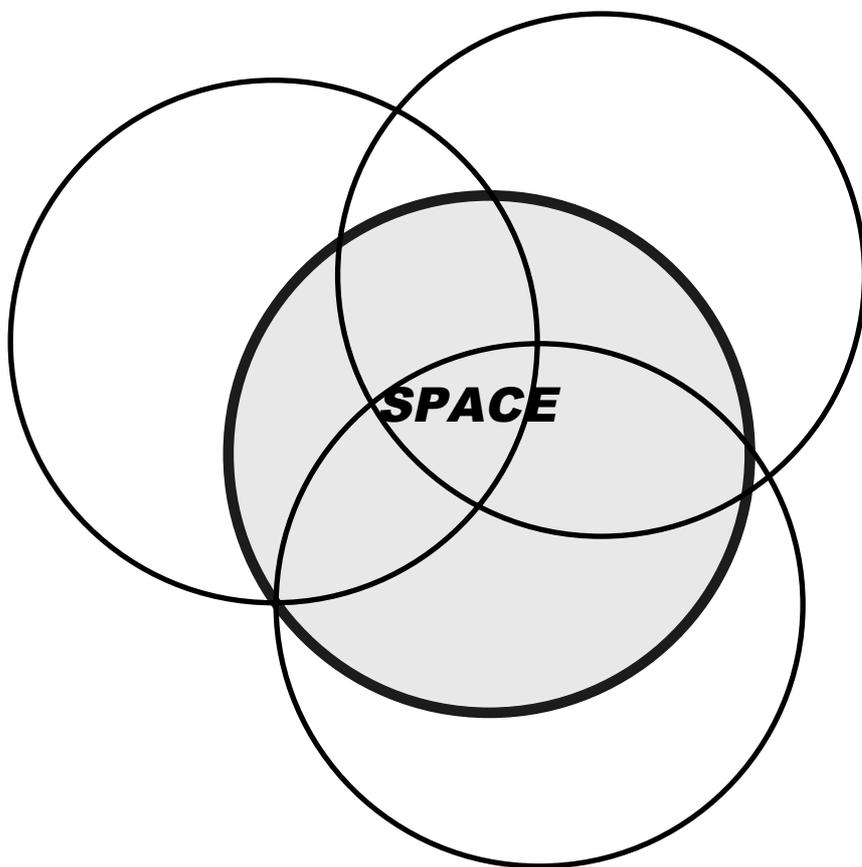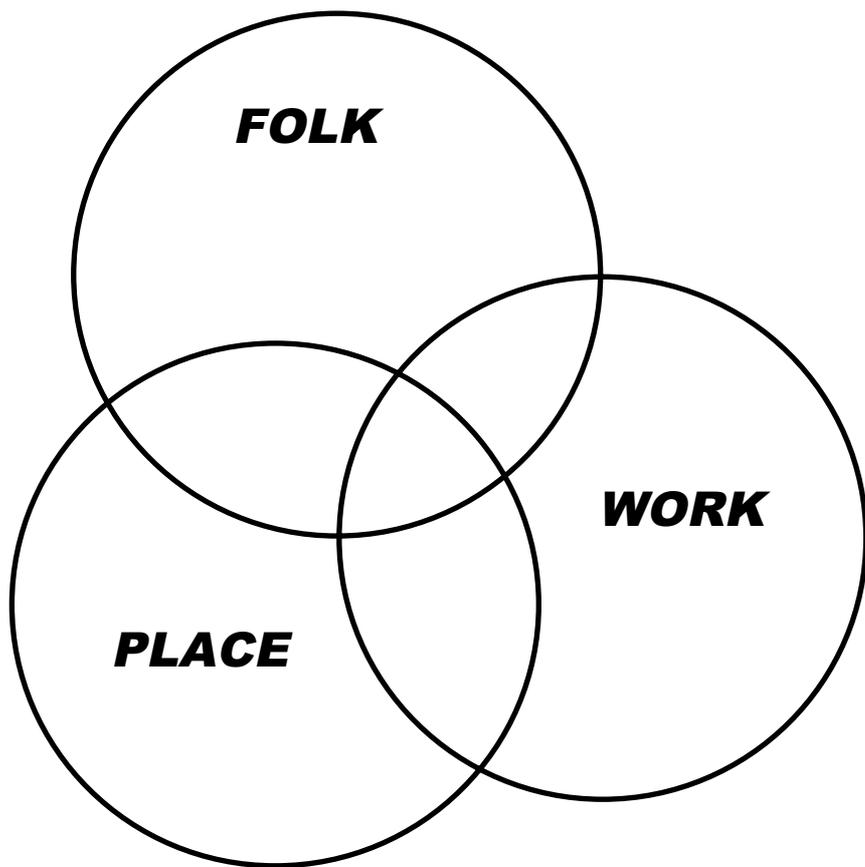
Why do a community sustainability audit?

- To find out about the community

- To find out how sustainable it is

- To identify injustices

- To gather information to set up a new project

- To benefit the community and other communities

- To promote sustainable development and environmental justice

What is meant by a sustainable community?

Sustainable development incorporates:

- **Folk**
  the cultural and social wellbeing, public health and participation in democracy

- **Work**
  the amount of financial and human resources, and its use, and the balance and quality of what people do in the community

- **Place**
  the surroundings in which people live and work, the natural and built environment, managed and unmanaged

- **Space**
  the ways in which our community affects and is affected by others and their environments, now and in the future.

What is environmental justice?

Environmental benefits, costs and resources are not fairly shared throughout society, and throughout the world.

environmental benefits:
everyone has a right to a decent home in decent surroundings, but this is denied to many;
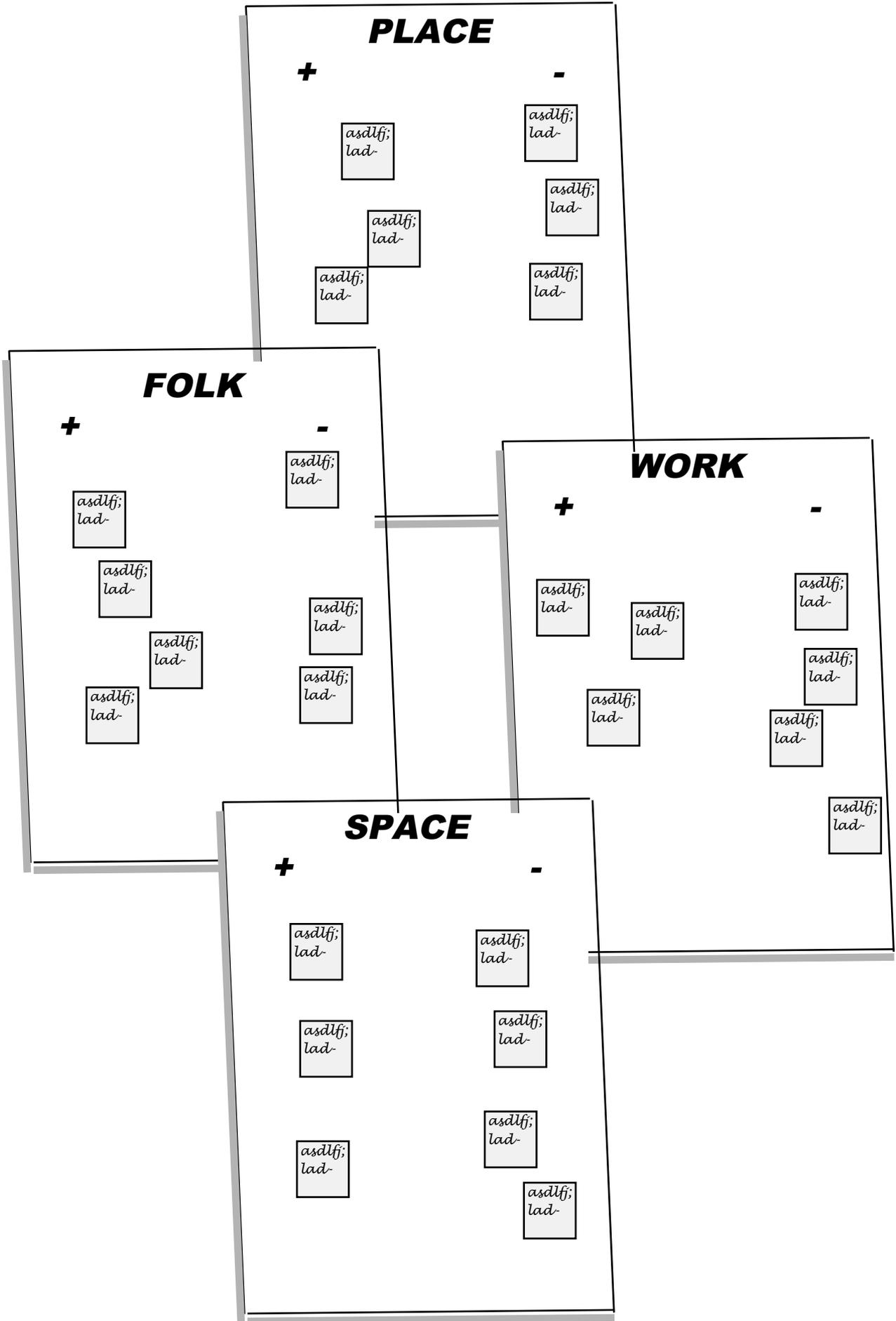
environmental costs:
we all throw away rubbish, but some communities live beside the landfill sites and incinerators;
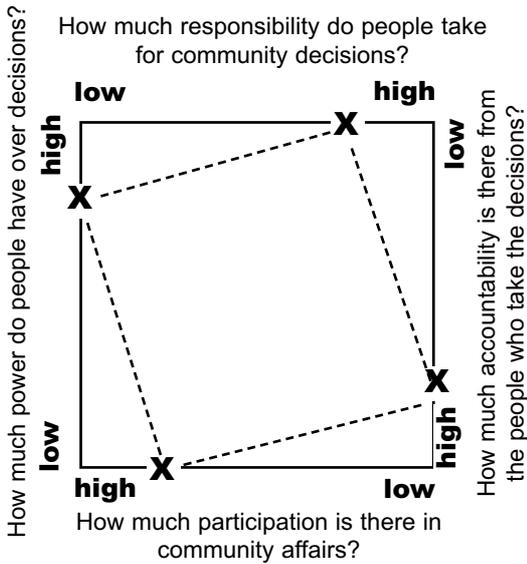
environmental resources:
people in Scotland use five times more scarce resources such as Aluminium, than people in ?

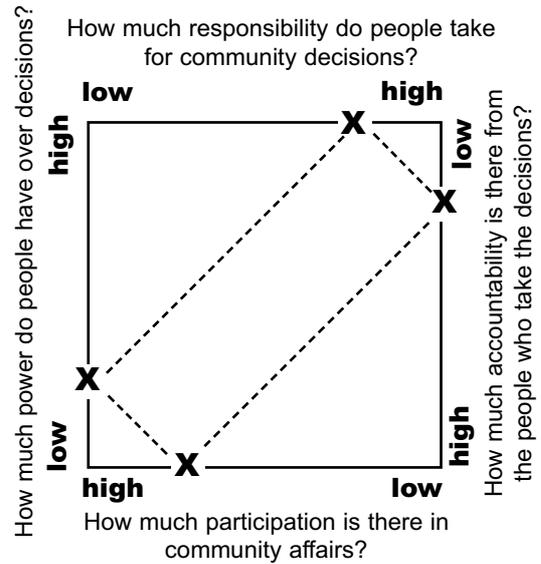Some communities benefit at the expense of other communities, usually without meaning to.

Environmental justice means
no less than a decent environment for all with no more than our fair share of the earth's resources.
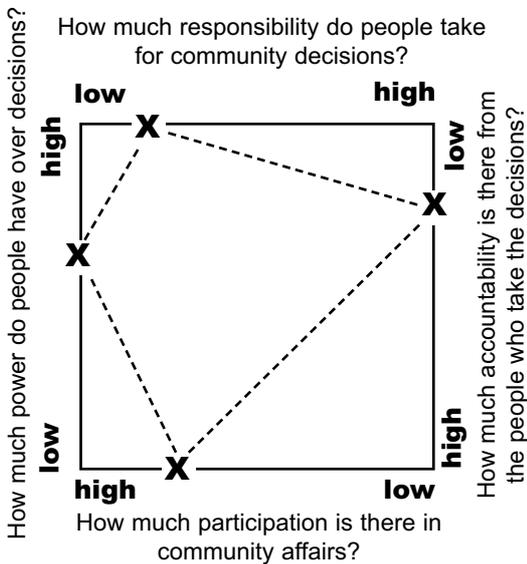
Example Democracy Quadrilaterals

Diagram 1 (top left)

How much responsibility do people take for community decisions?
low — high
How much power do people have over decisions? high / low
How much accountability is there from the people who take the decisions? low / high
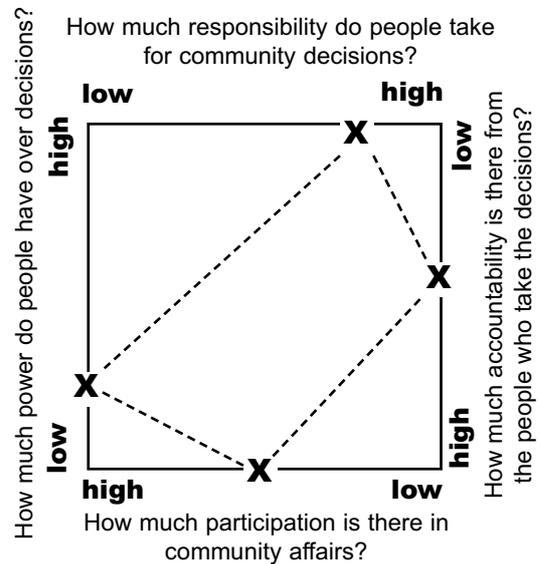How much participation is there in community affairs? high — low

This might be the shape of a very democratic community, where the responsibility for decisions is shared throughout the community, and all people are able to participate to a high level. The power to carry out the decisions is invested in those mandated to do so, who are also highly accountable to the community.

Diagram 2 (top right)

How much responsibility do people take for community decisions?
low — high
How much power do people have over decisions? high / low
How much accountability is there from the people who take the decisions? low / high
How much participation is there in community affairs? high — low

In this community, there is a high level of participation, and responsibility for carrying out decisions, but low levels of power to do so, and low accountability. Some community organisations are set up to encourage participation, but without the resources or mandate that would give them the power to act. This can lead to disillusion with the participatory process, well represented by the squashed shape of the box.

Diagram 3 (bottom left)

How much responsibility do people take for community decisions?
low — high
How much power do people have over decisions? high / low
How much accountability is there from the people who take the decisions? low / high
How much participation is there in community affairs? high — low

This shape might represent a community which has a high level of participation in those decisions which are democratised, and a fair degree of power to implement them. However, where decisions are mandated to others, such as elected representatives, they do not take responsibility for them, nor are they accountable to the community. Such a community might be quite unstable, as the community increasingly realises the capacity it has for calling those representatives to account, and either replacing them or taking more decisions locally.

Diagram 4 (bottom right)

How much responsibility do people take for community decisions?
low — high
How much power do people have over decisions? high / low
How much accountability is there from the people who take the decisions? low / high
How much participation is there in community affairs? high — low

This shape might represent a situation where well meaning but under-resourced community representatives are left with all the responsibility but no power. They will probably aim to be accountable and achieve some degree of participation, but might end up being scapegoated by the community through raising expectations which can't be delivered. An appropriate strategy for this community might be to identify where the power is held (perhaps the local authority or the business community) and make demands on them to improve their responsibility.

Appendix iv   Icons used in this handbook

See the inside front cover for icons used in all handbooks in the series. This handbook contains the following additional ones:

Types of knowledge (see Chapter 1.2)

People's   Unheard   Published   Discovered   Reflective
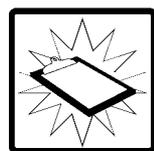knowledge   knowledge   knowledge   knowledge   knowledge

Theory

Background


Activity

Community Sustainability Audits

This handbook is part of the series *Redressing the Balance: working towards environmental justice in Scotland*. Each handbook in the series is designed to aid people working towards environmental justice within their own communities with a range of practical, detailed advice, together with pointers to other books, web sites and organisations.

While many people want to work towards a more sutainable community, it is often difficult to know where to begin. *Community Sustainability Audits* provides a step by step way to undertake an audit of your local community. It looks at ways to ensure the views of all people in the community are taken onboard, and that issues of sustainable development and environmental justice are kept at the heart of the process.

Redressing the Balance 2
Working towards environmental justice in Scotland
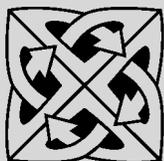
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