

# Environmental benchmarking for local authorities: From concept to practice

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# Foreword

*According to Agenda 21's Chapter 28 on Local Authorities, 'because so many of the problems and solutions being addressed by Agenda 21 have their roots in local activities, the participation and cooperation of local authorities will be a determining factor in fulfilling sustainable development objectives'. Having this principle in mind and from the point of view of an institution dealing with data and information exchange to support action and policy making, we stress the importance of exchanging data, information and knowledge not only among local authorities, but between the different levels of management and planning. In a world where globalisation is a message used and abused, it is never redundant to claim the importance of each level of exercising power – substantiating a right level of action - or to highlight the requirements and the urgency for an interchange of information between all levels. European cities are undergoing an urban renaissance, and increasingly are the subject of the most diversified types of reflection – no wonder for instance that one of the first Tate Modern shows and a homage to the world culture, is called the 'Century City' which, focusing at 9 different cities throughout the world, looks at how the urban experience shapes culture, and our views of the planet, and at the same time recognizes a general urbanization trend where metropolis emerge as cosmopolitan crossroads, sources of innovation and knowledge.*

*European local authorities have widely varying responsibilities, competences, capacities, organization and power, reflecting quite different state structures. Nevertheless, being the level of governance closest to the people, and those using – effectively - an array of planning and management tools, not to mention monitoring and reporting capabilities, they play a vital role in implementing measures leading to and promoting sustainable development, as well as in educating, mobilising and responding to the public.*

*In the spirit of the 'New Public Management' paradigm, or similar models, benchmarking is a management tool to be introduced in the municipalities – and which is used already in Europe although not in relation to environmental issues – to help them achieve better performance. Benchmarking is also a 'buzzword' increasingly heard, but not always fully understood, in all its dimensions and shapes. This report is an attempt to clarify and present the many definitions of benchmarking. It also attempts to explain the basic steps of benchmarking, to show how this tool can be applied by local authorities as well as to discuss its potential benefits and limitations. Providing a series of examples it illustrates the effective use of this management tool, and its requirements for comparable data and information. An extensive list of sources of information will, for sure, help local authorities to proceed in their task of achieving better performance in their environmental activities and mission towards sustainable development.*

*It is my firm belief that if cities use indicators and progressively introduce targets to improve management and related urban life quality, and to measure progress towards more sustainable development, we will also create a sound competition among cities and foster innovation. And it is my dream that one day cities will be categorised also by means of environmental sustainability scoreboards and that permanent national and European initiatives focused on progress can be established equalling the rivalry existing in football (and for a better cause)!*

Domingo Jiménez-Beltrán

EEA Executive Director

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# 1. Introduction

## 1.1. Background

This report addresses the use of benchmarking as a management tool in the context of municipal and local community actions towards sustainability management. It is motivated by the growing interest at the European policy-making level to stimulate the use of sustainability management tools and exchange of best practices among local authorities. This is seen to be important because local authority actions play a vital role in responding to the challenges of enhancing the state of the environment not only in policy-making, but also in the provision of services and in the planning process.

Local communities therefore need to be aware of their own sustainability performance levels and should be able to engage in exchange of best practices to respond to these challenges. This has been promoted through a number of actions at the policy level. The increased use of sustainability management tools and the exchange of information between communities are stressed in several documents issued by the European Commission or city networks. The first European Conference on Sustainable Cities and Towns in May 1994 in Aalborg was an important starting point for implementing Agenda 21 processes and improving the influence of cities and towns as key players in the process of changing lifestyles, production, consumption and spatial patterns. The importance of the use of sustainability management tools, the monitoring of performance, the use of indicators, and the exchange of experience between cities and towns is stressed in the Aalborg Charter (1994), which was a product of the Aalborg Conference and has already been signed by more than 700 local and regional authorities across Europe. The European Sustainable Cities and Towns campaign was initiated in order to support the adoption and signing of the Aalborg Charter. Principal activities of the campaign are, among others, to facilitate mutual support and information exchange between cities, to collect and disseminate information on good examples at the local level, and to

organise an annual ‘sustainable city award’. The importance of such activities is also mentioned in the follow-up documents from the next conferences, the *Lisbon action plan (1996)*, and the *Hannover call (2000)*.

Tools such as quality and environmental management, performance measurement, or activity-based costing are increasingly used by local authorities to increase their efficiency concerning environmental services. Furthermore, cooperation between communities through networks is increasing. These actions can be seen in the context of sharing experience and learning from each other. **Benchmarking** is in this context often mentioned as the ‘magic tool’ to foster healthy competition between communities and lead to improvements. It is often defined as the structured process of learning from others — internally or externally — who are leaders in a field or with whom legitimate comparisons can be made. However, for the lack of precise guidelines, the term ‘benchmarking’ took on a broader usage within environmental performance improvement discussions. It meant different things to different users. Thus, one of the key objectives of this document is to put some order to the user of the concept of ‘environmental benchmarking’ and to offer a road map to its different applications.

Although benchmarking is not explicitly mentioned in the above-described policy documents, it is implicitly addressed. The European Commission initiative ‘Sustainable urban development in the European Union: A framework for action’, presented at the European Urban Forum in Vienna in 1998, addresses priorities in European Union policies and instruments and takes up these points as well. Action 20 (‘Awareness raising, exchange of experience and capacity building for sustainable urban development’) concerns, among other things, the establishment of a linked network of EU databases on urban issues. The action also stresses the development of an urban dimension in the new European Network for Detection of Good Practice, which aims at collecting and disseminating good practice and facilitating exchange of experience. Furthermore, the EU wants to support local

government networking activities and an EU award scheme for innovation and progress made by individual cities and towns concerning urban sustainability. Action 23 focuses on improving comparative information on urban conditions:

‘Increasingly, decision-makers need to be informed on how individual cities compare, both in terms of characteristics at one point in time and underlying trends... . Benchmarking has proved to be an effective technique for continuous improvement. It can be applied to urban services and systems through self-assessment by local government. The European Commission will build upon its work of detecting best practice, on the experience of its existing pilot benchmarking exercise in urban transport and the work on urban indicators in order to encourage a more intensive use of benchmarking at urban level.’

The need for benchmarking in communities — although not with a focus on the environment — is also stressed in other publications by the EU <sup>(1)</sup>.

The European Environment Agency (EEA) plays an important role in relation to benchmarking, through its objectives of providing the Community and the Member States with objective information necessary to frame and implement sound and effective policies, ensure that environmental data at European level are comparable, ensure broad dissemination of reliable environmental information and stimulate exchange of information. In providing reliable information on the environment, the EEA is dependent on input from many sources at national and international level. The EEA puts a lot of effort into improving the quality and relevance of the data and information it receives and into streamlining data flows, in order to maximise the benefit and minimise the burden for all involved.

The EEA works closely together with national focal points in the national administrations and with its European topic centres to define core sets of policy-relevant indicators and derived data requirements for several priority areas, identifying redundancy and duplication in current reporting activities.

The EEA has developed a consistent and comprehensive structure for its work on indicators, to help bring together information needs under the EU sustainable development strategy, the sixth environment action programme and sectoral integration activities (the so-called Cardiff process) into one coherent framework. Headline indicators, environmental indicators (as in the *Environmental signals 2000* report) and sectoral integration indicators (as in *TERM 2000*) are all part of this overall package. Within this context, the EEA works closely together with partners within and outside the Community framework, including the following.

- Eurostat, the Statistical Office of the European Communities — Both organisations work closely on a common approach to the development of a reporting system to support reporting of progress under the sixth environment action programme, which builds on work already done on indicators and the emphasis in the sixth programme on analysis and information to support assessment of policy effectiveness.
- Joint Research Centre (JRC) — A memorandum of understanding, signed in 1999, and a joint work plan for 1999–2000 have been systematically implemented concerning mainly the following thematic areas: (a) the development of policy-relevant indicators in the fields of nature protection and biodiversity assessment, land cover and land use, soil, marine and coastal areas, and urban areas; (b) spatial data and GIS information management support including the characterisation of a European river basins’ map to support monitoring and reporting under the water framework directive and the EU strategy on biodiversity; (c) ‘Clean air for Europe’ programme — joint support to the Directorate-General for the Environment.
- Organisation for Economic Cooperation and Development (OECD) — Cooperation focused on four main areas during the year: environmental outlooks, sectoral indicators, data collection, and a joint database on environmental instruments.
- United Nations Economic Commission for Europe (UNECE) — The EEA participates

(1) European Commission, DG III, ‘Benchmarking — Implementation of an instrument available to economic actors and public authorities’, COM(97) 153/2.

in the 'Environment for Europe' process under the auspices of the UNECE.

- World Health Organisation (WHO) — EEA-WHO cooperation is focused on supporting developments in aligning monitoring and reporting systems in order to deliver common information to policy-makers.
- Council of Europe — Cooperation with the Council of Europe on nature conservation, biodiversity and landscape led in 2000 to the setting-up of a memorandum of understanding between the two organisations.

The relevance of the information provided by the EEA is thus structured in four steps:

- identifying redundant monitoring and data, so releasing resources for developing new needs;
- streamlining and focusing existing data into policy-relevant indicators;
- improving the data flows and institutional arrangements so as to avoid duplication and maximise the timeliness and efficiency of reporting;
- developing new information needs and assessment tools based on emerging perceptions, priorities and approaches.

During 2000, the EEA made several strategic decisions concerning EnviroWindows, a public platform for dissemination of environmental information and data from different actors: the EIONET extension for business and local authorities which will enable the use of a single electronic repository (based on the Internet), providing information for the public in line with the transparency principles of the Aarhus Convention (Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters).

In line with these strategic orientations, the EEA started to work on the Urban Communication Platform, as a general tool for dissemination of data and information on urban issues. This tool is proposed to be an open, public, Internet-based platform using EnviroWindows. Basically, it will offer cities and other partners a source of information and a 'meeting point', as well as the other facilities of EnviroWindows — server space, help-desk facility and interest groups.

The Urban Communication Platform was launched at the Hanover Conference 2000 — third European Conference on Sustainable Cities and Towns — as a tool to support, among other projects, 'European common indicators — Towards a local sustainability profile', a project initiated by the Directorate-General for the Environment in March–April 1999. To support the reporting aspect of the common indicators, cooperation with the UNEP/GRID-Arendal CEROI project was developed to help adapt the European common indicators context.

Finally, negotiations between the European Commission and 13 candidate countries in central Europe and the Mediterranean area on agreements to join the EEA were successfully concluded in 2000. The new members will join the EEA when the agreements have been ratified nationally and by the Council. This is likely to take place during 2001 for most, if not all, countries, resulting in an Agency of 31 countries stretching from Iceland to the Caucasus and from Lapland to the Mediterranean. The EEA is the first EU body to be open to enlargement, have a pan-European dimension (60 % increase in area and 45 % increase in population) and require a response to the different environmental characteristics of the new geographical areas covered and the environmental priorities of the new members.

## 1.2. Objectives of the report

Benchmarking is a 'buzzword' which can be heard increasingly in discussions around comparisons between cities, indicators, and exchange of best practices, and it is a tool that is being supported by EU policies. However, the interpretations of what benchmarking actually means are quite different, and often there are misunderstandings. The objectives of this report are therefore the following.

- clarification of the definitions around benchmarking and explanation of the generic steps of benchmarking;
- adaptation of the concept of benchmarking to its use for local authorities, with a focus on the environmental field; the different types of benchmarking are explained as well as the potential benefits that they can yield, and the limitations that have to be encountered;



- provision of examples of current environmental benchmarking activities by local authorities.

The interest of the report is manifold and addresses the European, national, and local authority levels.

### 1.3. Scope of the report

This report contains an introduction to benchmarking as a tool for improvement. It provides an overview of the terms used in this context and the basic methodology. The focus is thereby on how benchmarking **concerning environmental issues** can be used by local authorities. It should be noted that it is often difficult to distinguish between environmental and non-environmental issues. In fact, it might not be necessary to make this distinction. There is a need to

move away from a one-dimensional analysis to environmental problems, and to view developments in a more integrated way. Efforts in communities are increasingly aimed at improving sustainability performance in general, encompassing the environmental, economic and social dimensions. However, this report focuses on the environmental dimension, since there are specific challenges tied to the comparisons of environmental performance data in particular.

The report proposes a framework for structuring environmental (or sustainability) benchmarking activities, and provides examples of current activities in this field, with the focus on Europe. However, examples from benchmarking activities in the United States of America and Australia are also mentioned.

## 2. Benchmarking as an improvement tool

### 2.1. Benchmarking in general

#### 2.1.1. Definitions

There is a considerable confusion as to what the term ‘benchmarking’ actually means. Often, benchmarking is understood as a process of simply comparing numerical performance levels across different organisations. However, if benchmarking is understood as a tool for improvement, it is more than just comparing and ranking. It goes beyond the establishment of benchmarks, standards and norms, and investigates the practices that support the benchmarks <sup>(2)</sup>. The philosophy of benchmarking is very well expressed through the following statement:

‘Benchmarking is the practice of being humble enough to admit that someone else is better at something, and being wise enough to learn how to match and even surpass them at it’ <sup>(3)</sup>.

Benchmarking is about finding out why there are differences in performance and about learning from others’ best practice. The concept of benchmarking was pioneered by the Xerox Corporation to meet the Japanese competitive challenge of the 1970s.

There is an array of definitions of benchmarking (see box). Nearly all emphasise the importance of learning from others through a systematic method of identifying best practices for a particular process or activity. For the purpose of this report, the first definition (by the APQC) seems to be the most appropriate one.

- **Benchmarking** is the process of improving performance by continuously identifying, understanding, and adapting outstanding practices and processes found inside and outside the organisation <sup>(4)</sup>.
- **Benchmarking** is the process of continuously measuring and comparing one’s business processes against comparable processes in leading organisations to obtain information that will help the organisation identify and implement improvements <sup>(5)</sup>.
- **Benchmarking** is a method for organisational improvement that involves continuous, systematic evaluation of the products, services, and processes of organisations that are recognised as representing best practices (‘Benchmarking and best practice in Australia’) <sup>(6)</sup>.
- **Benchmarking** is a process for identifying and importing best practices to improve performance <sup>(7)</sup>.

Almost any process or activity of an organisation is a candidate for benchmarking, such as <sup>(8)</sup>:

- work processes;
- products and services;
- support functions;
- organisational performance;
- strategies.

Often, the terms benchmarking and **performance assessment** are used interchangeably, even though they are not exactly the same. Performance measurement or assessment could be defined as the initial work done to specify and gather data on the criteria that account for the performance of a programme or service. Knowing the factors that are important in effectively performing a particular service or function is the foundation of benchmarking practice.

(2) van Schalkwyk, P. W., ‘Benchmarking’, in Smit, E. and Morgan, N. (eds), *Contemporary issues in strategic management* (various authors), Kagiso Publishers, Pretoria, 1996.

(3) APQC (American Productivity and Quality Center), *What is benchmarking?* (<http://www.apqc.org/best/whatis.cfm>). The statement seems to originate from Dr Carla O’Dell, President of the APQC, in 1993.

(4) Various authors, *APQC White Paper for senior management based on the internationally acclaimed study organizing and managing benchmarking*, APQC (American Productivity and Quality Center), 1999.

(5) Andersen, B. and Pettersen, P.-G., *The benchmarking handbook. Step-by-step instructions*, Chapman & Hall, London, 1996.

(6) Marosszeky, M. and Karim, K., *Benchmarking — A tool for lean construction*, University of New South Wales, Sydney, Australia, 1997 (downloadable on <http://web.bham.ac.uk/d.j.crook/lean/iglc5/marton/marton.htm>).

(7) Keehley, P., Medlin, S., MacBride, S. and Longmire, L., *Benchmarking for best practices in the public sector. Achieving performance breakthroughs in federal, state, and local agencies*, Jossey-Bass Publishers, San Francisco, 1997, p. 39.

(8) GEMI (Global Environmental Management Initiative, various authors), *Benchmarking: The primer. Benchmarking for continuous environmental improvement*, GEMI, Washington DC, 1994.

It could be said that benchmarking per se is the next step, which is taken to discover what those identified as having best practices are doing that you are not doing <sup>(9)</sup>.

It also has to be noted that there is often a confusion made between a **benchmark** and the actual process of benchmarking. A benchmark is simply a standard of performance. The standard may be established by the organisation as a goal or expected level of performance or for various other reasons. Benchmarks may also be established by looking outside the organisation. However, setting benchmarks does not necessarily have to imply a benchmarking process, since benchmarks can be used for other management tools, such as quality management or environmental management.

An important element of the definition of benchmarking is **best practice**. Best practice, in the more traditional uses of benchmarking, is defined by Robert Camp as 'those practices that please the customer most'. Thus it is **argued that the goals of a benchmarking study should be based on customer needs**, whether the customers are internal (departments within an organisation, higher management levels, employees) or external (consumers, citizens, regulators, legislators, local and national environmental groups, investors). Conducting a benchmarking study is immaterial if it is not designed to meet a specific customer requirement.

### 2.1.2. Benefits of benchmarking

The goal of benchmarking is basically to learn from others' best practice. It is an improvement tool. If used properly, it leads to true, fundamental process improvement, which, in turn, leads to **bottom-line performance improvement**. A benchmarking study by Statoil to improve the delivery process of casing for oil wells cost in total GBP 205 000. However, compared to the achieved savings of GBP 5.1 million, this gave a good return on investments <sup>(10)</sup>. The estimated costs for a 10-month

benchmarking study by Pacific Bell, in order to improve its systems for measuring customer satisfaction, were USD 70 000, whereas the annual savings were estimated at USD 5 million annually, with the potential for more savings <sup>(11)</sup>. According to Robert Camp, often called the initiator of the 'benchmarking wave', the payback experienced in benchmarking activities is generally 5 to 25 times the investment <sup>(12)</sup>.

It has to be noted that, especially concerning environmental issues, costs and benefits cannot always be expressed in quantitative terms. If there are improvements in air quality as a result of a benchmarking exercise, it might not be possible (or not appropriate) to express all the benefits in financial terms. Also, benefits like the creation of networks and partnerships are difficult to quantify. These qualitative aspects have to be taken into consideration when assessing the usefulness of a benchmarking study in the environmental field.

Additionally, some of the specific attractions of benchmarking are as follows <sup>(13)</sup>.

1. Benchmarking helps the organisation understand and develop a critical attitude to its own business processes. It helps to **overcome complacency** ('it's OK the way it is') and convince the 'non-believers'.
2. Benchmarking promotes an active process of learning in the organisation and motivates change and improvement. It can break down ingrained reluctance to change and create momentum — **employees become more receptive to new ideas**.
3. Through benchmarking, the organisation can find sources for improvement and new ways of doing things outside their own organisation **without trying to reinvent the wheel**.
4. Through benchmarking, reference points for measuring the performance of the organisation's business processes are established. It **provides early warning** for lagging cost structures, customer satisfaction, technology and business

(9) Fischer, R., 'An overview of performance measurement', appeared in *Public Management*, September 1994 (<http://www.icma.org/abouticma/programs/performance/PM-pmoverview.9-94.cfm>).

(10) Andersen, B. and Pettersen, P.-G., *The benchmarking handbook. Step-by-step instructions*, Chapman & Hall, London, 1996, p. 131.

(11) Camp, R. C., *Global cases in benchmarking. Best practices from organisations around the world*, ASQ Quality Press, Milwaukee, Wisconsin, 1998, p. 198.

(12) The Inter-Agency Benchmarking and Best Practices Bureau, Speakers' Bureau, *Understanding the search for best practices: An interview with Dr Robert Camp*, by James J. Cavanagh, 1996 ([http://www.va.gov/fedsbest/spkr\\_camp.htm?B1=Camp+Interview](http://www.va.gov/fedsbest/spkr_camp.htm?B1=Camp+Interview)).

(13) Andersen, B. and Pettersen, P.-G., *The benchmarking handbook. Step-by-step instructions*, Chapman & Hall, London, 1996, p. 8.

processes. It can also correct inaccurate perceptions about competitor strengths, weaknesses and strategies.

## 2.2. Environmental benchmarking

### 2.2.1. Definitions

How is 'environmental benchmarking' different from 'normal benchmarking'? Principally, the idea and methodology of environmental benchmarking do not differ from any other benchmarking process. In fact, it could be questioned whether the term 'environmental benchmarking' should be used at all. In order to avoid misunderstandings, it might be more appropriate to use expressions like 'benchmarking of environmental performance', 'benchmarking for continuous environmental improvement', 'benchmarking for cost improvement in waste management' or 'benchmarking of environmental strategies', depending on the scope of the benchmarking process.

As with general benchmarking, there are different notions about what environmental benchmarking actually means. Often, the term 'environmental benchmarking' refers simply to listing and comparing or ranking environmental performance of different organisations. For example, the efforts of third parties such as environmental NGOs to compare and rank air emissions or waste figures of different companies, or performance of products, are often called benchmarking. However, if environmental benchmarking is understood as an improvement tool, it should go further. It should involve analysing the practices which lead to superior environmental performance.

The following box lists two definitions of environmental benchmarking.

'Environmental benchmarking' is a structured approach to rigorously examining and comparing, from an environmental perspective, the processes supporting different business activities. The objective of environmental benchmarking is to identify and assess the abilities and attitudes an organisation must have to excel in business and environmental performance simultaneously' (14).

'Environmental benchmarking' is an environmental management tool that can provide a substantial contribution to the improvement of environmental performances by facilitating the identification of the gap between company performance and a given performance. Any process or business activity can be a candidate for environmental benchmarking' (15).

There might be some controversy about whether the aim of environmental benchmarking should in the first place be an improvement from the environmental point of view, or whether the driver for improvement is, at the end of the day, simply costs. The definition by Szekely et al. stresses that the goal of environmental benchmarking is excellent environmental performance, which should go along with superior economic performance. A best practice in this sense should conserve the environment and at the same time be cost-effective.

Summarised, it could be said that environmental benchmarking is about finding out how 'best-in-class' organisations achieve high performances in managing the environment or eco-efficiency, and about trying to adapt these superior practices to the own organisation. Eco-efficiency in this case refers to better environmental quality and higher citizen satisfaction at lowest possible costs.

### 2.2.2. What is benchmarked in environmental benchmarking?

The scope of environmental benchmarking needs to encompass all areas of an organisation's activities. Improvements are not limited to manufacturing processes. The subject of environmental benchmarking can be (16), for example, development, resource assessment, environmental accounting, environmental performance measurement and data management systems, energy management, waste prevention and minimisation, emergency response systems,

(14) Szekely, F., Vollmann, T. and Ebbinghaus, A., 'Environmental benchmarking. Becoming green and competitive', *Business and the Environment — Practitioner Series*, Stanley Thornes Ltd, Cheltenham, 1996.

(15) European Environmental Benchmarking Network, *Background*, Fondazione Eni Enrico Mattei, 2000 (<http://www.eebn.org/>).

(16) Szekely, F., Vollmann, T. and Ebbinghaus, A., 'Environmental benchmarking. Becoming green and competitive', *Business and the Environment — Practitioner Series*, Stanley Thornes Ltd, Cheltenham, 1996, p. 58.

environmental education and training systems, customer service, environmental policy development, or auditing practices.

Environmental benchmarking can also be used to improve environmental management systems in general. For example, an investor-owned utility wanted to compare the development of its environmental management system to its competitors and non-competitors. As a result of the study, the utility learned what was and was not successful in its relationship with regulators, where its management system could be improved, and where it stood along a spectrum of 'enlightened companies' (17).

Benchmarking helps to focus more closely on an area for improvement. Which areas are benchmarked is determined by an organisation's specific goals, which again are determined by the customer/stakeholder needs.

### 2.3. Different types of benchmarking

Benchmarking activities can have very different objectives and scopes, and there is no single way to approach benchmarking. Different types of benchmarking processes can be distinguished, and one way of classifying them is according to **what** is compared and **against whom** comparisons are made.

#### Benchmarking of what (18) (19)?

- **Performance (or data) benchmarking** ('How well should we be doing it?') is the comparison of performance measures (often financial, but also operational). According to the definition provided in Section 2.1.1, this is not strictly benchmarking as such but an analysis of benchmark data. The benchmark might be a standard or target that has been established (internally, a nationally defined target or a target set by a professional advisory group) or performance data of other organisations.
- **Process benchmarking** ('How do others achieve it?') is the comparison of methods

and practices for performing business processes, for the purpose of learning from the best to improve one's own processes. It goes beyond the pure analysis of performance data and tries to identify the design and characteristics of a process, that is the best practices that lie behind the good performance of others. The concept of 'a process' is a critical one for benchmarking. The technical description is that a process is a set of activities that convert inputs into outputs, which meet agreed customer requirements.

- **Strategic benchmarking** ('What should we be doing?') is the comparison of the strategic choices and dispositions made by other organisations, for the purpose of collecting information to improve one's own strategic planning and positioning.

#### Benchmarking against whom (20)?

- **Internal benchmarking** is the comparison between departments, units, subsidiaries, or countries within the same company or organisation.
- **Competitor benchmarking** is the direct comparison of own performance/results against the best real competitors, i.e. that manufacture the same product or deliver the same service.
- **Functional benchmarking** is the comparison of processes or functions against non-competitor organisations (e.g. customer, suppliers) within the same industry or technological area. It tends to involve comparisons between firms that share some common technological and market characteristics and to concentrate on specific functions. For example, Telecom Australia might benchmark its billing process against the billing process of British Telecom, or Disney World and an open-pit coalmine could benchmark their maintenance of hydraulics. The big advantage of functional benchmarking is that it is easier to identify willing partners, since the information is not going to a direct competitor.
- **Generic benchmarking** is the comparison of own processes against the best processes around, regardless of industry or service. It is the study of innovative methods or

(17) GEMI (various authors), *Benchmarking: The primer. Benchmarking for continuous environmental improvement*, GEMI (Global Environmental Management Initiative), Washington DC, 1994.

(18) Andersen, B. and Pettersen, P.-G., *The benchmarking handbook. Step-by-step instructions*, Chapman & Hall, London, 1996.

(19) Accounts Commission for Scotland (various authors), *Measuring up to the best. A manager's guide to benchmarking*, Management Studies Unit, Edinburgh, 1999.

(20) Andersen, B. and Pettersen, P.-G., *The benchmarking handbook. Step-by-step instructions*, Chapman & Hall, London, 1996, p. 6.

Table 2.1. Different benchmarking types

Source: Andersen, B. and Pettersen, P.-G., *The benchmarking handbook. Step-by step instructions*, Chapman & Hall, London, 1996.

	Internal benchmarking	Competitor benchmarking	Functional benchmarking	Generic benchmarking
<b>Performance benchmarking</b>	Important and necessary process, but does not show what performance is really possible	Gives external reference points. Good comparability of performance indicators	Useful for certain aspects, but comparability not always given	Low comparability of pure figures due to differences in processes and products
<b>Process benchmarking</b>	Good place to start and learn about benchmarking, but no breakthrough ideas can be expected	Would be very useful, but legal and ethical limitations to sharing process information	Good way for finding new ideas, and less ethical and legal limitations than competitor benchmarking	Best way for finding breakthrough ideas and achieving fundamental improvement
<b>Strategic benchmarking</b>	Difficult to find clues on better strategies internally	Competitors are best partners to get ideas about strategies and planning	Not too useful because of differences in business idea	Not too useful because of differences in business idea

High relevance/value
  Medium relevance/value
  Low relevance/value

technologies that can be used in a variety of business processes. It compares your own process with one that was designed for a different use, but which can be adapted to your process. For example, in order to improve fast patient admission in hospitals, comparing with hotel receptions could give new ideas. This type of benchmarking requires more creative effort and is therefore more difficult to do. However, the potential for identifying new technologies or practices that will lead to breakthroughs is highest in generic benchmarking. One example is the spread of bar coding from industry to industry. Especially concerning environmental management, it could be said that successful practices are rarely industry-specific, and may therefore easily be adopted elsewhere.

Some combinations of 'types' of benchmarking are more relevant than others. Table 2.1 gives an overview of what combinations of the different types are supposed to give the highest benefits.

Looking at companies' benchmarking experience, it could be said that in many cases there is some kind of succession in the types of benchmarking used, which is '**data benchmarking before process benchmarking**' and '**internal benchmarking before external**

**benchmarking**'. Process benchmarking cannot be performed if the organisation does not have an idea about the areas of insufficient performance. If an organisation decides to do process benchmarking with no prior benchmarking experience, it is often recommended to start with internal benchmarking before looking for external partners, for example benchmarking between sister plants or strategic business units. However, especially concerning the environment, it is very likely that breakthrough ideas are not found internally. But still, it could be said that internal benchmarking is 'the place to start and to learn' about how to benchmark <sup>(21)</sup>.

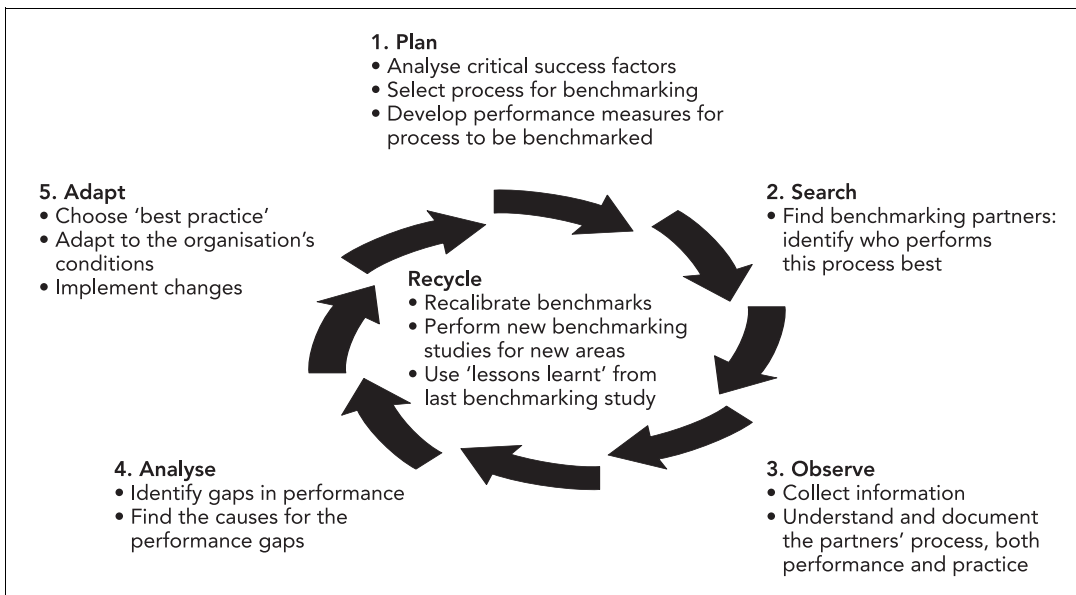
## 2.4. The process of benchmarking

Benchmarking is a process — a series of actions, steps, functions, or activities that bring about an end or a result: the identification and importation of best practices to improve performance <sup>(22)</sup>. As explained in Section 2.3, there are several types of benchmarking, and the steps of action can therefore differ. The following focuses on **process benchmarking**, as this is the source for 'true' improvement. The objective is to learn how to design and operate processes in a much better way than is currently happening.

(21) Szekely, F., Vollmann, T. and Ebbinghaus, A., 'Environmental benchmarking. Becoming green and competitive', *Business and the Environment — Practitioner Series*, Stanley Thornes Ltd, Cheltenham, 1996, pp. 26 and 58.

(22) Keehley, P., Medlin, S., MacBride, S. and Longmire, L., *Benchmarking for best practices in the public sector. Achieving performance breakthroughs in federal, state, and local agencies*, Jossey-Bass Publishers, San Francisco, 1997, p. 39.

The benchmarking wheel Figure 2.1.



There are dozens of sources which describe the benchmarking process. It is called by some 'the nine-step benchmarking process', or by others 'the four steps of benchmarking'. The following description is based on Andersen and Pettersen, which call the process 'the benchmarking wheel', in order to indicate that benchmarking is an ongoing process (23).

The time required (and, accordingly, also the costs) for a process benchmarking study depends on the scope and depth of the study, but it normally takes at least 8 months, and up to 18 months. The actual full implementation of improvements can take much longer, depending on how radical the change is.

**2.4.1. Plan**

The planning phase is the most crucial of all the phases. It includes the following activities.

**Select the process to be benchmarked**

This selection should be based on the organisation's strategy. An organisation should not embark on a benchmarking study without a clear strategic vision. Without clear strategic objectives, the benchmarking study may focus on issues that do not have the potential to deliver the improvement the benchmarking study is aiming at (24).

The process to be benchmarked can be selected, for example, according to the

impact of the process on the company's **critical success factors (CSFs)**, on the importance of the process for the main functions of the company, and according to whether the process represents or impacts on obvious problem areas in the organisation.

*(a) Selecting the process based on CSFs*

A critical success factor can be defined as a limited number of factors that highly impact on the organisation's competitiveness, for example price, delivery time, quality, or product attributes. There are dozens of tools for identifying CSFs, and for assessing performance and importance of certain processes in respect of these CSFs. The spider chart is included as an example of a very popular tool for assessing the performance of the own organisation's critical success factors and comparing them to the competitors.

After defining and ranking the CSFs, as well as identifying areas of performance gaps, the next step is to identify which processes influence these CSFs. The process to be benchmarked might then be one that has a very high importance for a certain critical success factor, and at the same time shows very low performance.

*(b) Selecting the process based on the organisation's main functions*

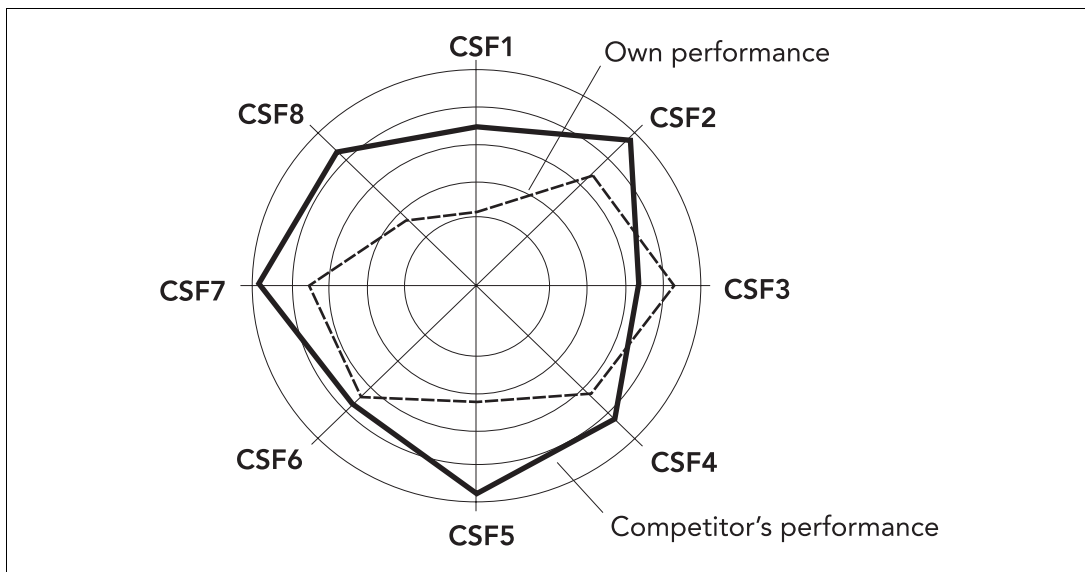
The process can also be selected according to its relation to the organisation's main functions, such as marketing, purchasing,

(23) Andersen, B. and Pettersen, P.-G., *The benchmarking handbook. Step-by-step instructions*, Chapman & Hall, London, 1996.

(24) van Schalkwyk, P. W., 'Benchmarking', in Smit, E. and Morgan, N. (eds), *Contemporary issues in strategic management* (various authors), Kagiso Publishers, Pretoria, 1996.

Figure 2.2.

Spider chart for comparing critical success factors (CSFs)

**Example: The spider chart — see figure 2.2.**

Each spoke in the web represents a CSF. Input for construction of the chart will typically be market surveys, industry statistics, etc. The performance level of the CSF is indicated by marking a point on the spoke. The further out on the spoke the point is marked, the better the performance.

By plotting one's own and others' performance profiles, a highly illustrative picture of the situation is formed.

research and development activities, finances, manufacturing, etc. In this case, the benchmarking study will focus on a main function that is considered to perform unsatisfactorily. The process which will be chosen to be benchmarked will consequently be one that is very important for the success of that particular main function.

**Form the benchmarking team**

The benchmarking team should consist of a process owner, one or more of those who perform the process, one person with connection to management, and preferably a supplier and a customer. One person can take several roles, depending on the size of the study. Persons that are significantly involved in the process should take part in the benchmarking study, as their commitment is very important for the success of the whole study.

**Understand and document the process to be benchmarked**

Prior to observing the processes of benchmarking partners, it is extremely

important to understand one's own process. The process has to be defined in terms of input and output and the parties involved in the process, such as suppliers and customers. This has to be for the whole process as well as for the steps within the process.

After constructing a detailed flow chart of the process, some misconceptions and illogical steps might be identified, and **often first improvements can already be made at this point.**

**Establish performance measures for the process**

In order to determine the present levels of performance and compare them to benchmarking partners, performance measures for the process have to be established. The three main dimensions often mentioned for performance measures in industry or services' benchmarking are **quality** (e.g. defect rates), **time** (e.g. delivery times), and **cost**. If the focus of a benchmarking study is on environmental improvement, then certainly **environmental performance** has to be either stressed as a 'fourth dimension' or integrated into the other three (e.g. quality understood as environmental quality, and costs as environmental costs).

Many indicators are used to describe the **environmental performance** of an organisation (e.g. amount of waste, energy use) or the state of the environment as such (e.g. air quality, water quality) <sup>(25)</sup>. However,

(25) Federal Environmental Ministry and Federal Environmental Agency, *A guide to corporate environmental indicators*, BMU/UBA, Bonn/Berlin, 1997.



in order to analyse an organisation's efforts and its efficiency, it is also important to incorporate indicators that aim at describing the actual **management concerning the environment**. Such indicators could be, for example, the number of environmental audits conducted, hours of staff member training, or supplier assessments <sup>(26)</sup>.

Looking at the types of environment-related indicators, it is important to distinguish between **absolute and relative indicators**. From an ecological point of view, the absolute indicators are the primary focus, since they represent the organisation's total consumption of resources and emissions into the environment (e.g. total water use, total emissions of CO<sub>2</sub>). However, in comparing efficiency aspects of individual departments or organisations, these absolute indicators must be related to a reference figure (e.g. number of employees or inhabitants, annual output volume). In this sense, the relative indicators represent an organisation's environmental performance relative to its size or production capacity. In order to get a comprehensive picture of the situation and draw the right conclusions, absolute and relative indicators have to be used together.

Environment-related indicators can be **quantity- or cost-related**. Environmental indicators are often quantity-related, i.e. physical measurements such as tonnes (e.g. tonnes of waste) or items (e.g. number of violations against environmental laws). It is important, however, to develop environmental cost indicators at the same time. Cost-related information can be used for absolute indicators (e.g. total costs for waste management) as well as relative indicators (waste management costs per tonne of disposed waste).

#### 2.4.2. Search

A primary task is to search for and identify suitable benchmarking partners. This includes the following activities.

- Design a **list of criteria** which an ideal benchmarking partner should satisfy. Criteria can cover issues such as geographical location, size, structure, products, technology, industry, and organisational climate.
- Search for **potential benchmarking partners**, i.e. organisations that are better

than oneself at the process in question. Sources of information about benchmarking partners could be the organisation's network, subject and area experts, industry and trade organisations (statistics, conferences, exhibitions), publications, the media, or public information such as national statistics or trade offices. It also has to be remarked that there is an increasing amount of benchmarking networks and associations for different industries and processes, which are specialised in providing performance data and in helping companies to find partners.

- **Compare the candidates** and select the best-suited benchmarking partner(s). It is recommended to select more than one possible benchmarking partner.
- **Establish contact** with the selected partner(s) and gain acceptance for participation in the benchmarking study.

Benchmarking is also about establishing an environment or network where it is accepted and legitimate to compare one against the other. One can benefit from contacts that can be actively used for later studies.

#### 2.4.3. Observe

The purpose of the observation phase is to study the selected benchmarking partner(s) to understand its(their) processes. Before visiting the partner organisation, the organisation performing the benchmarking study should be **well prepared**. This means that it should know its own process very well, and also that it should have gathered as much information as possible about the benchmarking partner beforehand. A site visit should not be used to obtain trivial information that can be gathered, for example, from publicly available data.

The steps of the observation phase are as follows.

#### Assess the information needs

Information on three levels should be collected.

1. **Performance levels**, which indicate how good the partner is compared to oneself.
2. **Practices or methods**, which make it possible to achieve these performance levels.

(26) Federal Environmental Ministry and Federal Environmental Agency, *A guide to corporate environmental indicators*, BMU/UBA, Bonn/Berlin, 1997.

Table 2.2. Scorecard analysis for rates notification

Indicator	Council					
	Launceston		Munno Para		Manly	
Customer satisfaction	4.5		4.3		3.8	
Quality (%)	99.9		99.1		99.5	
Response time	3		14		14	
Unit cost	US	Australia	US	Australia	US	Australia
	USD 2.27	AUD 2.79	USD 2.40	AUD 2.95	USD 8.77	AUD 10.79
Value index	53.7		10.3		2.5	

3. **Enablers**, which make it possible to perform the process according to these practices or methods.

#### Select the method and tool for collecting information and data

There are many ways to collect data, and the organisation has to select the most efficient and suitable way. Different tools can be used, such as questionnaires, interviews, or direct observations. Also, it has to be decided how these tools shall be used, for example whether a questionnaire should be sent by mail, whether it should be done over the telephone, or whether it should be filled in during a personal interview. Even a certain tool can be designed in many ways. The way the questions are posed in an interview, for example, can influence the outcome considerably.

#### Observe and debrief

It is important that after the visit a debriefing is conducted as soon as possible in order not to lose any details of the observation which might not have been put down on paper.

#### 2.4.4. Analyse

The main purpose of the analysis phase is to uncover the following.

- *Gaps in performance levels between own and partners' process*

The collected data and information have to be sorted, controlled for quality, and normalised before they can be analysed for performance gaps. However, the team has to be aware of not 'normalising away' all the explanations between the performance gaps. Often, for the analysis, some kind of comparison matrices are made to present performance measures collected from the benchmarking partners.

#### Example: Scorecard analysis — see table 2.2.

The following table is an example of a scorecard analysis for benchmarking of rates notification and collection, produced in an Australian local government benchmarking project in 1995<sup>(27)</sup>. The indicators shown in the scorecard are aggregated and normalised values. For example, the indicator 'customer satisfaction' is composed of aspects concerning payment facilities, payment periods, and ease of understanding the rates notice. The unit cost was calculated as the total cost for the rates process divided by the total number of rates notices issued.

- *The causes of the gaps, i.e. the methods and practice that make it possible for the partners to achieve their high performance levels*

For the analysis of the causes, different tools can be used, such as comparison of flow charts, qualitative data matrices, relations diagrams, root-cause analysis, or the cause-and-effect diagram (also called the fishbone diagram).

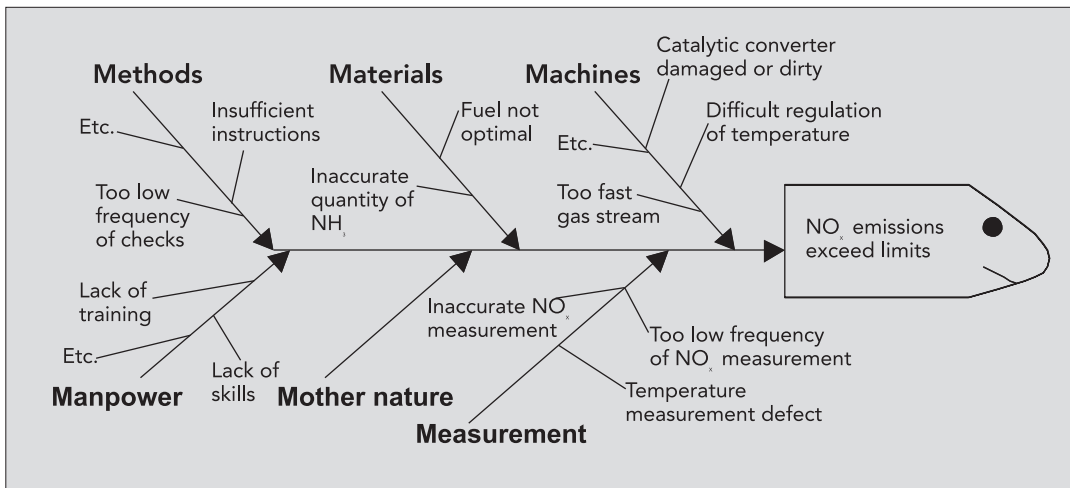
- *The enablers that particularly contribute to the gaps*

It can be observed that often, having visited one or more partners, the study can lose some of its momentum. The team might lose some of the motivation to start the analysis, and the quality of the results will accordingly be poorer. The team might not manage to find any performance gap and the causes of it. Very often, it will be hard to find and collect numerical data from the partners, which will, to a large extent, eliminate the quantitative part of the analysis. Instead of first determining a performance gap, one will proceed directly to identifying **why the partners are better**. This part of the analysis will be based more on qualitative observations.

(27) Williams, S. E., 'National Australian local government benchmarking project', in Camp, R. C., *Global cases in benchmarking. Best practices from organisations around the world*, ASQ Quality Press, Milwaukee, Wisconsin, 1998.

The fishbone diagram

Figure 2.3.



**Example: The fishbone diagram (cause-and-effect diagram or Ishikawa diagram) (28)**  
— see figure 2.3.

The fishbone diagram is a quality management tool, which helps to analyse factors that might contribute to a certain problem. It visualises very well the interrelationships between these possible causal features. The effect, i.e. the problem, is represented as the head of the fish, whereas the different causes are represented by the bones. For the construction of the fishbone, the causes can be classified according to different criteria. In manufacturing, the concept of the '6M' is often used (machines, methods, materials, measurements, mother nature, manpower). The service industry often applies the '4P' concept (policies, procedures, people, plant/technology). The causes can also be divided according to the different steps in a process. This qualitative analytical tool can, of course, be used in combination with other tools, for example quantitative tools, in order to analyse further the identified possible causes.

**2.4.5. Adapt**

The main findings from the analysis phase must be communicated and gain the acceptance of the involved persons, otherwise the study will not be successful. Simply identifying best practices without importing them to one's own organisation is not benchmarking. The findings have to be adapted to the organisation's own conditions and implemented within it. Improvement opportunities have to be identified, targets for improvement set, measures implemented, and progress monitored. Furthermore, the benchmarking study should be well documented and closed with a final report.

**2.4.6. Recycle**

Benchmarking should not be a one-time event but a **continuous process for improving the organisation's performance**. Benchmarks identified in benchmarking processes are not static. They will change as organisations improve their processes, and therefore have to be recalibrated.

The long-term objective is to establish benchmarking as a natural problem-solving and improvement technique on the level of other more established methods. Thus, benchmarking can be put to work in different situations:

- for developing goals, strategic or operational, benchmarking can be used to ensure that sufficiently ambitious goals are set;
- for specific problems which the organisation is facing, benchmarking can contribute to finding solutions by studying others which have already solved similar problems.

**2.5. Current activities in the industry**

There are several organisations that maintain databases of environmental performance (and practice) data in various industry sectors, such as 'Contour environment, health and safety benchmarking' by the Confederation of British Industry (CBI) (29) and Enviro-Mark (30). Member companies

(28) <http://www.pollutionprevention.com> and [http://qsilver.queensu.ca/comm241/c341\\_tools.html](http://qsilver.queensu.ca/comm241/c341_tools.html) - School of Business, Queens University at Kingston, Canada. Viewed 16 January 2001.

(29) See appendix.

(30) See appendix.

can access these databases and compare their environmental performance with competitors.

However, many organisations are more interested in discovering how others actually tackle environmental issues than simply ranking themselves against each other. There are not many professional environmental benchmarking associations and networks equivalent to the dozens of other benchmarking associations existing for the industry, dedicated to different themes or industries, such as the Human Resources Benchmarking Association<sup>31</sup>, the Distribution and Logistics Management Benchmarking Consortium, or the Automotive Suppliers' Benchmarking Association. Some organisations and initiatives with environmental focus have, however, emerged in the last few years, such as SHEiiBA and the EEBN.

**Example: SHEiiBA** <sup>(31)</sup>

SHEiiBA (Safety, Health and Environment Intra Industry Benchmarking Association) was launched in 1996 and is operated by the UK-based Corporate Benchmarking Services. It provides health, safety and environment (HSE) professionals around the world with a mechanism to benchmark their management processes, accident/injury performance, HSE personnel resources, and environmental practices and performance with organisations from their own and other sectors. The idea is based on the view that successful practices are rarely industry-specific and may easily be adopted elsewhere.

The principle is that of a mutual exchange of data, information and know-how between participants who contribute small amounts of data to a bank of information from which they can withdraw significantly greater amounts on demand. SHEiiBA gathers information by sending out a questionnaire. The answers are not limited to quantitative information, but members can write detailed descriptive narrative. The organisations' answers are then summarised on a CD-ROM, which can be used by the members. SHEiiBA has members from different industry sectors, and also from public services and a local authority.

**Example: EEBN** <sup>(32)</sup>

Established in 1999, the European Environmental Benchmarking Network is an initiative of the European Commission, implemented by the Fondazione Eni Enrico Mattei (Italy), the International Network for Environmental Management (INEM), the Technical University of Delft (the Netherlands), Groundwork Blackburn (UK) and the European Chemical Industry Council (CEFIC). The SERM Rating Agency (UK) is actively involved in the design and support of the network.

The EEBN aims at building a network of interested parties — particularly firms and associations — on environmental benchmarking. The general objective of the EEBN is to stimulate the use of benchmarking techniques to the environmental management domain. The role of the EEBN could be summarised as follows:

- to show the benefits of the application of benchmarking techniques through the diffusion of case studies;
- to provide members and users of benchmarking techniques, particularly SMEs, with contacts and references, information on benchmarking techniques, and information on availability and reliability of data.

Themes for benchmarking areas will in a first phase be environmental benchmarking in SMEs and the supply chain, in the chemical sector, and in the financial sector.

The main products and tools of the network are a newsletter (of which the first one was published in March 2000), a series of events (workshops), a web site and a publication with case studies on best practices in environmental benchmarking techniques.

Environment-oriented industry NGOs like GEMI (Global Environmental Management Initiative) also foster benchmarking activities among their members and have issued several benchmarking reports, for example about EHS cost accounting practices, EHS information management system issues, EHS auditing, or partnering with suppliers.

Often also national databases, like the 'Toxics release inventory' (TRI) in the United States, are used to compare emissions or waste generation. This is often done by third parties such as environmental NGOs, without active involvement of the concerned organisations. The results are then published in order to depict the 'bad performers' and build awareness among the citizens. For example, the 'Scorecard' is an information service provided by the US Environmental Defense. This information service gives access to pollutant emission data, land contamination

(31) SHEiiBA (Safety, Health and Environment Intra Industry Benchmarking Association), *Home — Information* (<http://www.sheiiiba.org/info.html>).

(32) EEBN, 'EEBN — The European Environmental Benchmarking Network', communication sent to interested partners, EEBN, 2000 (<http://www.eebn.org>).

and certain types of waste in any community <sup>(33)</sup>, based on authoritative scientific and government data (e.g. the TRI). The 'Scorecard' <sup>(34)</sup> can rank and compare the pollution situation across the US, and rankings can be made by state, by county, by community or by facility. For example, it can be seen from this database that Baton Rouge, LA, has the highest amount of reported emissions of ozone-depleting chemicals (CFC-11 equivalents) within the United States. Which facilities are responsible for the main part of this pollution can also be extracted. The UK-based Friends of the Earth's 'Factory

Watch' <sup>(35)</sup> is a similar service, offering league tables concerning different types of pollution by factories. The UK Environment Agency has published the 'Hall of Shame' <sup>(36)</sup> since 1998, where it 'points the finger at guilty polluters' by producing a list of businesses which have been found guilty of offences against the environment. The company ICI, with total fines of GBP 382 500, was at the top of the league table in 1998. Such initiatives are mostly targeted towards the public, in order to raise awareness and support the citizens' 'right to know' about pollution in their surroundings.

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(33) Sources of land contamination, hazardous air pollutants, criteria air pollutants, chemical releases from manufacturing facilities, animal waste from factory farms.

(34) <http://www.scorecard.org> — *Scorecard*, US Environmental Defense, 257 Park Avenue South, New York 10010.

(35) <http://www.foe.co.uk/factorywatch/> Friends of the Earth — *Factory Watch*.

(36) <http://www.environment-agency.gov.uk/files/shame.htm> — *Environment Agency environment issues — Hall of Shame Int.*

## 3. Environmental benchmarking for local authorities

### 3.1. Why should local authorities do environmental benchmarking?

The reasons for benchmarking in local authorities are basically the same as for private companies. The responsibilities for environmental protection and providing environmental services are increasing, and so are the costs related to them. Communities want to improve the quality of their services, and they have to do it in a cost-efficient way.

With general **cost pressure**, the public sector is increasingly adapting practices used in the private sector, and concepts like ‘new public management’ (NPM) <sup>(37)</sup> are gaining importance in public services. Local authorities have to increase **transparency** — towards the government as well as towards the public — about how they are using the taxpayers’ money. This also applies to environmental responsibilities. The public wants a healthy environment; however, it still has to be affordable and traded off against other needs. This means that local authorities have to learn how to identify and improve areas of insufficient performance.

Often, municipalities use legal standards as benchmarks concerning environmental quality, and therefore set their goals according to these standards (e.g. environmental quality standards, emission limits). However, especially concerning costs of environmental protection or the citizens’ satisfaction concerning environmental services, due to lack of comparison municipalities **often do not know how well or how badly they are really performing** and at what level they should set their goals. Comparisons with other cities and towns can in this sense help them to find out where they stand and where the performance gaps are.

Environmental friendliness is also increasingly used as a marketing argument for cities in order to be more attractive for tourism or business. Such **competition**

between communities provides further incentives to measure their environmental performance and to compare themselves with other communities.

Even if a local authority knows where it is not performing well, it might not have enough resources to develop own tools or own technologies which can lead to the envisioned improvement. Certain processes are chronically performing badly and the involved persons might run out of good ideas on how to improve them. The core idea of benchmarking is to learn from others’ best practices. It can prevent trying to reinvent the wheel by simply looking at how others do it. Best or good practice databases on sustainable urban management are increasingly built up with the aim of exchanging ideas and practices, and they can support benchmarking efforts.

Environmental issues and ways for improvement should not be tackled in an isolated way. Improvements in the environmental dimension have to be compatible with financial constraints and social issues. This report takes this into consideration, focusing on areas and processes which concern environmental responsibilities of local authorities.

### 3.2. What and how to benchmark?

#### 3.2.1. What can be benchmarked?

As stressed in Section 2.4, benchmarking always happens with a specific objective in mind. It has to be clear what has to be benchmarked and what should be the expected outcome. What should be the goal of environmental benchmarking in the case of a community? Overall, it can be said that **the idea is to find out how other communities manage to be ‘eco-efficient’**, meaning how they manage to get a required (or an optimal) degree of environmental protection and citizen satisfaction with the lowest use of financial resources.

(37) The new public management concept emphasises ‘performance appraisal and efficiency; the disaggregation of public bureaucracies into agencies which deal with each other on a user-pay basis; the use of quasi markets and contracting out to foster competition; cost-cutting; and a style of management which emphasises, amongst other things, output targets, limited term contracts, monetary targets and incentives, and freedom to manage’ ([http://www.willamette.edu/~fthomps/Public\\_MANAGEMENT.html](http://www.willamette.edu/~fthomps/Public_MANAGEMENT.html)).

Local authorities have many responsibilities that are environmentally relevant. Depending on the size and the structure of the community, these responsibilities are carried out by a separate department or integrated into another department. Sometimes, it might be difficult (or impossible) to draw a line between ‘environmental’ and ‘non-environmental’ areas. The following list provides an overview of some of the main responsibilities.

- Procurement (in-house ecology, procurement for public buildings, etc.)
- Urban and spatial planning
- Traffic policy (public transport, traffic-reduction measures, road safety, etc.)
- Construction
- Maintenance of green areas and biodiversity
- Energy management (energy planning, building design, standards in insulation, heating efficiency, etc.)
- Noise abatement
- Water management (providing drinking water, protection of water, wastewater treatment, etc.)
- Air (emission control, enforcement, etc.)
- Soil protection (identification and remediation of contaminated sites, protection from erosion, acidification, etc.)
- Waste management (education of public, waste collection, reuse, recycling, proper disposal, etc.)

Different aspects concerning these areas can be the focus of a benchmarking effort:

- state of the environment (environmental quality, e.g. air quality, soil quality);
- resource management (e.g. water saving, waste reduction);
- costs of environmental protection (e.g. waste management costs, soil remediation costs);

- quality of provided environmental service, measured in customer satisfaction. The customers are in this case the citizens and the businesses/organisations located in the area (driver might be increased or chronic complaints);
- efficiency and effectiveness of enforcement (driver for improvement might be high costs, low customer satisfaction, or insufficient environmental performance of enforced processes);
- monitoring and performance measurement methods;
- environmental management systems;
- policies for influencing the drivers of pollution.

Benchmarking can be performed for a very specific process, or it can be on a higher level and relate more to organisational issues or policies. Deciding what to benchmark does not necessarily pre-define the purpose of the project. The goal of the improvement might concern the actual quality of the state of the environment in one case, whereas in another case the focus could be on environmental costs or the satisfaction of the citizens with environmental services. The public’s needs and opinions should in any case be taken into consideration when deciding on which processes to improve and benchmark. After all, the citizens’ notion of environmental quality and the willingness to pay for it might differ very much from one city or region to another.

As discussed in Section 2.3, there are different types of benchmarking. Which one is the most appropriate depends on the objectives of the benchmarking and the chosen area. The different types of benchmarking require different tools and yield different benefits. Chapter 4 proposes a framework for classifying environmental benchmarking for communities. The advantages and drawbacks of the different types are further elaborated in the Sections 4.1 to 4.5.

### 3.2.2. Who to benchmark against?

There are certain constraints to how comparable different communities are concerning environmental matters (see Section 3.3). Choosing the right partners to benchmark against can be crucial for finding ideas for improvement and drawing the right

conclusions. The type of benchmarking used and the objectives of the benchmarking will influence the criteria for choosing benchmarking partners. Factors that might influence the criteria for choosing partners for environmental benchmarking at local level are as follows <sup>(38)</sup>.

- *Demonstrated performance.* The benchmarking partner should have a good or 'best' performance in the area that is planned to be benchmarked.
- *Geographic location.* The location of a partner, the climate and the geographical features might weigh heavily on selection criteria, especially in the environmental field.
- *Organisational structure.* The allocation of environmental responsibilities can differ very much between local authorities of different countries, which does not always allow comparability.
- *Type of government.* In some cases, it may be important that a partner represent a particular form of government. Differences in legislation can constrain comparability and adaptability considerably. A best practice that is applied in one city might not be applicable in another city because the competencies are distributed in a completely different way.
- *Size of partner community or organisation.* Certain environmental problems or the design of policies might be very much tied to the size of the community.
- *Work processes.* The simplest benchmarking project is one that directly compares a particular function or process to virtually the same process or function in another organisation. The more experienced and proficient an organisation becomes at importing best practices, the better able it is to search for partners that are less similar to itself. A city could also find benchmarking partners for certain processes in the private industry.
- *Performance measures.* A community may prefer to select all partners from a common database in order to have a guarantee of data availability and better comparability.

- Number of functions to be benchmarked.
- *Demographics.* Characteristics of the jurisdiction, such as unemployment rate, average income and years of education, etc., may influence partner selection. Other important considerations may be urban versus rural environment, average age, family size, and mode of transportation. The community should select only the demographics that are relevant to the project.

The next question is how the desired benchmarking partners can be found. It may be very difficult for a community to find out which partners could suit their criteria. Sources of information about possible partners can be:

- national or regional statistics;
- environmental reports by regions or communities — increasingly, environmental reports are also made available on the Internet, which facilitates the search;
- conferences, seminars, articles in magazines and newspapers;
- reports and databases issued by NGOs or researchers;
- best and good practice databases;
- networks of local authorities/cities and personal contacts.

Often, benchmarking partners are simply chosen on the basis of data availability. Municipalities are chosen as partners because they have done much in the field of performance measurement and development of indicators and have communicated this. However, they might, in fact, not be very suited for comparisons due to different legislation or different geographic characteristics. The current information availability might in many cases not be sufficient for finding appropriate benchmarking partners, especially for process benchmarking. Exchange of good or best practices is still quite a recent phenomenon, but it could be expected that it will rapidly increase, due to the growing

(38) See also Keehley, P., Medlin, S., MacBride, S. and Longmire, L., *Benchmarking for best practices in the public sector. Achieving performance breakthroughs in federal, state, and local agencies*, Jossey-Bass Publishers, San Francisco, 1997, p. 134.



number of policies and charters supporting it. Furthermore, such activities will be increasingly facilitated with the growing use of the Internet. The Internet with all its possibilities for structuring data and its search functionalities offers an ideal platform for information exchange.

### 3.3. Possible problems and barriers with environmental benchmarking

In the spirit of new public management and similar models, benchmarking is a tool that has already been introduced for some years in many municipalities in Europe. However, these benchmarking studies have so far hardly ever concerned environmental issues. One reason could be the fact that environment-related costs and benefits are often problematic to identify and quantify (see also Section 2.1.2). It might be difficult to justify the effort of a benchmarking study because the 'real' environmental costs and expected benefits are difficult to prove. Ecosystems are very complex, and it is not always possible to allocate certain effects to certain specific measures — from the ecological as well as the financial point of view.

Many local authorities might also feel that comparisons concerning environmental issues are rather questionable or too difficult to perform. Some reasons for such a point of view are as follows.

- *Different cities or regions have different climatic and geographical circumstances.* This makes especially comparisons of the state of the environment difficult, for example in the case of soil quality (acidification, erosion) or water quality. The fact that city X has less soil acidification than city Y does not necessarily imply that city X is better at dealing with sources of acidification. It might just be because it has a different type of soil that better neutralises the acid rain, and because the wind does not blow much of the pollution to that city. A benchmarking example from Australia shows such constraints.

#### Example: Benchmarking of unsealed road maintenance <sup>(39)</sup>

In the framework of a national Australian local government benchmarking project in 1994, a network of nine councils benchmarked their unsealed road maintenance against each other. The key performance indicators used for the comparisons were kilometres of unsealed road, quality indicators such as the number of accidents per length of unsealed road, or the number of customer complaints. Further assessed were response time for customer complaints, as well as financial indicators such as expenditures for unsealed roads maintenance. In addition, customer satisfaction questionnaires were sent out to the citizens.

After analysing the data collected, it became apparent that there are many local weather conditions that significantly impact on the quality indicators. The participating councils came from very diverse geographical regions of Australia, from tropical climates to temperate climates. The conclusion was that, in future, it would be preferable to undertake such a study with a number of municipalities in a similar geographical area and climate.

- *Different size and demographics of communities.* Many environmental aspects and environmental responsibilities are tied to the size of a community. For example, approaches dealing with public transport cannot simply be transferred from a large dense city to a small scattered town. The fact that city X is having a lower share of citizens using public transport than city Y does not necessarily have to lead to the conclusion that city X is having less sustainable transportation patterns.
- *The data basis for performing comparisons is missing.* Often, environmental responsibilities are tied to other functions, such as construction or planning. Many municipalities have no formal environmental management, and especially smaller ones **do not have activity-based costing** or full cost accounting concerning environmental issues, combined with insufficient performance assessment. A lot of environment-related information is simply not measured or only partly measured. Therefore, it might simply not be known what is the state of the environment, how much is spent for the different environmental areas, and how efficiently it is spent.

(39) Williams, S. E., 'National Australian local government benchmarking project', in Camp, R. C., *Global cases in benchmarking. Best practices from organisations around the world.* ASQ Quality Press, Milwaukee, Wisconsin, 1998.

Even if data are available and comparisons made, municipalities might react with disbelief to the comparisons, or might not know how to interpret performance gaps.

They might simply deny the comparability, and therefore no improvement action will follow. Apart from the different climatic conditions, other reasons for this ‘non-comparability’ are as follows.

- *Different ways of measuring performance, structuring and presenting information.* For example, there are no agreed ways on how energy use in a municipality should be measured, calculated and presented. Furthermore, the interpretation of certain definitions can vary considerably between different communities or countries. For example, the definition of municipal waste or hazardous waste varies considerably within Europe.
- *Different legislation and extent to which the principle of subsidiarity is valid.* This has an influence on:

— the organisational structure of the municipalities, capacities and division of environmental tasks;

— the extent to which municipalities are responsible for an environmental issue and have the power to implement own laws and regulations (one municipality may be responsible for dealing with hazardous waste; in the other case, it may be the responsibility of the county or even the country);

— procedures (there might be room for improvement in the process of issuing permits, but it is constrained by the procedure required by law).

The abovementioned problems have to be seriously taken into account when considering a benchmarking study. However, they should not prevent communities from comparing themselves concerning environmental issues and to learn from each other.

## 4. Framework for environmental benchmarking for local authorities

The following, Table 4.1., is an attempt to adapt Table 2.1. presented in Section 2.3. to the situation of a community and the area of environmental protection. Concerning the question of who it is benchmarked against, a distinction between functional benchmarking and generic benchmarking was not considered to be so important in the case of communities. Considered important was the distinction between internal benchmarking, benchmarking against another community, and benchmarking against another organisation (public or private). Furthermore, the comparisons and ratings performed by third parties were added to the classification.

In the following, the different combinations or types of benchmarking shall be more closely analysed. The 'pros and cons' of the different types are explained, and a choice of examples is mentioned.

### 4.1. Performance (or data) benchmarking

Performance (or data) benchmarking is basically performed to know 'where you stand':

- in relation to your own goals;
- in relation to local, regional, national or international legislation;
- in relation to voluntary goals set on a 'higher level', for example the Agenda 21;
- in relation to other units in your own organisation;
- in relation to other organisations.

Performance benchmarking involves numerical comparison of the performance in key areas, such as state of the environment

(e.g. NO<sub>x</sub> concentration in the air), cost (e.g. costs of wastewater treatment), quality, outcomes, or customer satisfaction (e.g. number of citizen complaints about noise per year). The comparisons can be done on the basis of raw data, different types of indicators (aggregated, absolute, relative, etc.), or indices.

#### 4.1.1. Performance benchmarking and environmental or sustainability indicators

The topic of performance (or data) benchmarking for communities is closely linked to the developments in the area of environmental and sustainability indicators. Increasingly, raw data are aggregated into indicators in order to simplify the interpretation and make the results understandable for a larger audience. There are a lot of initiatives by communities, or networks of communities, throughout Europe to find appropriate indicators that can show whether or not the community or a region is moving towards sustainability.

#### Different directions of focus in indicator developments

Developing indicators is a challenging task, since they always have to match certain criteria to be accepted as 'good' indicators. Thereby several directions of focus in the development of indicators appear.

- *Focus on specificities of a certain community*  
The indicators are in this case closely tied to the specific environmental aspects of the community and ideally integrated into the environmental management system. The main function of the indicators should be to show progress towards the locally set goals and will therefore be applied mainly internally.

Table 4.1. Different environment benchmarking types for local authorities

	Performance benchmarking	Process benchmarking	Strategic benchmarking
<b>Internal benchmarking</b>			
Internal benchmarking	Benchmarking of indicators/ other information within a local authority. Focus on indicators concerning state of the environment, management, costs, citizens' satisfaction: Comparison with internal goals — monitoring of progress over time. Comparisons with regional, national or international goals.	Benchmarking of certain functions and processes within a municipality, between different departments. Focus on specific functions, e.g. complaint management, in-house ecology, energy management.	Not considered very useful
	<i>Current activities:</i> Environmental controlling and reporting on municipal and regional level e.g. eco-budgeting	<i>Current activities:</i> Comparisons of internal paper use or energy use within municipality facilities	—
<b>External benchmarking</b>			
Against other local authorities ('competitor benchmarking')	Benchmarking of indicators with other local authorities 'Lower level': Comparisons between communities of similar size, similar geographic and climatic conditions, similar legislative structure. 'Higher level': Benchmarking of core indicators between any cities in Europe (or internationally). Focus is often on integrated indicators measuring sustainability and not only the environmental dimension.	Benchmarking of specific processes between local authorities. Focus on specific processes, e.g. waste management, wastewater treatment, enforcement processes, traffic planning, etc.	Benchmarking of different strategies and visions between local authorities. Rather on a 'higher level', e.g. how is sustainable development viewed in practical terms, which are 'good visions and policies', which tools are the most effective
	<i>Current activities:</i> CSD and other urban sustainability indicator efforts. Urban audit. European common indicators.	<i>Current activities:</i> Urban and regional good/best practice databases. Citizens Network Benchmarking Initiative. General benchmarking activities — not particularly with focus on environment.	<i>Current activities:</i> Urban and regional good/best practice databases. Citizens Network Benchmarking Initiative.
Functional benchmarking	Benchmarking of indicators/ other information with other public or private services or industries performing similar activities. Focus, for example, on management and costs of specific processes.	Benchmarking of certain processes with other public or private services or industries performing similar activities. Focus, for example, on wastewater treatment, purchasing, complaint management.	Not considered very useful
<b>Benchmarking and rating performed by third parties</b>			
Third party assessing 'competitors'	Comparison and rating of cities or regions performed by third parties (NGOs, regional EPAs) Focus on specific areas of performance (e.g. waste production) or aggregated indices encompassing all aspects of sustainability or quality of life.	Comparison and rating or awarding of practices performed by third parties.	—
	<i>Current activities:</i> Urban Ecosystem Report in Italy/Index of local sustainability (IkoN) in Germany.	<i>Current activities:</i> Best practice awards (Dubai Award)	—

**Example: Customised sustainability indicators — ‘Sustainable cities’ programme in Slovakia (40)**

In order to assist local politicians and administrators of cities dealing with interrelated economic, social, environmental and health issues, ETP Slovakia initiated the ‘Sustainable cities’ programme in 1997. The goal of the programme was to facilitate the process of implementing Local Agenda 21 and to achieve environmental change in municipalities in Slovakia with a special focus on two pilot cities — Spisska Nova Ves and Puchov. The programme encompassed educational activities, establishment of environmental management systems (EMS), and the development of environmental sustainability indicators.

The goal of the environmental sustainability indicators sub-programme, which was started in 1997, was to identify, develop and evaluate a set of indicators which are customised for a particular city. They should incorporate the opinion of all stakeholders and take into account economic, political and social impacts. In a first phase, 151 indicators were developed, which were then in a consultation process boiled down to a set of 88 environmental indicators. These were then carried into working groups from pilot cities, comprising representatives of local government, business and NGOs.

From the proposed set of indicators, they selected those that best fit their local circumstances. The city of Puchov decided to choose 22 indicators, grouped into 5 topic areas, whereas Spisska Nova Ves applied 56 indicators for 12 topic areas. The selection of indicators was closely linked to the EMS programme, and the chosen indicators would mainly be used to monitor and communicate the compliance with the specified objectives and targets set within the EMS. The pilot process was finished in 1999, and the intent is that the indicator sets will also help to involve the general public in the decision-making process. One of the conclusions of the pilot project was that political leadership is very important for the success of such indicator systems.

**Example: European common indicators (41) — see table 4.2.**

The ‘European common indicators — Towards a local sustainability profile’ is an initiative from the European Commission (Directorate-General for the Environment), under the umbrella of the Expert Group on the Urban Environment. The work has been carried out in a working group in close cooperation with the European Environment Agency (EEA), a group of local authorities and Eurocities during 1999, analysing currently used indicator projects, evaluating their suitability for a Europe-wide scheme and their relevance to local sustainability, and making proposals for a common set of local sustainability indicators, to be used by the local level on a voluntary basis.

The European common indicators consist of a set of 10 integrated indicators, reflecting the interactions between the different dimensions of sustainability. The use of these indicators is intended to be complementary to any local or national indicators. The indicators should not necessarily be used for comparing absolute measures between cities, but rather to measure movement towards or away from sustainability over time and for identifying trends and directions. In this sense, it is aimed at comparing ‘progress made’ rather than ‘state of’.

The monitoring initiative shall provide objective and comparable information on cities’ progress towards sustainability across Europe. The tool will serve as an evaluation tool for initiatives such as the European city award scheme and its successor, and will feed the database on good practice in urban management and sustainability, allowing for more objective identification of European good practice.

This set of indicators has to be seen as a proposal for a ‘first generation’. Local authorities across Europe are encouraged to participate in the monitoring initiative and contribute to the further development of this set of voluntarily agreed indicators during the testing period that started in 2000 and which is expected to be developed over a three-year period (more information is available on <http://www.sustainable-cities.org/expert.html>).

European common indicators

Table 4.2.

Topics of indicators for the European Common indicators			
No	Core indicators (compulsory)	No	Additional indicators (voluntary)
1	Citizen satisfaction with the local community	6	Children’s journeys to and from school
2	Local contribution to global climatic change	7	Sustainable management of the local authority
3	Local mobility and passenger transportation	8	Noise pollution
4	Availability of local public green areas and local services	9	Sustainable land use
5	Quality of local outdoor air	10	Products promoting sustainability

(40) Macakova, S., *Customised sustainability indicators — Sustainable Cities programme in Slovakia*, workshop notes and material for workshop D.3 at the Hanover Conference 2000, 9 to 12 February 2000.

(41) Working Groups on Measuring, Monitoring and Evaluation in Local Sustainability, Expert Group on the Urban Environment, *Towards a local sustainability profile: European common indicators. Technical report*, European Commission, 2000.

- *Focus on comparability between communities*

The goal of these initiatives is to develop indicators which can be used for comparisons between cities. The selected indicators should therefore not be too sensitive to local-specific conditions. Increasingly, such indicator systems aim at monitoring performance concerning sustainable development, and do not solely focus on the environmental dimension.

- *Focus on relevance for monitoring performance towards goals set in international agendas*

The idea of these indicator systems is to monitor progress over time towards goals and objectives set in different agendas, like Agenda 21 or Habitat Agenda. The criteria for selecting the indicators are therefore determined by how well they can reflect progress towards these goals.

All these sets of indicators can be used by local authorities, and quite a few of the indicators are overlapping or similar. Which systems of indicators a community finally applies depends on the goals and objectives that lie behind using the indicators.

Indicators should be quite local-specific if they are to help find performance gaps in areas that are relevant for a community, and if results of data benchmarking are to give decision-makers direct input for deciding how to set priorities in order to improve. Comparisons on the basis of indicator systems such as the European common indicators show performance over time and patterns within Europe, and are probably well suited to address priorities in policy-making on European, national and regional level. However, they are not sufficient for giving local authorities direct input to their policies and management. In this sense, different indicator systems can be complementary to each other.

### Structuring indicators for analysis

In order to facilitate the analysis, sets of indicators are preferably structured. The way of structuring may depend on the goal of the benchmarking process or any other intended analysis. The DPSIR approach described below is one example of an increasingly internationally used framework.

#### Example: Urban indicators by the UNCHS (Habitat) <sup>(42)</sup>

Based on the Habitat Agenda and on Resolutions 15/6 and 17/1 of the United Nations Commission on Human Settlements, the UNCHS (Habitat) has developed an indicator system which aims at measuring progress in the implementation of the Habitat Agenda. The UNCHS developed a minimum data set composed of 23 key indicators and qualitative data, as well as several supplementary tools, such as an extended set of indicators from which Habitat partners may select the most relevant for their situation. The topics are classified according to the Istanbul+5 Universal Reporting Format and cover shelter, social development and eradication of poverty, environmental management, economic development, governance, and international cooperation.

#### Example: CSD indicators (Commission for Sustainable Development) <sup>(43)</sup>

The aim of the CSD UN indicators is to monitor progress towards the objectives of Agenda 21. The CSD working list of indicators of sustainable development is a flexible list from which countries can choose indicators according to national priorities. The indicators are presented in a driving force–state–response (DSR) framework and are divided into social, economic, environmental and institutional aspects, following the chapters of Agenda 21.

#### Example: Indicators for Cities21® project <sup>(44)</sup>

The Cities21® project was initiated by ICLEI (International Council for Local Environmental Initiatives) in 1997. The purpose of the Cities21® pilot project was to establish a mechanism by which to start measuring the impact of local actions on global conditions; concentrating on ICLEI's three main campaign areas: climate change, public participation/governance, and fresh water management. One of the main objectives was to develop a common ICLEI indicator framework for evaluating environmental performance, and test the tools and methods required for the collection and analysis of indicator data.

ICLEI aims at developing indicators which can be based on available data, which are suited to measure local priorities and actions, and at the same time link to global goals.

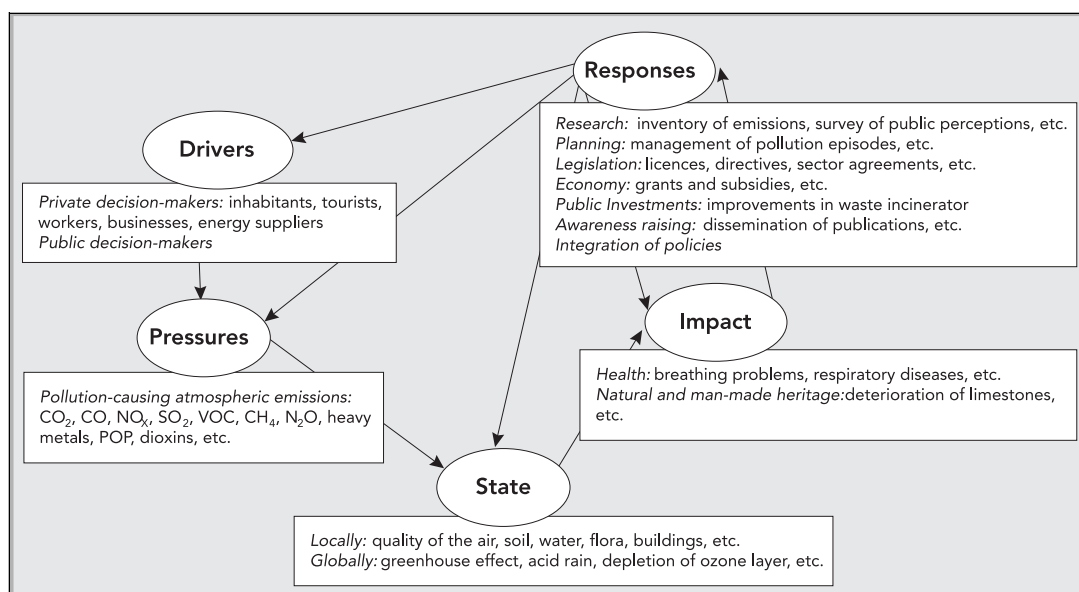
(42) <http://urbanobservatory.org/indicators/guidelines/guidemain.html> — *Urban indicators guidelines*. Visited 7 February 2000.

(43) <http://www.un.org/esa/sustdev/worklist.htm> — *CSD working list of indicators of sustainable development from September 1996*. Sighted 15 March 2000.

(44) <http://www.cities21.com/cities21/index.htm> — *Cities21® pilot project assessing mutual progress toward sustainable development*, ICLEI, 2000.

DPSIR framework — Simplified example for air  
(adapted from the IBGE — DPSIR model — Air: Brussels Capital Region)

Figure 4.1.



#### Example: DPSIR approach <sup>(45)</sup> — see figure 4.1.

The DPSIR assessment model, developed by the European Environment Agency, is a further development of the PSR model (pressure — state — response) created by the OECD. The DPSIR approach is a way of structuring environmentally related information in order to facilitate the analysis of the links and dependencies, and the development over time. It has to be stressed that this model can be used to structure any kind of environmental information and is not limited to indicators.

DPSIR stands for drivers — pressures — state — impacts — responses — the five 'stages' into which the information is classified. Drivers refer to the activities responsible for environmentally relevant actions, such as agriculture, industry, and households. Pressures describe the qualitative and quantitative way in which resources are produced, used and discarded by the drivers, such as resource consumption or waste production. The state category describes the actual condition of the environment, such as air or water quality. Impact refers to the effect of these pressures and the state of the environment on humans, animals, or plants, such as respiratory diseases or crop losses. Responses describe the reactions from society to any of the other four 'stages' (such as environmental taxes, awareness raising by government, or soil remediation).

The DPSIR model does not offer a compulsory starting point for reading the diagram and is not limited to a single discipline. It can be built up on the basis of several different approaches (environment, economy, health, etc.). For the 'environmental approach', for example for the analysis of waste management or noise pollution, the structuring of information normally starts with the state of the environment, or possibly the pressures, and then the linking 'stages' are addressed. However, taking a more economic approach, for example in order to assess the effects of a certain type of industrial production, one would start from the drivers category and then try to gain a perspective on all the pressures, impacts and responses. A health-based approach might start with the impacts category.

Indicators could also be categorised according to different environmental themes, according to scorecard approaches, or according to the dimensions of sustainability. In any case, a good indicator system should allow the analysis of links between the different indicators. It can show links within themes and between different themes (e.g. air and water), as well as between different dimensions (e.g. the ecological and the economic dimension). Furthermore, the indicator system should provide a good basis for the analysis of developments over time.

#### 4.1.2. Performance benchmarking and the ecological footprint

A concept increasingly used for assessing communities' impact on the environment is the 'ecological footprint'. It is a measure of the load imposed on nature by a given population. The principle of the ecological footprint is to convert all the loads on the environment caused by the resource consumption and waste generation of a community into the area of land theoretically required for this. For example, paper use is expressed in the area of land required to plant the trees needed to produce the paper.

(45) IBGE/Observatoire des Données de l'Environnement, *Structuring environmental information: The DPSIR model and its adaptation for use in the urban environment. Application to the Brussels Capital Region*, technical report by Françoise Onclinx, February 2000.

Table 4.3. Extract from 'Footprints of nations' (United Nations) (46)

Countries with the largest ecological footprint			Countries with the smallest ecological footprint		
Country	Footprint (ha/person)	Ecological deficit (ha/person)	Country	Footprint (ha/person)	Ecological deficit (ha/person)
United States	10.3	-3.6	Bangladesh	0.5	-0.2
Australia	9.0	+5.0	India, Ethiopia, Pakistan	0.8	-0.3
Canada	7.7	+1.9	China, Egypt	1.2	-0.4, -1.0
New Zealand	7.6	+12.8	Indonesia	1.4	+1.2
Iceland	7.4	+14.3	Nigeria, Philippines	1.5	-0.9, -0.6
Singapore	7.2	-7.1	Peru	1.6	+6.1
Ecological footprints and deficits of some European countries					
Norway	6.2	+0.1	Switzerland	5.0	-3.2
Finland	6.0	+2.6	Italy	4.2	-2.9
Denmark	5.9	-0.7	Portugal	3.9	-0.9
Germany	5.3	-3.4	Turkey	2.1	-0.8

Energy consumption from fossil fuels can be calculated as the area of land with vegetation needed to bind the CO<sub>2</sub> that is released during the combustion of the fuels. If all these theoretical land requirements caused by the different activities of a city are added up, the sum — which will be a number of hectares — will represent the ecological footprint. The ecological footprint of a community can be presented as a total or as footprint per inhabitant. This can be compared over time and with other cities or nations. A comparison of the actual footprint with the available ecological capacity of a certain country is also interesting. In many countries, this difference is negative, i.e. there is a deficit.

The ecological footprint is a very good tool to communicate the load of the human activities within a city to the public, as it is easy to understand and visualise. Publication of comparisons of a city's or a nation's ecological footprint with the 'fair share' can raise awareness among citizens as to where they stand and how far from sustainable their consumption is.

The concept of the ecological footprint can also be a good tool for internal performance

assessment and analysis of performance over time. However, basing external performance benchmarking studies solely on the ecological footprint might not lead to many clues. The fact that a city knows that it has a larger ecological footprint than another city will probably not directly give input for concrete actions in different policy areas. The analysis of the performance gaps still has to go into more detail if priorities for improvement areas want to be set. Furthermore, although an accepted model, there is no agreed methodology for calculating the ecological footprint (47), and direct comparability is often not guaranteed.

#### 4.1.3. Performance benchmarking and environmental reporting

Related to the efforts of developing sustainability indicators is the increasing trend of environmental reporting by local authorities, and the efforts to find common frameworks for reporting. Environmental reports are often focused on the description of the state of the environment and related goals and measures taken in the field. However, they may also contain information about costs of environmental protection, and rather detailed descriptions of practices in certain areas. A trend towards moving from the pure environmental focus to a

(46) Wackernagel, M. et al., *Ecological footprints of nations: How much nature do they use? How much nature do they have?*, commissioned by the Earth Council for the Rio+5 Forum and distributed by the International Council for Local Environmental Initiatives, Toronto, 1997 (the footprints are extracted from the version with the update of 12/97 which refers to the population of 1997 and has improved estimations and calculations).

(47) The model developed by Rees and Wackernagel at the University of British Columbia is quite an accepted model, which is applied worldwide. However, it requires the input of a lot of data that are often not available and have to be estimated. Therefore, for its practical use, the model is often simplified and adapted to local conditions and data availability.



description of the whole 'sustainability situation' and approaches to implementing Agenda 21 can be observed.

Environmental reports issued on national, regional or local level can constitute valuable sources for benchmarking activities.

Environmental reports can **provide data for comparison** in the sense of performance benchmarking, but they can also constitute a **good source to evaluate benchmarking partners** for process benchmarking.

So far, comparability of information and indicators on the basis of local environmental reports is rather poor. As mentioned in Section 3.3, definitions of environmental terms vary from country to country or even from region to region. Data are measured and presented in different ways, the systems' boundaries are different, and priorities for reporting can vary considerably depending on environmental relevance, legislation, organisation or responsibilities of the reporting bodies.

There are several initiatives aiming at standardising environmental reporting and helping communities to set their priorities in the reports. The efforts of the EEA, with its main aim to improve environmental information in Europe, are in this respect very important. One of the three main instrumental pillars of the EEA is streamlining and improving national monitoring and European reporting. It tries to bring together, in compatible formats, the best available environmental data from the individual countries. It would also be important that local performance measurement and reporting seek compatibility with national monitoring and reporting.

The following is an example of an initiative which takes into consideration the increasing use of the Internet as an ideal tool to present complex information and perform comparisons in a user-friendly way.

Initiatives such as CEROI increase easy access to data by the public and foster comparability between cities. This is beneficial to all benchmarking activities.

**Example: CEROI (Cities environment reports on the Internet) <sup>(48)</sup>**

Initiated by UNEP/GRID-Arendal in 1996, CEROI is a follow-up to Agenda 21, Chapter 40, and the Aarhus Convention, which focus on public access to environmental information, and also aim to support Local Agenda 21 initiatives.

The objective of the CEROI programme is to provide a concept for easily creating cities environment reports on the Internet, which will lead to improved access for citizens and policy-makers to reliable information. Easy-to-use software with templates based on best available urban environmental indicators makes it easy to prepare professional state of the environment (SoE) reports on the Internet. The CEROI web site functions as a gateway to the cities SoE reports and allows comparisons of key information.

Environmental information in the CEROI template is structured within the DPSIR framework. The core set of indicators was drawn from current work of international institutions and organisations, such as the Habitat indicators, the OECD environmental indicators, the CSD UN, the EEA, and the NRD (Nordic Environmental Monitoring and Data Group). The proposed key indicators for the first draft consist of 10 background indicators and 20 urban environment indicators. However, the template allows flexibility in the way information is presented and themes and indicators are selected.

A pilot phase with the participation of 20 cities was carried out from 1997 to 1999, in close coordination with the Cities21<sup>®</sup> of ICLEI. The SoE reports of the participating cities can be viewed on the Internet <sup>(49)</sup>.

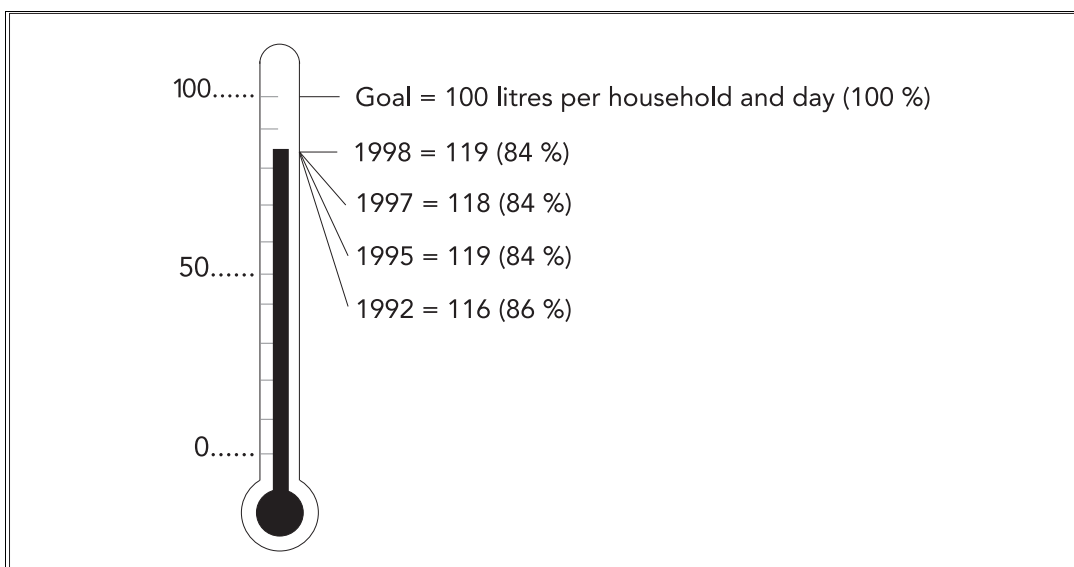
**4.1.4. Internal performance benchmarking**

Within their own environmental or quality management, communities are increasingly measuring their performance concerning environmental issues in order to analyse progress over time, to compare with the set goals, or to compare performance of different departments within the community. Data have also been gathered more systematically as communities started to do environmental reporting. Data and information are collected and communicated concerning the state of the environment, the emissions into the environment, the costs of environmental protection, or the satisfaction of the citizens with environmental services. As mentioned above, the use of indicators is increasing. A limited set of indicators can simplify the analysis, and they may also be easier to communicate to decision-makers and the general public.

(48) UNEP/GRID-Arendal/ICLEI, CEROI, project presentation leaflet, Norway, 2000, and *Urban SoE indicators — Compilation from international lists* (<http://www.grida.no/prog/global/sitysoei/urbanind.htm>).

(49) <http://www.ceroi.net>.

Figure 4.2.

Environmental thermometer (adaptation from the booklet, *Haagse Milieuthermometer 99*)**Example: The Hague environmental thermometer <sup>(50)</sup> — see figure 4.2.**

Each year, the City of The Hague (Den Haag) issues a booklet where performance concerning the themes housing, working and moving is visualised with environmental thermometers. Each of the themes is represented with five indicators. The 'top point' of the thermometer represents the goal concerning the specific indicator, for example 100 litres water consumption per household and year. The performance is then visualised in percentages of the goal. The 'higher the temperature, the better the performance. The choice of indicators has mainly been based on practical considerations, for example data availability and quantifiable goals.

Above is an example of the thermometer for domestic water consumption.

As can be seen from the example, the tool might not be ideal for showing performance over time. Nevertheless, it allows easy-to-understand communication to the public, as it visualises well how far the performance is from the goal.

**Example: ecoBUDGET® <sup>(51)</sup>:**

Developed by the European Secretariat of the International Council for Local Environmental Initiatives (ICLEI), ecoBUDGET® provides local governments with a method for controlling their sustainable consumption of natural resources and environmental goals.

Pilot projects with the concept of eco-budgeting were carried out in the German cities of Bielefeld, Dresden and Heidelberg and the county of Nordhausen between 1996 and 2000. Adapted from the world of financial budgeting, the idea is to create a budget for natural resources and environmental quality. Summarising expected demands on natural resources from the individual departments of the community (e.g. engineering department, construction department), environmental budgets are drawn up for the consumption of land, air, surface waters and other natural resources. The amount of environmental pollution is not converted into money terms, but is expressed in physical units. The budget is to be passed by the representative body and executed during the course of a budget year.

The local authorities voluntarily commit themselves to the targets of this budget. The political bodies will deal with any overspending that occurs through unforeseen measures. The main targets of this new environmental management system are:

- to plan and control the consumption of environmental goods throughout the budgeting period;
- to balance the amount of pollution and use of resources in the community;
- to enable the decision-makers and the administration to set priorities in environmental politics and to explain their need to other political fields;
- to present the state of the environment in a way that is understandable for the public and comparable with environmental targets.

This approach shall ensure environmental spending within the budget limits of the ecological system. Environmental budget controlling (accounting) shall thereby help to avoid 'ecological overspending' in the course of the budget year. With a clear overview of the balance and from the target figures, experts can quickly recognise in what fields their municipality is doing well and where a lot still has to be done.

(50) *Haagse Milieuthermometer 99*, City of The Hague, City Management Division, 2000 (<http://www.denhaag.nl>).

(51) ICLEI European Secretariat GmbH: *ecoBUDGET info. Spending within natural limits*, ICLEI, 2000.

#### 4.1.5. External performance benchmarking

Performance benchmarking against other municipalities can be focused on certain areas of performance, or concern a whole system of environmental or sustainability indicators (e.g. the newly established European common indicators). Examples of compared performance figures could be concentration of air pollutants, costs of waste management, or percentage of green areas. Performance data concerning certain processes or services could also be compared with organisations other than municipalities performing the same process or service. For example, paper use and waste production within the city administration could also be compared with paper use and waste production of a bank or another service organisation.

Information for performing data benchmarking could be gathered from local or national statistics, environmental reports and other publications concerning environmental issues by communities or regions, personal contacts, or exchanges within networks. Increasingly, it also exists in regional or national databases with information about the performance of local services, which also contain data about certain environmental services such as waste management or wastewater treatment <sup>(52)</sup>.

#### Example: Korena (Kommunale und regionale Nachhaltigkeitsinventur) <sup>(53)</sup>

Korena stands for 'Local and regional sustainability inventory'. It is a project developed by the Cities and Towns-Net of the EXPO region <sup>(54)</sup>, local and regional NGOs and the Ecolog-Institute. The goal was to develop tools which can help communities to monitor whether or not they are on the way towards sustainability. Their approach contained several instruments: the development of sustainability indicators, a public opinion poll concerning citizens' satisfaction and quality of life, a life-quality circle (evaluation of quality of life and definition of priorities), and a Sustainability-Delphi aiming at identifying local deficits and potential for sustainable development through local actors.

About 100 sustainability indicators were used to measure sustainability of local development as well as regional development. They also represent a good basis for intercommunal benchmarking activities. The model for the development of the indicators was based on the driving force-state-response approach, but, however, taking into consideration the ecological, social and economic dimension of sustainability. The set of indicators is composed from the following types of indicators:

- communal standard indicators, which can be used for comparing communities (i.e. indicators which are good for performing benchmarking and rankings);
- local-specific indicators, which reflect local-specific aspects, such as special social problems or special nature characteristics;
- regional indicators, which can be used to analyse regional questions, such as transportation or regional spatial planning.

In a further step, these 100 indicators were weighted and aggregated to 10 guiding indicators concerning ecological wealth, financial wealth, efficiency of resource use, education and culture, mobility, integration and justice, well-being, public engagement, safety, and economic fitness. The evaluation and the weighting of the indicators were done in cooperation with representatives of local authorities and political institutions as well as NGOs.

In a last step, these guiding indicators were again weighted and aggregated to the 'Index of local sustainability' (lkoN). Ratings of the cities were performed on the basis of this index as well as on the basis of the sustainability indicators. This will promote competition between communities and help to find communities which are good examples and from which others can learn.

(52) For example, Cispel (Italian confederation of the local public utilities bodies) periodically issues a report on the performance of local environmental services.

(53) Korena, *Local and regional sustainability inventory*, project presentation leaflet, distributed at the Hanover 2000 Conference, and Neitzke, H.-P., *Kommunale und regionale Nachhaltigkeitsinventuren und Nachhaltigkeitsindikatoren*, project description, Ecolog-Institut, Hanover, 2000.

(54) Which is Hanover and the surrounding cities: Celle, Hameln, Hildesheim, Nienburg, Peine, Stadthagen, Pattensen.

**Example: System of local sustainability indicators by Xarxa (Barcelona) <sup>(55)</sup>**

Xarxa (Network of Cities and Towns towards Sustainability in Catalonia) has produced a system of 30 sustainability indicators, aiming at being consistent with important indicator initiatives currently being developed in Europe, such as the European common indicators. The purpose of the indicator project is above all to provide tools for diagnosing and interpreting municipal phenomena both from the management and action viewpoint and from a broader and more systematic outlook which includes the main elements that currently define the relationship between the activities carried out in the borough and the efficiency in the use of the resources required by such activities.

Starting in 1998, a proposal of 50 sustainability indicators was developed by four working groups, which were then in the process reduced to 30 indicators, in cooperation with the participating municipalities, the technical secretariat of Xarxa, and an expert group. In a pilot project, the application and calculation of these indicators have been tested in 11 boroughs of the network. The idea is to implement this system of local sustainability indicators in all the network's members.

The indicators are presented together with a desirable tendency (e.g. decrease, increase) and have a dual classification system, which consists of the OECD's pressure-state-response approach as well as the 'model-flux-quality' <sup>(56)</sup> approach used by the European Environment Agency. The indicator set is quite environment-focused; however, there are also indicators concerning social aspects (e.g. streets with pedestrian priority) or economical aspects (e.g. valorisation of industrial waste).

Comparisons between communities have been made for several of the indicators, for example for mobility of population and final energy consumption — showing the development over time as well as the differences between the communities.

**Example: Catalanian experiences with benchmarking state of the environment reporting — The 'Four motors of Europe' <sup>(57)</sup>**

This is an example of a data benchmarking effort which from today's perspective might not be called a full success. The 'Four motors of Europe' was a political initiative among four European regions: Baden-Württemberg in Germany, Rhône-Alpes in France, Lombardia in Italy and Catalonia in Spain. Its aim was to promote regional strength within the European Union. Within this project, it was decided by the environmental ministers in 1991 to produce a joint state of the environment report, which was to be finished by 1992. However, in the end it took four years to produce and publish it.

Having similar area, population, economic and cultural development, the regions turned out to be quite different concerning environmental conditions as well as political responsibilities concerning environmental matters. Problems encountered when trying to find (comparable) information were lack of information in some topics in general, different types of information and classification on the same topic (e.g. 'protected area' does not mean the same in all four regions), and varying environmental significance of data in the different regions. As a consequence of these data availability and comparability problems as well as a lack of agreed methodology, no common evaluation was performed. The outcome of the project, a report entitled *Towards a common observation of the environment*, was a mere documentation of the data collected. Concerning the publication, it was considered difficult to find a balance between reader-friendly presentation and providing enough explanations about methodology and problems of comparability in order to allow the readers an appropriate interpretation of the information.

There were no follow-up activities after completion of the report, and there were no long-term partnerships between the participating regions built up on the basis of this project.

A lesson learnt from the project was that it is relatively easy to obtain data in general but very difficult to get useful data, and even more difficult to interpret and analyse the data. The conclusion was that there is still much to be done in the area of data collection and homogeneity. Also, it was recognised that successful benchmarking activities in governments should not be dependent only on political will, but should to some degree be institutionalised within a public process. Furthermore, the involvement of some professional group in order to support the methodology was regarded as helpful.

Nevertheless, the effort was perceived to be very valuable at individual and institutional level. They could learn from more 'advanced' environmental departments.

(55) Xarxa de Ciutats i Pobles cap a la Sostenibilitat (Network of Cities and Towns towards Sustainability), *System of local sustainability indicators*, abstract of final version, Barcelona, February 2000.

(56) This model is more urban in its focus and centres on analysing the boroughs as metabolising systems following the municipal model of material, energy and information flows.

(57) Colldeforns, M., *Catalonian experiences with benchmarking the state of the environment — The four motors of Europe*, speech material for the benchmarking seminar organised by the Öresund Committee, August 1999.

Urban audit — Waste management

Table 4.4.

	Total solid waste — domestic and commercial (kg/capita/year)	Proportion (%) of solid waste processed by:		
		Landfill	Incinerator	Recycled
Berlin (1996)	900.7	n.a.	9.4	10.0
Stuttgart (1996)	332.0	3.8	96.2	n.a.
Stockholm (1996)	380.7	12.3	70.0	17.7
Gothenburg (1996)	816.5	7.3	84.0	8.7
Brussels (1996)	600.7	17.3	20.7	62
Copenhagen (1996)	1 805.4	2.5	36.3	58.6
Barcelona (1996)	415.8	82.9	n.a.	4.2
Helsinki (1995)	748.4	69.0	0	39.9
Milan (1996)	490.9	11.9	30.8	14.5
Luxembourg (1997)	796.7	0.8	71.4	27.8
Leeds (1996/97)	437.1	437.1	95.0	5.0

**Example: Urban audit — Terms of reference indicators<sup>(58)</sup> — see table 4.4.**

The urban audit was launched by the European Commission, and attempts to gather comparable information and data at city, wider territorial unit and sub-city levels. It should enable an assessment of the state of the European cities and provide access to comparative information, as well as facilitate the exchange of information among cities.

The pilot project was carried out between May 1998 and June 1999 under Article 10 of the European Regional Development Fund regulation. Information has been gathered on 33 'terms of reference indicators', covering five fields: socioeconomic aspects, citizenship civic involvement, levels of training and education, environment, and leisure and culture. The environmental indicators are:

- quality of air and water and noise level in terms of European standards where they exist;
- consumption of energy and water resources;
- solid and liquid waste reprocessing;
- traffic patterns (passenger journeys), private and public transport;
- proportion of green areas;
- population density.

The main results of the pilot phase can be viewed on the Internet, and will be published as a yearbook, which should be updated regularly. Information can be analysed and compared city by city, or domain by domain (e.g. water management or land use). The several comparative tables are completed with some notes concerning data collection and comparability. The following is an extract from the comparative table concerning waste management.

There are still a lot of data gaps, and as can be seen from the table, some of the data cannot be compared without further more detailed explanations on data collection, system boundaries and definition of terms. However, it can already give an impression of different approaches between cities, and will provide information on progress once information has been collected over some years.

**4.1.6. Benefits of performance benchmarking**

Performance benchmarking is a **good tool to find out where you stand, whether you are 'doing it right', and which are the areas that need improvement.** It provides the basis for benchmarking that should go further and into more detail, like process benchmarking.

Comparing performance measures against own benchmarks (e.g. goals, legal limits) within an environmental management system or the total quality environmental management system of a community is absolutely necessary in order to know the progress over time and the effectiveness of implemented policies and measures in order to reach certain goals. It could be discussed whether such internal comparison against benchmarks, as described in the two examples of Section 4.1.4, should actually be called **'internal benchmarking'**. In fact, it is simply **environmental performance measurement and control.** However, performance measurement and control are a prerequisite for any benchmarking activity.

The advantages of internal performance benchmarking as opposed to external benchmarking are that it is often easier to define comparable activities, data and information are easily accessible, and often on a standard format. Internal performance benchmarking between different departments of a community, for example concerning energy use or time used for issuing permits, can be a very good tool to stimulate competition between different

(58) *European Urban audit — An introduction to the urban audit* (<http://www.inforegio.cec.eu.int/urban/audit/src/intro.htm>), and European Communities, *The urban audit. Towards the benchmarking of quality of life in 58 European cities. Volume III: The Urban Audit Manual*, Luxembourg, 2000.

departments. No department likes to be the worst performer and will therefore strive for improvement. Internal data benchmarking can also help to show where within the community there might be good practices, and where the others could learn from.

**Performance benchmarking with other communities** can often open the eyes to what performance level is actually possible, for example how low costs for waste management or wastewater treatment can be, or how 'clean' the air can be elsewhere in a similar city. If data are analysed over time, this can also show how much progress could be made in other communities, whereas one's own community might not have improved for the last five years. Such data benchmarking, or benchmarking of sustainability indicators between cities, can be a trigger for improvement, especially if benchmarking results are published to a larger European or international audience. Cities increasingly try to use 'environment-friendliness' to market their city, as it can help to attract more tourists and more citizens who like to live in a healthy city, and it might be more popular for conferences and/or as a site for businesses. Performance benchmarking helps in this sense to reward good performers and to motivate bad performers.

#### 4.1.7. *Limits of performance benchmarking*

Performance or data benchmarking is a good diagnostic tool; however, it **does not necessarily guarantee further action and improvement**. A city can recognise an area of insufficient performance based on performance benchmarking. However, the pure comparison of figures and indicators might not help any further, as it does not tell anything about the 'why' of the performance gap and about the 'how to improve'.

As mentioned in Section 3.3, there are a number of problems with comparability of environmentally related data. Even within a community, data can be measured and assessed in different ways, for example energy use or waste. Definitions of terms are not the same everywhere, as they might vary with the environmental significance and different legislation between towns or regions. This can be seen very well in the example of the urban audit provided in Section 4.1.5. How can it be explained that Copenhagen has five

times more and Gothenburg twice as much waste per capita as Stuttgart, even though the living standards should be quite similar in these three cities? Obviously, the definition of waste and the ways of measurement are different. Without any further explanation, the comparisons are not very useful.

If a city, on the basis of a comparison of a set of sustainability indicators with another city, realises that it has considerable performance gaps in the area of energy consumption or waste production, the reaction might just be: 'the cities are not comparable anyway, as there are different climatic circumstances, as we have a different mix of industry and private households, as the waste figures must have been calculated in a different way, etc.' — and nothing will be done to diminish that gap. Summarised, it could be said that if a benchmarking process stops with the comparison of data, this might often lead to the so-called '**three Ds of benchmarking**': **disbelief, denial and despair** <sup>(59)</sup>.

- Disbelief: one does not believe the presented results of the comparisons.
- Denial: one denies the results by claiming that the organisations are not comparable.
- Despair: one gets paralysed and unable to act because one does not know how to catch up with the best performers.

## 4.2. Process benchmarking

Process benchmarking focuses on a specific process which has been identified as not performing well, and which is crucial for the success of a certain function or service in a municipality. As an example, a community might want to improve the recycling rate of organic waste to the level required by law, or it might want to improve cost-efficiency of waste management, but the measures so far implemented have not been successful enough. Another example might be the air pollution prevention department of the city that wants to improve cost-efficiency of the enforcement of air emissions control regulation.

### 4.2.1. *Selection of the process to be benchmarked*

The general steps and points to consider to identify the 'right' process to benchmark are described roughly in Section 2.4.1. Process benchmarking is resource-intensive, and a process is only worth being benchmarked

(59) Andersen, B. and Pettersen, P.-G., *The benchmarking handbook. Step-by-step instructions*, Chapman & Hall, London, 1996.

against external partners if the expected improvements are considerable. A benchmarking study should only be performed with a **strategic intent and concrete goals**. The choice of an ‘ideal’ process is therefore crucial. The following is an example of how Salt Lake City chooses the processes which are worth being benchmarked.

**Example: Systematic benchmarking in Salt Lake City** <sup>(60)</sup>

Salt Lake City, as part of its quality management initiative, included systematic, formal benchmarking as part of the city’s plan to identify and import best practices. To manage and oversee the effort, city officials appointed a group of key stakeholders, including representatives from the mayor’s office, to the newly formed Measurement Committee, with the task of creating and monitoring key performance indicators for city services. The committee began its work by identifying 35 key processes that were candidates for benchmarking and then established a list of criteria against which to assess each candidate process:

- deliver products or services to external customers;
- relate to the city’s strategic plan;
- be resource-intensive;
- have a reasonable chance of success;
- be visible and viewed as having opportunities to improve;
- be stable; not be in the process of being changed or rebuilt;
- be repeated frequently;
- be controlled by the city;
- be cross-functional;
- have data indicating it is a problem.

Based on this assessment, the committee narrowed the list to two key processes for benchmarking: complaint handling and trash and solid waste removal.

2. The process should be highly visible.
3. The process should be resource-intensive.
4. The process should have a history of problems.
5. The process should have the opportunity to improve; it needs to have the flexibility to be changed and not be significantly constrained by regulations, statutes, laws, and so forth.
6. The process needs an environment conducive to change.
7. The process needs to be understood.
8. The process should support the mission, vision, and strategic direction of the agency.
9. The process should need ideas from other sources to be improved.

The latter point stresses that **if the process can be improved through standard quality improvement tools and techniques or has many clear opportunities for improvement, benchmarking may not be needed**.

Benchmarking is most effective with processes that have experienced long-term, chronic performance problems — financially or environmentally — and for which process owners and stakeholders have had difficulty finding good ideas for improvement. A search for best practices in these situations expands the pool of possible solutions and fosters creative problem solving.

Similar processes to be benchmarked against could be found internally or externally. External partners could be other municipalities, but for certain processes it might just as well be another public service or a private company.

Similar to the criteria listed in the example of Salt Lake City, Keehley et al. <sup>(61)</sup> mention several characteristics important for choosing the ‘right’ process to be benchmarked <sup>(62)</sup>.

1. The process should be meaningful; it should have a high impact on the customer, preferably the external customer. It should address the needs of the citizens and taxpayers, responding to their concerns about service quality and cost.

**4.2.2. The search for best practices**

The core idea of benchmarking is to identify best practices and try to adapt them to the own organisation in order to improve performance. Keehley et al. stress that the search for a best practice should address an activity that is resource-intensive and has a significant impact on external customers. Criteria which characterise best practices are among others <sup>(63)</sup>:

(60) Keehley, P., Medlin, S., MacBride, S. and Longmire, L., *Benchmarking for best practices in the public sector. Achieving performance breakthroughs in federal, state, and local agencies*, Jossey-Bass Publishers, San Francisco, 1997, p. 80.  
 (61) Keehley, P., Medlin, S., MacBride, S. and Longmire, L., *Benchmarking for best practices in the public sector. Achieving performance breakthroughs in federal, state, and local agencies*, Jossey-Bass Publishers, San Francisco, 1997, p. 87.  
 (62) These criteria are not aimed solely at municipalities, but at any public agencies. Also, they are not specific for the environmental field.  
 (63) Keehley, P., Medlin, S., MacBride, S. and Longmire, L., *Benchmarking for best practices in the public sector. Achieving performance breakthroughs in federal, state, and local agencies*, Jossey-Bass Publishers, San Francisco, 1997, p. 26.

- *Successful over time.* A best practice must have a proven track record.
- *Quantifiable results.* The success of a best practice must be quantifiable.
- *Recognised positive outcome.* If quantifiable results are limited, a best practice may be recognised through other positive indicators.
- *Innovative.* A programme or practice should be recognised by its peers as being creative or innovative
- *Repeatable.* A best practice should be replicable with modifications. It should establish a clear road map, describing how the practice evolved and what benefits are likely to accrue to others who adopt the practice.
- *Has local importance.* Best practices are salient to the organisation searching for improvement. The topic, programme, process, or issue does not need to be identical to the importing organisation, however.
- *Not linked to unique demographics.* A best practice may have evolved as a result of unique demographics, but it should be transferable, with modifications, to organisations where those demographics do not necessarily exist.

It could be discussed whether process benchmarking efforts in communities should really aim at identifying only ‘best practice’, or if it is enough to find simply a ‘better practice’. Many municipalities might not have the funds or staff resources to support an extensive search. They might have to rely on data available in published reports or in best or good practice databases, or might have to find partners in the surrounding region. Often, they must limit their search to finding a better practice than their current one, rather than the best. Especially concerning environmental issues, it could be discussed whether the term ‘best practice’ can actually be used, or whether one should rather talk about ‘appropriate practices’. A ‘best practice’ successful in one city might not be applicable in another one due to different circumstances, and ‘best’ is in this sense quite relative.

#### 4.2.3. *Process benchmarking and best or good practice databases and networks*

The issue of process benchmarking is closely linked to the efforts made in the area of databases for best or good urban management. The idea of such databases is similar to benchmarking — it is about ‘practice sharing’. Such databases are used to raise awareness about how cities can be managed in more sustainable ways, to learn from the experience of others, to network, for capacity building, and for analysing current trends. Internationally, there is a wide array of such best practice databases of different size and focus. There is an increasing number of databases dedicated to specific areas, for example energy management or transportation. The examples provided below are a selection of the largest databases available on the Internet and mostly used in Europe. These are rather broad in scope, covering any issues concerning urban sustainability.

All of the mentioned databases have lists of cases and search engines where cases can be searched according to keywords or preset choices, for example concerning the topic, the management instruments, the country, the size of the authority, or the functional characteristics of the location. Several of the databases are interlinked, as there are the same organisations involved. However, it is not always very evident to the user in which way the information provided in these databases overlaps, and where it differs from one another.

It can be noticed that this link between process benchmarking and best practice databases does not yet appear so clearly. It seems that process benchmarking in the environmental area is not yet performed very often by local authorities. Such best practice databases are therefore not yet used to the extent they could be, for example, for searching for benchmarking partners.



**'Best practices' database (UNCHS/Together Foundation) <sup>(64)</sup>**

The 'Best practices' database is produced by UNCHS (Habitat) and the Together Foundation. The searchable database contains over 650 proven solutions from all over the world to the common social, economic and environmental problems of an urbanising world, classified into good and best practice. The described practices contain narrative describing the situation and the practice, a summary of the results achieved and lessons learnt, as well as, partly, some key indicators.

**'Local sustainability' — European Good Practice Information Service <sup>(65)</sup>**

Launched in 1996, this initiative is developed and operated by Euronet Environment Planning and Development and the International Council for Local Environmental Initiatives (ICLEI), sponsored by the Directorate-General for the Environment, and is connected to the UNCHS 'Best practices' database. 'Local sustainability' has the goal of disseminating and making accessible the good practice experiences of European cities, towns, countries and their associations, national and regional governments, research and educational institutions, and directorate-generals of the European Commission. 'Local sustainability' contains information concerning good practice guidance, a database with good practice examples throughout Europe, and European policy documents on sustainability and the urban environment.

**Database on good practice in urban management and sustainability <sup>(66)</sup>**

This database was launched by the European Commission at the Urban Forum in Vienna in November 1998, following the communication of the Commission entitled 'Sustainable urban development in the European Union: A framework for action'. It is designed to help local authorities to work towards sustainability by disseminating good practice and policy by facilitating the exchange of experience and raising awareness. The database contains case studies in accordance with standardised formats, and Commission and other documents providing background information on policy and practice, as well as links to the integrated Commission database network and other databases.

**Surban database on sustainable urban development in Europe <sup>(67)</sup>**

Surban, the database on good practice in urban development, is operated by the European Academy of the Urban Environment. The European Academy of the Urban Environment is aiming to encourage exchange of experience amongst local government decision-makers in all spheres of sustainable urban development, and the Surban database is a cornerstone of their activities.

**4.2.4. Internal process benchmarking**

In internal benchmarking, a municipality benchmarks a specific process or topic against other similar processes within the same municipality <sup>(68)</sup>, like, for example, benchmarking of green area management between different areas in the city, or energy-saving measures by the different municipal bodies.

The way to proceed is basically the same for internal and external benchmarking, with the difference that the search for partners and the collection of data are probably less complicated for internal benchmarking.

**4.2.5. External process benchmarking**

Process benchmarking is already performed quite frequently between communities, but, however, seldom with the focus on environmental issues. Looking for best (or better) practices, the search for benchmarking partners should not be limited to other cities and towns. Many processes concerning environmental issues are very specific responsibilities of municipalities and might not be found in a similar form in the private industry. However, in some cases, similar processes can also be found in other public or private services or in the private industry. This could concern, for example, complaint management, wastewater treatment, traffic management, or environmental management systems.

Due to the fact that process benchmarking is quite an expensive tool, it might be favourable, especially for smaller communities, to perform a process benchmarking study in cooperation with other communities. In this way, costs can be shared, for example for consultants or for searching for and visiting partner organisations. Also, the workload of the members of the benchmarking team can be reduced, and they can benefit from synergy created by a range of people with different specialisation and backgrounds <sup>(69)</sup>.

(64) <http://www.bestpractices.org> — *Best practices database*.

(65) <http://cities21.com/europractice/> — *Local sustainability*, European Good Practice Information Service.

(66) <http://europa.eu.int/comm/urban/> — *Welcome to the database on good practice in urban management and sustainability*.

(67) <http://www.eaue.de/winuwd/list.htm> — European Academy of the Urban Environment, *Surban*.

(68) In the example mentioned in Section 4.2.5, a syndicate of councils performed a benchmarking study of their sewage systems within the syndicate, and in a second step it looked for partners outside the syndicate. In this case, the benchmarking exercise within the syndicate was also called internal benchmarking. Internal could therefore also be interpreted as 'within a network'.

(69) Patrick, R., 'Syndicate benchmarking: Water supply and sewerage', in Camp, R. C., *Global cases in benchmarking. Best practices from organisations around the world*, ASQ Quality Press, Milwaukee, Wisconsin, 1998.

The following example describes a benchmarking effort that was performed within a syndicate of councils. Whether benchmarking within a syndicate is called

internal or external benchmarking could be discussed. In any case, this example shows well the steps that are taken in a process benchmarking effort.

Table 4.5.

Comparison of performance measures for sewage collection and transport

Performance measures	Council 1	Council 2	Council X	Best known practice
Total cost/kilometres pipe/year	AUD 1136	AUD 2423	AUD 1214	AUD 967
Nontrades hours/SPS/year	90	220	47	n.a.
Mechanical and electrical maintenance hours/SPS/year	19	52	71	30
Dry weather overflows/year	177	Negligible	6	Negligible
Pipe blockages/100 kilometres/year	173	380	59	13

**Example: Syndicate benchmarking for water supply and sewerage in New South Wales, Australia <sup>(70)</sup>**

This project was conducted over a six-month period in 1995–96, with a clear methodology, following the steps below.

**1. Selection of syndicate members — 2. Selection of key processes**

Working as a syndicate, seven municipal government organisations used benchmarking to identify cost and other improvements in sewage collection and transport. The syndicate approach shared costs and allowed pooling of talent from small organisations, which would not have the possibility of acting individually. The syndicate was assisted by a facilitator and a specialist consultant.

Pressures to reduce costs and justify price levels were the motivation for considering benchmarking of water supply, sewerage and drainage services. Because of its high labour content and significant impact on cost, customer levels of service, and environmental performance, a steering committee selected operation and maintenance of sewage collection and transport as the pilot process for benchmarking.

**3. Financial and customer analysis**

After the key processes were chosen, each syndicate member performed financial and customer analyses in order to understand how resources are expended within the key processes and to be able to link customer needs and expectations to aspects of the key processes.

For the financial analysis, estimations were, in many cases, needed to calculate the costs, due to the absence of commonly accepted activity-based costing systems and variations in overhead allocation methods.

The needs of the customers were assessed by means of a questionnaire, through telephone interviews. Several hundred customers (which were divided into general/domestic consumers, commercial customers, and industrial customers) were interviewed in each council. These needs were subsequently ranked, and the delivery of those needs was linked to how well each main activity within the key process was performed. The strongest need was for a 'safe, healthy system', and the strongest link of this need was to the activities around pumping stations and sewers.

**4. Selection of sub-processes for comparison**

On the basis of these analyses, 'operation and maintenance of sewage pumping stations (SPS)' and 'operation and maintenance of sewer reticulation mains' were the two sub-processes that were then chosen for detailed analysis.

**5. Development of performance measures and indicators**

As a next step, performance measures were developed for the key processes and the selected sub-processes. These were used to identify performance gaps within the syndicate via internal performance comparison among the syndicate members, and to compare against existing external benchmarks. The following table is an example of a comparison for the sewer operations and maintenance.

**6. Identification of performance gaps from internal comparisons**

(70) Patrick, R., 'Syndicate benchmarking: Water supply and sewerage', in Camp, R. C., *Global cases in benchmarking. Best practices from organisations around the world*, ASQ Quality Press, Milwaukee, Wisconsin, 1998.

#### 7. Identification and analysis of performance drivers

The performance gaps were analysed, and, in a combined effort, the major performance drivers were identified in domains such as planning and scheduling, technology, organisation, or people. Performance drivers, for example for cleaning down walls in pumping stations, included how often the work was done (scheduling), type of equipment used (technology), whether the work was done in-house or contracted out (organisation), experience and skill of the work team (people), and physical structure and design of the pumping station. These performance drivers were then reviewed against the current work practices and experiences of individual syndicate members, and best practices among the syndicate members were identified.

#### 8. Selection of external best practice organisations

The syndicate selected eight councils as external benchmarking partners on the basis of the quality of their responses to a questionnaire that had been developed, the relevance of their activities to the syndicate members, and their high level of performance.

#### 9. Performance comparisons with external organisations

Prior to visiting these external benchmarking partners, syndicate members undertook dry-run visits to two councils within the syndicate to gain experience. After each trip, the visiting team held debriefing meetings to discuss and select those best practices that offered the greatest potential for improvement to syndicate members.

#### 10. Planning and implementing improvements

Each member estimated the costs and benefits to his or her individual organisation from adapting the observed practices considered to offer the best returns. Consequently, implementation plans were prepared and resources allocated for the selected practices.

#### 11. Monitoring and reviewing results

The councils are monitoring and reporting on the impact of the implemented measures. The seven councils in the syndicate estimated that for the total one-off cost of around USD 162 000, they could collectively achieve annual savings of about USD 1.1 million through the introduction of identified best practices requiring either no or minimal initial outlays. This represents about 18 % of the total annual cost for operation and maintenance of the sewage collection and transport systems for the seven councils. The source of savings is interesting, in that approximately 40 % of the ultimate value was identified within the syndicate. However, the syndicate members felt that additional savings and benefits could be achieved if the search for best practice partners were extended into a wider geographical area and a wider range of industries, including the private sector.

#### 4.2.6. *Benefits of process benchmarking*

Concerning **internal process benchmarking**, it could be said that it is good as a start, in order to 'learn how to benchmark'. Experience can be gained about how to proceed and which things to focus on when benchmarking against an external partner. It is also cheaper than external benchmarking. This is due to the fact that it is easier to find and contact benchmarking partners, the communication might be easier, and also the data collection should be less complicated, as data are in many cases collected and structured in a similar way within a municipality.

Section 2.1.2 described the general benefits of benchmarking, whereby the argumentation was quite focused on **external process benchmarking**. External process benchmarking opens your eyes to what is possible, and it prevents you from trying to reinvent the wheel. It can give you ideas for using certain tools in a completely different area or in a different way.

Difficulties in getting access to data and lack of comparability can also appear in process

benchmarking; however, this might not constitute as big a problem as in performance benchmarking. Process benchmarking goes beyond the pure analysis of data, and the focus on practices concerning one particular process or area allows more use of qualitative information, of narrative, of personal conversations, and of direct observations on site.

It has to be stressed that benchmarking is not a one-off activity, but should be incorporated into the quality and environmental management as an integral improvement tool. Once established, contacts with benchmarking partners can be used for further benchmarking activities and provide a good basis for building up long-lasting partnerships between cities and towns.

#### 4.2.7. *Limits to process benchmarking*

Process benchmarking is a resource-intensive tool, especially if performed with external partners. The benchmarking exercise will not be worth the investment if there is not full commitment to improvement and to learning from others.

Concerning **internal process benchmarking**, there could be limitations to finding benchmarking partners within the municipality for many processes in the environmental area. Municipalities often have separate departments dedicated to specific environmental areas. The way waste management is organised and how waste collectors are contracted might be the same in the whole city, with one single department responsible for the coordination. Therefore, partners will have to be found externally. Furthermore, internal process benchmarking is not very likely to reveal breakthrough ideas. Different departments within a city might very well learn from each other, but the probability of finding approaches that are completely different and ‘open the eyes’ is much smaller compared to external benchmarking. Obstacles to internal benchmarking could also come from the members of the organisation themselves. There might be some reluctance to share experiences between different departments, especially if the authority works according to principles of NPM, and there is a certain competition for budgets or incentives and bonuses for good performance.

Concerning **external benchmarking**, the issue of choosing the right benchmarking partner can be crucial. Issues of comparability and adaptability have to be taken into consideration very thoroughly when setting up the criteria for choosing the benchmarking partner(s). Finding the right benchmarking partner can, however, constitute problems, even if the criteria are set. The amount of information which can be used for searching for partners is increasing, for example the number and size of best practice databases or the number of environmental reports by authorities. However, compared to professional benchmarking networks existent for private businesses, the information exchange between authorities concerning environmental benchmarking information is still only beginning. Local authorities often do not have the resources to support an extensive benchmarking partner search and have to rely on existing available information. The partners found for benchmarking might therefore not provide enough input to take advantage of the full improvement potential.

### 4.3. Strategic benchmarking

Whereas performance and process benchmarking aim at exploring possible

performance levels and ways to achieve them, strategic benchmarking tries to answer the question ‘What should we be doing?’ in the first place. Between businesses, it is the comparison of the strategic choices and dispositions. Applied to local authorities, one could say that strategic benchmarking is benchmarking which is on a ‘higher level’. It is not focused on specific processes, but rather concerns the area of policies and visions.

A local authority could, for example, benchmark its vision for the future with other authorities. How do other authorities foresee the developments in the next decades? Do they have a vision of a ‘sustainable community’, and how does this influence their policies and processes? What are their priorities?

Strategic benchmarking can also aim at comparing what other communities do to tackle a specific area. What are the visions, policies and legal instruments concerning transportation? What are the best ways to reach goals concerning emission limits and industry? Is it pure command and control, is it through voluntary agreements, or self-monitoring? What is the most cost-efficient and environmentally effective?

It might be difficult to always make a clear distinction between process benchmarking and strategic benchmarking (see, also, the example ‘Citizens Network Benchmarking Initiative’ in Section 4.5). However, this distinction might not be that important, as long as the goals and the methodology of the benchmarking process are clearly defined.

Strategic benchmarking yields its highest benefits when performed against ‘competitors’, i.e. other similar local authorities. Internal strategic benchmarking will probably not lead to great improvements, as the ‘way of thinking’ is often quite similar throughout an organisation. Strategic benchmarking against organisations other than local authorities will also be of limited value, as visions and strategies cannot just be adapted from an organisation, which is designated for a completely different purpose.

#### 4.3.1. Benefits of strategic benchmarking

Instead of focusing on improving a particular process which is not performing well, strategic benchmarking rather tackles the question ‘Should we be doing this process at

all?'. Maybe this process should be operated by a private company and not be the responsibility of a local authority in the first place. Strategic benchmarking tries to question 'the way things have always been done'. It can help local authorities to 'go in the right direction' and not to 'get stuck'. It helps to be open to different policy approaches, ways of solving problems and setting priorities and areas of responsibilities.

**4.3.2. Limits to strategic benchmarking**

Visions, policies and strategic decisions are very much tied to the history of a community, to the way the organisation is built up, to legislation, and to political forces within the community, which vary considerably between EU member countries, and, in general, throughout Europe. It might therefore be difficult to find benchmarking partners which are similar enough to find adaptable approaches (unless within one country). Even if new approaches and opportunities for improvement are found, implementing changes on the strategy and policy level might be more difficult than on the process level. There can be a considerable internal resistance to changes, as certain powers and responsibilities may be threatened through these improvements. The improvement process can be very slow, since the decision process for implementing changes normally involves a lot of parties.

**4.4. Benchmarking (rating) performed by third parties**

Comparisons and ratings performed by third parties are often called benchmarking. They cannot exactly be classified into any of the above-described benchmarking categories. Normally, they are on the level of performance benchmarking, focusing on the pure comparison of performance data or aggregated indices. They seldom go into in-depth analysis of processes and practices, due to limited access of the third parties to process data. Such rankings for the industry are often focused on specific themes, such as comparison of air emissions between different factories, regardless of industry sector (see 'Scorecard' or 'Factory Watch' in Section 2.5). Other ratings aim at analysing the whole 'sustainability performance' of a company, such as the Dow Jones Sustainability Group Index <sup>(71)</sup>.

Concerning local authorities, there are rankings performed by NGOs, or governmental bodies, often focusing on quality of life. An example is 'Asia's best cities' <sup>(72)</sup>, issued by Asiaweek. The ranking is based on the cities' performance concerning 23 indicators, covering issues from life expectancy over education, housing prices, and GDP growth, to air quality and percentage of population with sewerage.

**Example: The Urban Ecosystem Report in Italy <sup>(73)</sup>**

Since 1994, the Italian environmentalist association Legambiente has produced, in cooperation with the Istituto di Ricerche Ambiente Italia, the Urban Ecosystem Report, which has been applied so far in 102 Italian cities that are provincial seats. The report makes a ranking of cities, which is based on scores for different indicator sets. The indicators, which are expressed in percentages, are aggregated and classified into a number of quality bands: excellent, good, fair, average, insufficient.

The information for the ranking was gathered from national and other sources of statistical data and information, as well as through questionnaires and interviews with the cities. In total, information on 42 different environmental parameters was gathered, which were used to develop 18 indicators.

**The 18 areas of indicators for the Urban Ecosystem Report**

- Air monitoring
- NO<sub>2</sub> concentration
- CO concentration
- Nitrates in drinking water
- Water consumption
- Wastewater treatment
- Urban solid waste production
- Separated waste collection
- Number of cars per 100 inhabitants
- Public transport
- Pedestrian squares
- Cycle lanes
- Fuel consumption
- Domestic electricity consumption
- Green areas
- ISO 14000 certified industries
- Level of activity concerning Agenda 21
- Mortality due to tumours and respiratory illnesses

(71) <http://indexes.dowjones.com/djsgi/> —Dow Jones Sustainability Group Index, *The Index of Dow Jones Indexes and SAM Sustainability Group*.  
 (72) <http://cnn.com/ASIANOW/asiaweek/features/asiacities/ac1999/data/introduction.html> — *Asia's best cities 1999*.  
 (73) (OECD, Environment Directorate, Conference paper prepared by the Delegation of Italy for the conference 'Towards sustainable development — Indicators to measure progress', Session III — 'Measurement of sustainable development progress in Italy. Environmental and sustainability indicators at local and urban level', OECD conference hosted by the Italian authorities, Rome, 15 to 17 December 1999. ENV/EPOC/SE/CONF(99)24 (<http://www.Ambientitalia.it>).

The methodology for the comparisons has been developed further since 1994, and is based on three fundamental elements.

- For each indicator, an objective or goal is set. In most cases, this benchmark is based on national and European laws or agreements, and, in some cases, it refers to the average or best performance of the Italian cities. In the scale of services, a minimum and a maximum value are defined, so that the indicator can be expressed in percentages of the goal value.

**Example wastewater treatment indicator (extract from Urban Ecosystem Report 1999).**

Calculated as % of the inhabitants connected to the wastewater treatment plants  
\* days of function \* efficiency of treatment (CODout/CODin)

Cagliari	100 %	Parma	69 %	Padova	27 %
Caltanissetta	100 %	Asti	68 %	—	—
—	—	La Spezia	51 %	Firenze	12 %
Lecco	89 %	—	—	Milano	0 %
—	—	Pisa	46 %	Trapani	0 %

- The various indicators do not all have the same weight. The weights of the indicators were defined through an evaluation panel made up of 20 cities and of Legambiente experts. Treatment of water, differentiated waste collection, public transport and urban parks turned out to be valued higher than other issues.
- A differentiated evaluation between small and large cities was introduced. For example, the objectives for monitoring of air and the objectives for public transport are differentiated depending on the number of inhabitants.

Excerpt from final classification for the Urban Ecosystem 1999  
Weighted aggregation of the 18 indicators and ranking

**Excellent:** No community

<i>Good</i>		<i>Average</i>		<i>Insufficient</i>	
Venezia	70 %	Vicenza	54 %	La Spezia	44 %
Pavia	69 %	Verona	54 %	—	—
Bergamo	67 %	—	—	Vercelli	41 %
Como	67 %	Savona	50 %	—	—
		—	—	Potenza	39 %
<i>Fair</i>		Sassari	49 %	Imperia	37 %
Cremona	62 %	Brindisi	48 %	—	—
—	—	—	—	Lecce	36 %
Mantova	55 %	Novara	45 %	Latina	36 %

This ranking is regarded as useful for recognising topics where there are inadequacies and delays, as well as successes. It helps in identifying dynamics and developments in time, underscores the geographic differences, and helps to analyse possible correlations between environmental performance and various urban 'forms' and models.

#### 4.4.1. Benefits of ratings performed by third parties

The idea of such rankings is to **inform the citizens and increase awareness** about the quality of life, the state of the environment and the activities carried out by the communities where they live. Informed citizens can put more and better pressure on communities to make changes and improve their quality of life. Such ratings, of course, also directly motivate communities to compete for being 'the most sustainable and the most environment-friendly city'. It is a good advertisement for local authorities to be at the top of such rankings. No city wants to be depicted as not providing quality of life and not being sustainable.

Rankings published by third parties often have more credibility than performance benchmarking results published by local authorities themselves. For marketing purposes, third-party rankings can therefore be very beneficial for a community.

#### 4.4.2. Limits to ratings performed by third parties

Ratings by third parties are often based on publicly available information. The information basis for performing such ranking might therefore not be the same for all the rated communities. Some data might be missing for certain authorities, and some data might be calculated in a different way, and be defined in a different way. Often, such ratings and indices are calculated from only a few criteria, being biased towards certain topics or communities that have a better framework for measuring that particular data. The sources of information and the criteria for making the ratings are not always declared very clearly or stressed in the publication of the ratings. Also, explanations concerning 'non-comparability' and notes for explaining differences in data are often missing.

In some cases, this might therefore lead to misinterpretations by the audience or 'undeserved' positive or negative publicity

for certain communities, without giving the concerned communities a platform for explaining the results. Such ratings and rankings are very useful for allowing an impression of some proportions, giving incentives and providing 'food for thought and discussion', but they should be interpreted very carefully.

#### 4.5. Which kind of benchmarking to apply?

As mentioned in Section 2.3, some kind of succession in which benchmarking types are used can be observed. Some degree of performance measurement and comparison against goals is a prerequisite for quality and environmental management in a local authority, and necessary for any benchmarking process. Some form of performance benchmarking is often done prior to process benchmarking, and

comparisons are often first done internally before finding external benchmarks.

However, very systematic data benchmarking and systems of indicators might not necessarily have to be a prerequisite for embarking on a process benchmarking exercise. Cities sometimes know quite well which processes are not doing well, even without having the proof through a perfect system of indicators and performance benchmarking against other cities. It may just be 'a gut feeling' of the involved people, without any systematic assessment. Nevertheless, the process to be benchmarked has to be understood, and there has to be some way of performance measurement.

The following example shows that a benchmarking initiative can also contain a combination of several elements of the different benchmarking types described in the Sections 4.1 to 4.4.

##### Example: Citizens Network Benchmarking Initiative <sup>(74)</sup> — see figure 4.3.

The Citizens Network Benchmarking Initiative is a good example of how a benchmarking process could look and how performance benchmarking and process benchmarking can be combined. The Citizens Network Benchmarking Initiative is a response to the 1995 Green Paper 'The citizen's network — Fulfilling the potential of public passenger transport in Europe'. Public authorities and transport operators across Europe are under pressure to provide more services with less money. At the same time, authorities and operators are expected to play a full part in supporting wider objectives such as environmental improvement and economic and social development. The benchmarking initiative is aiming at helping municipalities to find out in what areas they perform well and where they perform badly, for example concerning transport, how they can improve their performance by learning from others, and how they can let others know about their own 'success stories'. The pilot project was started in 1998 and was finished at the end of 1999. It was conducted for 15 cities and regions with a population of over 100 000 inhabitants <sup>(75)</sup>, with the help of a wide range of agencies. The cities and regions chosen had contrasting profiles and characteristics. However, the pilot project proved that it was possible to cooperate and share common interests, despite such differences. The pilot benchmarking project consisted of two stages.

##### 1. Comparison of performance based on key indicators

In the first step, authorities identify their own strengths and weaknesses against other European cities, using simple indicators like trends in the proportion of trips undertaken by different forms of transport. Apart from the development of basic indicators, groups of authorities can also work out indicators for special subjects (e.g. rural transport).

##### 2. Learning from good practice

In the second step, small groups of authorities choose a specific topic where they want to learn from others. They visit examples of good practice 'on the ground' and make a structured examination of what has been achieved and how.

For the development of indicators for the performance benchmarking, questionnaires with 132 questions (indicators) were developed. For some of the indicators, many of the cities or regions did not have the relevant data. For others, differences in measurement made comparisons impossible. In the end, 38 indicators were chosen which can present good, useful data to compare transport in the 15 cities or regions. Even among these indicators, there are some important differences in methods of measuring and calculating. Footnotes to the charts explaining the differences aim at making the comparisons more transparent and useful. The indicators cover areas such as public transport, car use, cycling, or air pollution, and aim at covering the following questions:

- How well is our transport system achieving its objectives, compared with others?
- What are the inputs that enable different transport systems to achieve their results?

(74) <http://www.eltis.org/benchmarking/intro.htm> — *Citizens Network Benchmarking Initiative*.

(75) Cities and regions participating in 1999: Athens, Bremen, Dresden, Edinburgh, Genoa, Graz, Île-de-France, Lisbon, Merseyside, Nantes, Oulu, Prague, Strathclyde, Stuttgart, Terni.

It was recognised that many of the figures such as those in Figure 4.3 below were difficult to compare directly due to the differences between the cities, for example in size. It seems natural to see greater use of cars in smaller cities like Terni (Italy). However, just as is stressed in the 'European common indicators' project, comparisons of how performance is changing over time can overcome this problem and give clues about which cities are performing better than others.

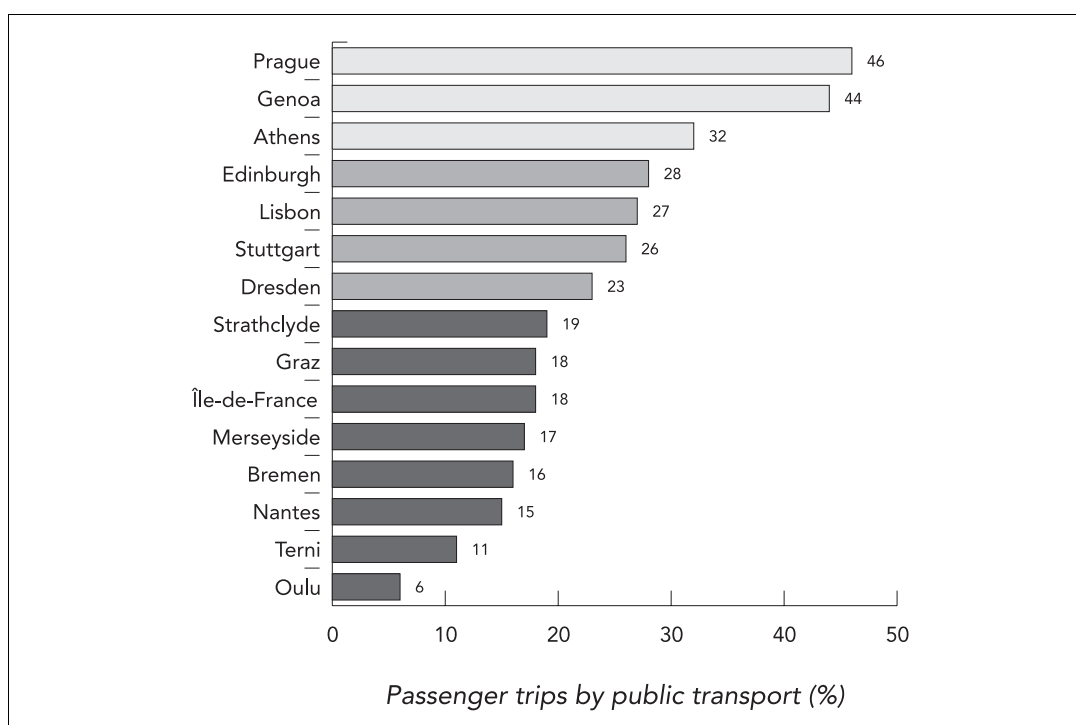
At the end of the first self-assessment stage, the participants from the 15 cities and regions agreed on four topics of interest. Four subgroups were formed to investigate these topics, through site visits to localities already successfully achieving high performance in the area of the topics chosen. The topics chosen were:

- how to make good strategy decisions in a complex interagency context;
- marketing strategies that can induce car users to switch to sustainable forms of transport for some or all of their trips;
- how to upgrade bus services so that they have the same power to attract users (including those with cars available) as tramways;
- how to improve integrated information on public transport.

It might be difficult to fit this second benchmarking step clearly into the framework provided in Chapter 4. Some aspects could be regarded as process benchmarking, whereas others are more on the strategy level. The initiators stress that the success during this second stage of the benchmarking project relied upon the fact that the exchange of experience and information creates a virtuous circle. Shared experience based on successful realities generates greater experience and an increased capacity to convince decision-makers and all stakeholders involved to lead and implement new projects. It is interesting to note that the diversity of territories did not seem to raise methodological difficulties, and that balanced exchanges are possible and profitable regardless of a city or region's size and position.

The pilot project was regarded as a success, and a follow-up initiative is planned to be launched early in 2000 <sup>(76)</sup>.

Figure 4.3.

**ELTIS benchmarking: proportion of trips made by public transport**

Keehley et al. stress that the organisation always has to ask itself whether it is actually 'ready' for a successful benchmarking study.

Focusing on process benchmarking, they mention five 'readiness levels' to consider <sup>(77)</sup>:

(76) In this respect, a thematic network under the EC's fifth RTD framework programme is being developed. The project is called BEST ('Benchmarking European sustainable transport'). It will comprise six high-level conferences and will run three parallel projects for areas not covered before, and the findings will form the basis of recommendations to the European Commission's Directorate-General for Energy and Transport which has commissioned this project in order to understand how benchmarking and the use of indicators can play a role in future sustainable transport policy-making (<http://www.besttransport.org>).

(77) Keehley, P., Medlin, S., MacBride, S. and Longmire, L., *Benchmarking for best practices in the public sector. Achieving performance breakthroughs in federal, state, and local agencies*, Jossey-Bass Publishers, San Francisco, 1997, p. 59.



1. *Benchmarking readiness.* Do we have a similar organisation with which to benchmark, and is there a similarity between the processes to be benchmarked? The more dissimilar the organisations and the processes, the more benchmarking experience and skilled staff are necessary to make the process successful. Without sufficient benchmarking readiness, organisations will find it difficult and expensive to import best practices.
2. *Culture readiness.* Is our organisational culture and environment ready to import best practices? Organisations may have different cultures and different concerns. However, an organisation has to make sure that there is a commitment to improvement, that it wants to learn, and that it is ready to share. Importing new practices into an organisation that has a 'not-invented-here' attitude will not be very successful.
3. *Implementation readiness.* Do we all have the same understanding of why we are benchmarking and what we want to achieve? The organisation has to make sure that the process to be benchmarked is understood and analysed, otherwise it will not be able to learn from others. The benchmarking organisation and its key stakeholders need to come to a common understanding of the reasons for the study. Furthermore, it is important that the 'right people' for the study are available, and that there is a communication strategy within the organisation as well as towards stakeholders in order to ensure ongoing support of the study.
4. *Operation readiness.* Can we ensure that the imported practice will be successfully operated once it is in place? The organisation needs to have measures in place to monitor the new approach and determine how well it is working, so that the team can adjust it if necessary. Those responsible for managing the imported practice have to be trained and informed, and have also to make sure that the imported practice would be continually improved.
5. *Technical readiness.* Do we have the technical skills to conduct a benchmarking study and to import best practices? This refers to the knowledge, skills, ability, and experience available for the study. Do we know how to analyse practices and organisations, how to interpret data on performance, how to look for partners, how to prepare questionnaires for the partners, etc.? The expertise may be developed in-house or may be acquired through consultants, contractors, universities, or other external sources. Expert assistance may be helpful, since professionals with experience in benchmarking can help maximise the benefits and point out problems to avoid.

The choice of which kind of benchmarking to apply depends on the **goals** that should be achieved with the exercise, the **benchmarking experience and readiness**, the personnel and financial **resources available**, the **data availability**, and the choice of other instruments which could be used as an alternative to benchmarking. The following table contains an overview of the 'pros and cons' for the above-described benchmarking types.

Table 4.6. Advantages and disadvantages of benchmarking

	Performance benchmarking	Process benchmarking	Strategic benchmarking
<b>Internal benchmarking</b>	<i>Advantages</i> Easiest-to-obtain data No resource-intensive search for benchmarking partners Better comparability due to similar way of measuring and defining information Stimulates 'competition for improvement' within organisation Provides basis for other benchmarking studies	<i>Advantages</i> Establishes internal best practice Good for gaining experience prior to embarking on an external benchmarking study Supports internal quality/environmental management, increases cooperation and internal awareness	—
	<i>Disadvantages</i> Pure analysis of performance gaps does not necessarily lead to improvement Focus too narrow — does not allow insight into actually achievable performance outside the organisation	<i>Disadvantages</i> Internal rivalry can prevent sharing of information and good practice Limits the focus to 'the way we do things here' — no breakthrough ideas can be expected Comparable processes might not be existing	<i>Disadvantages</i> Very different strategic approaches not likely to be found internally
<b>Benchmarking against other local authorities</b>	<i>Advantages</i> Allows organisation to recognise 'where it stands' Helps reinforce the urgency of performance improvement	<i>Advantages</i> Helps to focus on core processes Prevents communities from reinventing the wheel Study does not have to rely solely on quantitative and 'classified' information Good basis for long-lasting partnerships	<i>Advantages</i> 'Opens the eyes' to different approaches Allows an integrated approach to improvement
	<i>Disadvantages</i> Pure analysis of performance gaps does not necessarily lead to improvement Lack of data comparability	<i>Disadvantages</i> Benchmarking partner search can be difficult due to lack of available practice information Other local authorities may be unwilling to share detailed information	<i>Disadvantages</i> Possible resistance for implementing new approaches (e.g. on political level)
<b>Functional benchmarking against organisations other than local authorities</b>	—	<i>Advantages</i> Most likely to find breakthrough ideas	—
	<i>Disadvantages</i> Lack of comparability	<i>Disadvantages</i> Difficult search for benchmarking partner Not recommended without prior benchmarking experience	<i>Disadvantages</i> Not likely to be useful
<b>Benchmarking and rating performed by third parties</b>	<i>Advantages</i> Increases awareness among citizens Trigger for 'competition for improvement' between communities Information source for benchmarking performed by communities themselves	<i>Advantages</i> Third party might have a wide network of contacts and be better informed than communities themselves Constitutes a valuable source of information	—
	<i>Disadvantages</i> Data used often biased or not complete Danger of misinterpretations	<i>Disadvantages</i> Access to detailed information difficult for third parties	—

## 5. Recommendations

If properly implemented, benchmarking can lead to dramatic improvements in an organisation's processes. However, there are several pitfalls that can undermine the efforts and turn benchmarking into an expensive process which does not yield the benefits expected<sup>(78)</sup>. The following points are important to consider for a successful benchmarking exercise, especially in the case of process benchmarking.

- *Benchmarking efforts should be tied to an organisation's strategic objectives.* It is critical to follow the dictates of integration and consistency, so that the processes and systems selected for benchmarking are the most important ones for achieving the organisation's strategic intent with regard to the environment.
- *Setting out to benchmark a process requires the organisation to carefully scrutinise its own process(es) prior to talking to any other organisation.* Often, once an organisation has committed to benchmarking a process, the eager team immediately wants to get on an aeroplane and benchmark another organisation. This is called 'professional visiting'. The team will have a nice visit, but most likely they will not be asked back, no long-term contacts will be established, and it is unlikely that any serious information exchange will take place<sup>(79)</sup>.
- *Emphasising numbers rather than the processes behind the numbers leads to skewed findings that fail to improve overall processes.* If those completing the study fail to understand their own processes and procedures fully, the study group can easily recommend changes which are less workable than the ones that are currently employed.
- *For process benchmarking, data collection should be kept within limits.* Excessive data collection is an indication that the benchmarking team did not properly define their benchmarking mission. Consequently, excessive data-collection efforts reflect the

fact that the benchmarking team is not sure what to look for.

- *Knowledgeable, interested people with authority to implement change must be assigned to the benchmarking effort.* If the best personnel are not applied to benchmarking, then the effort is not receiving total support from the organisation.
- *The study should not focus on issues that are too broad.* Asking a chemical company to benchmark the way it achieves good water pollution control is much too broad. In addition, broad topics usually exceed the scope and authority of benchmarking team members to implement meaningful change.
- *Failing to identify a person or work unit as the 'customer' for the benchmarking study will result in findings that amount to no more than gathered information.* A benchmarking study should be sponsored by people who plan to take action with the information they obtain.
- *Timetables should be realistic, otherwise this will affect the quality of a benchmarking study.* Successful, objective benchmarking must be deliberate, not rushed. A typical benchmarking study lasts 6 to 12 months.
- *Benchmarking partners have to be chosen carefully.* Partners should be chosen because they are the superior in a process that has parallels with the organisation's process.
- *It has to be ensured that a proper protocol is always followed.* Benchmarking balances between borrowing information from another organisation and stealing proprietary information. Attention must be paid to ethical and legal issues. In addition, the benchmarking team should be willing to share lessons learned with its study partners.

Concerning environmental benchmarking for public and local authorities, it can be said

(78) Resch, T. and Selman, J. R., *Benchmarking in the Federal Government: A survey.* Prepared for the Office of Environmental Restoration, Project Performance Corporation, March 1994 (<http://www.em.doe.gov/bch/survpt.html>).

(79) Davis, R. I. and Davis, R. A., *How to prepare for and conduct a benchmark project*, Department of Defense, 7/15/94 (<http://131.84.1.34/c3i/bprcd/0135.htm>).

that the potential is not yet used in Europe to the extent it could, especially concerning process benchmarking. The benefits of benchmarking can be considerably improved with increased efforts in the following areas.

#### **Environmental benchmarking as an integral part of EMS or TQMS**

Environmental or sustainability benchmarking can be used as an **integral part of local authorities' environmental or total quality management systems (TQMS)**. This presupposes that communities set goals and targets, that they establish performance measures to reflect these goals, and that they have adequate information systems to monitor performance in the significant areas in the first place. Benchmarking should be seen as one of the many improvement tools that can be used within such management systems.

#### **Guidelines and harmonisation concerning sustainability performance measurement and reporting**

Comparability of environment-related data on the basis of local, regional or national environmental reports is still very weak. **Generally accepted guidelines** on how to define certain environmental terms and how to measure and report performance could add to comparability and to the better use of environmental reports for comparisons and for finding benchmarking partners. For example, Europe-wide agreed definitions of the different waste categories and ways of treatment (recycling, recovery, etc.) could reduce misinterpretations and simplify the analysis of comparisons considerably. Complete harmonisation might be difficult due to the fact that many of the definitions and ways of measurement are tied to country, region or community-specific legislation and organisation. In this case, at least a transparent way of declaring differences should be envisioned.

The **Internet** as tool for publishing environmental and sustainability reports could be better explored. The Internet offers the possibility of structuring and customising information to the needs of the users without overwhelming them with information they do not need. Initiatives such as CEROI (see

Section 4.1.3) are very valuable for harmonisation of information and for allowing comparisons and an effective search for specific information, and should be supported.

#### **Harmonisation of existing practice-sharing databases**

In general, the **exchange of information between communities and sharing of practices should be fostered**. The potential of the Internet could in this respect be better used. It provides an ideal tool for such information exchange, since it offers many ways of storing and accessing complex information.

It appears that best practice databases are not used for benchmarking partner search to the extent they could. This can be partly because of lack of awareness, but also because the current situation concerning best/good practice databases is a little confusing. There are a number of such databases, and some of them are interlinked and may even contain the same cases. However, it is not always transparent for the user how these databases are connected, and what are the differences. Increased **harmonisation and better communication about the connections** between the databases would be of benefit to the users. For an efficient search of benchmarking partners and comparisons, it would also be practical if the databases had the same or similar structure. Agreed criteria on how to assess and describe good and best practices would also be useful.

#### **Strengthening of the link between sustainability indicator initiatives and best/good practice databases**

There are many initiatives concerning sustainability indicators, and a considerable amount of best practice databases. **However, there is a very weak link between the two fields**. Some of the good practice databases do contain key performance measures, but not, however, according to specific guidelines. For an efficient search of benchmarking partners, it would be favourable if such practice databases contained more performance measures and a selection of indicators drawn from currently used indicator frameworks.

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# Appendix: List of mentioned benchmarking projects, tools and organisations

Please note that the following compilation is by no means comprehensive. It only lists the organisations, initiatives and tools mentioned in the report.

## Environmental benchmarking projects

### Citizens Network Benchmarking Initiative

The project is run by ELTIS, the European Local Transport Information Service. It is a benchmarking initiative for public authorities in the area of transport, and encompasses performance benchmarking as well as learning from best practice. The pilot project was started in 1998 with 15 cities and regions.

- *Contact:* Paul Hodson, Directorate-General for Energy and Transport; tel. (32-2) 29-91258; e-mail: paul.hodson@dg7.cec.be
- *Internet:* <http://www.eltis.org/benchmarking/intro.htm>

### Benchmarking of the Öresund region

This project was initiated in 1999 by the Öresund Committee and its member organisations. The objective is to estimate where the Öresund region stands in terms of environmental issues, compared to other metropolitan areas in Europe; however, the aspect of exchange of experiences and build-up of partnerships is also important. The plan is to finish the project during 2001.

- *Contact:* The Öresund Committee, Benchmarking Secretariat, Gl. Kongevej 1, DK-1610 Copenhagen; e-mail: JarlZinn@oerekom.dk
- *Internet:* Presentation planned

### Index of local sustainability (IkoN — Index für kommunale Nachhaltigkeit)

This is an index used for rating cities and towns around Hanover. The index is based on a set of indicators, collected in the framework of Korena, which stands for 'Local and regional sustainability inventory'. It is a project developed by the Cities and Towns-Net of the EXPO region, local and regional NGOs and the Ecolog-Institute. The goal was to develop tools, which can help communities to monitor whether or not they are on the way towards sustainability.

- *Contact:* Dr H.-Peter Neitzke, Ecolog-Institut; tel. (49-511) 924 56 46; e-mail: mailbox@ecolog-institut.de
- *Internet:* No page found

### The Italian Urban Ecosystem Report

The 'Ecosistema Urbano' is a ranking of 102 Italian cities based on scores for different indicator sets, produced by Legambiente, in cooperation with the Istituto di Ricerche Ambiente Italia. It has existed since 1994. The full ecosystem report for the year 2000 (in Italian) can be downloaded on the Internet (see below)

- *Contact:* Legambiente; tel. (39) 06 86 26 81; e-mail: legambiente@legambiente.com  
Istituto di Ricerche Ambiente Italia; tel. (39) 229 40 61 75;  
e-mail: ambiente.Italia@galactica.it (Maria Berrini)
- *Internet:* [http://www.legambiente.com/canale10/documenti/ecosistema\\_urbano\\_2000/index.html](http://www.legambiente.com/canale10/documenti/ecosistema_urbano_2000/index.html) and <http://www.Ambientetalia.it>

### Regional benchmarking — The four motors of Europe

This benchmarking project was conducted in 1991/92 with the goal of benchmarking the European regions of Baden-Württemberg in Germany, Rhône-Alpes in France, Lombardia in Italy and Catalonia in Spain. A report has been produced about it; however, there have been no follow-up activities since the publication of the report.

- *Contact:* Montserrat Colldeforns, Tel. +34 93 4445000/5036, fax: +34 934199718, email: wmcolldeorreu.gencat.es
- *Internet:* No information

## Environmental benchmarking organisation and tools

### **SHEiIBA (Safety, Health and Environment Intra Industry Benchmarking Association)**

SHEiIBA is operated by the UK-based Corporate Benchmarking Association and offers different tools for exchange of best practices and comparison of performance in the area of safety, health and environment. Members are mostly corporations; however, it is also open for local authorities.

- **Contact:** Jonathan Bendit, Corporate Benchmarking Services, PO Box 13881, Edinburgh EH15 1ZQ, United Kingdom; tel. (44-131) 669 85 45; e-mail: info@sheiiba.org
- **Internet:** <http://www.sheiiba.org>

### **ecoBUDGET®**

ecoBUDGET® has been developed by the European Secretariat of the International Council for Local Environmental Initiatives (ICLEI). It is a tool controlling governments' sustainable consumption of natural resources and environmental goals, adapted from the world of financial budgeting. Pilot projects have been carried out in several German cities since 1996.

- **Contact:** ICLEI European Secretariat, Eschholzstraße 86, D-79115 Freiburg; tel. (49-761) 36 89 20; e-mail: environmental.management@iclei-europe.org (Konrad Otto Zimmermann)
- **Internet:** <http://www.iclei.org/ecobudget>

### **Enviro-Mark**

The Enviro-Mark was launched in 1998/99 by the UK-based BEA (Business Environment Association), now maintained by Enviro-Mark Systems Ltd. It is a five-stage accreditation process enabling companies to demonstrate their performance at any level from legal compliance to the requirements of ISO 14001. The aim is to offer practical support in overcoming environmental problems and highly focused training to sustain improved performance.

- **Contact:** Enviro-Mark Systems Ltd, Post Office House, Holbrook, Derbyshire DE56 0TQ, United Kingdom; tel. (44-1332) 78 01 30; e-mail: info@enviro-mark.com
- **Internet:** <http://www.enviro-mark.com/>

### **EEBN (European Environmental Benchmarking Network)**

The EEBN was established in 1999 by the European Commission, and implemented by the Fondazione Eni Enrico Mattei (Italy) and other partners. The EEBN aims at building a network of interested parties — particularly firms and associations — on environmental benchmarking. The general objective of the EEBN is to stimulate the use of benchmarking techniques to the environmental management domain.

- **Contact:** Fondazione Eni Enrico Mattei, EEBN coordinator, Corso magenta, 63, I-20123 Milan; e-mail: [eebn@feem.it](mailto:eebn@feem.it) (contact person: Daniela Mauri)
- **Internet:** <http://www.eebn.org>

### **Contour environment, health and safety benchmarking**

Contour was launched in 1997, based on research by a CBI cross-sector working group of EHS directors. It is a self-assessment questionnaire that allows organisations to measure their EHS performance against others. It covers management systems, health and safety, pollution control and waste management, product life cycle, transport, stakeholders, and organisation and culture. The result shows where your organisation stands in against your industry sector and 150 other participating companies, concerning the dimensions environmental performance and practice.

- **Contact:** PROMoting Business Excellence, Confederation of British Industry (CBI), Centre Point, 103 New Oxford Street, London WC1A ADU, United Kingdom; tel. (44-20) 73 95 81 84; e-mail: [benchmarking@cbi.org.uk](mailto:benchmarking@cbi.org.uk)
- **Internet:** <http://www.cbi.org.uk/home.html>, under 'Best practice'/'Contour'

### **Metrex practice benchmark**

Metrex is the Network of European Metropolitan Regions and Areas. The focus of Metrex is in the area of spatial planning and it is aimed at setting benchmarks rather than doing actual benchmarking exercises. The intention is to present current metropolitan planning practice with regard to competence, capability and process. The Metrex practice benchmark is currently being piloted as an Interreg IIc project within the north-west metropolitan area involving six Metrex members and associates: Glasgow and the Clyde Valley, Bradford, Lille, Dublin, Brussels and Rotterdam. The publication *The practice benchmark 1999* can be ordered at the Metrex Secretariat.

- **Contact:** tel. (44-141) 28 78 33; e-mail: [secretariat@eurometrex.org](mailto:secretariat@eurometrex.org) (Alastair Wyllie)
- **Internet:** <http://www.eurometrex.org>

## Best practice databases and pollution databases

### 'Best practices' database

The 'Best practices' database is produced by the UNCHS (Habitat) and the Together Foundation. The searchable database contains over 650 proven solutions from all over the world to the common social, economic and environmental problems of an urbanising world, classified into good and best practice. The described practices contain narrative describing the situation and the practice, a summary of the results achieved and lessons learnt, as well as, partly, some key indicators.

- Contact: Best Practices and Local Leadership Programme, UNCHS, PO Box 300030, Nairobi, Kenya; tel. (254-2) 62 30 29; e-mail: bestpractices@unchs.org or guenther.gross@unchs.org (Günther Gross)
- Internet: <http://www.bestpractices.org>

### 'Local sustainability' — European Good Practice Information Service

Developed and operated by Euronet Environment Planning and Development and ICLEI, and sponsored by the Directorate-General for the Environment, it is connected to the UNCHS 'Best practices' database. 'Local sustainability' contains information concerning good practice guidance, a database with good practice examples throughout Europe, and European policy documents on sustainability and the urban environment.

- Contact: ICLEI European Secretariat; fax (49-761) 368 92 29; e-mail: training.centre@iclei-europe.org or Euronet; fax (44-117) 976 38 95, e-mail: d-ludlow@uwe.ac.uk (David Ludlow)
- Internet: <http://cities21.com/europractice/index.htm>

### Database on good practice in urban management and sustainability

This database was launched by the European Commission at the Urban Forum in Vienna in November 1998. The database contains case studies in accordance with standardised formats, and Commission and other documents providing background information on policy and practice, as well as links to the integrated Commission database network and other databases.

- Contact: Susann Pauli, Directorate-General for the Environment; fax (32-2) 296 95 54, e-mail: susann.pauli@cec.eu.int
- Internet: <http://europa.eu.int/comm/urban/>

### Surban

Surban, the database on good practice in urban development, is operated by the European Academy of the Urban Environment. The European Academy of the Urban Environment is aiming to encourage exchange of experience amongst local government decision-makers in all spheres of sustainable urban development, and the Surban database is a cornerstone of their activities.

- Contact: EA.UE (European Academy of the Urban Environment), Bismarckallee 46-48, D-14193 Berlin; tel. (49-30) 895 99 90; e-mail: husch@eaue.de
- Internet: <http://www.eaue.de/winuwld/list.htm>

### Factory Watch

Factory Watch is operated by the UK-based Friends of the Earth. It presents league tables concerning different types of pollution by factories in the UK. It is also possible to view the polluters in a specific community.

- Contact: Friends of the Earth, 26-28 Underwood Street, London N1 7JQ, United Kingdom; tel. (44-20) 74 90 15 55
- Internet: [http://www.foe.co.uk/campaigns/industry\\_and\\_pollution/factorywatch/](http://www.foe.co.uk/campaigns/industry_and_pollution/factorywatch/)

### Right-to-Know Network (RTK NET)

The US-based Right-to-Know Network provides free access to numerous databases (such as the TRI), text files, and conferences on the environment, housing, and sustainable development. The information available on RTK NET allows the user to identify specific factories and their environmental effects, analyse reinvestment by banks in their communities and assess people and communities affected. RTK NET is operated by OMB Watch and the Center for Public Data Access.

- Contact: OMB Watch; e-mail: ombwatch@ombwatch.org and Center for Public Data Access; tel. (1-202) 234 84 94
- Internet: <http://www.rtk.net>

### Scorecard

The 'Scorecard' is an information service provided by the US Environmental Defense. This information service gives access to pollutant emission data, land contamination and certain types of waste in any community, based on authoritative scientific and government data (e.g. the TRI). The 'Scorecard' can rank and compare the pollution situation across the United States — by state, by county, by community or by facility.

- Contact: Environmental Defense (US); e-mail: david\_roe@environmentaldefense.org or benjamin\_smith@environmentaldefense.org
- Internet: <http://www.scorecard.org>

## Different reporting and indicator projects

### CEROI (Cities environment reports on the Internet)

CEROI was initiated by UNEP/GRID-Arendal in 1996. The objective is to provide a concept for easily creating cities environment reports on the Internet. Easy-to-use software with templates based on 'best available' urban environmental indicators makes it easy to prepare professional state of the environment (SoE) reports on the Internet. The CEROI web site functions as a gateway to the cities SoE reports and allows comparisons of key information.

- Contact: UNEP/GRID-Arendal, Service Box 706, N-4808 Arendal; tel. (47) 37 03 56 50; e-mail: [ceroi@grida.no](mailto:ceroi@grida.no)
- Internet: <http://www.ceroi.net>

### Indicators for the Cities21<sup>®</sup> pilot project

The purpose of the Cities21<sup>®</sup> pilot project was to establish a mechanism by which to start measuring the impact of local actions on global conditions, concentrating on ICLEI's three main campaign areas: climate change, public participation/governance, and fresh water management. ICLEI aimed at developing indicators which can be based on available data, which are suited to measure local priorities and actions, and at the same time link to global goals.

- Contact: ICLEI; tel. (49-761) 36 89 20; e-mail: [iclei-europe@iclei-europe.org](mailto:iclei-europe@iclei-europe.org)
- Internet: <http://www.cities21.com/cities21/index.htm>

### The urban audit — Terms of reference indicators

The urban audit was launched by the European Commission in June 1999, and attempts to gather comparable information and data at city, wider territorial unit and sub-city levels. In a pilot project, information has been gathered on 33 'terms of reference indicators', covering five fields: socioeconomic aspects, citizenship civic involvement, levels of training and education, environment, and leisure and culture.

- Contact: European Commission, Directorate-General for Regional Policy: Marcello Roma; e-mail: [Marcello.roma@cec.eu.int](mailto:Marcello.roma@cec.eu.int) or Mireille Grubert; e-mail: [mireille.grubert@cec.eu.int](mailto:mireille.grubert@cec.eu.int)
- Internet: <http://www.inforegio.cec.eu.int/urban/audit/src/intro.htm>

### Towards a local sustainability profile — European common indicators

The European common indicators is an initiative from the European Commission, under the umbrella of the Expert Group on the Urban Environment. The European common indicators consist of a set of 10 integrated indicators, reflecting the interactions between the different dimensions of sustainability. The indicators should above all be used to measure movement towards or away from sustainability over time and for identifying trends and directions. The final list of indicators as well as the technical report can be downloaded on the Internet (see address below)

- Contact: Susann Pauli, European Commission, Directorate-General for the Environment, rue de la Loi/Wetstraat 200, B-1049 Brussels; fax (32-2) 29-69554; e-mail: [susann.pauli@cec.eu.int](mailto:susann.pauli@cec.eu.int)
- Internet: <http://www.sustainable-cities.org/indicators>

### Urban indicators guidelines by the Global Urban Observatory

The indicator system, including 23 key indicators as well as an extended indicator set, has been developed by the UNCHS (Habitat) in order to measure progress in the implementation of the Habitat Agenda. The topics cover shelter, social development and eradication of poverty, environmental management, economic development, governance, and international cooperation. At the web address given below, several indicator guidelines can be viewed, such as the abridged guidelines, comprehensive guidelines, extended set of guidelines, or the indicators toolkit.

- Contact: Günter O. Karl, Coordinator, Global Urban Observatory and Statistics Unit, Urban Secretariat, UNCHS, PO Box 30030, Nairobi, Kenya; tel. (254-2) 62 30 50; e-mail: [guo@unchs.org](mailto:guo@unchs.org)
- Internet: <http://urbanobservatory.org/indicators/guidelines/guidemain.html>

### CEROI core indicators

In the framework of the CEROI (Cities environment reports on the Internet) development, <http://ceroi.net> offers a lot of information concerning indicators, for example indicator resources, an indicator encyclopaedia, and the presentation of the CEROI core indicators. Furthermore, it contains a 'cookbook for SoE reporting' and links to other online reporting and indicator resources.

- Contact: CEROI Secretariat; UNEP/GRID-Arendal, Longum Park, Service Box 706, N-4808 Arendal; fax (47) 37 03 50 50; e-mail: [ceroi@grida.no](mailto:ceroi@grida.no)
- Internet: <http://www.ceroi.net>

### CSD working list of indicators of sustainable development

The aim of the CSD (Commission for Sustainable Development) UN indicators is to monitor progress towards the objectives of Agenda 21. The CSD working list of indicators of sustainable development is a flexible list from which countries can choose indicators according to national priorities. The indicators are presented in a driving force–state–response (DSR) framework and divided into social, economic, environmental and institutional aspects, following the chapters of Agenda 21.

- Contact: United Nations Division for Sustainable Development, New York; tel. (1-212) 963 31 70; e-mail: [dsd@un.org](mailto:dsd@un.org)
- Internet: <http://www.un.org/esa/sustdev/worklist.htm>

### Customised sustainability indicators in Slovakia

The aim of ETP Slovakia was to identify, develop and evaluate a set of indicators which can be customised for a particular city. They should incorporate the opinion of all stakeholders and take into account economic, political and social impacts. Closely linked to the EMS programme, the chosen indicators should mainly be used to monitor and communicate the compliance with the specified objectives and targets set within the EMS. Successful pilot tests have been carried out in the cities of Puchov and Spisska Nova Ves.

- Contact: Slavka Macakova, ETP Slovakia; tel. (421) 95 76 01 07; e-mail: [macakova@changenet.sk](mailto:macakova@changenet.sk)

**Korena**

See above under 'Environmental benchmarking projects': 'Index of local sustainability (IkoN)'

- Contact: Dr H.-Peter Neitzke, Ecolog-Institut; tel. (49-511) 924 56 46; e-mail: mailbox@ecolog-institut.de

**System of local sustainability indicators in Catalonia**

Xarxa (Network of Cities and Towns towards Sustainability in Catalonia) has produced a system of 30 sustainability indicators, aiming at being consistent with important indicator initiatives currently being developed in Europe, such as the European common indicators. The purpose of the indicator project is above all to provide tools for diagnosing and interpreting municipal phenomena both from the management and action viewpoint and from a broader and more systematic outlook.

- Contact: Secretaria tècnica de la Xarxa de Ciutats i Pobles cap a la Sostenibilitat, Barcelona, Spain; tel. (34) 934 02 22 22; e-mail: xarxasost@diba.es (contact person Nuria Parpal)
- Internet: <http://www.diba.es/xarxasost>

**Haagse Milieuthermometer**

The City of The Hague (Den Haag) issues a booklet every year, where performance concerning the themes housing, working and moving is visualised with 'environmental thermometers'. The 'top point' of the thermometer represents the goal concerning the specific indicator, for example 100 litres water consumption per household and year. The performance is then visualised in percentages of the goal. The 'higher the temperature', the better the performance.

- Contact: Theo Breumelhof, City Management Division, Internal postcode F0818, PO Box 12 651, 2500 DP The Hague, Netherlands; tel. (31-703) 53 65 72; e-mail: t.breumelhof@dsb.denhaag.nl
- Internet: <http://www.denhaag.nl>

**OECD — Territorial Development Service — Urban Affairs**

The capacity of cities to grow and change and the problems that arise as cities evolve are directly relevant to the strategic objectives of the OECD: economic development, social cohesion and effective governance. The theme of sustainable development, which ties these objectives together, is more visible than ever before, and the major question which has to be answered in the future concerns the degree to which cities will have to change if progress towards sustainable development is to be made. Within this scope, the TDS has made considerable contributions, namely the territorial reviews, analysis of environmental management systems in urban areas, local partnerships, urban brownfields and sprawl. The TDS is also developing urban statistics based on indicators.

- Contact: Joseph Konvitz; e-mail: joseph.konvitz@oecd.org
- Internet: <http://www.oecd.org/tds/>

**European Sustainable Cities and Towns campaign**

The European Sustainable Cities and Towns campaign was launched in 1994 at the end of the European Conference on Sustainable Cities and Towns in Aalborg. The objective of the campaign is to promote development towards sustainability at the local level through Local Agenda 21 processes, by strengthening partnership among all actors in the local community as well as inter-authority cooperation, and relating this process to the European Union's action in the field of urban environment, and the work of the Urban Environment Expert Group. The campaign is formed by municipal signatories to the Aalborg Charter. It is served by a campaign office based in Brussels and supported by major European networks and associations of local authorities, for example the CEMR and ICLEI.

- Contact: Anthony Payne, Coordinator, Campaign Office, rue du Cornet 22, B-1040 Brussels; tel. (32-2) 230 53 51; e-mail: campaign.anthony@skynet.be
- Internet: <http://www.sustainable-cities.org>



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