

Strategic Indicators

Introduction

Forests provide us with a variety of goods and services. Indicators of sustainable forestry help us measure the contribution of woodland towards our quality of life, and the ability to sustain that contribution into the future. They enable us to track the contribution that our forests are making to our quality of life. They also inform us about undesirable trends so that we can decide how to act.

Purpose of indicators

Indicators can have three distinct purposes, although particular sets of indicators may try to cover more than one of these purposes.

- They can be intended to describe a sector. In doing this, they may adopt a structure (perhaps implicit) of Pressure – State - Response (PSR) or more fully Driving Force – Pressure – State – Impact – Response (DPSIR). They often aim to give a more rounded picture than traditional published statistics, by drawing on 'softer' data.
- They can be intended to hold to account a body responsible for delivering its policy objectives. These indicators may have associated targets that reflect the policy objectives. There is general agreement that it is better for indicators to measure outcomes or outputs (see below) rather than inputs (e.g. cash or time used).
- They can be used to compare institutions, often in the form of league tables (e.g. school exam results) or comparisons with benchmarks. These indicators are most useful if they can be adjusted to try to show how much of the outcome is from value added by the institution, rather than the differing mix that they started with, or the differing external factors acting at the same time.

An alternative distinction between categories of indicators is that they can report what can be measured reliably, or what is important, or what our policies are able to (or try to) influence. In an ideal world the three categories would be the same; in practice there is often only limited overlap.

Scottish Forestry Strategy (SFS) indicators should primarily address what our policies are able to (or try to) influence, assessing the delivery of the policy objectives of the SFS. This contrasts with UK Indicators of Sustainable Forestry, which are aimed more at describing forestry in the UK, in the absence of a consistent set of policy objectives covering all countries in the UK. There has been little interest so far in developing indicators to compare forestry performance, although forest certification can be seen as addressing this, at least to the extent of assessing all aspects of performance against an agreed standard.

There are many other sets of indicators, for forestry and for wider reporting of the environment or sustainable development; many are summarised in the Annex with website links. Where processes have aims in common, there are clear advantages in adopting some indicators in common, using the same terms and definitions, and there have been welcome moves to increase compatibility of country and international reporting processes in recent years. But each process must also decide what indicators are important for its aims and objectives, which may lead to different priorities or the adoption of indicators unique to that process.

The UK Indicators of Sustainable Forestry and most international indicator sets do not include targets, because they are mainly intended to be descriptive rather than linked to specific policy objectives. However there could be merit in including some targets in the SFS indicators, as has been done in Wales and England. Any such targets would have little value if they were to be chosen arbitrarily, or simply derived by extrapolating existing trends. Rather, they should be based on the actual goals of the policy, with a clear rationale for any values chosen.

Guidance

Guidance on a Framework for Performance Information for public sector delivery is given in the HM Treasury document 'Choosing the Right Fabric'.

<http://www.hm-treasury.gov.uk/media/EDE/5E/229.pdf>

Initial SFS Indicators

The process of developing an initial set of indicators for the SFS started in 2000 to 2001, with work by consultants (URS Dames & Moore) overseen by a steering group. This included a review of data sources, stakeholder consultation, development of possible indicators, gathering baseline data, and setting out a counterfactual (a suggestion of what might have happened anyway). This work proposed over 50 indicators, but was unable to source data for about half of these. This highlighted the difficulties in pulling together a meaningful suite of indicators, without imposing unnecessary or unacceptable burdens on the forestry sector through requirements for additional data.

A reduced set of indicators to assess progress against the strategy was then compiled by Forestry Commission Scotland (FCS), based on the consultants' work, but mostly drawing on existing data. After further consultation and minor changes, these were published with baseline data in October 2002, in the publication "Delivering the Scottish Forestry Strategy" starting on page 27:

[http://www.forestry.gov.uk/pdf/dsfs.pdf/\\$FILE/dsfs.pdf](http://www.forestry.gov.uk/pdf/dsfs.pdf/$FILE/dsfs.pdf).

The indicators were set out under five headings, which follow the Strategic Directions in the SFS. Each indicator gave a baseline value, and a cross-reference to notes that explained the relevance of the indicator, the data sources and details of calculations. The publication indicated that it would be possible to refine and improve this set of indicators in the light of other work that is going on, including the development of UK Indicators of Sustainable Forestry, the development of appropriate measures of performance against Biodiversity Action Plan targets, and the collection of

information regarding current activity in relation to availability of use of woods in and around towns.

An update giving latest information on each indicator was included in a working checklist for implementation of the SFS prepared for a Scottish Forestry Forum public meeting in November 2004.

Revised Scottish Forestry Strategy Indicators: Key Issues

Outputs and outcomes

There is general agreement that it is better for indicators to measure outcomes or outputs rather than inputs. Where the aim is to assess delivery of policy objectives, as is the case for the SFS indicators, outcome indicators are likely to be best, because policies are normally expressed in terms of desired outcomes. However, outcome indicators do not show the contribution of any institution (e.g. department or agency) to the outcome, so they are not performance indicators for an institution. They also have limitations if used as performance indicators for government in general, as many factors are outside government control or influence. Where woodlands can only be responsible for a small part of the outcome (e.g. public health), an output indicator showing forestry's contribution may be better than an outcome indicator.

How can we measure outcomes cost effectively?

In general, outcomes are harder to measure than outputs or inputs. To measure outputs, it is only necessary to monitor where actions are being taken, and information may be readily available from administrative systems for these outputs. To measure outcomes it is necessary to monitor across the whole field of interest – the population or environment or economy. Outcomes for a few narrow aspects may be able to be monitored in their entirety; for example aerial photography or satellite imagery may be able to monitor total woodland area, down to some size threshold dependent on technology (e.g. 0.5 hectares). But outcomes for wider aspects must be assessed by sample surveys, for which the choice of sample size involves a trade-off between precision and cost.

For sample surveys of the general public, there are high overheads in locating a suitable representative sample of people to interview. It is desirable to look for opportunities to co-ordinate with others to share these costs, e.g. through using existing omnibus surveys of the general public and/or collaborating with other organisations that have similar research interests. To measure some outcomes, it may be more cost effective to target monitoring on a small number of areas that contribute most to the outcome (e.g. on-site surveys of forest visitors) rather than a representative sample of the whole public.

Environmental data collection by sample field surveys can be very expensive. Existing data should be fully exploited – there is likely to be a lot more added value that can still be obtained from the data collected for the National Inventory of Woodland & Trees 1995, the Countryside Survey 2000, and other surveys relevant to woodland. In new surveys, cost effectiveness can be improved by good survey

design and by developing links with other field surveys, especially where there is consistent geographic referencing.

How many indicators do we want?

When indicators are intended for public use, it is desirable to concentrate on a relatively small number of indicators that convey the key messages. A profusion of indicators can be difficult to interpret, particularly if they give conflicting messages. However, one danger of focusing on a few headline indicators is that managers may concentrate on actions to improve these indicators, rather than taking a wider view that would produce a greater benefit. This can be a particular problem where indicators are used as comparative measures, and local managers may therefore concentrate on the indicator topics.

The SFS initially had 25 indicators, the UK Indicators of Sustainable Forestry have 40, and the pan-European Indicators of SFM have 35. A total of 35-40 indicators seems reasonable to give a rounded view of woodlands and the forest sector, although there may be merit in picking a small subset as headline indicators.

What indicators could be removed or added?

If the SFS retains the same five Strategic Directions, indicators will be required for each. My views on the current indicators, and what could be removed or added, are:

Maximising the value of Scotland's wood resource: The measure for wood processing industries' contribution to GDP is a well-established part of the National Accounts, so should be retained, although it should be noted that a large part of the sector is processing imported material. For forestry's contribution to GDP, the source is again the National Accounts, but there remain concerns about some of the data and methodology. Nevertheless, this should also be retained in the absence of any better figures. Forecast wood production continues to be relevant, although for the private sector the indicator can only measure availability, as owners' plans and their response to timber price movements are unknown. Investment in processing capacity is important, but there is no obvious data source. Although this heading includes promoting more use of timber, Scottish actions are likely to have little effect on the total value of the UK market, so if this is retained it should be combined with the indicator for Scotland's share of that market. Timber transport by rail and sea has continuing relevance, if data are available.

Creating a diverse forest resource for the future: The total woodland area is a good indicator, although at present its projection from the National Inventory requires assumptions about new woodland creation without grant aid and woodland loss (both assumed to be negligible); aerial photography acquired for the next National Inventory should provide a better basis for estimating change. The area of new planting (grant aided and national forest) is also a good output indicator, as it indicates the effort devoted to new woodland creation. The area with long-term management plans would also be a good indicator if consistent data could be obtained (this does not seem to be the case for national forest estate). The woodland deer cull demonstrates the scale of effort, but gives little clue about the outcome for woodland. The other three indicators are good attempts to capture various aspects of diversity, but it will still be some years before there are any data to update the National Inventory results from 1995.

Making a positive contribution to the environment: Certified forest area is worth retaining, although changes may largely reflect the extent of engagement in the process (and possibly inconsistency over time in reporting areas), and may not imply any increase in the extent of sustainable management. The limited scope of the indicator of native woodland created or restored means that it may not reflect trends in all native woodland. The other two indicators are relevant, but may not have data regularly available. Although many other indicator sets use woodland birds as an environmental indicator, I do not recommend this for the SFS, because of the limited availability of data for Scotland, and because use of this indicator may prompt a policy response that addresses the symptom of woodland bird decline rather than the underlying environmental conditions.

Opportunities for people to enjoy trees, woods and forests: The percentage of the population who visit and the total number of visits are key measures of the extent of forest recreation, although the two indicators suffer from using different definitions of a visit. The second of these indicators uses a source (UK DVS) that it is limited to visits from home, and there are concerns that results for the baseline and 2002-03 are not fully compatible. The scope of the DVS is now (2005) limited to England, and a new Scottish Recreation Survey that better meets Scottish needs was started in 2003-04; it is recommended that the indicator should switch to use the new Scottish survey. A third key aspect is the value of the public benefit from this forest recreation, or alternatively a measure of visitor satisfaction, but there is no regular source of data to monitor these aspects. The number of woods in urban Scotland that are advertised on the FC web-site clearly only covers one aspect of promoting woodland recreation; another possibility would be to use some results that are now available from the "Woods for People" project. The enjoyment of trees, woods and forests is also addressed in the following section, on communities.

Helping communities benefit from forestry: The source for the first two indicators (employment) was the Forest Employment Survey, which has now been discontinued, because research priorities have changed to prefer studies that consider local impacts extending beyond the traditional forest sector; no similar information is likely to be available in the future. The information about community groups and the woodland that they manage came from Reforesting Scotland; in the absence of any other information about communities they may be worth retaining if they can be updated, but the qualitative reporting about community engagement is probably more important. It would be desirable to add an indicator related to the Woods In and Around Towns (WIAT) initiative, perhaps the area of urban woodland brought into active management, although most WIAT actions are probably covered better by qualitative reporting. An indicator related to health could be added here, or in the previous section; as commented above this should probably be an output indicator, because health outcomes are determined more by other factors.

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OTHER RELATED INDICATOR PROCESSES

Other Scottish indicator processes

Forest Enterprise Scotland (FES) key agency targets

FES key agency targets are in the FCS Corporate Plan 2005-2008 [http://www.forestry.gov.uk/pdf/corpplan_new.pdf/\\$FILE/corpplan_new.pdf](http://www.forestry.gov.uk/pdf/corpplan_new.pdf/$FILE/corpplan_new.pdf) on page 26. They include 18 quantitative targets; of which only three (certification, management plans, harvesting) are measures that contribute directly to the current SFS indicators.

Scottish Forestry Grants Scheme (SFGS) Indicators

A draft set of indicators for the SFGS was published in December 2002. They were mostly output indicators, to show what is directly achieved by the grant scheme, but the set included a few outcome indicators (e.g. ecological condition). Ten output indicators are now used as performance measures in the SFGS management information system.

Indicators of Sustainable Development for Scotland

A set of 24 Indicators of Sustainable Development for Scotland was published in April 2002 <http://www.scotland.gov.uk/library5/rural/mtnsd-00.asp>, giving priority to resource use, energy and travel. Although woodlands or forestry is not an explicit topic in this set, it can contribute to other indicators, particularly biodiversity (Biodiversity Action Plan species and habitats).

Scottish Biodiversity Strategy Indicators

Candidate Indicators of the State of Scotland's Biodiversity were prepared in 2003 by the Action Plan & Science Group of the Scottish Biodiversity Forum <http://www.scotland.gov.uk/library5/environment/bioi-00.asp>. The candidate indicators included a breeding bird index and an indicator of woodland tree species diversity. The Scottish Biodiversity Strategy was published in May 2004 along with a set of draft implementation plans, a draft indicators document and a draft research strategy <http://www.scotland.gov.uk/biodiversity>. The Forestry Commission is contributing actively to help deliver the strategy and the final agreed implementation plans.

Social Justice Indicators of Progress

Social Justice Indicators of Progress, published in 2003, do not include any aspects related to the natural environment: <http://www.scotland.gov.uk/library5/social/sjip03-00.asp>.

For environmental justice the central concerns are that deprived communities should not bear a disproportionate burden of negative environmental impacts, and that all communities should have access to the information and to the means to participate in decisions: <http://www.scotland.gov.uk/Topics/Environment/17108/8320>. However recent research has extended the scope to include consideration of the extent to

which deprived communities have less (or more) access to areas (e.g. woodlands) providing environmental benefits.

Framework for Economic Development in Scotland (FEDS)

A Framework for Economic Development in Scotland (FEDS) was published in June 2000. A short section considered interaction between the economy and environment, and referred to environmental valuation. A revised version published in September 2004 reaffirms the vision “to raise the quality of life of the Scottish people through increasing the economic opportunities for all on a socially and environmentally sustainable basis”. It sets out in greater detail the underlying thinking of the strategic approach, and discusses the nature of the economic challenge that faces Scotland and of the progress that has been made in recent years since the inception of the first FEDS. Neither version explicitly mentions woodlands or forestry. <http://www.scotland.gov.uk/library5/government/fedsm-00.asp>

Scottish statistics

A selection of key forestry statistics for Scotland is included in Scottish Environment Statistics online <http://www.scotland.gov.uk/stats/envonline/menu0.asp>.

Forestry is not mentioned in the current Scottish Economic Statistics 2003: <http://www.scotland.gov.uk/stats/ses2003/ses03-00.asp>

Other indicator processes in UK

UK Indicators of Sustainable Forestry

The UK Indicators of Sustainable Forestry <http://www.forestry.gov.uk/sfindicators> mostly provide information about the present state, and trends over time, of woodlands and their management, rather than measures of driving forces (pressures) or responses. They were developed through two rounds of consultation in 2001 and 2002. Selection of the indicators took account of an initial set in the UK Forestry Standard (FC, 1998) and the parallel review of pan-European Indicators of Sustainable Forest Management (see below). There are many more indicators that could have been included; the indicators were selected based on their relevance to sustainable forestry in the UK, the current quality of information and the timescale over which it can be improved.

They were first published in October 2002. Supplementary information for the indicators is available through this website, and new statistical information is added as it becomes available. Initially, about a quarter of the indicators were unable to give suitable statistical information. Subsequent work has addressed some of these gaps, but has been limited by the lack of additional resources. It is planned to reassess the full set of UK Indicators of Sustainable Forestry later in 2005, to publish the latest information then available for each indicator, and to review the requirements and plans for continued monitoring.

Indicators of Sustainable Development.

Quality of Life Counts indicators of sustainable development were published in 1999 <http://www.sustainable-development.gov.uk/indicators/index.htm>. One of the 15 headline indicators used as a 'quality of life barometer' includes an index of woodland

birds. These are supported by a core set of 147 indicators, updated in 2004, which include three indicators for forestry in the UK – total area of woodland, area of ancient semi-natural woodland, and certified woodland area as an indicator of forest management.

A revised UK Sustainable Development Strategy was launched in March 2005, <http://www.sustainable-development.gov.uk/publications/uk-strategy/uk-strategy-2005.htm>. It includes 20 UK Framework indicators agreed between the UK Government and the Devolved Administrations, and a further 48 indicators supporting priorities in the UK Government Sustainable Development Strategy, The indicators are listed on the website <http://www.sustainable-development.gov.uk/performance/indicators-home.htm> and baseline figures will be published in June 2005. One of the 20 UK Framework indicators include woodland birds as part of an indicator of bird populations, while one of the other 48 indicators include total woodland area as part of a contextual indicator of land use.

A set of 12 headline Sustainable Development Indicators for Wales was published in 2002 <http://www.wales.gov.uk/keypubstatisticsforwales/content/publication/sustainable/2002/sb36-2002.pdf>; the only mention of woodland or forestry was again woodland birds as part of an indicator of wild bird populations.

Northern Ireland is in the process of developing a set of indicators, which take account of consultations with non-governmental organisations and Local Authority representatives.

Other Country Forestry Strategies

In Wales, a Woodland Forum working group developed a draft set of targets and indicators [http://www.forestry.gov.uk/pdf/WWF06.04Appendix.pdf/\\$FILE/WWF06.04Appendix.pdf](http://www.forestry.gov.uk/pdf/WWF06.04Appendix.pdf/$FILE/WWF06.04Appendix.pdf), proposed for adoption later in 2005.

England has a set of performance indicators for the Spending Review, and has considered using the English data from the UK Indicators of Sustainable Forestry as a supplementary set of indicators.

The policies for forestry in Northern Ireland were the subject of a consultation paper in 2002 (DARD, 2002), but at present there are no draft indicators linked to this strategy.

Biodiversity strategies

A baseline assessment for the English Biodiversity Strategy was published in December 2003:

<http://www.defra.gov.uk/wildlife-countryside/biodiversity/biostrat/indicators/index.htm>. In Chapter 5 it includes a vision of "woodland and forests, managed and created to enhance both woodland and non-woodland species and habitats, that at the same time provide sustainable goods, environmental services and recreational benefits

enhancing people's quality of life". It includes indicators of woodland birds, condition of woodland SSSIs, status of woodland BAP priority species and habitats, trends in woodland plant diversity, area of ancient woodland and public enjoyment of woodland.

Ancient & Native Woodlands

An Ancient & Native Woodland Strategy for England will be published in 2005. A set of indicators is being prepared later in 2005, to link to the strategy.

Certification

There are links between the development of indicators, monitoring at forest management unit level for the UK Forestry Standard, and certification standards such as the UK Woodland Assurance Standard (UKWAS) <http://www.forestry.gov.uk/ukwas>.

International indicator processes

Pan-European Criteria and Indicators for Sustainable Forest Management

Many countries have now published national reports using the indicators adopted by the Ministerial Conference on the Protection of Forests in Europe (MCPFE) in 1998. These indicators were reviewed in 2001-2002, and a revised set was approved by the MCPFE in 2003 <http://www.mcpfe.org>.

Efforts were made to collect comparable data for most aspects of the Pan-European Criteria and Indicators, through the Temperate & Boreal Forest Resources Assessment (TBFRA 2000). This was published in May 2000, followed by a Global FRA in early 2001. An updated subset was compiled in June-July 2002, in preparation for the MCPFE in 2003. The Global FRA update in 2005 has tried to increase its relevance to the pan-European indicators, but a separate indicator report for the next MCPFE meeting is planned for 2006.

Other indicators

The United Nations Commission on Sustainable Development

www.un.org/esa/sustdev/csd

have completed a pilot of a set of indicators and are producing guidance for a menu of indicators countries might use in their reporting on sustainable development.

The UN Environment Programme Convention on Biological Diversity (CBD) <http://www.biodiv.org> was conceived at Rio in 1992 as a practical tool for translating the principles of Agenda 21 into reality. It includes ongoing work to incorporate outcome-oriented targets into the work programme on forest biological diversity, which the UK is committed to delivering.

<https://www.biodiv.org/programmes/areas/forest/portal/home.shtml>

Under the European Union Sustainable Development Strategy launched by EU leaders in Gothenburg in 2001, halting the loss of biodiversity in the EU by 2010 is a priority. The European Commission is developing a set of 'headline' environmental indicators, and also indicators which reflect the success of integrating environmental concerns into European Union sectoral policies, particularly for transport, energy and

agriculture. http://www.europa.eu.int/comm/environment/policy_en.htm The main forestry topic is the prevention of forest fires.

The European Environment Agency (EEA) has identified a core set of 37 environmental indicators, described in a guide published in April 2005 http://reports.eea.eu.int/technical_report_2005_1/en. The set does not include any indicators specifically for woodland or forestry, although woodland birds are included in an indicator of species diversity, and woodland management can impact on other indicators.

Other related international activity includes:

- Framework Convention on Climate Change <http://www.unfccc.int>
- United Nations Forum on Forests <http://www.un.org/esa/forests>
- The UN Intergovernmental Forum on Forests <http://www.un.org/esa/forests/>
- Millennium Development Goals <http://www.un.org/millenniumgoals>

There is also related work by non-government organisations, particularly the WWF Forest Scorecard, for which the second edition was published in January 2000 http://www.wwf.org.uk/filelibrary/pdf/euro_forest_scorecards_2002.pdf. This addressed a gap in officially published information, and dealt with the issues perceived to be important by that NGO.