Managing community ecosystem services

Every generation writes its own description of the natural world, which generally reveals as much about human society as it does about nature.
*Donald Worster, 1977*

1 Background

The ecosystem approach

In 1998, the United Nations' Environment Programme, through the Convention on Biological Diversity (CBD) at its meeting in Malawi, launched the 'ecosystem approach' to conservation management as an international policy. The Malawi conference defined the ecosystem approach diagrammatically (Fig 1) as a cross-cutting process of nature conservation through four thematic areas linking ecosystems at a landscape level with culture. These themes of cultural ecology were categorised as 'marine and coastal', 'inland waters', 'agricultural', and 'forests', recognising that other themes were likely to be developed.

Fig 1 Major themes of the ecosystem approach (UNEP/CBD Malawi 1998)
http://www.cbd.int/doc/meetings/cop/cop-04/information/cop-04-inf-09-en.pdf
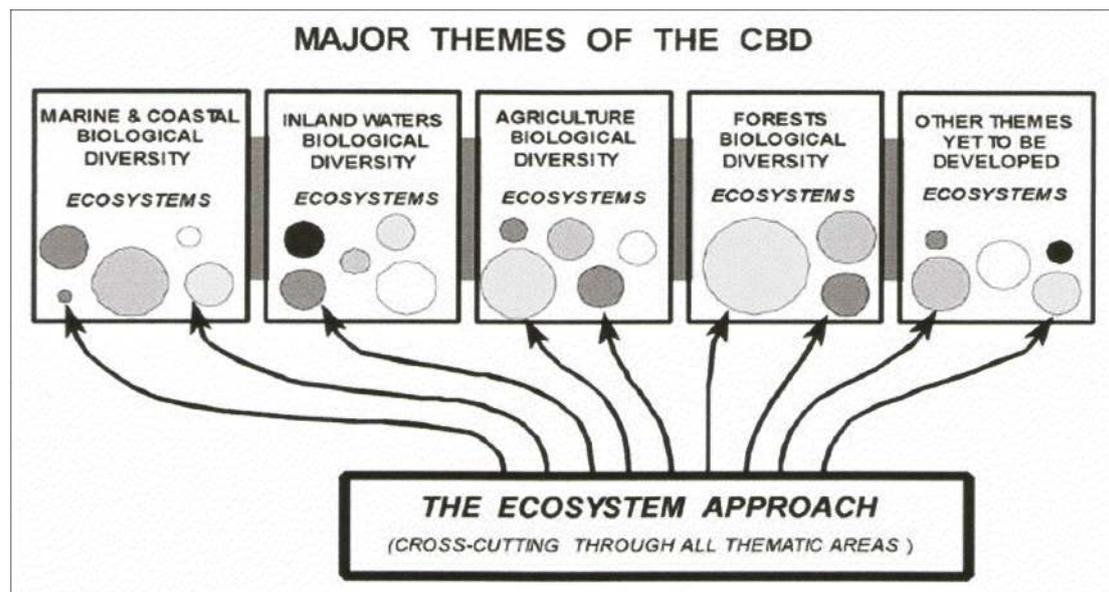
The four named themes in the original presentation of the ecosystem approach have now been augmented with the theme of 'urban biological diversity'. This theme of human ecology encompasses the two concepts of:

'habitat' = "address" (the environmental region or community inhabited by a population)
'niche' = "profession" (the way in which a population utilizes a habitat)

Over the past 40,000 years, humans have changed the ecological stage on which the evolutionary play is performed; changes which have been accelerated by population growth and urbanisation. To understand the new evolutionary play we must build a new stage with urbanised humans as central players. Like other ecosystems, urbanized populations are not the sum of their constituents. Traffic congestion, air pollution, and urban sprawl emerge from

local-scale interactions among variables such as bio-topography, transportation infrastructure, individual mobility patterns, propoerty markets, and social preferences. What makes urban regions different from other ecosystems is that in these regions human animals are a dominant component.

Though realizing that any population's niche is multi-dimensional in very complex ways, the human niche is characterised by the management of flows of resources into local communities that come from human-dominated ecosystems and provide a range of social benefits. The services can be categorised by the following spatial characteristics:

- they are provided and used locally;
- when they are provided locally they can be a form of global consumption, independent of proximity to the place of provision.

Cities, as the ultimate in urbanization, evolve as the outcome of myriad interactions between the individual choices and actions of many human agents (e.g., households, businesses, developers, and governments) and biophysical agents such as local geomorphology, climate, animal and plant colonization and natural disturbance regimes. These choices produce different patterns of socio-economic development, land use, and infrastructure density. They affect ecosystem processes both directly (in and near the urban centre) and remotely through land conversion, use of resources, and generation of emissions and waste. Those changes, in turn, affect human health and well-being. It has been proposed that *resilience* in urban habitats, that is to say the degree to which cities tolerate alteration before reorganizing around a new set of cultural structures and processes, depends on the citizen's ability to manage these ecological assets to maintain human well being.

The CBD recommended that the ecosystem approach should be taken because delegates decided that classical nature conservation had concentrated exclusively on rare uninhabited habitats, and failed to recognise that ecosystem functioning is vitally important for overall environmental quality in places where people live and work.

Because of the complexity of all themed areas identified at Malawi and their human interactions, the CBD stressed that managing the ecosystem approach needs to be adaptive, allowing for the modification of environmental management plans through 'learning by doing'. The CBD presented this adaptive management system diagrammatically to show that monitoring the outcomes of the plans provided feedback for adjusting the underlying objectives and hypotheses of the management of nature (Fig 2).

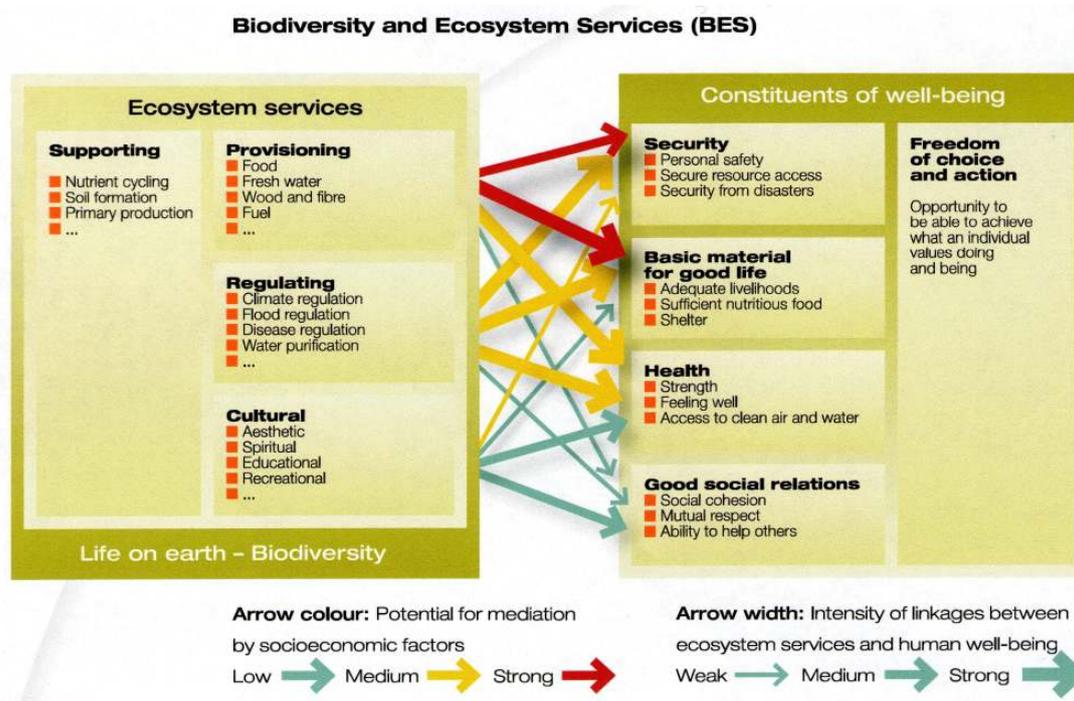Fig 2 Adaptive management a tool for research and management
http://www.cbd.int/doc/meetings/cop/cop-04/information/cop-04-inf-09-en.pdf
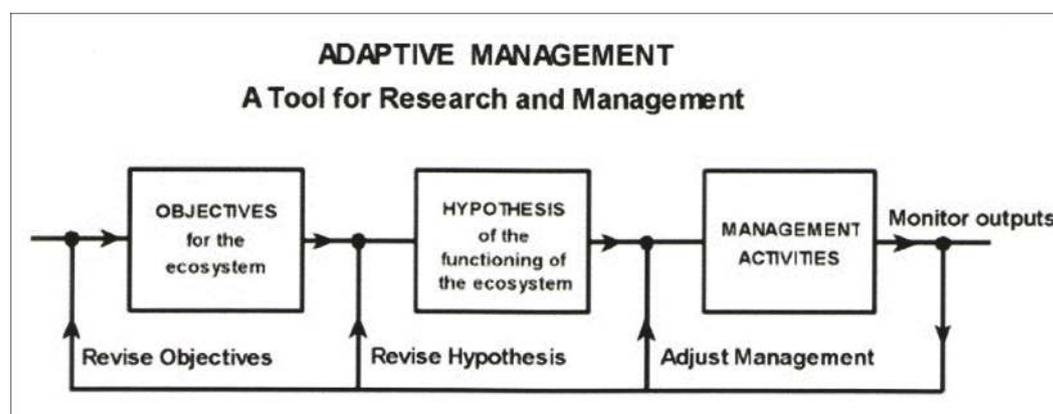
Concept of 'ecosystem services'

Fig 3 Biodiversity and ecosystem services (UNEP March 2008)
http://www.unepfi.org/fileadmin/documents/bloom_or_bust_report.pdf

Biodiversity and Ecosystem Services (BES)

Ecosystem services

Supporting
■ Nutrient cycling
■ Soil formation
■ Primary production
■ ...

Provisioning
■ Food
■ Fresh water
■ Wood and fibre
■ Fuel
■ ...

Regulating
■ Climate regulation
■ Flood regulation
■ Disease regulation
■ Water purification
■ ...

Cultural
■ Aesthetic
■ Spiritual
■ Educational
■ Recreational
■ ...

Life on earth – Biodiversity

Constituents of well-being

Security
■ Personal safety
■ Secure resource access
■ Security from disasters

Freedom of choice and action
Opportunity to be able to achieve what an individual values doing and being

Basic material for good life
■ Adequate livelihoods
■ Sufficient nutritious food
■ Shelter

Health
■ Strength
■ Feeling well
■ Access to clean air and water

Good social relations
■ Social cohesion
■ Mutual respect
■ Ability to help others

Arrow colour: Potential for mediation by socioeconomic factors
Low → Medium → Strong →

Arrow width: Intensity of linkages between ecosystem services and human well-being
Weak → Medium → Strong →

Humanity has always depended on the services provided by the biosphere and its ecosystems. Further, the biosphere is itself the product of life on Earth. The composition of the atmosphere and soil, the cycling of elements through air and waterways, and many other ecological assets are all the result of living processes—and all are maintained and replenished by living ecosystems. Humanity is ultimately fully dependent on these flows of ecosystem services, while buffered against environmental change by culture and technology, This is why the ecosystem approach has now been adopted world wide as the central platform for the management systems of broad based nature conservation to deliver the six ecosystem services to sustain human well-being.

This ecological approach to the human economy can actually be traced far back to Herman Reinheimer's book published in 1910 entitled 'Evolution by Cooperation: a Study in Bioeconomics'. His thesis was that all organisms are 'traders' or 'economic persons' and must work to earn their way by rendering services to one another. A community of organisms that ceases to participate in the exchange of ecological services "cannot escape impoverishment". In other words, the provision of services to humanity by ecosystems is actually part of a two-way obligation, which is expressed in the human economy through conservation management.

Reinheimer's ideas about 'ecosystem services' were taken up in the late 1970s primarily as a communication tool to explain the dependence of human society on nature. This in turn lead to UNEP's Millennium Ecosystem Assessment (MA), which was published in 2005. The MA marked a major milestone in the historical development of the ecosystem services concept. It sought a strong scientific understanding for how ecosystems affect human welfare and how they can be managed. Towards this end, the MA set out a

typology of ecosystem services under four broad headings: 'provisioning services', 'regulating services', 'cultural services' and 'supporting services' (Fig 3). The term 'ecosystem services' now incorporates firm economic dimensions and provides help to decision makers for implementing effective conservation policies to support human well-being in the context of sustainable development.

However, the exact terminology relating to ecosystems services is less important than the point that ecosystems provide valuable services for people. There is no single way of categorising ecosystem services, but they can be described in simple terms as providing:

- natural resources for basic survival, such as clean air and water;
- a contribution to good physical and mental health, for example, through access to green spaces, both urban and rural, and genetic resources for medicines;
- natural processes, such as climate regulation and crop pollination;
- support for a strong and healthy economy, through raw materials for industry and agriculture or through tourism and recreation;
- social, cultural and educational benefits, and well-being and inspiration from interaction with nature;
- a good sense of place, which encompasses the meanings that a given place, as a human ecosystem, holds for people and the attachment that people develop for that place as an ecological niche.

The MA community assessments were conducted across five continents in many different settings. The contexts ranged from remote, highly traditional people using ecosystems on a day to day basis, to recently democratized but poor semi-urban people who are forced to rely on ecosystems as safety nets during times of extreme poverty. At the other end of the spectrum were urbanized professionals who care about ecosystems and who want to manage them better for biological and cultural values. Apart from being in different countries and on different continents, the community assessments that formed part of the MA varied widely in terms of the livelihoods of the communities involved, the nature of the people's relationship with their natural resources, the cultural characteristics of the community and the biomes or ecosystems where people were situated.

Urban ecosystems

Regarding the importance of urban ecosystem services, more than half the world's population now lives in cities, compared with about 14% a century ago. The net flow of ecosystem services is invariably into, rather than out of urbanised places. These flows have increased even more rapidly than has urban population growth and the average distance of these flows, for example in supplying supermarket foods, has increased substantially as well.

Urbanisation radically modifies the ecology of landscapes where people live and work. The effects include alteration of habitat, such as loss and fragmentation of natural vegetation. Although novel habitat types are created, such as roadside verges and avenues of trees, people are cut off from rural experiences of seeing and doing. Resource flows are altered resulting in reduction in net primary production, increases in regional temperature and degradation of air and water quality. Many urban ecosystems experience more frequent disruption with the alteration of species composition, species diversity, and proportions of alien wildlife, particularly plants and pathogenic microorganisms. Urban biodiversity, as measured by the number of different species living in cities, is often higher than that of rural regions. This is perhaps due to agricultural practices that favour turning large tracts of rural land over to monoculture of specific food plants and animal species. However, there is also a tendency for urban social inequity to be matched with inequity in the environmental quality of the urban landscape.

ICLEI, an international organisation that represents local governments for sustainability, mounted the first world congress on 'Resilient Cities' in 2010 and included biodiversity and related ecosystem services in their talks as a cornerstone for climate change adaptation. Members of ICLEI have made a commitment to sustainable development through the Local Government Biodiversity Roadmap and Local Action for Biodiversity (LAB).

The EU supports such further local authority commitment and awareness-raising of the importance of ecosystem services. For example, by honouring the most sustainable cities with the European Green Capital Award, and establishing the legal framework to protect biodiversity through instruments such as the Natura 2000 network under the EU Habitats and Birds Directives, air quality directives, the Water Framework Directive and the development of a soil directive.

The EU is also developing a strategy on green infrastructure to protect biodiversity and ecosystem services in the 83 % of the EU territory falling outside the Natura 2000 network, including most parts of cities. The green infrastructure concept brings considerations for biodiversity and ecosystem services to the heart of wider spatial planning. It will be key to further strengthening sustainable urban development and related EU-wide spatial policies and actions like the urban dimension in regional policy, the EU Territorial Agenda and the Leipzig Charter on Sustainable European Cities.

The key messages from the EU about managing ecosystem services are:

- In Europe, where the overwhelming majority of people live in urban areas, tackling the interlinked challenges between biodiversity and its network of towns and cities is crucial to help halting biodiversity loss.
- Urbanisation can be an opportunity or a threat for biodiversity. Seizing the opportunity demands a mix of high quality urban green areas with dense and compact built up zones.
- Quality of life in cities depends on the existence of sufficient attractive urban green areas and corridors for people and wildlife to thrive. But equally important for urban life are the ecosystem services delivered by biodiversity in green areas outside city boundaries. This will entail the cultural shaping of ecosystem services to deliver cultural assets to communities and neighbourhoods.
- Although biodiversity and ecosystem services are global common goods, local and regional authorities have the legal power to designate conservation areas and to integrate biodiversity concerns into their urban and spatial planning. Public commitment is apparent in the numerous participatory Local Agenda 21 processes aimed at building sustainable communities that identify biodiversity as a precondition for resilient cities.
- Besides protecting areas, it is essential to integrate biodiversity into spatial planning at regional and local levels, including cities. Developing the European Green Infrastructure concept presents an opportunity to do this.

However, there is relatively little research on how urban ecosystems can be designed, built, maintained, and adapted to enhance ecosystem services such as water filtration, climate moderation, flood regulation, and a variety of cultural ecosystem services, including local heritage which is a record of past ecosystem services. Furthermore, cities cast large ecological shadows because they import products and services from distant places.
http://www.aibs.org/bioscience-press-releases/resources/Raudsepp-Hearne.pdf

3 Community ecosystem services plans

A community ecosystem services plan (CESP) is essential for managing the integrated delivery of ecosystem services to communities, neighbourhoods and families. CESPs are vital to the cost-effective integrated inputs of top down resources into communities. They are about the transfer of the ecosystem services approach into environmental management, although the type of conservation management system necessary to achieve this has not been sufficiently addressed so far.

Fundamentally, a CESP functions as a project database for channelling governmental/ private sector resources into joint local authority community actions and records progress towards outcomes that enhance and maintain local well-being. In this managerial sense, promoting the ideas of ecosystem services falls within the guidance to local authorities on implementing the UK's Biodiversity Duty according to the Natural Environment and Rural Communities Act of 2006. By promoting understanding and awareness of community ecosystem services, local authorities can meet their Biodiversity Duty by helping to encourage land managers, businesses, educational services and the general public, to act in ways that benefit biodiversity conservation.

Fig 4 Local authority guidance on the 'Biodiversity Duty'
http://archive.defra.gov.uk/environment/biodiversity/documents/la-guid-english.pdf
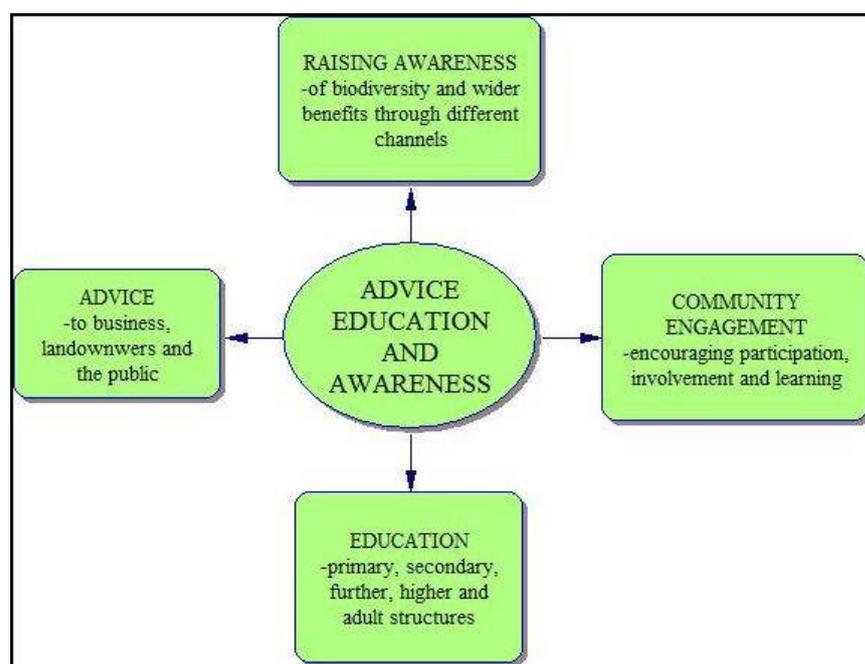
The role of local authorities in providing external advice, education and awareness raising activities, can be split into four core areas (Fig 4). Raising awareness of ecosystem services and biodiversity run hand in hand as a cross-cutting theme that relates to all local authority functions, and is of significant importance in facilitating the implementation of the Biodiversity Duty. The core functions have close links and are also inter-related. For instance, many activities aimed at engaging the community are also likely to raise awareness of biodiversity, and may provide opportunities to link with local schools, environmental NGOs or public advisory services.

The key messages to local authorities regarding their Biodiversity Duty are:

• Local authorities have an important role in promoting understanding and awareness of local ecosystem services, which underpins a wide range of biodiversity conservation activities.
• Having regard for the conservation of biodiversity involves incorporating messages about the place of biodiversity messages into a wide variety of interactions with land managers, businesses, other organisations and the general public.
• Methods include the operation of the education system, provision of advisory services, promotion of community engagement in ecosystem services, and raising awareness of their importance in everyday life through communications with the public.

4 Cultural shaping of ecosystem services for human well-being

Culture is the result of the two-way interaction between people and environment in search of ecological assets. The interaction is a source of creativity, imagination and innovation. It is a driving force for new and sustainable designs for life and a spur to economic development. In this respect, the current pattern of ecosystem services is the result of changes in the environmental knowledge, practices and beliefs that have occurred over the last 70,000 or so. Between 50 and 100,000 years ago the human population began to grow and spread, first in Africa and then across the world. With this expansion came a diversification of their languages, subsistence systems, patterns of social organization, and other cultural features. As more complex societies began to evolve about 5,000 years ago, subcultures— classes, castes, occupational groups, religious faiths —began to diversify *within* cultures. In the very long run, cultures actually created the environments to which its members must adapt genetically. This leads to the co-evolution of genes with culture because culture permits adaptation to a wide range of environments.

Adaptation results in the cultural reshaping of the Earth's surface through the processes of gathering ecological assets*. One can look at this cultural moulding of landscape from the standpoint of civilizations and nations all the way down to hamlets, neighbourhoods and individuals. Within this geographical spectrum of ecosystems and services it is possible to discern two levels of ecosystem management. On the one hand ecosystem services are provided that are clearly cultural assets at the neighbourhood and family level. On the other hand, there are natural assets of the wider landscape with which the local cultural assets merge and overlap. This distinction maps a typology of ecosystem services, which can be used to define the geographical elements of a conservation management system. This map is essential to trace outcomes through CESPs. In this connection, a CESP consists of scheduled actions, which are held in a database to enable a manager to track multiple projects to and from selected ecosystem services to people in the places where they live.

The smallest focal point for delivery of ecosystem services as cultural assets is the neighbourhood, which is increasingly conceptualised spatially as the square mile that people accept as being 'their place'. It is sometimes easy to take for granted what one values in neighbourhood and the changes happening around it can seem hard to influence. To make it easier, the 'Talking About Your Place' toolkit was produced by Scottish Natural Heritage to help address these issues: it can help people gain a better understanding of their local place and develop ways of using this understanding to shape and enrich local plans and decisions about the provision of ecosystem services. It may also encourage celebrations of what's special about place and stimulate schools to work with the people and places they serve to produce community ecosystem services maps.
http://www.snh.gov.uk/docs/B1117673.pdf

In Wales, guidance for people to evaluate their square mile has been produced by the Design Commission for Wales under the following themes, which are fundamental to making a community well supplied with ecosystem services where people are content to live and work.

- context and character;
- movement;
- public realm;
- built form;
- materials and details.

Both approaches take the view that cultural heritage is an ecosystem service because it can contribute to a sense of place by making people aware of past ecological interactions of those who came before and have left evidence of their way of life in the local landscape.

5 Making management maps

Fig 5 Cultural reshaping of ecosystem services for human well-being
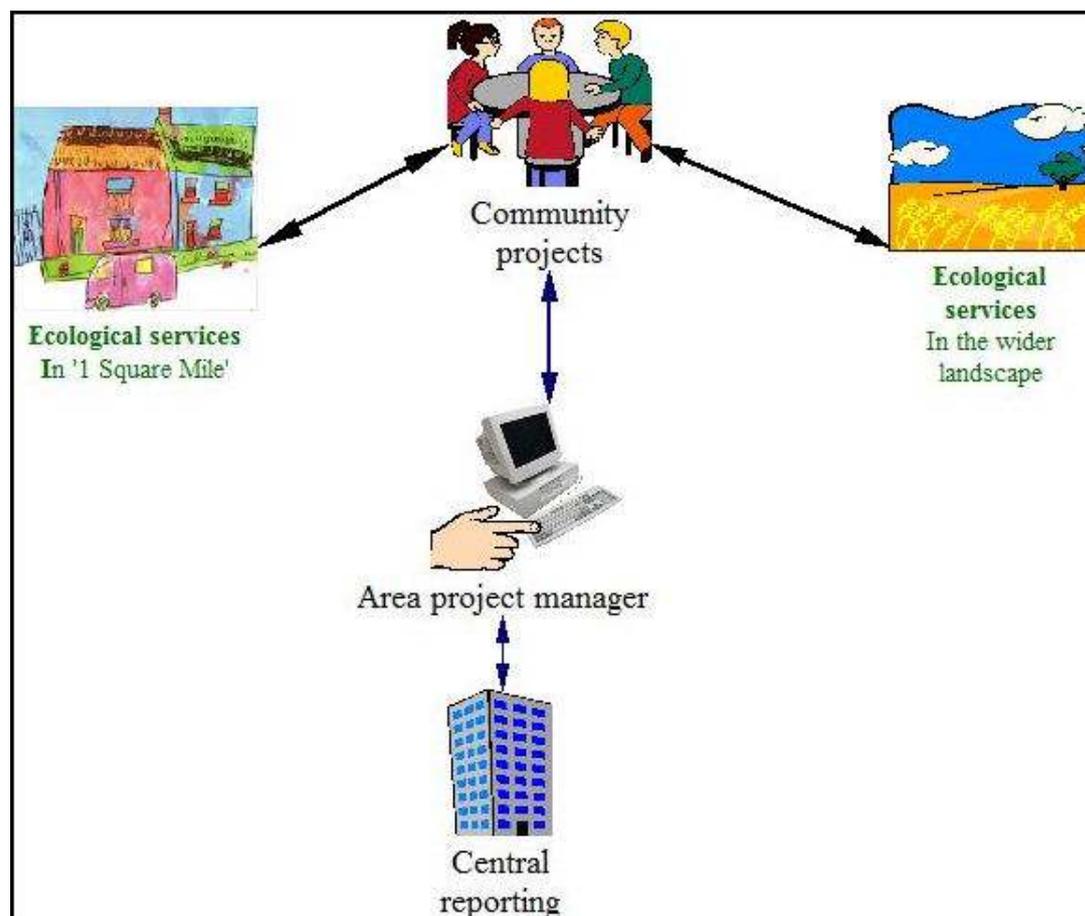
An example of a provisional typology for mapping community ecosystem services is set out in Figs 5-7. It addresses the need for citizens to become more innovative and resilient but also more engaged with the management of ecosystem services by becoming more resourceful and pro-social. As a set of pathways to action it is essentially a system to help build bridges between the kind of society we say we want to live in, and the kind of society

we do live in. Only by overcoming this 'social aspiration gap' will communities be better placed to achieve more environmentally sustainable lifestyles facing them. To be cost effective and efficient means working with existing community organisations and through established communications channels based on current ways of thinking and doing things. *http://www.thersa.org/__data/assets/pdf_file/0004/369490/The-Ecology-of-Innovation.pdf*

Taking as a starting point the local authority's biodiversity duty, a potential communication channel would be through the existing structure set up to address this duty, which is expressed mainly in the production of the local biodiversity action plan and reporting on the state of local habitats and species to central government. To extend this current duty to the management of ecosystem services, a suitably trained area project manager within the biodiversity section of the local authority would be responsible for promoting and resourcing action plans for community projects and reporting on their outcomes. These projects would address the need to manage people's interactions with ecosystem services in the community's one square mile and the wider landscape (Figs 6 and 7).

Fig 6 Environmental services as cultural assets for communities neighbourhoods and families


The CESP management system could help bring together the principles of ecosystem services, which focus on life support systems, with more non-material services such as cultural assets and tourism. Enhancing the local production of ecosystem services that support human well-being can enhance the quality of life in cities while reducing the

environmental demand on distant ecosystems. However, to achieve such a goal requires the integration of ecosystem service concepts within engineering, architecture, and urban planning.

There is no standard way of making connections between citizens and the management of the ecosystem services upon which they depend for well-being. However, there can be no doubt that when community-led projects are well connected, both into their communities and into higher level policies and resources of government, the project team is more efficient. It has more detailed and locally specific knowledge about needs and how they can be met and also about local assets and resources. Local knowledge can identify and fill very specific gaps in provision that might be missed or be unappealing to larger scale providers.   Local community organisations guided to operate their own CESPs can be better at generating new ideas from different sources by accessing people that are not usually reached. They are able to motivate those around them by building on existing networks and established, trusting relationships to meet their own planning goals.

Fig 7 Environmental services as natural assets in the wider environment
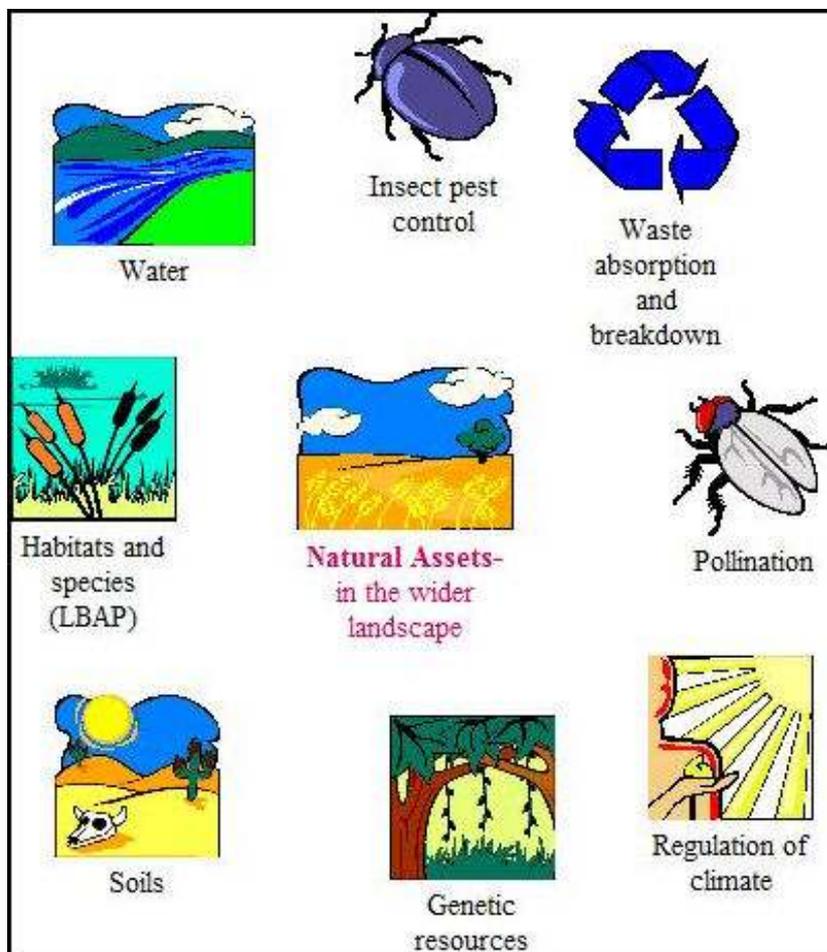
6 Planning for a good 'sense of place'

Improving your ecological niche

It has been pointed out above that by defining a 'sense of place' individuals are advertising their ecological niche. They encompass the meanings that a given place holds for them and the attachments that they develop for that place. Feelings about ecosystem services are expressed when people say they feel good about their neighbourhood. When they feel bad about where they live, the ecosystem services elements have come to be known as 'front door' issues of environmental poverty' and the 'back kitchen' issues of economic poverty.

Environmental justice seeks solutions to front door issues of environmental poverty, which are usually defined in the 'square mile' where people live move and socialise. The objective of an action plan is therefore to increase the proportion of people who feel good about their square mile. Success in achieving this objective is measured with before and after social surveys. Valid and reliable surveys for measuring sense of place exist and have been tested successfully as assessment instruments. Suitable performance indicators of the plans fall into five categories:

> i Sociability, which includes:
> > Number of women, children and elderly
> > Social networks
> > Volunteerism
> > Evening use of the neighbourhood
> > Street life
>
> ii Uses and activities, which includes:
> > Ownership of local business
> > Land use patterns
> > Property values
> > Rent levels
> > Shops
>
> iii Comfort and image, which includes
> > Crime
> > Sanitation rating
> > Littering/refuse collection
> > Condition of buildings
> > Trees, gardens and grass
> > Graffiti
> > Local history/heritage highlights
> > Signage
> > Recreation/play areas
> > Creative arts groups
>
> iv Access and linkages, which includes
> > Traffic
> > Public transport
> > Pedestrian and cycling activity
> > Condition of roads and pavements
> > Parking patterns

v Inputs of locally produced energy and carbon
                Solar
                Wind
                Food

Success in creating a good sense of place depends on bringing many different providers together to address one or more of above factors in an action plan. The factors can be monitored from time to time through neighbourhood surveys to measure the effectiveness of plans dealing with specific issues.

Getting networked

A useful definition of community is 'a group of people with shared experiences and interests'. These may include location, lifestyle, belief, age, race, class, gender etc. Many people these days are members of virtual communities using social media to maintain contact and develop ideas**.** The ultimate in social networking for action is to engage in a community action plan**.**

Social networking is the process of initiating, developing and maintaining friendships and collegial or project sharing relationships for mutual benefit. Current discussions surrounding social networking deal with web-based or technology-mediated tools, interactions, and related phenomena, but social networking really takes place in many forms, including face to face. Several studies have shown that nonprofit organizations have not been able to use websites as strategic, interactive stakeholder engagement tools. Perhaps this was due to not having the know-how or the staff to create more interactive sites with feedback options and discussion boards. However, the advent of social networking sites like Facebook and Twitter have taken away this excuse. These sites are free and have built-in interactivity. Any organization big or small can start using social media for building an online network of friends and followers with whom they are in almost real-time contact. The newer social media applications present communication tools for organizing local action plans that differ dramatically from organizationally supported websites.

A community action plan is a road map for implementing community change by identifying and specifying WHAT will be done, WHO will do it and HOW it will be done. In other words, the action plan describes what the community wants to accomplish, what activities are required during a specified timeline and what resources (money, people and materials) are needed to be successful. Success is measured against suitable performance indicators associated with the plans objectives.

Much technology-facilitated social networking is done in the form of person-to-person exchanges that can be classified as question and answer, point and counterpoint, announcement and support.

Technologies that facilitate social networking tend to emphasize ease of use, spontaneity, personalization, exchange of contacts, and low-end voyeurism. .Some technologies that are often considered social networking technologies may not be socially oriented in and of themselves, but the communities that form around such technologies often demonstrate key elements of social networking (for example, the discussion communities that form around collaboratively authored wiki content).

Online community networks are often developed and deployed to supplement residential communities in an effort to revitalise and grow neighbourhoods and to revive civic engagement and local community identity in society. In this context, the ubiquity of the Internet enables and encourages users to pursue 'personalized networking' which leads to the emergence of private 'portfolios of sociability'. 'Proximity' is the factor in on line residential communities, which produces networked individualism. This gives online residential

communities a competitive advantage over dispersed online communities. Residential networks allow residents to interact online and to continue developing online interaction offline, in real life and face to face. This offline and place-based dimension introduces challenges to the design, development and rollout of online community networks.

Reaching a critical mass of users is considered to be the key criterion of success and has been reported as one of the most common stumbling blocks: "If you build it, they will not necessarily come". However, other studies have shown that a critical mass of interconnected users alone is not sufficient for a community network to live up to higher expectations, such as increasing social capital in the community, fostering sociability and establishing community identity. Those geographic communities already rich in social capital may become richer thanks to community networks, and those communities poor in social capital may remain poor, or simply put, connectivity does not ensure community. Something else has to be done. The Internet neither destroys nor creates social capital, people do, and the Internet will not *automatically* offset the decline in more conventional forms of social capital, but it has that potential.

Some examples of free popular social networking technologies include:

- asynchronous discussions via discussion boards or newsgroups
- instant messaging, e.g. MSN, AIM, and ICQ
- text-messaging or SMS
- message logging and sharing, such as Twitter
- document sharing and controlled collaborative authoring, such as Zoho or Google Docs & Spreadsheets
- loosely structured collaborative authoring and information sharing, such as wikis.
- photo sharing, such as Flickr and Picasa
- video sharing, such as YouTube
- blogs (life-sharing, news analysis, and editorializing)
- online communities, such as Nings, Facebook, etc.
- Second Life - sort of a combination of many of the above communication and collaborative tools

The scope of this involvement is potentially very wide, but obvious areas where local communities in particular could better contribute include:

- Being able to view their place via interactive mapping.
- Being able to interrogate individual areas to access further information held in the management system.
- Being able to submit and share comments about a site with other community members using social media.
- Being able to submit observations and sightings in a way that they can become part of the on-going site management & monitoring data.
- Being able to 'register' in some way as a volunteer and to undertake more planned such as site inspections, simple practical tasks.

The only realistic means for the wider community to access and interact with a local action plan is via a web connection. To do this a web interface needs to be built and this interface has to communicate with the core plan set up as an interactive database. This type of communication is achieved through an 'API' – an application programming interface. In addition to the web pages and the API, it is also necessary to further develop the core to 'recognise' community users (Fig 8).

Fig 8 Model for an action plan database with an application programming interface
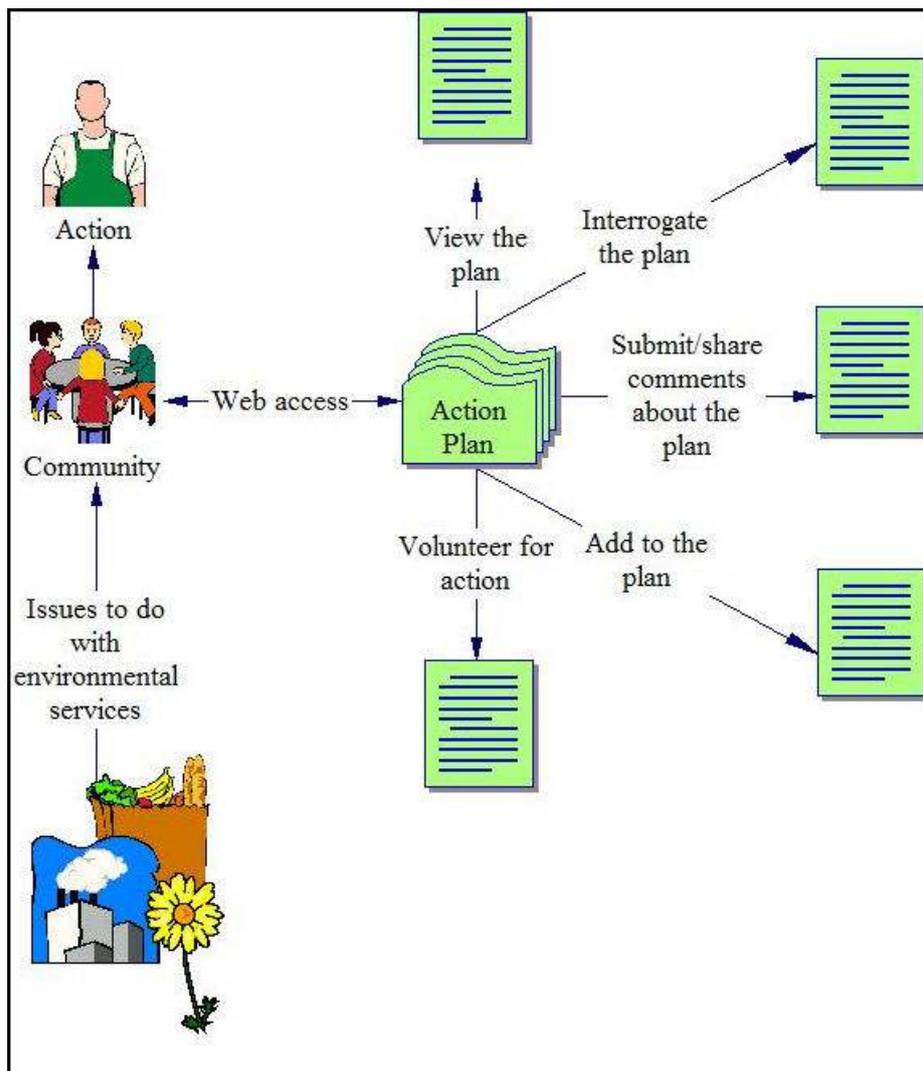
7 Ecoscopes and action plans

An 'Ecoscope' was defined in the early 1990s by a group of teachers in Wales as an important tool for demonstrating how to make community action plans. Ecoscope is an acronym of 'demonstrating the '*environmental control of species*' by '*creating operational planning exhibitions*'. The teachers decided that creating a biodiversity action plan for an ecological microcosm is a good way to introduce people in the community served by the school to the logic and practice of planning environmental improvements. This is because the increase and maintenance of local biodiversity is the central principle of sustainable development on all geographical scales and is closely associated with the establishment of a sense of place. A community ecoscope could be aimed at tidying up waste ground, tree planting etc. Once there was confidence in action planning for biodiversity, community plans could be made for other environmental issues of the neighbourhood.

As originally conceived, an ecoscope referred to a small, relatively simple managed ecosystem, such as a grassy patch, a group of trees or a pond, created in school grounds or a public open-air environmental centre. The bigger idea is that the management logic can then be adopted by people to make plans to improve the quality of their own lives, the communities in which they live, and societies of which they are a part. Within this broader

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context, an ecoscope is an action plan for any kind of community issue packaged as an educational/ training resource to be used by others as a practical template.

Taking local responsibility for making such action plans by communities is now a part of the modern localism agenda of governance, which promotes the idea that bottom up control of environmental improvements should be in the hands of local people. This is exemplified by the following statements from 'government', 'community' and 'education'. Making ecoscopes therefore takes neighbourhood environmental appraisal to the operational level of long term management to meet a community's objectives by scheduling work to be done and monitoring its outcomes in relation to the original objectives.

A national government view
In 2010, the Social Justice Department of the Welsh Government produced an action plan to develop a high quality and responsive community development sector in Wales, with a focus on bringing about change founded on social justice, equality and inclusion. The aim is to strengthen Wales's economic performance and transform the life chances of people in Wales. This requires a community development workforce that can support the creation of an inclusive society that encourages individuals to achieve their potential and contribute to society and their communities. This is the view held by government and by communities themselves.

A local government view
Wrexham Borough Council Leader Aled Roberts has illustrated through a series of examples how his own local authority had benefited from involving residents in setting up and running local services. This experience also demonstrated that there is no single model of neighbourhood regeneration because communities are best placed to decide how it should be done. Quoted from ''Bringing Neighbourhood Centre Stage in Wales; 2008'

http://www.jrf.org.uk/sites/files/jrf/1910-regeneration-neighbourhood-involving.pdf

A community view
'Come Outside!' is a new Wales-wide scheme, which enables communities to gain the benefits that the outdoors has to offer. By addressing community needs and aspirations through outdoor activities, participation becomes valued and the benefits are sustained. Dave Horton, Senior Community Development Worker Ely/Caerau, where this scheme was trailed in Cardiff, said:

"This project is aimed at uniting the communities of Ely and Caerau and giving people the confidence to enjoy their local environment.

"It also offers the local community a chance to learn new conservation skills such as planning and managing green spaces."

A school view
"Schools should engage with families and the broader community, including businesses, other statutory agencies and the voluntary sector. Schools also need to work with other agencies to address the well-being and citizen aspirations of individual learners. When schools work with other agencies to deliver joined-up programmes, the full range of resources and expertise can be harnessed to deliver improved learner outcomes and well-being."

http://www.raise-wales.org.uk/centralsouth-resource-maw

General logic model for an Ecoscope

A logic model is a story or picture of how an effort or initiative is supposed to work. The process of developing the model brings together stakeholders to articulate the goals of the program and the values that support it, and to identify strategies and desired outcomes of the initiative.

As a means to communicate a program visually, within a coalition or work group, and to present it to external audiences, a logic model provides a common language and reference point for everyone involved in the initiative.

A logic model is essential for collaborative community planning, implementing a plan and evaluating the initiative. It helps stakeholders in the neighbourhood to agree on short-term as well as long-term objectives during the planning process, decide on activities and actors, and establish clear criteria for evaluation during the effort. When the initiative ends, it provides a framework for assessing overall effectiveness of the initiative, as well as the activities, resources, and external factors that played a role in the outcome.

Fig 9 General community planning logic http://ctb.ku.edu/en/default.aspx
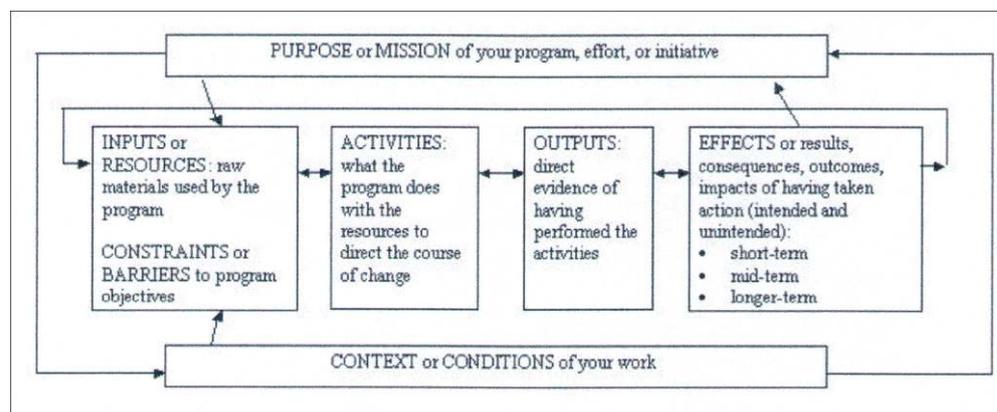
To develop a specific model, it will probably be necessary to use both forward and reverse logic. Working backwards, a start can be made with the desired outcomes and then identify the strategies and resources leading to projects that will accomplish them. Combining this with forward logic produces a pathway to produce the desired effects (Fig 9).

The model will probably be revised. This is precisely one advantage of using a logic model. because it relates program activities to their effect,. It helps keep stakeholders focused on achieving outcomes, while it remains flexible and open to finding the best means to enact a unique story of change. For these reasons it is important for beginners to refer to the work of others as a template.

An understanding of planning logic is necessary for all human activities, from baking a cake to running a multi-national corporation. The basic procedure for making a community action plan is to set a measurable objective for a feature of the neighbourhood that raises a local issue detracting from a sense of place, schedule the work to be done to meet the goal, and report what was actually done. Monitoring is then carried out to check how close the outcome is to the objective. Plans are essentially diaries of what to do, what was done, what the outcome was and what remains to be done.

Planning

Planning can be thought of as a process that prioritises ideas, assesses their relevance and potential, and answers the following sequence of practical questions that are going to determine future actions which will take place in the form of projects.

- What is the goal and how will we reach it?
- What are the required resources and how much will everything cost?
- What does the project timeline look like?
- How will we check if the project is working and successful?

The necessary actions are then scheduled to answer five essential questions which define the action plan.

1. Why are we here?
2. What have we got?
3. What is important?
4. What do we want?
5. What must we do?

The most important question is 'What do we want?' because it sets the management objective. It is answered in the form of a vision statement written in plain language so that everyone is aware of the desired outcome of management.

For example, the grass cutting action plan for a housing estate with roadside verges would have a vision statement something like:

"The grass has been uniformly and evenly cut including perimeter edges and obstacles. Grass length is longer than 40 mm and shorter than 70mm. Edges are trimmed and not encroaching hard surfaces, hedge lines or bedding areas. Adjacent paths and bedding areas are kept clear of clippings There are no bare patches. All litter was removed prior to mowing. There is no leaf fall, litter, debris or dog fouling"

With regards to the type of ecosystem to miniaturise for an Ecoscope, grassland and coppiced woodland are probably the easiest to manage. Grassland has the advantage in that mechanical cutting can be aimed at producing different grass heights and regular cutting provides a dynamic seasonal element to the work schedule http://grass-scan.wikispaces.com/home

Logic

The planning logic of Ecoscopes is a development of the Scottish community planning framework entitled LEAP. LEAP stands for 'learning, evaluation and planning' designed by the Scottish Community Development Centre (SCDC) to support a partnership approach to achieving change and improvement in the quality of community life (Fig 10).

The emphasis of the Ecoscope planning logic is the LEAP logic augmented with the feedback from performance indicators which is central to the Conservation Management System (CMS) used by UK Environment Agencies, Wildlife Trusts and Local Authorities to make and record plans for nature sites (Fig 11).

The Ecoscope logic is extended from biodiversity plans to other community issues by answering the following seven questions .

> 1 What are the issues that bug the community?
> (*Identifying the need*)
> 2 What does the community want to see happen?
> (*Setting the vision and the specific objectives*)
> 3 What are the barriers preventing the community getting where it wants to be?
> (*Determining the limiting factors of the objectives*)
> 4 How will the team know when they have overcome the barriers?
> (*Setting measurable outcomes as performance indicators*)
> 5 What work has to be done?
> (*Scheduling resources and actions*)
> 6 What progress is being made?
> (*Monitoring by measurement of outcome performance indicators*)
> 7 Who needs to know the outcomes?
> (*Feedback reports to the team, partners and funders*)

In this wider view of community action the SCDC says a community planning framework should be useful to community organisations; local authorities; voluntary sector organisations; and policy makers, particularly those involved in community well being programmes, community planning partnerships, community regeneration programmes, and social inclusion and social justice initiatives.

- It encourages critical questioning to ensure that all those with a stake in taking action for environmental improvements are working to a shared agenda.
- It emphasises self-evaluation, encouraging participants to take joint responsibility for planning and evaluation throughout a project or programme.
- It is a learning-based planning and evaluation framework to support good practice in community working to improve the quality of community life.
- It helps identify the difference a community hopes to make, to plan more effectively, work in partnership with each other and other members of the community, and learn the lessons from the experience.
- The framework can be used in different contexts, to support the work of different sectors, and at project, programme and policy level. It is particularly useful as a tool to support partnership working and the production of community action plans.

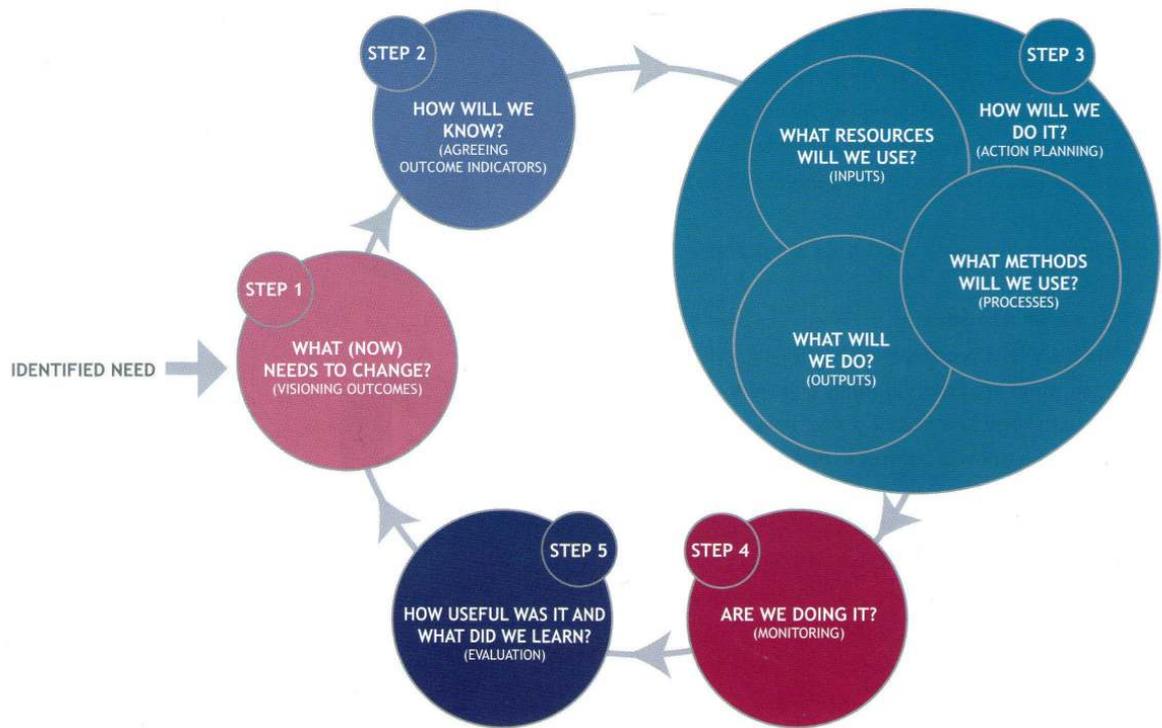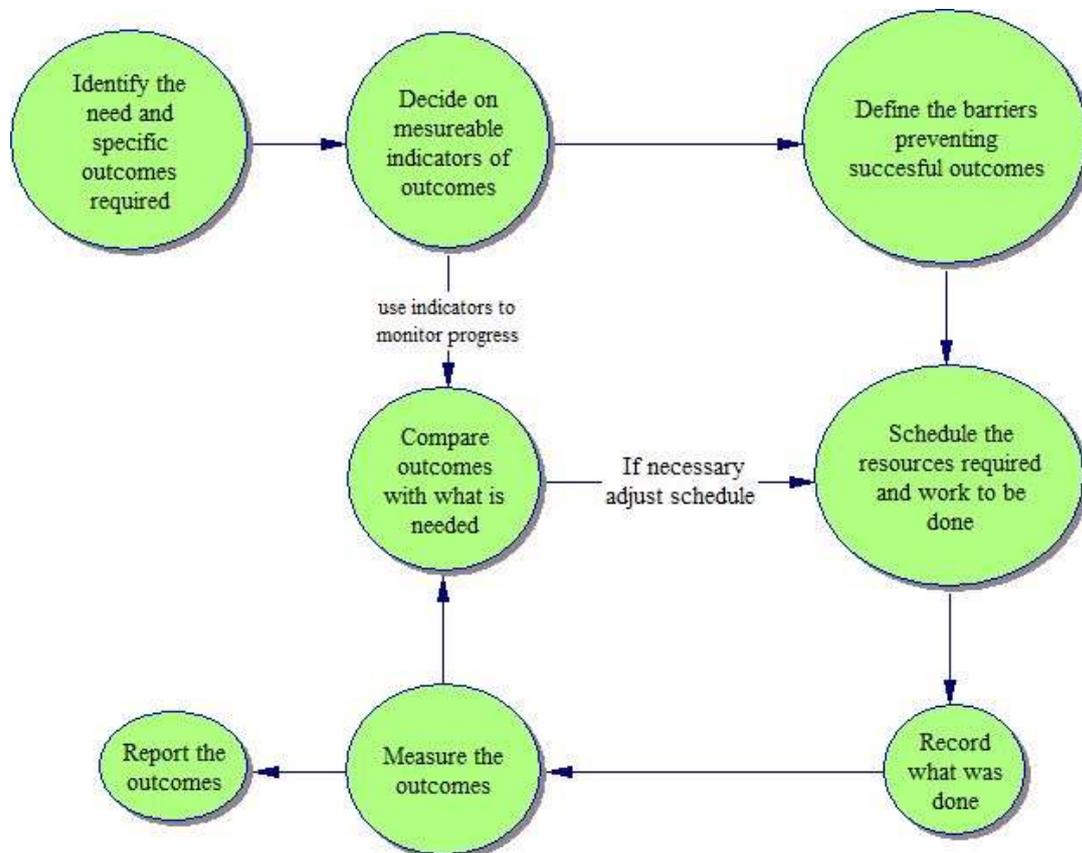Fig 10 The original LEAP logic diagram (2005)

Fig 11 The Ecoscope logic diagram

The community action cycle

Fritz Schumacher (Small is Beautiful) said you have to start at the human level if you want to change society and build a system to engage and enable community action plans. It is at this community level that ideas and needs are generated by individuals and groups to improve their sense of place. In this context, Schumacher argued that the first task of government and partner organisations is to recognise people who are already doing something about it (by following the red route in the following diagram), to support them and ask: what do we need to do to ensure that more of this good work happens elsewhere ?

Fig 12 The community action cycle
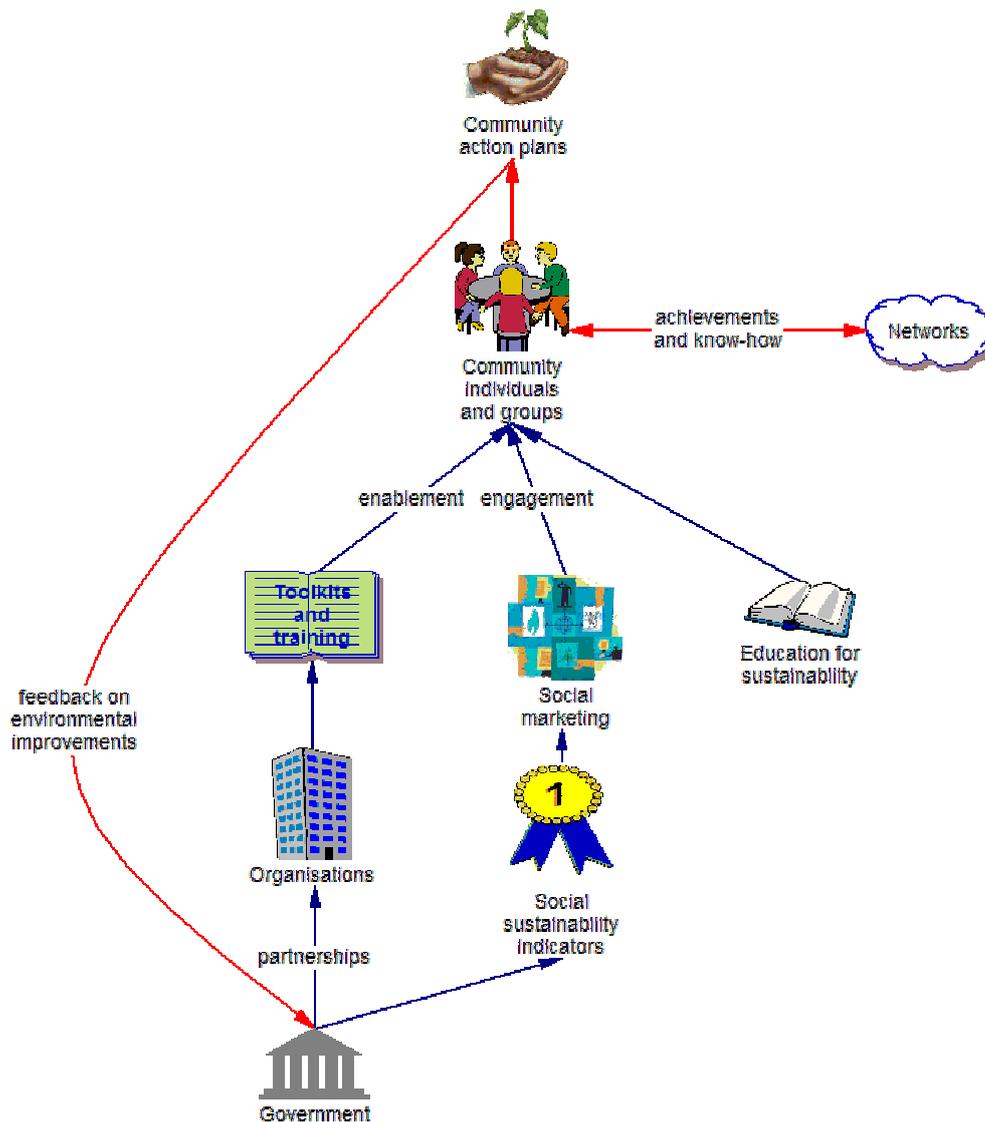
The system diagram (Fig 12) is really a community action cycle. Individuals and groups respond to social networks and education for living sustainability to make examine their environment and produce action plans for environmental improvements. Government helps by producing social sustainability indicators as specific action drivers, and through social marketing and partnerships with organisations providing toolkits and training, stimulates community engagement and enablement. Feedback on outcomes from action plans back to government provide performance indicators to complete the cycle. If this action system is not recognised, strategic plans simply represent government talking to itself.