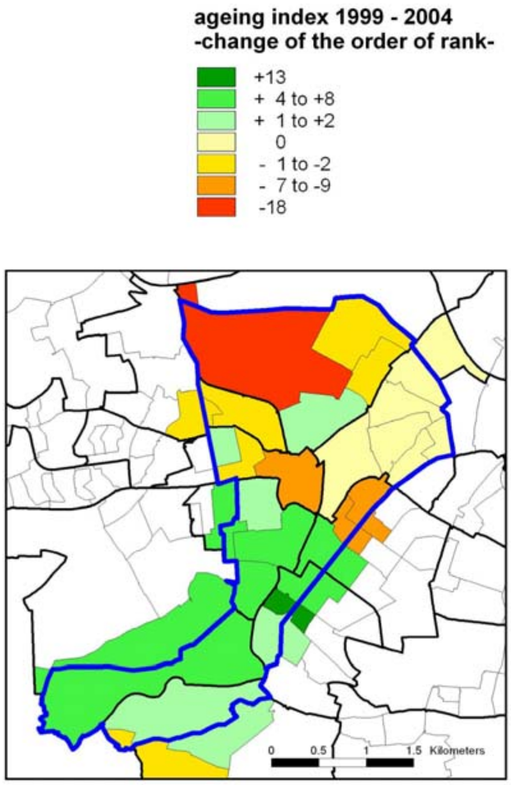
Improving the quality of life in Large Urban Distressed Areas

LUDA E-Compendium: Handbook E7

Monitoring Quality of Life in LUDAs



LUDA is a research project of Key Action 4 City of Tomorrow & Cultural Heritage from the programme Energy, Environment and Sustainable Development within the Fifth Frame-

Introduction

This handbook focuses on monitoring the quality of life in LUDAs. First of all, in chapter 1 basic concepts of monitoring the quality of life in areas of urban regeneration are explained, dealing with questions such as (see **chapter 1** of this handbook):

- what is monitoring?
- what does monitoring the quality of life in urban regeneration mean?
- what are current challenges in monitoring the quality of life in urban regeneration?

Chapter 2 presents European examples on monitoring the quality of life, at city level and at sub-city level. The chapter sets out what can be learnt from these attempts to monitor the quality of life. However, despite the examples of a range of good practice, many of the challenges facing LUDAs still need to be addressed.

Chapter 3 proposes a solution to these unsolved problems by delivering detailed guidelines on how to elaborate a system for monitoring quality of life in LUDAs. The guidelines are backed by examples from pilot testing the methodology in Dresden and refer to following common questions arising when monitoring quality of life:

- How can a set of quality of life indicators be defined? (see **section 3.1** of this handbook)
- How can perception be taken into account? (see **section 3.2** of this handbook)
- How can statistical data and information on perception be scaled? (see **section 3.3** of this handbook)
- How can the side-effects of improvement activities be monitored? (see **section 3.4** of this handbook)
- How can monitoring results be represented and interpreted? (see **section 3.5** of this handbook)

Further notes are provided on the organisational frame of the monitoring system (see **section 3.6** of this handbook). As the construction of a system for monitoring quality of life in LUDAs always depends on the specific local circumstances the guidelines are presented in form of a toolbox proposing several alternative methods.

Chapter 4 summarises pointers and pitfalls for monitoring quality of life in LUDAs (see **section 4** of this handbook].

The final **chapter, 5,** lists suggestions for further reading. This chapter gives detailed information which references to the various sections of the handbooks. Furthermore it provides the reader with useful hints and links where he or she can learn more about the monitoring methodologies proposed throughout this handbook (see **section 5** of this handbook).

The e-compendium is designed to be used online. The text includes interactive links which allow you to move around the document, to link to other handbooks, or to open websites. Links are shown as **coloured text**. You can also find the links by looking for icons in the page margins, as shown on the left.

If you prefer to read this handbook like a normal book, then you can print it out. Please note that all of the handbooks are designed for double-sided printing.

Acknowledgements

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The cover shows a map representing the change of rank order of the standardised ageing index for the LUDA Dresden Weißeritz. The map has been elaborated by IOER based on data from the City of Dresden.

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1. What are the basic concepts for monitoring the quality of life in urban regeneration?

1.1 What is monitoring?

Monitoring is the regular collection, analysis, interpretation and reporting of data leading to more informed decision-making. It is an integral part of the policy process, closely related to policy choices and the establishment of aims and objectives, both on a strategic level and when specific projects are being designed and implemented (Beanland, Huser 1999; ODPM 2005; SIP Monitoring and Evaluation Unit 1997; Moore, Spires 2000, 203f.).

Usually monitoring follows an indicator-based approach directed towards identifying the area's baseline, the context of regeneration activities, as well as their impacts (Hemphill, Berry, McGreal 2004, 726).

Box 1: Definition of Monitoring

Monitoring is the:

- continuous observation of spatial development
- collection, description and interpretation of data to back planning decisions
- operationalisation by quality targets and measurable indicators
- assessment of probable impacts of planning alternatives and thus the steerage of urban planning

For further reading see **chapter 5 section 1.1** of this handbook.

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1.2 What does monitoring the quality of life mean in urban regeneration?

Monitoring the quality of life in urban regeneration includes monitoring change as well as performance. Monitoring change is orientated towards the alteration of quality of life over a time period in relation to a baseline, whereas monitoring performance is mainly directed towards the planned implementation of programmes and projects.

Monitoring change in the quality of life

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The debate on monitoring the quality of life is mainly focused on the assessment of change, and it is deeply rooted in the debate on indicators to measure welfare and well-being (for further information on the concept of quality of life **see handbook 2**). Monitoring change needs a regular collection, analysis and interpretation of data which can show achievements regarding objectives or reference frameworks. By providing information on changes, monitoring reveals whether development is heading in the desired direction. The assessment of changes usually refers to a specified reference framework or set of objectives (e.g. social, economic, environmental) in a given space (e.g. national, regional, city, neighbourhood level).

Usually, indicator systems or indices are used to monitor change, such as for example with the Human Development Index (HDI) shown in Box 2:

Box 2: Human Development Index (HDI) as a measure to monitor changes in quality of life

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The Human Development Index (HDI) measures the average achievements in three basic dimensions of human development (healthy life, knowledge, standard of living) in a country (UNDP 2004). Table 1 shows the dimensions and indicators that are part of the Human Development Index.

Table 1: Dimensions and indicators of the Human Development Index (HDI)

Dimension	**A long and healthy life**	**Knowledge**		**A decent standard of living**
Indicator	Life expectancy at birth	Adult literacy rate	Gross enrolment ratio (GER)	GDP per capita
		Adult literacy index	GER index	
Dimension index	Life expectancy index	Education index		GDP index
	Human Development Index (HDI)			

The HDI is calculated as an average of the three 'dimension' indices. The dimension indices are expressed as a value between 1 and 0 and calculated according to the formula:

$$\text{Dimension index} = \frac{\text{Actual value} - \text{minimum value}}{\text{Maximum value} - \text{minimum value}}$$

Minimum and maximum values have been set as shown in Table 2.

Table 2: Goalposts for calculating the HDI

Indicator	**Maximum value**	**Minimum value**
Life expectancy at birth (years)	85	25
Adult literacy rate	100	0
Combined gross enrolment ratio	100	0
GDP per capita (PPP US $)	40,000	100

Monitoring change includes major elements such as selecting indicators or other assessment criteria referring to given objectives, describing a baseline situation, collecting and analysing data over a certain time period, comparing it to the preceding situation as well as drawing conclusions regarding change and necessary actions.

Monitoring performance of regeneration activities

Monitoring performance, e.g. of programmes related to the improvement of quality of life, aims at identifying the success of regeneration activities. This includes measuring inputs, processes, outputs, outcomes, and impacts of development projects, programmes or strategies, along with information on the problems being tackled (Worldbank 2004, 6; ODPM 2005). Objectives of performance monitoring are to provide decision makers with the means to learn from past experiences, and use this knowledge to improve service delivery. Box 3 illustrates methodologies and tools to be applied for monitoring the performance of urban regeneration.

Box 3: Methodologies and tools for monitoring performance of urban regeneration

A variety of methodologies and tools can be applied to monitor the performance of development activities (Hemphill, Berry, McGreal 2004; World Bank 2004):

- Performance indicators measure the performance of development activities against reference criteria.
- The logical framework approach allows monitoring performance at each stage of the results chain.
- Theory-based evaluation considers cause-effect relations to clearly define information and monitoring needs.
- Surveys as well as participatory methods take into account the views of inhabitants, users and other key stakeholders.
- Cost-Benefit and Cost-Effectiveness Analysis measure inputs and outputs in monetary or non-monetary quantitative terms.

For further information see also **Handbook 5: Cost-Benefit Analysis, Social Cost-Benefit Analysis)**

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Stages of the regeneration process

Traditionally, monitoring as the structured provision of information to improve decision-making in planning and implementation has been related to the following stages of urban regeneration processes (Moore, Spires 2000, 205; SIP Monitoring and Evaluation Unit 1997; DTLR 2001, 1ff.; Beanland, Huser 1999, 14):

- describing the context including a review of current policies, programmes and partnerships to determine the eligibility of an area or activity to receive funding support as well as the area's interrelation with the city and its region;
- defining the problem by assembling and analysing baseline data and comparing this baseline to local, regional or national coverage;
- setting objectives and targets that are operationalised by elaborating operational objectives and transforming them into measurable targets with expected outcomes and units of measurements (or indicators);

- implementing regeneration programmes and projects, accompanied by procedures to collect and manage monitoring information (e.g. direct collection of data, exploitation of secondary sources of data, measuring progress in relation to targets);
- review and feedback based on translating raw data into information and thus creating knowledge that can be applied to review, revise and adjust plans of strategies according to new challenges.

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For further reading see **chapter 5, section 1.2** of this handbook.

1.3 What are the current challenges when monitoring quality of life in regeneration?

There are a number of challenges related to monitoring the quality of life in urban regeneration processes. These comprise (1) measuring complexity, (2) cause-effect relations, synergies and side effects, (3) transparency, accountability, community capacity and local learning and (4) application of GIS and other Information and Communication Technologies (ICT).

Measuring complexity

Urban regeneration consists of multi-objective and multi-programme initiatives. This leads to a large variety of interrelated issues and impacts to be captured by a system of monitoring urban regeneration (Becker 2003, 211; Ho 1999). Measuring complexity especially will have to cope with the following problems:

- concepts related to urban regeneration such as “stress” and “deprivation” are often not directly measurable by quantitative measurements;
- quality of life cannot solely be measured by the use of quantitative measurements, but will also have to include qualitative measurements based in external experts as well as on key stakeholders such as agencies, residents, end-users and employees;
- objectives of the regeneration often remain vague at the beginning of the regeneration process and lack operationalisation allowing a clear measurement of their achievement;
- data availability is low, especially for small areas such as regeneration areas or their sub-districts.

Considering cause-effect relations, synergies and side effects

Monitoring and evaluating the performance of urban regeneration includes the challenge of attributing changes to certain planning activities (Barth, Fuder, Roder 2003, 2). Difficulties arise in establishing clear cause-and-effect-relationships between actions, achieved results and impacts with regard to the final objectives (European Commission Directorate-General Regional Policy and Cohesion 2005, 22; Becker 2003, 211). For instance it is difficult to relate the reduction of unemployment within an area to the number of jobs created. Even if the number of jobs within the area increases, unemployment will remain the same if jobs are taken up by unemployed living outside the area (Ho 1999, 426). Thus monitoring quality of life in urban regeneration should consider unforeseen consequences of urban regeneration activities, particularly negative side effects such as relocating the problems of urban deprivation. Using monitoring activities to identify synergies of urban regeneration activities, such as attracting investors to neighbouring areas of regeneration activities, can help to further exploit the positive side effects of urban regeneration.

Strengthening transparency, accountability, community capacity and local learning

Monitoring and evaluation do not take place outside institutionalised decision-making processes, or governance structures, but are closely related to those governance structures. This includes two key aspects:

- Inclusion of stakeholder groups into the monitoring process (see Box 4)
- Monitoring the extent of participation in decision-making processes (see Box 5).

Greater inclusion of stakeholder groups into the monitoring process means efficient use of their large base of local knowledge as well as fostering capacity building and local community-based learning.

Box 4: The Habitat Agenda: "Goals and Principles, Commitments and the Global Plan of Action"

The Habitat Agenda puts a strong focus on inclusion of key stakeholders in monitoring activities. These key stakeholders are non-governmental organisations, community-based organisations, the cooperative sector and public and private foundations as well as marginalised and/or disabled groups (paragraph 117c). Fostering their voluntary contributions shall be achieved by improving the project management skills of community-based and non-governmental organisations (paragraph 118 l) and establishing institutional and legal frameworks facilitating and enabling broad-based participation of all people and their community organisations in decision-making (paragraph 182).

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Box 5: UNCHS Participatory Decision-Making Indicators

United Nations Centre for Human Settlements designed indicators to assess participation in decision-making process to be applied at city level. Indicators refer to following issues:

1. Information and assessment activities:

– variety of sources of information

– consensus on priorities

– gendered assessment

2. Monitoring strategy and action planning:

– consideration of available resources

– consensus on strategies

– gendered strategy

3. Monitoring implementation:

– capacity to implement

– commitment to implementation

– gendered implementation

4. Monitoring institutionalisation:

– capacity to participate

– linkages among stakeholders

– gendered institutionalisation

Data is collected by stakeholder groups' rating of their own performance (national government, local authorities, NGOs, CBOs, private sector, academics and scientists). Participatory rating should lead to a final consensus within the stakeholder group.

Applying Geographical Information Systems (GIS) and other Information and Communication Technologies (ICT)

The interpretation and representation of monitoring results is a complex task requiring further assistance (Friday, Smith, Cook 2004, 2). With its capability of providing good, standardised and quality assured data collection and data storage systems for the receipt, storage, retrieval analysis and dissemination of information, Geographical Information Systems (GIS) have become an essential tool for complementing and presenting monitoring results (Beanland, Huser 1999, 34). Today the combination of monitoring with GIS and other ICT has much potential to further urban regeneration processes. This potential is mainly to:

- improve the provision of information to support decision making e.g. by presenting geographical information on urban regeneration;
- use capacities of modelling and simulation; and

- strengthen planning participation by providing open and flexible platforms.

However, as GIS and ICT are generally not accessed by disadvantaged populations, their useful application in relation to improving quality of life in areas of urban regeneration is still a considerable challenge.

For further reading see **chapter 5, section 1.3** of this handbook.

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2. What are current examples of monitoring quality of life in urban regeneration?

The analysis of the state-of-the-art monitoring of quality of life, in the context of urban regeneration, has revealed that there are still many theoretical and methodological questions to be answered before putting in place a system of monitoring the quality of life in urban regeneration areas. This chapter presents recent examples of monitoring the quality of life in urban areas to give further insight into the current state-of-the-art. Examples are divided into two categories: first those monitoring quality of life at the city level (see **chapter 2.1**) and second those suitable for the sub-city level (see **chapter 2.2**).

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Moreover, the strengths and weaknesses of the following examples, with regard to monitoring quality of life in urban regeneration processes across Europe, are put forward in order to point out lessons to be learnt from those experiences when monitoring quality of life in LUDAs.

2.1 How is quality of life monitored at the city level?

Currently, approaches are taken towards developing unified methodologies towards monitoring and statistically measuring various aspects of European urban life:

- Urban Audit (Box 6) and European Common Indicators (Box 7) present indicator sets for monitoring and comparing quality of life / sustainability across European cities.
- Monitoring and Evaluation of Structural Funds focuses on ensuring best use of financial resources by monitoring the economic performance of programmes and projects executed within the Structural Funds (Box 8).
- The European research project TISSUE (Trends and Indicators for Monitoring the EU Thematic Strategy on Sustainable Development of the Urban Environment) contributes towards the development of a common European methodology for measuring the progress towards environmental sustainability in European cities (Box 9).

Apart from unified European methodologies, individual local solutions are also being developed for monitoring urban quality of life:

- Monitoring quality of life in small and medium sized cities shows how to combine statistical data, citizens' satisfaction and experts' opinions (Box 10).

Box 6: Urban Audit

Urban Audit aims to measure the quality of life in European towns and cities by the help of a simple set of indicators and a common methodology. Urban Audit follows a benchmarking approach, allowing the comparison of urban quality of life across national boundaries, thus facilitating the exchange of information amongst European cities (European Communities 2000a, 7).

Urban Audit operates at three different spatial levels: the Larger Urban Zone (LUZ) representing the functional urban region (e.g. by share of residents commuting into the city), the city level representing its political boundaries and the sub-city districts with a minimum of 5,000 and a maximum of 40,000 inhabitants (European Commission 2005a). Meanwhile Urban Audit collects 250 indicators on quality of life in 258 European Cities. Indicators cover the domains of Demography, Social Aspects, Economic Aspects, Civic Involvement, Training and Education, Environment, Travel and Transport, Information Society, Culture and Recreation. However a closer look at the available data reveals a poor source of information on the level of the sub-city district mainly restricted to demographical information.

In order to complement statistical data gained in Urban Audit, an Urban Audit Perception Survey was introduced in January 2004. Due to the high costs of conducting perception surveys, only 31 cities could be included into the survey. In each city 300 individuals were asked 22 questions on (1) employment opportunities, (2) housing costs, (3) safety, (4) cleanliness of cities, (5) public transport, (6) air pollution, (7) integration of immigrants and (8) overall satisfaction with the quality of life in their city. However no results have been achieved on the quality of life disparities within the cities (European Commission 2005b).

Box 7: European Common Indicators

European Common Indicators are a set of 10 indicators to monitor environmental sustainability at the local level:

- citizens' satisfaction with the local community
- local contribution to global climate change
- local mobility and passenger transportation
- availability of local public open areas and services
- quality of local ambient air
- children's journeys to and from school
- sustainable management of the local authority and local business
- noise pollution
- sustainable land use
- products promoting sustainability

These have been co-operatively developed by the European Commission, the European Expert Group on the Urban Environment, the European Environmental Agency and a wider group of Local Authorities. The set of indicators is ready to use and self-contained and should help towns or cities to monitor progress in achieving quality of their urban environment. The European Common Indicators initiative can be voluntarily joined by European cities and allows the joining cities to benchmark their environmental sustainability against other European cities (European Commission 2005c; European Communities 2000b).

Some indicators are easily measurable or their measurement is already or will be mandatory according EU directives, e.g. the quality of local ambient air (European directives 1999/30/EC, 2000/69/EC and 2002/3/EC defining air quality standards and objectives for 2005/2010). Other indicators, such as the local mobility and passenger transportation, can only be measured with the help of data gained from local surveys therefore requiring extensive new data collection.

Box 8: Monitoring and Evaluation of Regional Development Fund (ERDF)

ERDF resources are mainly used to co-finance productive investment leading to the creation or maintenance of jobs and infrastructure, as well as local development initiatives and the business activities of small and medium-sized enterprises. The programmes can be one of two types: Regional development programmes, drawn up either on the basis of a development plan or a single programming document (SPD), or Community initiative programmes such as for instance INTEREG and URBAN.

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The management and monitoring of any programme financed by the Structural Funds is always within the responsibility of the Member State, which designates a "managing authority" (European Commission 2005e). One of its duties is the programme's annual implementation report that enables the European Commission to examine the main outcomes of the previous year and monitor the programme's progress. Its content is precisely laid down in the regulations – the financial implementation, the progress in the implementation, any changes in the general conditions, the steps undertaken to ensure the effectiveness of implementation and evaluation measures, and the steps undertaken to ensure compatibility with community policies.

The management authority in cooperation with the project partners deals with a project monitoring concept for each case city or region. The purpose of project monitoring is to ensure that the project proceeds as agreed and grant payments are only made when justified. It should be guaranteed that the best use is made of the limited financial resources. Hence an initial action of every project is to prepare a document containing all relevant details including total and annual expenditures, anticipated claim dates and amounts, performance outputs and any other relevant information. The data needed to inform those responsible for monitoring the project's progress will generally be obtained through progress reports received with payment claims.

Principle objectives of project monitoring are (DTI 2005, 2):

- to make certain that grants are used according the purpose, terms and conditions of applied funds;
- to ensure that the claim meets the terms set in project letter and the project is proceeding according to plan;
- to deal with projects (and their grant) which fail to meet forecast and
- to provide the basis for evaluation of benefits.

At the general programme level the monitoring activities could help to understand and improve European and national policy design. However, low priorities among stakeholders towards evaluating programme design and management are criticised (Taylor, Bachtler, Polverari 2001, 356). The project monitoring of EU Structural Funds puts a strong emphasis on guaranteeing effectiveness and accountability. For an effective and efficient implementation of programmes and projects, organisational aspects of project coordination are important as well.

While monitoring structural funds, difficulties can arise in establishing clear cause-and-effect-relationships between the planned actions, achieved results and impacts with regard to the final objectives. Up to now the monitoring of financial implementation is generally well established, whilst the monitoring of physical outputs, results and impacts still could be improved (European Commission Directorate-General Regional Policy and Cohesion 2005, 13, 22).

Box 9: TISSUE: Trends and Indicators for Monitoring the EU Thematic Strategy on Sustainable Development of the Urban Environment

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TISSUE has been a European research project under the 6th framework programme area "Integrating and Strengthening the European Research Area" and the activity "Policy Support and Anticipating Technological Needs". The project aims to develop appropriate indicators and other monitoring tools to assess the effectiveness of the Thematic Strategy on the Urban Environment (TSUE). Thus it contributes to developing a unified methodology to measure environmental sustainability of European urban areas.

The project has developed indicators that monitor the sustainable development of the urban environment, focussing on the environmental aspects. A further need has been detected to complement these with cultural and socio-economic indicators. Apart from descriptive indicators to measure sustainability in the fields of sustainable urban transport, sustainable urban design and sustainable urban construction, TISSUE also suggests urban management indicators concentrating on the process and implementation, rather than on the content of the programme, achievement of objectives and quality (VTT 2005, 56). Examples for these management indicators are 'Presence of an environmental management system in the city', 'Citizens' satisfaction with the state of the urban environment' and 'Citizens' engagement in environmental and sustainability oriented activities' (VTT 2005, 92ff.).

TISSUE puts forward three groups of concerns and trends as relevant for sustainable urban management (VTT 2005, 56):

- Resources, measures and policy integration;
- Perceptions, attitudes and behaviour of citizens;
- Perceptions, attitudes and behaviour of local firms and public institutions.

Hence the need is stressed to exceed beyond the view of city planners and public agencies when monitoring environmental sustainability.

In spite of these valuable contributions from TISSUE, some theoretical and methodological deficits still remain to be solved. These relate to the applicability to identify inner-urban disparities, data availability as well as linkages between activities and changes.

Box 10: Monitoring quality of life in small and medium sized cities, Germany

Within a research project funded by the German Federal Ministry of Education and Research, a reporting system to measure quality of life has been developed for 7 small and medium sized cities in Brandenburg by the Institute for Regional Development and Structural Planning (IRS). To gain comprehensive knowledge on quality of life, statistical data sets are combined with information on inhabitants perceptions gained by an online questionnaire. Experience from the project show that online questionnaires can be successfully applied in medium sized cities of at least 30,000 inhabitants. External experts opinions are included by conducting a Delphi survey, however with limited results (Schütte, Kühn 2004; Aehnelt, Kühn, Schütte 2006). Table 3 shows the indicator set used within this project.

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Table 3: Indicator set 'Quality of life in small and medium sized cities'

	Statistical Indicators	Online questionnaire : How do you assess….
Population / Urban quality of life	• Number of inhabitants • Age groups • Mobility	• Degree of quality of life • Changes within the last 5 years • Changes in future • Greatest potential / problem of the city
Housing & Building	• Flat space per person • Net rent of redeveloped flat within slab building • % of single family and semi-detached houses • Vacancy rate of flats • Number of newly build flats • Usage of brown fields	• Assessment of appearance • Redevelopment / State of buildings, streets, squares • Cleanliness of city centre • Quality of housing offer • Degree of housing costs
Employment and Economy	• Unemployment rate • Employees subject to social insurance contribution • Number of persons living on welfare • Tax revenue per inhabitant	• Economic development of the region within the last 5 years • Offer of jobs within the region • Opportunities to earn money within the region • Economic prospects of the region
Education	• Number of apprenticeship 1. year • School leavers without basic secondary education • School leavers with university-entrance diploma	• Quality of secondary schools • Variety of apprenticeship offers • Quality and quantity of further/advanced training
Leisure and recreation	• Municipal spending for culture and sports • Air quality	• Inner urban parks and green spaces • Recreational areas within city and surroundings • Quality and quantity of cultural events • Leisure facilities for youngsters • Offer of clubs and associations • Offer of restaurants and pubs
Facilities	• Suppliers with regionally produced food at farmer's market	• Inner city shopping facilities • Supply at farmer's market • Facilities for attendance of the elderly • Medical care

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Mobility	• Length of public cycling paths • Density of private cars	• Volume of traffic within the inner city • Safety for cyclists / pedestrians • Offer of trains, busses and trams • Offer of parking space in inner city
Safety	• Crimes	• Safety at night times
Participa-tion	• Participation in local elections • Women in local parliament	• Information on local affairs • Possibilities to take part in local decision-making • Performance of local politicians • Administration's closeness to citizens • Openness, cooperativeness, tolerance

internal link For further reading see **chapter 5, section 2.1** of this handbook

2.2 How is quality of life monitored at the sub-city level?

Some European examples deal with monitoring quality of life at the sub-city levels. These show a wide range of possible methodological solutions to the main challenges demonstrated above, ranging from a unified sophisticated system of national statistics going down to small geographical units to a community-based definition of individual local indicators:

- Sustainable renovation of buildings for sustainable neighbourhoods (HQE^{2}R) as a European research project shows a comprehensive and complex approach of monitoring sustainability on the neighbourhood level (Box 11).
- The English Index of Multiple Deprivation (IMD) is based on a highly developed system of national statistics allowing to identify urban deprivation at the small area level (Box 12).
- The Ballymun Community Indicators represent a monitoring system with a strong focus on a participatory approach, by including the local community into the monitoring activities. Community Indicators are furthermore supplemented by performance indicators monitoring the performance of the urban regeneration scheme (Box 13).
- Early warning and controlling system for urban development planning is directed towards early identifying the emergence of deprived areas by regularly monitoring development of urban districts and determining deviations (Box 14).
- Bern's sustainability compass, providing a tool for monitoring the impact of regeneration activities. The sustainability compass offers the opportunity for qualitatively assessing the impact of either plans, programmes or projects on the sustainability of the affected area (Box 15).

Box 11: HQE^{2}R Sustainable renovation of buildings for sustainable neighbourhoods

HQE^{2}R "Sustainable renovation of buildings for sustainable neighbourhoods" has been a project co-financed by the European Commission within the programme Energy, Environment and Sustainable Development (City of Tomorrow). The main aim of the project was to develop a new methodology to promote sustainable development and quality of life at the urban neighbourhood level.

One main element of this methodology is a comprehensive set of indicators that is applicable for describing the state of a neighbourhood in regard to the objectives of sustainable urban development as well as for assessing scenarios or projects for neighbourhood regeneration. The diagnosis of the state of the neighbourhood (sustainable development shared diagnosis) should consider all sustainable development dimensions (relevant at neighbourhood, buildings and inhabitants scale) without disregarding the neighbourhood relations with the town. This diagnosis questions the neighbourhood state with regard to the sustainable development global objectives and their related targets, therefore providing an example for monitoring development changes in regard to the framework of sustainability.

The indicator system, which has been agreed on by ten European research partners and tested in 14 neighbourhoods, is based on 21 sustainable development targets under five main objectives and backed up by a set of 51 key issues with their 61 indicators for the neighbourhood and its buildings. Thus the system is comprehensive in regard to capturing important aspects of sustainability. However measuring 61 indicators causes extensive data collection needs (Outrequin, Charlot-Valdieu 2003; Charlot-Valdieu, Outrequin, Robbins 2004).

The five strategic objectives of the system are closely related to quality of life:

- to preserve and enhance heritage and conserve resources;
- to improve the quality of the local environment;
- to ensure diversity;
- to improve integration; and
- to reinforce social life.

Within the project extensive methodologies have been elaborated such as sustainability functions and aggregation methodologies for the development of neighbourhood profiles, describing a neighbourhood in relation to objectives and targets (for further information see also **Handbook 5: Environmental Impact Model (ENVI)**).

Box 12: The English Indices of Deprivation 2004

England can profit from a longer history of developing statistical methodologies for identifying urban deprivation at the small area level with the Index of Local Conditions (ILC) 1991, the English Index of Local Deprivation (ILD) 1998, the Index of Multiple Deprivation (IMD) 2000 (DETR 2000) and currently the English Indices of Deprivation (ID) 2004 (ODPM 2004, 45).

Consultations on the ID 2004 revealed consensus on the need for index data constructed at the smallest practicable scale. Consequently the Office for National Statistics (ONS) has developed geographical units called “Super Output Areas” (SOAs). These have been aggregated of Census Output Areas and contain an average population of 1,500 inhabitants (ODPM 2004, 16). Therefore disparities of deprivation can be identified on a small geographical scale.

The Index of Multiple Deprivation (IMD) 2004 is a measure of multiple deprivation at the small area level. According to the theoretical framework, an area is deprived resulting from the aggregated individual experience of deprivation within the area. The index follows a compositional meaning of area deprivation considering an area as deprived, when it contains a large number or proportion of deprived people (ODPM 2004, 9ff.).

The IMD 2004 is made up of seven different measures of deprivation that can all be measured separately. Each domain contains a number of indicators, leading to a total number of 36 indicators. For aggregating indicators to domains different methodologies are used: When the metric underlying the indicators are the same, they are simply summed and divided by the population (Income, Employment). In several other domains simple rates have not been possible so that maximum likelihood factor analysis has been applied to find appropriate weights to combine indicators into a single score (for further explanation of methodology see Annex F of this linked document).

These series of uni-dimensional domains of deprivation are combined, with appropriate weighting (see Table 4), into a single measure of multiple deprivation (ODPM 2004, 12). Combining domain indices into an overall index of multiple deprivation is based on the assumption that deprivation in one domain cannot be cancelled out by a lack of deprivation in another domain. Therefore exponential transformation of the ranks is used as a statistical methodology to standardise scores of the single domains (for a further explanation of the methodology see Annex I of this linked document). Weighting of domains is based on the research team’s work, the consultation process as well as where available on academic literature (ODPM 2004, 46ff.).

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Table 4: Domains and Domain Weights (ODPM 2004, 46)

Domain	Domain Weight
Income deprivation	22,5%
Employment deprivation	22,5%
Health deprivation and disability	13,5%
Education, skills and training deprivation	13,5%
Barriers to housing and services	9,3%
Living environment deprivation	9,3%
Crime	9,3%

IMD 2004 is calculated on the basis of data from various national sources, such as census data and data from various state departments, offices or authorities as well as from universities. So the IMD 2004 relies on exploiting existing statistical data. Increasing co-operation between government initiatives led to an increased availability of data compared to IMD 2000.

Box 13: Ballymun Community Indicators, Ireland

Dublin's district of Ballymun is a high density district built between 1966 and 1974 during the housing crisis in Dublin consisting of block of flats and high density family homes. Within this district, indicators have been defined with the help of a community-led visioning process. The visioning process is conducted in order to construct a shared image of the community comprising the desired future, possible actions, strategies and plans for implementation. Indicators have been identified within two workshops. Participants of these workshops were environmentally interested residents, Dublin City Council, Ballymun Regeneration Ltd. as well as local community groups and organisations. The first step within the visioning process has been the elaboration of five scenarios. These served as a basis for the definition of common goals, the subsequent identification of key benchmarks and the final establishment of a list of community indicators. Finally the environmental, social and economic indicators were collaboratively selected from prepared grids deriving from different sources such as Ballymun Masterplan, residents' indicators and experts' indicators (Krawczyk 2002).

Economic

- Number of childcare places and jobs with a livable wage
- Development of improved management and maintenance arrangements and the role of residents and local organisations
- Number of jobs (with livable wages) available in the area
- Number of sites available for economic/social use and take up of that

Social

- Increase in school attendance
- % of pupils completing Post Primary Cycle
- Reduction in anti social behaviour measured by no. of broken trees, no. of broken street lamps, no. of fires started, no. of dumped furniture/appliances, no. of incidents of graffiti, no. of animals abandoned
- Number of voting in local and national elections

Environmental

- Number of people buying eco-products
- Number of facilities available for recycling, including composting, in Ballymun
- Number of homes with better insulation features
- Improved energy conservation awareness
- Ease of access to key services, e.g. number of public transport routes that run in Ballymun and link Ballymun to the rest of the city

Apart from monitoring these community-based indicators, an annually monitoring of the performance of the overall regeneration programme is carried out. This monitoring is directed towards reviewing the implementation of the Ballymun Integrated Area Plan. The annual review is mandatory under the Urban Renewal Scheme and therefore submitted to the Department of the Environment, Heritage and Local Government. Performance indicators are used for an annual review of the Masterplan. These performance indicators focus on unemployment figures, educational attainment, residential and commercial land values, crime statistics, drug dependency and treatment, jobs in the local economy, childcare places and the visual physical environment. Census data are used to include information on population and household size. Monitoring is carried out co-operatively by the Board of the Ballymun Regeneration Limited and the Monitoring Committee, that both include stakeholders from various spheres such as administration, agencies, private sector and inhabitants (Ballymun Regeneration 2003).

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Box 14: Early warning and controlling system for urban development planning, Germany

The institute for urban development and building industry at the university of Leipzig (ISB) is currently developing an early warning and controlling system for urban development. The system is based on objective data gained from municipal statistics, infrastructure providers and housing associations on dimensions such demography, economy, real estate market and building structure, infrastructure, urban scape and settlement area, social structure, ecology. Periodic monitoring of development of a small set of indicators (15) within urban districts shall contribute to determine developments deviating from either the overall development within the city or the timeline of development. Statistical measures such as standard deviation and ranking methodologies are used to ascertain these deviations. Furthermore deviations from norms and standard values are checked. If deviating development is recognised for an urban district early warning is activated. Consequently this district undergoes a more detailed analysis. Cause-effect relations are determined by multivariate or bivariate methods such as chi-square-test or Kendall's tau (Ringel, Korzer, Strauß 2005).

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Box 15: Sustainability Compass Bern

Recently in Switzerland sustainability compasses have been developed to assess the sustainability of regional and urban development in a qualitative way, e.g. in Winterthur, Basel and Bern. The most recent of these compasses is the sustainability compass of Bern that is described in more detail as follows.

Bern's sustainability compass is a qualitative instrument to assess the impacts of development strategies, plans, programmes or projects on sustainability expressed by the three dimensions ecology, economy and society. Each dimension of quality of life is further operationalised by objectives and indicators (e.g. for the economic dimension 14 objectives and 29 indicators). Impacts on sustainability are assessed compared to the status quo. Therefore the impacts of a plan, programme or project are assessed for each indicator on a five level ordinal scale including -2 = very negative; -1 = negative; 0 = neutral; +1 = positive; +2 = very positive. Values are aggregated by calculating the mean per objective as well as per dimension. A detailed representation of strength and weaknesses serves as a basis for in-depths interpretations of results. Figure 1 shows an example for assessing the impact of a project (here the adjoining of two skiing areas) on the economic dimension of sustainability, providing the overall mean of the economic dimension, objectives' means and a profile of weaknesses and strengths.

Figure 1: Example for assessing impacts of a project on economic dimension of sustainability (Kompetenzzentrum für Nachhaltige Entwicklung im Kanton Bern 2005)

Over-all Mean	Objective	Mean	-2	-1	0	+1	+2
	Income	0,00					
0,27	Living costs	0,00					
	Job offer	1,00					
	Investment: additional investment	2,00					
	Investment: conservation of value	1,00					
	Business development	0,50					
	Transparency of costs	0,00					
	Resource efficiency	0,25					
	Economic structure	0,00					
	Tax burden	-1,00					
	Public budget: expenditures	-1,00					
	Public budget: revenue	1,00					
	Know-how	0,00					
	Innovation	0,00					

The sustainability compass can easily be used for a qualitative assessment and provides transparent and easy understandable results. However as a merely qualitative tool not backed by statistical data its significance is also limited.

internal link

For further reading see **chapter 5, section 2.2** of this handbook

2.3 What can be learnt from European approaches towards monitoring quality of life on the city and sub-city levels?

The examples of monitoring quality of life in the context of urban regeneration presented above all show their specific strengths and weaknesses in regard to the challenge of monitoring. They can be summarised as in Table 5 below.

Table 5: Strength and weaknesses of existing monitoring systems in regard to monitoring quality of life in LUDAs

Monitoring system	Strengths	Weaknesses
Urban Audit (see Box 6)	Comprehensive set of indicators to measure quality of life Fostering local learning through a benchmarking approach Inclusion of inhabitants' perspectives by Urban Audit Perception Survey	Incomplete results due to lack of data availability Lack of results on inner city disparities Lack of stakeholders' participation
European Common Indicators (see Box 7)	Indicators reflect the interactions between environmental, social and economic issues Fostering local learning through benchmarking approach Manageability by a small set of indicators (10)	Extensive new data collection needs due to surveys required Lack of results on inner city disparities
ERDF (see Box 8)	Intention to measure success of rehabilitation programmes funded by Structural Funds Well established monitoring of financial implementation	Difficulties in establishing clear cause-effect relations Lack of considering unexpected positive and/or negative results
Quality of life in small and medium sized cities (see Box 9)	Combining objective data and subjective perception Successful online surveys as low cost alternative	No system to measure inner city disparities in larger cities Limited success in measuring external perception
TISSUE (see Box 10)	Consideration of sustainable urban management (process and implementation) Taking into account citizens' perception as well as perception by local firms and public institutions	Little attention has been paid to data availability on city and district level Lack of cultural and socio-economic indicators
HQE²R (see Box 11)	Comprehensive system capturing quality of life Applicability for different purposes: description of state, evaluation of scenarios, projects Incentives for stakeholders' participation Ability to identify inner-city disparities of sustainability	Extensive data collection needs on district level Lack of manageability (too many indicators: 61) Lack of a transparent methodology

continues →

Index of Multiple Deprivation (see Box 12)	Unified national methodology to identify urban deprivation Ability to identify inner-city disparities of deprivation and compare it to deprived areas in the whole nation Comprehensive system capturing quality of life	Extensive requirements regarding a national system of statistics hardly available in other European countries Lack of qualitative measurements Lack of stakeholders' participation Sophisticated methodology reduces transparency for laymen
Ballymun Community Indicators (see Box 13)	Stakeholders' participation in monitoring Manageability by limited number of indicators (13)	Lack of statistical measurements New data collection needs
Early Warning and Controlling System (see Box 14)	Suitability for early warning Ability to identify inner-city disparities of quality of life	Lack of information on internal and external perception
Sustainability Compass Bern (see Box 15)	Qualitative assessment of impact of programmes, plans and projects Transparent and easily understandable tool	Lack of reference to statistical data Lack of reference to internal perception

The analysis of strengths and weaknesses of the various monitoring systems currently in use reveals, that no system is able to cope with the comprehensive challenges of monitoring quality of life in urban regeneration processes. Systems with a strong focus on sophisticated statistical methodologies often lack transparency and the appropriate participation of stakeholders. Putting emphasis on stakeholders' participation often is connected with a lack of quantitative statistical information. Systems with a comprehensive set of indicators to capture the idea of quality of life often lack manageability due to extensive data collection needs.

Summarising, it can be concluded, while some challenges could be satisfactorily met within the good practice examples of monitoring systems presented above, others still remain outstanding. Good practices to be followed as well as the remaining challenges for monitoring quality of life in urban regeneration are listed as below:

Good practice to be followed:

- Monitoring systems currently applied in European cities are largely multi-sectoral, backing on the three core domains of sustainability (e.g. European Common Indicators, Ballymun Community Indicators; Sustainability Compass Bern) or on multiple issues of quality of life (HQE^{2}R, Index of Multiple Deprivation). This multidimensional character should as well be used within a LUDA monitoring system but with a stronger focus on urban regeneration issues. However it has to be taken care to achieve a multidimensional character of the monitoring system without losing manageability.
- Current monitoring systems applied in European cities at the city or sub-city scale show a growing tendency for combining statistical data and information on perception, mostly on internal perception. For instance Urban Audit as a monitoring system based on comprehensive statistical data is complemented by an Urban Audit Perception Survey including inhabitants' perspectives. The TISSUE project proposes environmental sustainability indicators related to citizens' perception, as well as percep-

-tion by local firms and public institutions Success of regeneration in Ballymun is measured by community-based indicators as well as by performance indicators to monitoring the performance of the overall regeneration programme carried out under the Urban Renewal Scheme. The reporting system for quality of life in small and medium sized cities includes all three perspectives basing on statistical data, internal perception (online questionnaire) and experts' opinion (Delphi survey), although with a limited success of including external perception.

- In regard to monitoring the financial performance and implementation of urban regeneration activities considerable success has been made. Examples such as the monitoring of ERDF or monitoring performance of the Urban Renewal Scheme in Ballymun should be taken up.

Remaining challenges:

- As LUDA regeneration requires intervention (e.g. political advocacy, investment) external perception is an important aspect to be taken into account when establishing a LUDA monitoring system. This is hardly the case in current approaches towards monitoring. The only approach towards considering external perception has been taken within the reporting system on quality of life in small and medium sized cities with the Delphi survey, but results have not been satisfactory.
- Up until now, no prime solution to monitoring quality of life on the sub-city level has existed. While some monitoring systems are based on sophisticated statistical methodologies (e.g. Index of Multiple Deprivation, HQE^{2}R) that cannot easily be adapted to other cities or city districts, other monitoring systems are too focused on the specific case (Ballymun Community Indicators). Bern's sustainability compass is based solely on qualitative assessment, not backed by statistical data. Early warning and controlling system for urban development planning lacks the inclusion of qualitative information. On the sub-city level lack of data is still a key challenge to be faced.
- While sufficient experience can be stated for monitoring the financial performance of regeneration activities there is still a lack of sufficient consideration of cause-effect relations between regeneration activities and improvements in quality of life. Therefore methodology of LUDA monitoring should particularly focus on measuring synergies and side effects.

3. How can quality of life be monitored in LUDAs?

While the previous sections of this handbook presented the current state of monitoring quality of life in European cities, the following section gives some guidelines on how to develop a local monitoring system to deal with the important aspects of quality of life. These guidelines are based on the analysis of the current state-of-the-art on monitoring methodology, as well as on testing the proposed methodology with data from the city of Dresden. Guidelines and advice is presented alongside the most important questions when establishing a monitoring system:

1. How can a set of quality of life indicators be defined? (see **section 3.1**)
2. How can perception be taken into account? (see **section 3.2**)

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3. How should statistical data and information on perception be scaled? (see **section 3.3**)

4. How can the unwanted side effects of improvement activities be monitored? (see **section 3.4**)

5. How can monitoring results be represented and interpreted? (see **section 3.5**)

Furthermore, some hints are given on how to establish an organisational frame for the monitoring system (see **section 3.6**)

As problems and potentials and data availability strongly differ in various European countries and cities, the guidelines and hints presented in this handbook should be used as a "toolbox" that will have to be individually adapted when creating local quality of life monitoring systems. Therefore, proposals are given for alternative tools and methods to approach the challenge of monitoring quality of life in LUDAs.

3.1 How can a set of quality of life indicators be defined?

Indicators are measurable or observable variables or values derived from defined objectives that synthetically express the status of a current situation (André and Bryant, 2001). In our context, an indicator shall help to monitor changes in the quality of life in the LUDA and its pockets of deprivation at a given time compared to a baseline or foregoing situation. This includes also monitoring of performance with regard to outcomes and impacts of regeneration projects, programmes or strategies. (for further information on monitoring change see **chapter 1.2** of this handbook; for further information on LUDAs and their pockets of deprivation see **chapter 2 of HB 2**).

3.1.1 How can the diamond of quality of life be used as a reference framework?

The diamond of quality of life (Figure 2) as well as its dimensions and issues have been defined as the reference frame for improvement activities in LUDAs (Table 6) whether these are part of programmes or not.

Apart from monitoring the development of quality of life according to the five dimensions of the diamond, it is also necessary to monitor the efficient use of financial resources (as for instance well established when monitoring and evaluating structural funds) (see **box 8 of this handbook**) .

The dimensions of the quality of life are associated with particular aspects of living and working in a specific time. Issues are defined as components of dimensions contributing to identify the problems and potentials of a LUDA to be addressed. Whereas dimensions reflect the general objectives of improving quality of life and their interplay, issues reflect priorities within a given setting. Therefore, issues, as shown in Table 6, are the basis for the specific definition of indicators to be used for monitoring.

Figure 2: Diamond of Quality of Life

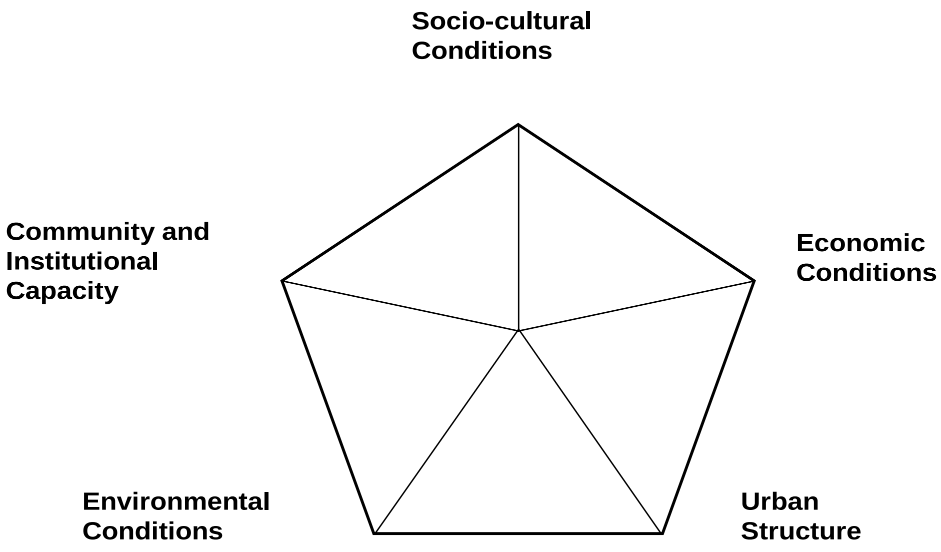

Table 6: LUDA Quality of Life: Dimensions and Possible Issues

Dimensions	Possible Issues (examples)
Socio-cultural Conditions	Population Structure Household Income Local Employment Knowledge and Skills Health Conditions Safety and Security Culture
Economic Conditions	Economic Base Investment Housing and Property Market
Urban Structure	Urban Design Services and Infrastructures Housing Quality Transportation and Traffic Land Use
Environmental Conditions	Soil Quality Air Quality Water Quality Open Spaces Waste Management and Recycling Natural Hazards
Community and Institutional Capacity	Participation and Involvement Social Justice and Equity Institutional Capacity Political Capacity Land Use Context

Socio-cultural conditions

Socio-cultural conditions reflect the situation of the LUDA inhabitants in terms of demographic structure, education and health care, basic financial resources, jobs, and freedom and security from threats, such as crime or burglaries. They represent the human capital, composed by knowledge, skills, competencies and attributes embodied in individuals which facilitate the creation of personal, social and economic well-being. For example, this dimension has the following issues:

- The population structure reflects the characteristics of LUDA's inhabitants according to age, gender, nationality, or place of birth.
- Household income shows the distribution of different sources of local inhabitants' income (e.g. employment, welfare benefits).
- Employment displays any type of work performed or services rendered in the formal sector in exchange for monetary compensation.
- Knowledge and skills reflect inhabitants' capabilities acquired through learning, instruction and training.
- Health conditions show the state of physical and mental health of local inhabitants and access to health care.
- Safety and security reveal the situation in terms of risks arising from the social community, such as crime.
- Culture shows the quality and availability of arts and cultural amenities for LUDA inhabitants. It also includes the cultural expressions of ethnic, age and special interest groups in the area.

Economic conditions

Economic conditions reflect the economic vitality of the LUDA in terms of the capacity to maintain and attract economic activities. The economic situation of a LUDA shows the needs and the economic potential for revitalisation. The following are examples of issues of this dimension:

- Economic base is related to the forms and functions of the economy in the LUDA (e.g. structure, formal and informal sectors, sizes, types and number of businesses).
- Investment shows the public and private investment in the area.
- Housing and property market provides information about values, vacancies of properties and ownership structures as well as conditions under which the markets operate.

Urban Structure

Urban Structure refers to what are often the most visible characteristics of the quality of life in LUDAs. It reflects the relationship between buildings, streets, land uses, open space, circulation, height, densities, natural features and human activities. It also includes information about access to basic amenities and infrastructures and housing quality. This dimension contains, for example, the following issues:

- Urban design includes principles such as function, density, identity and visual appeal.
- Services and infrastructure considers accessibility to and quality of basic services, social and technical infrastructure.
- Housing quality reflects housing amenities and the physical conditions of housing.

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- Transportation and traffic refer to facilities of private and public transport as well as to communication structures and facilities.
- Land use refers to the quality and intensity of the use of land within the LUDA.

Environmental conditions

Environmental conditions refer to the natural features and the conditions of the local environment in LUDAs. For example, main issues of this dimension include soil, water and air quality, the availability and quality of open spaces, as well as natural or man-made risks.

Community and institutional capacity

Community and institutional capacity helps both identifying LUDAs' needs as well as recognizing the horizontal and vertical ties that indicate LUDAs' capacity for addressing their problems. Community capacity relates to the possibility of people participating in actions based on community interests, both on individuals and through groups, organisations and networks. It refers to the social capital built by interactions that exist between groups and people due to having a shared set of values and attitudes, a sense of belonging and solidarity associated with a more cohesive society. Institutional capacity refers to the ability of an organisation to develop and use the sum of its human and organisational capital to minimise negative and maximise positive impacts on the conflict dynamics of the community where it works. Human capital includes staff and partner skills, knowledge and experience. Organisational capital includes departments, structures, financial resources, organisational culture and learning.

For example, issues of this dimension include the following: participation and involvement of the population; social justice and equity relating to the recognition of identity, equality of access to political processes, equality of representation and social and cultural inclusion of the LUDA residents; institutional capacity is associated with local government commitment to participation of citizens, access to planning and decision making of governing bodies, and cooperation between different institutions; political capacity, i.e. the ability to represent residents and to advocate on their behalf in the political arena as well as the existing planning context, i.e. the informative, indicative and normative system defining land uses (e.g. a Master Plan).

3.1.2 How can indicators be selected?

Which criteria can be used for selecting indicators?

The appropriateness of any indicator depends on the objectives of a given case. Every issue proposed can be expressed through indicators. The indicators correspond to defined objectives and are action-oriented. These may change from case to case. Therefore there is not one single monitoring system which would apply to all cases but in each case indicators have to be chosen according to the specific objectives and priorities as well as to data availability and quality. Consequently, each dimension can be expressed through different issues and each issue can be related to different indicators. Therefore it is crucial for city planners and governments to carefully choose the "right" indicators which are truly related to the defined regeneration objectives. Box 16 shows some criteria for the selection of quality of life indicators.

Box 16: Criteria for the selection of quality of life indicators

It is recommended that quality of life indicators in LUDAs should meet the following criteria:

- be representative for the dimension of quality of life under evaluation;
- be simple and easy to interpret and communicate;
- illustrate long-term trends;
- suit the area of concern;
- be readily available or involve low acquisition costs;
- be recognized for their quality and supported by documentation; and
- be periodically updated at temporal intervals, using measuring and sampling procedures.

How can indicators be flexibly selected for each LUDA?

The LUDA approach does not propose a fixed list of indicators to be monitored in each LUDA. However, based on the assumption that characteristics of each LUDA as well as the available data differ in each case, LUDA proposes a more flexible approach towards monitoring the quality of life. Dimensions and issues, representing objectives and targets of the improvement of quality of life, provide a framework for flexibly compiling a local indicator system to monitor quality of life (see **Table 6**).

To help the selection of indicators some general guidelines have been formulated:

- An integrated monitoring system requires all dimensions of quality of life to be taken into consideration. For each dimension at least one issue should be reflected by an appropriate indicator.
- LUDA monitoring especially refers to problems and potentials of an area. Therefore indicators should especially relate to those issues with a development deviating from the general development of the city, either in an extremely negative (problems) or positive (potentials) way.

For the further process of compiling a set of quality of life indicators in principal two options exist:

1. Compiling a comprehensive indicator set for use in statistical analyses.
2. Designing a limited set of indicators to monitor the development of quality of life within an area.

For further reading see **chapter 5, section 3.2.1** of this handbook.

3.1.3 How can a comprehensive indicator set be compiled for use in statistical analyses?

As quality of life is a complex phenomenon, using a comprehensive indicator set with many indicators has the advantage of including all relevant aspects of quality of life. However its manageability is limited and statistical methods are required for analyses.

How to base the selection on the review of existing monitoring and indicator systems?

Building a comprehensive indicator set should be backed by reviewing data sources as well as already existing indicator and monitoring systems (see Box 17).

Statistical data related to urban regeneration and quality of life can be gained from various sources such as public administrations, agencies, housing associations, service providers and others. Experiences from the IMD 2004 in England showed that data availability could be greatly improved by a stronger co-operation of government initiatives.

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As collecting and analysing data on the quality of life is a laborious process, a review of existing data as well as indicator and monitoring systems within the city can help to clarify in how far data and indicators from these systems may also be used to monitor quality of life in urban regeneration processes. Meanwhile most cities already use indicator systems, that are however often sectoral and refer to a larger spatial scale such as the city scale.

Box 17: Review of existing indicator systems in Dresden

In Dresden three major indicator systems are already in use. 'WHO – Healthy Cities (WHO)' contains indicators on health and its related social, urban structural and environmental conditions that are measured on the city scale. The indicator set to monitor the realisation of 'Dresden's integrated city development concept (INSEK)' includes objective and subjective indicators on dimensions such as Residence & Land use; Social & Culture; Society & Population; Mobility & Transport; Economy; Environment & Nature. These indicators are measured on the city scale or the scale of urban districts. The 'Environmental Report' monitors environmental quality including quality of soil, air, climate, water and environmental burdens such as noise or environmental risks such as flooding. Environmental information is presented on small scale levels directly related to environmental features. The following Table 7 summarises available indicators in Dresden relating to the socio-cultural dimension.

Table 7: Available socio-cultural indicators in Dresden

Issue	Indicator	Source	Level*
Population Structure	Duration of occupancy	INSEK	Statistical district
	Mobility (Moving-in/Moving-out)	INSEK	Statistical district
	Ageing Index	INSEK	Statistical district
	Births and Deaths	WHO	Statistical district
Income	Recipients of housing subsidy	WHO	Urban district
	Recipients of social welfare	INSEK	Urban district
	Purchasing power/inhabitant	INSEK	Urban district
Employment	Unemployment rate	INSEK	Urban district
	Employment rate	INSEK	Urban district

continues →

(continued)

Issue	Indicator	Source	Level*
Health	Death/10,000 inhabitants	WHO	City
	Death below age of 65 / 10,000 inhabitants	WHO	City
	Frequency of accidents	WHO	City
	Number of pupils involved in accidents	WHO	City

* Dresden consists of 64 urban districts and 400 statistical districts. Further levels of analysis are 16,743 statistical blocks.

From this review of existing indicator systems in Dresden it can be stated that many indicators used in Dresden's major indicator systems are applicable to monitor quality of life in areas of urban regeneration. However, in most cases data is not available for the small area level, e.g. for statistical districts or blocks. While for social data availability on the statistical district level is still quite well, the data availability on this level is worse when it comes to the dimensions of economic conditions, urban structure and community / institutional capacity.

How to verify indicators' representation of problems and potentials?

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While statistical methods can on the one hand be used to analyse comprehensive indicator sets those methods (for standardisation see for instance **section 3.4.2**) can moreover be used to verify that the selected indicators reflect important problems and potentials of the area. Problems and potentials of an area are represented by negative and positive deviations either regarding other areas of the city or regarding the timeline of development. To highlight those deviations for instance standardisation of variables and descriptive statistics can be used.

Standardisation of variables: a common method in comparing several indicators and their values among each other is standardisation that allows comparing standardised values of the indicators by z-transformation. Positive and negative deviations from the overall city development can be identified by ranking the standardised indicator values for different urban areas (e.g. urban districts) and determining the position of the LUDA relative to the other urban areas considered. Thus standardisation may contribute to narrowing down the indicator set to representative indicators which can be used for monitoring. Standardisation can furthermore be used for monitoring unwanted side effects. However standardisation only allows monitoring relative changes among the areas referred to, e.g. among all urban districts of a city or among all pockets of a LUDA. Standardisation may not be used to monitor the absolute changes of development of quality of life within an area (for a further explanation of standardisation see **section 3.4.2** of this handbook). However, there are also other methods to determine deviations from the overall development of the city or the timeline of development which shall be explained here.

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Descriptive statistics: Frequency distribution shows the range and distribution of values and indicates whether values are approximately average, maximum or minimum. To identify the deviation regarding one aspect of the quality of life compared to other areas within the same city, values for all urban districts are ordered according to their size. Then the data can be described by measures of spread: The median, as the medial value, represents the score at the middle of the list. While the median cuts the ordered data into halves, quartiles cut this ordered data into quarters (thus each including 25% of all values) and decentiles into 10 parts (each including 10% of the values). These measures give further information on the distribution of values. Lowest or highest quarters / decentiles represent problems and potentials and reveal the need for a further and continuing monitoring. Box 18 shows the frequency distribution of the percentage of housing vacancies in Dresden while Box 19 illustrates how measures of spread can be used to verify that selected indicators reflect problems and potentials of a defined urban area.

Problems and potentials of an area cannot only be represented by a deviation from the overall development within the city but also by deviations from the timeline of development within the analysed area. Therefore values measuring one aspect of quality of life in an area over a longer period of time (e.g. the last ten years) are ordered according to their size and are as well described by measures of spread. Box 20 presents an example of how the deviation from the timeline of development has been used within an early warning and controlling system.

Box 18: Histogram of housing vacancies in Dresden

Figure 3 shows an example of the frequency distribution of housing vacancies in Dresden 2003. The histogram shows the distribution of the percentage of housing vacancies in the 61 urban districts in Dresden. Minimum value (dark green) shows the decentile of these 61 districts with the lowest housing vacancy, which is smaller than 6.5%. Lower average (green), limited by the border of the lowest quartile, represents 15% of the 61 urban districts with values below the average ranging from vacancies of 6.5% to 8.4%. Average (light green), limited by the borders of the lowest and the highest quartile, includes those 50% of values ranging around the median. This includes vacancies from 8.6% to 18.1%. Above average (orange) again represents 15% of values ranging from 18.2% to 22.1%. Maximum (red), the decentile of highest vacancies includes vacancies above 22.1% (Table 8).

Figure 3: Histogram of housing vacancies in Dresden 2003

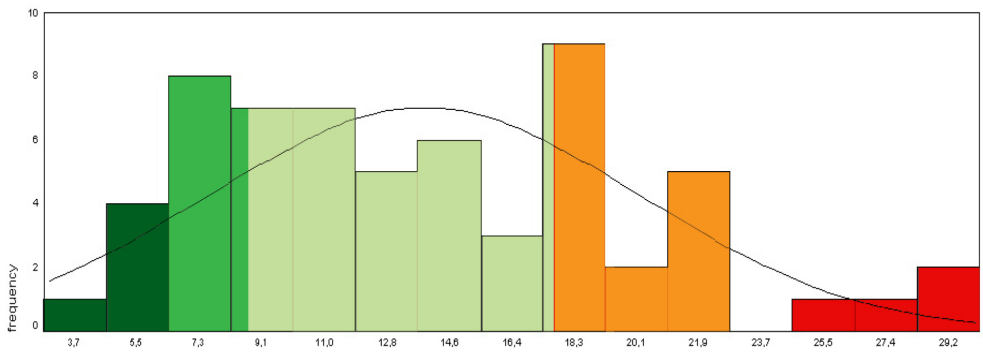


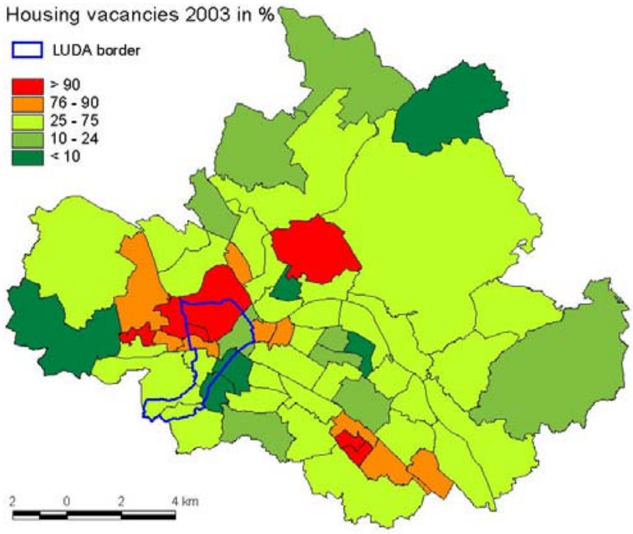
Table 8: Percentiles of frequency

Percentiles	Housing Vacancies
>90	>22.1%
76 – 90	18.2% - 22.1%
25 – 75	8.6% - 18.1%
10 – 24	6.5% - 8.4%
<10	<6.5%

Box 19: Verifying indicators' representation of problems and potentials for Dresden Weißeritz

In Dresden frequency distribution has been used to verify that the selected indicators represent either important problems or potentials of the LUDA. Figure 4 presents a map of the frequency distribution of housing vacancies in Dresden. Three among the nine urban districts being part of the LUDA experience housing vacancies among the highest quartile, two of them among the highest decentile (representing problems). Within three urban districts that are part of the LUDA housing vacancies are below or far below the average (representing potentials).

Figure 4: Frequency distribution of housing vacancies according to urban districts



Development has been assessed as deviating from the city average when the indicator values were located in the minimum or maximum quartile representing either problems or potentials. Table 9 shows 13 key indicators for the LUDA area related to problems and potentials. Due to the high amount of internal differentiation of quality of life within the LUDA most indicators refer to problems (pr.) experienced in some pockets of the LUDA as well as to potentials (pt.) experienced in other pockets.

Table 9: Indicators representing problems and potentials in Dresden Weißeritz

Socio-cultural conditions	Development of population (1999-2003) (pr.; pt.) Ageing Index (pr.; pt.) Recipients of social welfare per inhabitant in employment age (pr.) Unemployment rate (pr.; pt.)
Economic conditions	Development of employment (1999-2003) (pr.; pt.) Development of business stock (2001-2003) (pr.; pt.) Housing vacancies (pr.; pt.)
Urban structure	Proportion of population with good access to public transport (pr.; pt.) Proportion of new or renovated housing 1999-2003 to building stock (pr.; pt.) Doctors per 1000 inhabitants (pt.)
Environmental conditions	Proportion of green space to district area (pr.; pt.) Proportion of brown fields to district area (pr.)
Community and institutional capacity	Participation in elections (federal, state, local) (pr.; pt.)

Box 20: Development of early warning and controlling system for urban development planning – ISB

Within the early warning and controlling system for urban development that is currently being developed by the Institute for Urban Development and Building Industry at the University of Leipzig (Institut für Stadtentwicklung und Bauwirtschaft der Universität Leipzig, (ISB)) aspects that need further analysis are identified by a deviation from the timeline of development. Therefore standard deviation is calculated for a period of the last 10-15 years / month without taking into account the current value. Standard deviation marks the limiting corridor whose exceedance indicates the need for a more detailed diagnosis. Other deviations indicating the need for further analysis are the deviation from norms or standard values, extreme values as named by experts or a development strongly differing from other city districts, the city average or other cities (Ringel, Korzer, Strauß 2005).

For further reading see **chapter 5, section 3.1.3** of this handbook.

3.1.4 How can a limited set of indicators be designed to monitor the development of quality of life ?

Selecting a limited set of indicators to monitor quality of life has the advantage that a small and manageable indicator system allows more extensive analyses of the data and therefore presents a better opportunity to closely monitor the development of quality of life within an area (for further methods to applied see **chapter 3.3** and **chapter 3.5** of this handbook). However working with a limited set of indicators implies the risk of missing important aspects of quality of life.

Therefore when working with a limited set of indicators particular care is needed to chose the right indicators that reflect the most important aspects of quality of life. This can for instance be achieved by referring to problems and potentials of the area (see Box 21). As far as the objectives for the regeneration of an area have been formulated, the selection of indicators should be oriented towards these objectives. Indicators should be selected in a way so that they can be used to monitor the achievement of objectives that have been set for the area (see Box 22).

Relating indicators to dimensions and issues to be monitored requires making sure that the indicator is representative for the respective dimension and issue. This can be done by formulating assumptions and cause-effect relations. Ageing of an area, for instance, is caused by a small proportion of young people and/or a large proportion of elderly people.

Therefore ageing can be monitored by the indicator of the ageing index that represents the degree of ageing of an area by calculating the ratio of number of inhabitants with an age above 65 divided by the number of inhabitants under 18 (see Table 10). Or when the key objective is to help create job opportunities in Greater Craigmillar this can be measured by the reduction in unemployment levels within these area as these levels show in how far the areas' inhabitants have a chance to participate in the job market (see Figure 5).

Box 21: Proposal for selecting indicators according to problems and potentials in Dresden Weißeritz

Dresden's 'Integrated City District Development Project Weißeritz - Detail Concept' names problems as well as potentials experienced within Dresden's LUDA Weißeritz. Table 10 shows a proposal for indicators that could be selected for the dimension of socio-cultural conditions according to problems and potentials mentioned within this concept.

Table 10: Proposal for selecting indicators for the socio-cultural dimension according to problems and potentials in LUDA Weißeritz (based on Dresden's Integrated City District Development Project Weißeritz - Detail Concept)

Dimension	Issue	Problems	Potentials	Possible Indicators
Socio-cultural conditions	Population Structure	• High fluctuation of the population • Ageing population (in some part of LUDA)		• Development of population • Ageing index
	Income	• Social welfare recipients		• Recipients of social welfare per inhabitant in employment age
	Employment	• Unemployment		• Unemployment rate
	Culture		• Art group • Theatre • Social associations	• Satisfaction with cultural facilities

Box 22: Craigmillar Joint Venture Company: Selecting indicators according to objectives

Within the Craigmillar Joint Venture Companies' Monitoring and Evaluation Framework the selection of the indicators has been oriented towards the key objectives of the regeneration process. Figure 5 shows selected indicators as well as the selection framework for the economic dimension of the diamond.

Figure 5: Objectives and indicators for economic development according to Craigmillar Joint Venture Companies' Monitoring and Evaluation Framework

PRIORITY AREA: ECONOMIC DEVELOPMENT			
Strategic Aim: To ensure Craigmillar gains the maximum economic benefit from the physical and social changes which will take place over the next 10-15 years.			
Lead Indicator: Level of business starts			
Key objectives	Activities	Indicator	Description of target
Develop commercial space	Relocation of football pitch Develop Cairntows Park and Town Centre	Total number of businesses	Increased employment in Town Centre and Cairntows Park
Help create job opportunities in Greater Craigmillar	Attract potential employers	Reduction in unemployment levels	Decrease in proportion of unemployed working age people Decrease in numbers of children living in a household where adult is of working age and is in receipt of key benefits

Objectives show what the project aims to achieve, which is usually to sustain local communities. Activities represent what is done through the work on a project such as numbers of houses built, schools completed. Indicators are measures of success which reflect the ways in which results, progress, impacts are realised. Targets and city comparisons will be established to illustrate progress and to demonstrate how Craigmillar is performing in relation to the city economy from its current baseline (Craigmillar Joint Venture Company 2003).

For further reading see section **chapter 5, section 3.1** of this handbook.

internal link

3.2 How can perception be taken into account?

Monitoring the quality of life in LUDAs has to go beyond using quantitative information only. Understanding LUDAs requires not only taking into consideration statistical data but also qualitative information. This subjective approach puts on view a subjective assessment of the inhabitants' satisfaction with their environment (internal perception) and the other stakeholders' opinion about the living and working conditions in the LUDA (external perception).

Monitoring quality of life from the three perspectives (statistical data, internal and external perception) each has specific methodological requirements. Whereas in many cases, e.g. for reasons of cost or feasibility, it may only be established through a one- or two-fold approach, the most desirable way to monitor changes of quality of life is an integrated approach including and combining information from all three perspectives.

3.2.1 How can internal perception be measured?

Quality of life in areas of urban regeneration can best be improved when including the area's key stakeholders into the regeneration process. Key stakeholders are inhabitants as well as local employees and businessmen. Engaging these key stakeholders in monitoring activities allows those responsible for the exercise to exploit their local knowledge as well as to strengthen their commitment to contributing to the regeneration process. Box 23 presents an example how internal perception may be monitored by the use of an online questionnaire supplemented by telephonic structured interviews.

Box 23: Quality of life in small and medium sized cities – Reporting and monitoring system "Städtekranz des Landes Brandenburg" - Measuring internal perception via online questionnaire

Within a research project funded by the German Federal Ministry of Education and Research, a reporting system to measure quality of life has been developed for seven small and medium-sized cities in Brandenburg. The reporting system takes account of objective living conditions to be measured by quantitative data as well as of subjective well-being such as satisfaction with living conditions or fears and happiness.

Within the reporting system an online questionnaire has been used to determine subjective well-being. The online survey has been used as a low cost alternative of gathering information on internal perception. During a two-month period in autumn 2003 the 30 questions of the online questionnaire have been answered by 1,324 participants. In a second round in 2004 a participation of 1,384 respondents could be counted in the seven cities. To increase participation in the survey the clearing of the questionnaire has been accompanied by marketing activities making the survey known to as many inhabitants as possible.

However, due to the use of the internet there is a bias towards men, employed persons, persons with a university degree and persons in the age group from 20 to 39. These are groups with a high mobility, probable to leave areas with a low quality of life. Therefore their dissatisfaction with quality of life in an area could be used as an early warning sign of declining living quality.

To compare results of the online survey with a representative survey method, an additional telephone survey has been carried out, asking 1,062 persons within the seven participating cities. Comparing results from the online and telephone survey, both surveys achieved in general comparable results regarding the tendencies of quality of life. It could be stated that online respondents have been more critical but provided a higher stability in their answers over time. Standard deviation, as a measure of variety of opinions, has been smaller for the online survey expressing a higher heterogeneity of respondents.

Concluding the online questionnaire has been proposed as a useful tool to monitor quality of life in medium-sized cities with at least 30,000 inhabitants. In cities with less inhabitants the significance might be reduced by the limited number of respondents.

All in all the combination of statistically based indicators and inhabitants' perception could be successfully used to determine accordance and discrepancies between data and perceptions. In this case divergences could be noted for issues such as security and housing costs while for issues such as job market a high level of accordance has been achieved (Schütte, Kühn 2004; Aehnelt, Kühn, Schütte 2006).

When including stakeholders into the monitoring process and thus taking account of the internal perception, methodologies such as structured interviews and self-completion questionnaires are most common.

How to apply structured interviews and questionnaires?

Structured interviews deliver standardised information on views and perceptions of a large sample of persons. Structured interviews allow aggregating and processing data. Therefore qualitative information gained by structured interviews may be compared to information gained from objective data. However conducting structured interviews face-to-face requires significant effort when a large sample of interviewees should be approached.

If case structured interviews cannot be realised face-to-face, they can be conducted by telephone. Telephone interviews are cheaper and quicker to administer than personal interviews, are easier to supervise and minimise influence of interviewers' personal characteristics on respondents. However, telephone interviews imply the risk of sampling bias, excluding poorer persons without a telephone as well as those not listed in the telephone directory. Telephone interviews depend on an easy understandable questionnaire that can be answered in a short time. Furthermore, when conducting structured interviews by phone, households should be the units of measurement.

Self-completion questionnaires are another possibility to gain information on personal views and perceptions. Their application is especially useful, when resources such as time and money are limited and don't provide the opportunity to conduct structured interviews. Costs can further be limited by distributing the questionnaires online (see Box 23) . For further information on questionnaires see also **Handbook 5: Questionnaire**.

How to construct interview schedules and questionnaires?

The research question or hypotheses underlying an inquiry need to be translated into an interview schedule or self-completion questionnaire. Although depending on the intention and area of inquiry, some general rules can be applied when designing questions (see Box 24) and interview schedules (see Box 25).

Box 24: Specific rules when designing questions

- Avoid ambiguous terms in questions and use simple phrasing
- Avoid long questions
- Avoid double-barreled questions
- Avoid very general questions
- Avoid leading questions
- Avoid questions that are actually asking two questions
- Avoid questions that include negatives
- Avoid technical terms and abbreviations
- Avoid overextending interviewees by too high levels of complexity or overstretching people's memory
- Make sure that there is a symmetry between a closed question and its answer
- Use clear-cut questions making clear their frame of reference as well as the expected degree of precision of answers

Box 25: Designing an interview schedule or self-completion questionnaire: General rules for question order

- Within a survey question order should not be varied
- Early questions should be directly related to the topic of research
- Questions that are more likely to be salient to the respondent should be asked early in the interview schedule
- Potentially embarrassing questions or ones that may be a source of anxiety should be left till later
- Within a long schedule or questionnaire, questions should be grouped into sections
- Within each group of questions general questions should precede specific ones

For LUDA-monitoring the use of structured interviews or self-completion questionnaires has the intention to find out how inhabitants perceive important aspects of quality of life as operationalised by issues of the diamond of quality of life. Information on internal perception can be classified on an ordinal scale. For instance the five level scale shown in Box 26 that presents an example how Dresden gains information on internal perception in its citizens' survey. For measuring inhabitants' satisfaction with urban structures semantic differentials as a specific form of scaling might be used as well. For further information see **Handbook 5: Semantic Differential**.

Box 26: Measuring satisfaction in Dresden's citizen survey 2002

Dresden's citizen survey includes questions on satisfaction with one's area of residence. These mainly cover urban structure dimension of the diamond as well as community and institutional capacity. Satisfaction is measured on a five level ordinal scale with 1 = very satisfied and 5 = not at all satisfied. The option "I can't assess" is offered so that inhabitants without a clear opinion are less tempted to just tick any answer. Before questioning their satisfaction, inhabitants are asked how important the various living conditions are for them personally (1 = very important; 5 = not at all important). These answers provide a framework for interpreting residents' satisfaction with living conditions at their residence.

Question 53: And again to your living conditions: how satisfied are you personally today with your residence, in terms of each of the following conditions?

	Very satisfied				Not at all satisfied	I can't assess
	1	2	3	4	5	
Facilities for the whole family						
Facilities for children						
Facilities for youngsters						
Facilities for elderly						
Facilities for women						
Facilities for handicapped						
Good neighbourhood						
Facilities for relatives in need for care						
Shopping facilities						
Supply with public transport						
Parking sites for private cars						
Bicycle lanes						
Green and open space						
Greening of housing areas						
Swimming pools and sport facilities						
Public security / Protection against crime						
Design and maintenance of buildings and streets						
Attractiveness of inner city						
Cultural facilities						

For further reading see **chapter 5, section 3.2.1** of this handbook.

internal link

3.2.2 How can external perception be taken into account?

Politicians', planners' and investors' (external) perception play an important role in the definition of a LUDA, as well as in the establishment and implementation of urban regeneration strategies, programmes and projects. Moreover, improving quality of life in LUDAs needs political advocacy and external inputs, e.g. by outside investors. Therefore, monitoring also requires information about their perception of the image of the specific LUDA. For designing LUDA improvement strategies it seems important to know how external experts such as planners within local administrations, politicians or investors perceive the problems and potentials of the LUDA.

However, as presented within the analysis in chapter 2 of this handbook, while some success has already been achieved in taking account of the inhabitants' perception (e.g. with the Urban Audit Perception Survey (see **Box 6** of this handbook) or on the local level with the Ballymun Community Indicators (see **Box 13** of this handbook), the number of methods that include external experts' perception into a monitoring system are limited. The following section of this handbook proposes three approaches towards considering external perception: Delphi survey, interviews with external experts and the analysis of planning documents and media.

Can external perception be measured by a Delphi survey?

A most common method to synthesising knowledge from a group of experts is the Delphi technique, or Delphi survey as a formalised process of expert judgement (see **Handbook 5: Expert Judgement**). The Delphi technique is a qualitative research method for forecasting and problem solving of complex problems. Consensus among experts should be achieved on issues through a survey consisting of a series of rounds with questionnaires accompanied by controlled opinion feedback.

Delphi surveys can be used to explain ill-defined topics as well as in evaluation when significant expertise exists on a subject, e.g. in case of the evaluation of European Structural Funds. Delphi is an inexpensive technique to obtain valid judgements about an issue of concern, especially when conducted by email. However Delphi studies take long time and considerable effort to be completed and are often criticised for the pressure for building a consensus or for an oversimplification of issues. Data gathered by Delphi survey can be particularly useful when supported by data gathered from other sources. Box 27 shows the key steps of conducting a Delphi survey. Box 28 puts forward an example of an effort to use the Delphi technique within a reporting and monitoring system for quality of life in small and medium sized cities clearly showing the limitation of this technique.

In the context of monitoring the quality of life in LUDAs, Delphi surveys could best be used to identify those issues that planning experts, politicians or investors perceive as most important aspects of quality of life in the area. Delphi should be used to identify key problems and potentials of the LUDA, as they are perceived by external experts. Alternatively expert judgements can as well be gained by organising a face-to-face expert panel. For further information see **Handbook 5: Expert Judgement**.

Box 27: Steps of conducting a Delphi survey

Main steps of conducting a Delphi survey are:

- Determination and formulation of questions: These questions should focus on the information that shall be obtained by the Delphi survey.
- Selection of experts and creation of an expert panel: Experts should have considerable knowledge on the issue of concern. Depending on the context approximately 10 to 50 experts are selected. Within a Delphi survey the participating experts are kept anonymous to allow them to express their views freely and to avoid domination of the debate by well known experts.
- Formulation and distribution of the first questionnaire: the first questionnaire is often used to brainstorm on important aspects to be reviewed within the further rounds of questionnaires. Therefore the first questionnaire should consist of few open or semi-open questions.
- Analysis of answers: The analysis of answers of the first questionnaire provides the basis for elaborating the second questionnaire. Therefore general tendencies as well as most extreme answers are identified. To support the analysis of data statistical measures should be used such as median or interquartile range.
- Feedback on answers and sending out second questionnaire: When sending out the second questionnaire feedback on the first questionnaire is shared with all participants. Participants are asked to justify their judgment when it differs from the general tendency.
- Feedback on answers and sending out third questionnaire: With the third questionnaire experts with extreme answers are asked to further justify their opinion by criticising those who support the opposite point of view. The cycle of feedback and sending out questionnaires continues until sufficient convergence of opinions is reached. This generally appears after the fourth questionnaire.

Box 28: Quality of life in small and medium sized cities – Reporting and monitoring system "Städtekranz des Landes Brandenburg": Measuring external perception by a Delphi survey

Within the reporting system on quality of life in seven small and medium-sized cities in Brandenburg (see also **Box 23** of this handbook), experts as well have been requested on key problems regarding quality of life within their cities. The request has been carried out according to the Delphi technique and has been conducted online. Local experts such as professionals from inside and outside the administration, public personalities as well as long-term inhabitants have been asked to take part in the survey. However within the participating seven small and medium-sized cities only a low response rate of 27% in the first round and 16% in the second round could be achieved. Therefore no useful results could be obtained by the use of this method. As reason for the low significance of results has been identified the limited willingness and ability of sectoral experts to give their views on other sectors of quality of life. As a solution, it has been proposed to establish interdisciplinary teams including external experts when interpreting results from statistical data and surveys on internal perception (Aehnelt, Kühn, Schütte 2006).

internal link

How to apply structured interviews and questionnaires?

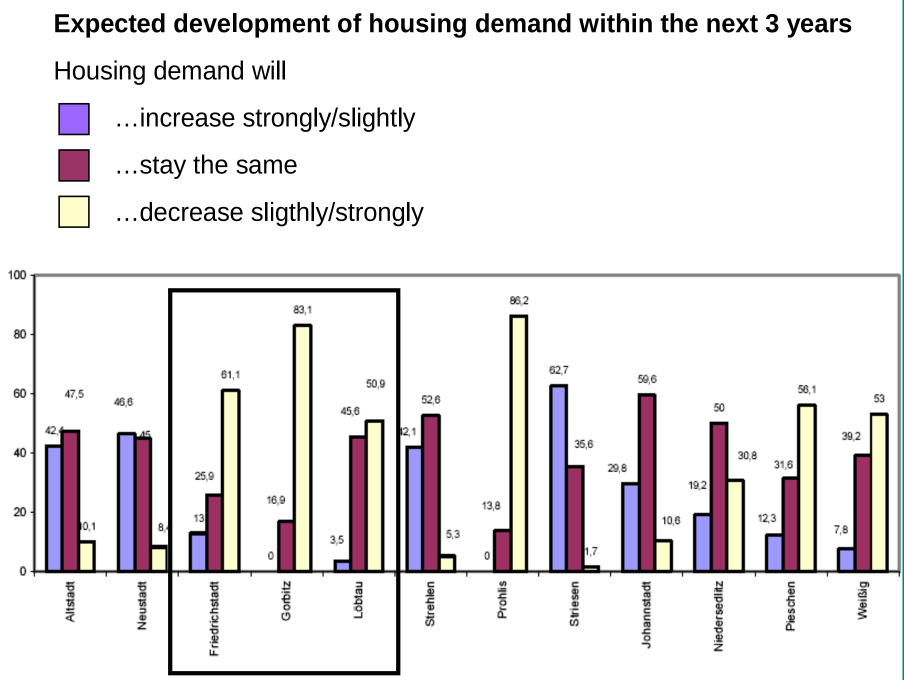
As for analysing inhabitants' internal perception standardised surveys, e.g. conducted with self-completion questionnaires, can also be used for considering external experts' views. Self-completion questionnaires provide a comparably easy approach towards measuring external perception. An online approach might further reduce time and effort needed for conducting the survey. As with all self-completion questionnaires, risks are low response rates, especially from experts with a tight schedule (for further information see also **Box 24** and **Box 25**). Box 29 shows how a survey based on a self-completion questionnaire has been successfully used to analyse external experts' opinions regarding the current state and expected development of Dresden's housing market.

Box 29: Dresden's Housing Market Barometer

'Dresden's Housing Market Barometer' is a biennial survey of experts' opinions on the state and expected development of Dresden's housing market. Therefore 108 stakeholders of Dresden's housing market are asked to answer a self-completion questionnaire of 13 standardised questions. Stakeholders contacted come from various spheres such as housing associations, landlords, architects, building industries, financing institutions, scientists, administrations, estate agents and politicians. The first application of the questionnaire achieved a response rate of 62 % that could be assessed as good. Questions are dealing with issues such as demand on the housing market for its different sectors, assumed development of housing demand, investment climate of building industries, assumed development of vacancy rates as well as with current and future problems of Dresden's housing market.

One question especially deals with the expected development of housing demand within the next three years in different urban districts, among them three districts being part of the LUDA (Friedrichstadt, Gorbitz, Löbtau). For Gorbitz in particular (a settlement of prefabricated housing slabs) the majority of experts (83,1%) expect a further decline in housing demands. For the LUDA's other two urban districts a further decline in housing demands is expected as well by the majority of experts with 61,1% for Friedrichstadt and 50,9% for Löbtau (Figure 6).

Figure 6: Expected development of housing demand in urban districts (City of Dresden 2004)



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Another possible way of gaining information on external perception is to use qualitative methods, or in-depths interviews, based on an interview guide. They can be used to obtain further verbal or nominal information, e.g. on cause-effect relations as perceived by external experts. However the nominal information is not directly comparable to information gained from analysing statistical data or measuring internal perception.

What can the analysis of planning documents and media contribute?

Information and views on regeneration areas are expressed in administrative documents, e.g. master plans on the city level, framework plans for the regeneration area or within the media. Information from planning documents or from the media present additional nominal information on how the area is assessed by externals. For an example of an analysis of LUDA's problems and potentials based on planning documents and interviews with planning experts see Table 10 on problems and potentials in Dresden Weißeritz.

How to include external experts' perception into a monitoring system?

Concluding from the analysis of available methods to include external experts' opinion into a monitoring system, the following offers some hints:

- Selecting the right external experts that shall be asked to participate in monitoring activities seems to be the most important step. When choosing experts it should be considered that experts are more likely to answer on questions directly related to their specific field of expertise and are less likely to give their opinion on other issues of quality of life.
- Questionnaires, whether they are used within a Delphi survey or as a questionnaire for a standardised survey, should be as short and simple as possible, bearing in mind external experts tight schedules preventing them from answering extensive questionnaires with open questions.
- Before starting a process of considering external experts' views, it should be decided whether information should be collected in a standardised or in a qualitative way. Collecting standardised information on external perception, e.g. by using Delphi technique, structured interviews of self-completion questionnaires increases comparability to statistical data and standardised information on internal perception. Qualitative information, e.g. gained from in-depth interviews or an analysis of planning documents and media, are more useful to determine cause-effect relations and to support the interpretation of further data and information.

For further reading see **chapter 5, section 3.2.2** of this handbook.

internal link

3.3 How can statistical data and information on perception be scaled?

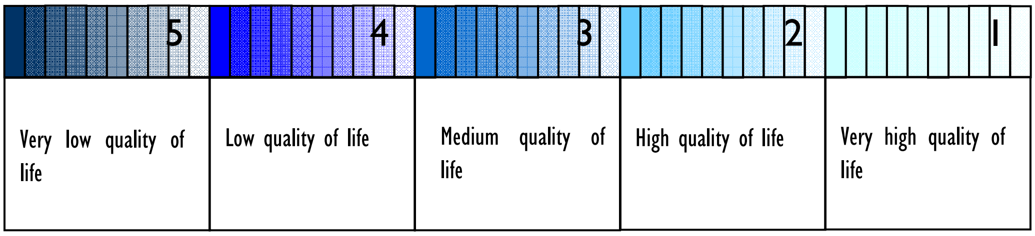
Assessing the development of quality of life according to data and information from various sources requires scaling. For measuring information in general four different types of scales are available:

- Nominal scales show a classification of information into categories, e.g. types of biotopes. This classification does not indicate an order, statistical operations are not possible.
- Ordinal scales define an order of performance, but without indicating the distance between the ranks, e.g. high, medium, low. As no clear differences between values are shown, possible operations are restricted to bigger, smaller. As a measure of central tendency the median can be used.

- Interval and ratio scales: Differences between the consecutive numbers are of equal intervals. With interval data zero value can be arbitrary, e.g. temperature; whereas with ratio data zero represents the point where nothing is scored on the scale, e.g. 0 km per hour when no movement is measured. With interval and ratio data the calculation of means and standard deviations is possible.

While information on statistical data can often be represented on interval or ratio scale, the most detailed scale to represent internal and external perception is an ordinal scale. LUDA monitoring system proposes an ordinal scale ranging from 1 representing highest quality of life and 5 representing lowest quality of life to assess the development of quality of life in the LUDA (Figure 7).

Figure 7: Ordinal scale to measure quality of life



3.3.1 How can statistical data be scaled?

Transforming quantitative data to an ordinal scale is a normative process. Quantitative values are assigned to classes with a clear ranking, e.g. 5 classes with 1 representing a very high, 2 a high, 3 a medium, 4 a low and 5 a very low quality of life. Defining the boundaries of these classes is the core of the normative processes. This normative process can be backed on either European, national or local norms (see Box 30), on values that have been defined in scientific literature or on comparison with values from other nations, regions or cities (Box 31).

Box 30: Scaling according to European, national, local norms: Noise levels

Norms and threshold values are mainly defined for environmental aspects. For instance in Germany, technical instruction for the protection against noise (so called TA Lärm or TI Noise)* defines standard values for noise. Standard values for maximum immission of noise outside of buildings for instance are shown in Table 11:

** Technische Anleitung zum Schutz gegen Lärm (neue Fassung); Sechste Allgemeine Verwaltungsvorschrift zum Bundes-Immissions-schutzgesetz (TA Lärm) vom 26. August 1998 GMBl. Nr. 26 vom 28.08.1998 S. 503.*

Table 11: Standard values for maximum immission of noise outside of buildings according to TI Noise

Type of area	Standard values for maximum noise immission
Industrial areas	70 dB(A)
Commercial areas	Day 65 dB(A) Night 50 dB(A)
Urban core, village, mixed used areas	Day 55 dB(A)
General residential area and small residential estate area	Day 50 dB(A) Night 35 dB(A)

According to the European Green Paper "Action against noise" a noise level of 65 dB(A) is judged as unacceptable by experts. Another standard value for maximum noise levels is the constant exposure to single-source noise levels between 55 and 65 dB(A). Directive 2002/49 relating to the assessment and management of environmental noise, defines 5 classes to measure noise exposure during day periods: 55-59, 60-64, 65-69, 70-74, > 75 dB (A). For measuring noise exposure during night periods as well 5 classes have been defined 50-54, 55-59, 60-64, 65-69, > 70 dB(A).

web link

Scaling according to European Directive 2002/49 leads to scales as follows:

Figure 8: Ordinal scale for day time noise level

5	4	3	2	1
>75 dB(A)	**74-70 dB(A)**	**69-65dB(A)**	**64-60dB(A)**	**<59dB(A)**

Figure 9: Ordinal scale for night time noise level

5	4	3	2	1
> 70 dB(A)	**69-65 dB(A)**	**64-60 dB(A)**	**59-55 dB(A)**	**<55 dB(A)**

Box 31: Scaling according to comparison with reference and target: Unemployment rate in Dresden Weißeritz

Within the LUDA Dresden Weißeritz the unemployment rate of 2003 has been 14.3% (measured as unemployed per working age population). Compared to other urban districts in Dresden this is a high rate, ranging among the 10 % of urban districts with highest unemployment rates. However, Dresden's average unemployment rate of 10.7% is comparatively low to other cities in the state of Saxony (e.g. Leipzig 13.2%; Chemnitz 13.4%; Hoyerswerda 18.4%; Görlitz 18.5%).

Table 12 and *Figure 10* show a proposal for scaling the unemployment rate within the LUDA Weißeritz according to possible targets for reducing the unemployment rate. As the unemployment rate of 14.3% ranges comparatively high, the ordinal value of 5 is defined as a starting point. Table 12 shows possible targets for percentages to reduce the current unemployment rate of 14.3%. These values are reflected within the proposed scale in Figure 10. For a more detailed scale interim values can be calculated; each 0.1 on the ordinal scale representing 0.2% of unemployment rate. An unemployment rate of 12.8% for instance would score 4.4 on the proposed scale.

Table 12: Possible targets for reducing unemployment rate in LUDAs

Targets	Reduction 10%	Reduction 20%	Reduction 30%	Reduction 40%	Reduction 50%
Unemployment rate	12,9%	11,4%	10,0%	9,6%	7,2%

Figure 10: Proposal for scaling unemployment rate in LUDA Dresden Weißeritz (in %)

5	4	3	2	1
>14%	14,0 – 12,0	11,9 – 10,0	9,9-8,0	< 8,0

While this scale has been proposed on the basis of data for the city of Dresden it has to be stressed, that defining target as a basis for scaling is a normative process requiring intensive discussions with internal and external stakeholders.

3.3.2 How can information on perception be scaled?

Information on internal and external perception can be collected by directly using an ordinal scale ranging for instance from not at all satisfied to very satisfied as shown in Figure 11 below.

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Figure 11: Scaling data on internal and external perception

5	4	3	2	1
Not at all satisfied	Not satisfied	Regular	Satisfied	Very satisfied

Box 32: Dresden's citizen survey: Scaling information on internal perception

Dresden's biennial citizen survey includes several questions that are scaled on a 5 level ordinal scale, with 1 representing a very high quality of life and 5 representing a very low quality of life.

How would you assess your personal economic situation?

5	4	3	2	1
Very bad	Bad	Partly/Partly	Good	Very good

To what extent do you perceive noise as a nuisance in your living area?

5	4	3	2	1
Strong perception				No perception

In how far are you interested in local policy?

5	4	3	2	1
Not at all	Little	Medium	Much	Very much

For further reading see **chapter 5, section 3.3** of this handbook.

internal link

3.4 How can the side-effects of improvement activities be monitored?

internal link

As the analysis of current systems to monitor quality of life in **chapter 2** of this handbook has shown, there is still a lack of sufficiently considered cause-effect relations between regeneration activities and improvements in quality of life and consequently an inability to account for the side-effects of urban regeneration. Therefore the LUDA monitoring system proposes two ways of considering synergies and side effects, first a close observation of synergies and side effects and second standardisation (z-transformation) and ranking of standardised data.

3.4.1 What are the possible synergies and side effects?

Small changes in the LUDA pockets should be closely observed. If for instance, while regeneration activities take part in one LUDA pocket, adjoining pockets also develop in a positive way, synergies can be assumed. If adjoining LUDA pockets deteriorate while regeneration activities take part in another pocket, side effects might be able to explain this change. Table 13 outlines possible synergies and side effects relating to the dimensions of quality of life.

Table 13: Possible synergies and side effects of rehabilitation activities according to dimensions of quality of life

Dimensions	Synergies	Side effects
Socio-cultural Conditions	Achieving improved human social conditions over a wider urban area / in adjoining LUDA pockets	Segregation, gentrification, out-migration of disadvantaged population Ageing of population
Economic Conditions	Generating private investment for wider urban areas / in adjoining areas	Displacement of investment Windfall gains taken by private investors
Urban Structure	Radiation of improved physical structure	Funds invested in one area lead to deterioration in another area Displacement of vacancies Out-migration of disadvantaged population
Environmental Conditions	Environmental benefits for a wider urban area from alleviating environmental damages in the LUDA	Displacement of environmental burdens, e.g. by displacing polluting uses (industries, roads….)
Community and Institutional Capacity	Good experience with participation and involvement leading to their application in other LUDA pockets	No application of participation and involvement due to bad experience with this approach in other pockets of LUDAs

3.4.2 How can standardisation (z-transformation) be applied to monitor unwanted side effects?

One of the characteristics of the LUDA approach is to minimise the unwanted side-effects of actions taken to improve the quality of life. This requires an additional monitoring effort regarding the LUDA and its "pockets", i.e. the different spatial sub-units of the whole area.

Standardisation can be used to monitor unwanted side effects at two different spatial levels:

- On the citywide level comparison of standardised indicator values can be used to determine the relative position of the LUDA compared with other urban districts. Unwanted side effects can be shown when the position of LUDA decreases compared to other areas of the city where regeneration activities take place.
- On the level of the LUDA standardisation may be applied to identify the relative position of LUDA pockets among each other. In case areas with regeneration activities achieve better positions and those without any activities deteriorate this might reveal unwanted side effects (see Box 33, Table 16 and Figure 12).

One of the most significant side-effects is the widening of the gap between the different sub-units of a LUDA in relative terms, i.e. between such "pockets" with a rather high quality of life and such with a low one. Unwanted side-effects may exist when for example some of the LUDA "pockets" show a rather fast development whereas others stay behind or fall back. This may even result in changes of the relative position of such areas among themselves and with regard to the rest of the city.

A well established method to measure such differences is to compare standardised values of the indicators (e.g. by z-transformation). Such z-scores of the chosen variables representing the individual issues may be summed up to a partial z-score representing the respective dimension to be measured. When a synthetic value for the overall quality of life in a "pocket" can be calculated (e.g. in order to calculate the rank of a "pocket" among the other "pockets" of the LUDA at a given time), it is advisable to divide the partial z-score of the dimension by the number of variables chosen to measure the issues of this dimension. Z-scores can also be used to compare the relative change of one indicator in the different pockets of the LUDA at various points in time (see Box 33).

The following Table 14 may demonstrate the method:

Table 14: Quality of life in LUDA pockets

	Dim. 1	Dim. 1	Dim. 1	Dim. 2	Dim. 2	Dim. 3	Dim. 4	Dim. 4	Dim. 5	Dim. 5	Dim. 5
	Issue 1	Issue 2	Issue 3	Issue 4	Issue 5	Issue 6	Issue 7	Issue 8	Issue 9	Issue 10	Issue 11
Area 1	Value 1.1	…	…	…	…	…	…	…	…	…	Value 11.1
…	…	…	…	…	…	…	…	…	…	…	…
Area n	Value 1.n	…	…	…	…	…	…	…	…	…	Value 11.n
Average (LUDA)											
Standard Deviation											

This results in the following z-scores:

	D1	D1	D1	∑D1	D2	D2	∑D2	D3	∑D3	D4	D4	∑D4	D5	D5	D5	∑D5	∑QOL
	I1	I2	I3	∑	I4	I5	∑	I6	∑	I7	I8	∑	I9	I10	I11	∑	
A1	z1.1	z1.2	Z1.3	zD1.1	z	z	zD1.2	z	zD1.3	z	z	zD1.4	z	z	z	zD1.5	
	z	z	z	…	z	z	…	z	…	z	z	…	z	z	z	…	
An	z	z	z	zDn.1	z	z	zDn.2	z	zDn.3	z	z	zDn.4	z	z	z	zDn.5	

D: Dimension; I: Issue; A: Area; ∑ Sum; z: z-score (according to area and dimension)

The z-scores (as standardised values) may be added. This results in an aggregated value for each area and dimension (partial z-scores for ∑D1 to ∑D5) which shows the rank of an area (among the other areas) regarding the quality of life in the specific dimension. The sum of the partial z-scores (divided by the number of issues/variables per dimension) may be added, and this results in the aggregated quality of life index (∑QOL) for each area which may then again be compared. From this, the relative rank of an area among the LUDA pockets can be determined. If done over time, the relative differences of values and rank changes between the LUDA pockets can be observed. Box 33 shows an example of the standardisation of the ageing index in Dresden's LUDA's pockets at different points in time that has been calculated and mapped by IOER as a proposal for further developing a LUDA monitoring system in Dresden.

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Box 33: Monitoring side-effects of urban regeneration in LUDA pockets by standardisation and ranking of the ageing index in Dresden Weißeritz

Standardised variables are comparable among each other. So standardisation can be used to either compare the value of different variables, or sums of variables in the same year or to compare the value of the same variable / sum of variables at different periods of time. Comparisons according to standardised data are always relative, relating to the urban area considered.

The following example shows how z-scores can be used to rank the issue of ageing in different pockets of the LUDA Weißeritz at two different times. This is especially useful, as comparing the difference between the ranking of the same issues at two different times allows identifying unwanted side effects of urban regeneration strategies that have been conducted during this time period. When the position of a certain pocket within the LUDA has deteriorated compared to other pockets of the LUDA in which regeneration activities have taken place it is probable to assume negative side effects of these regeneration activities.

At the example the ageing index is a ratio of the number of inhabitants with an age above 65 divided by the number of inhabitants under 18 and is an indicator for the degree of ageing in an area. A high ageing index indicates a high degree of ageing of an area while a low ageing index shows a young population.

The ageing indices of all LUDA pockets in 1999 and 2004 are standardised by z-transformation (z_i = (x_i-mean)/standard deviation). The z-scores z_i can be ranked from low to high values, as a high degree of ageing indicates a lower quality of life (see Table 15 overleaf).

The map presented in Figure 12 overleaf shows tremendous changes of ranks of the ageing index, indicating ageing processes especially in the northern part of the LUDA area. However it has to be taken into account that some areas showing a high degree of ageing are areas with mixed or industrial uses and a smaller proportion of population, so that moving-ins and moving-outs of younger population have stronger effects on the age structure within these areas. By analysing the development of the age of population in relation to activities of urban regeneration it can be stated, that there is a tendency towards younger population in areas that have undergone severe regeneration activities (e.g. within areas of urban regeneration in Löbtau) while areas without any activities of regeneration more probably suffer from ageing (e.g. housing area Oederaner Street).

For further reading see **chapter 5, section 3.4** of this handbook.

internal link

Table 15: Z-transformation and ranking of ageing index of statistical districts of LUDA Weißeritz

Statistical districts of LUDA	Ageing index 1999	Ageing index 2004	z Ageing index 1999	z Ageing index 2004	Rank Ageing index 1999	Rank Ageing index 2004	Difference of Ranks 1999-2004
41	1,82	3,30	0,05	0,30	24	24	0
42	2,82	6,04	0,47	1,15	25	25	0
43	2,84	7,88	0,48	1,72	26	26	0
44	10,34	13,88	3,62	3,59	28	28	0
45	9,41	10,08	3,23	2,41	27	27	0
47	0,26	0,36	-0,60	-0,61	1	1	0
51	1,58	1,63	-0,04	-0,22	23	22	1
52	0,69	0,77	-0,42	-0,48	7	8	-1
53	1,04	1,55	-0,27	-0,24	19	21	-2
54	0,41	1,54	-0,54	-0,25	2	20	-18
811	0,86	1,51	-0,35	-0,26	10	19	-9
814	0,96	1,67	-0,31	-0,20	16	23	-7
818	1,30	1,30	-0,16	-0,32	22	17	5
852	0,92	1,09	-0,32	-0,38	13	12	1
853	0,91	1,11	-0,33	-0,38	12	13	-1
861	1,27	1,20	-0,17	-0,35	21	16	5
865	0,98	0,73	-0,30	-0,50	17	4	13
866	0,42	0,49	-0,53	-0,57	3	2	1
915	0,66	0,73	-0,43	-0,50	4	6	-2
916	0,85	0,88	-0,35	-0,45	9	11	-2
921	0,87	1,31	-0,34	-0,32	11	18	-7
922	0,70	0,78	-0,41	-0,48	8	9	-1
923	0,68	0,73	-0,42	-0,50	6	5	1
931	0,67	0,71	-0,43	-0,50	5	3	2
932	1,19	1,20	-0,21	-0,35	20	15	5
933	0,93	0,77	-0,32	-0,48	15	7	8
934	0,92	0,83	-0,32	-0,47	14	10	4
945	0,99	1,19	-0,29	-0,35	18	14	4
Standard Deviation	**2,39**	**3,22**					
Mean LUDA	**1,69**	**2,33**					

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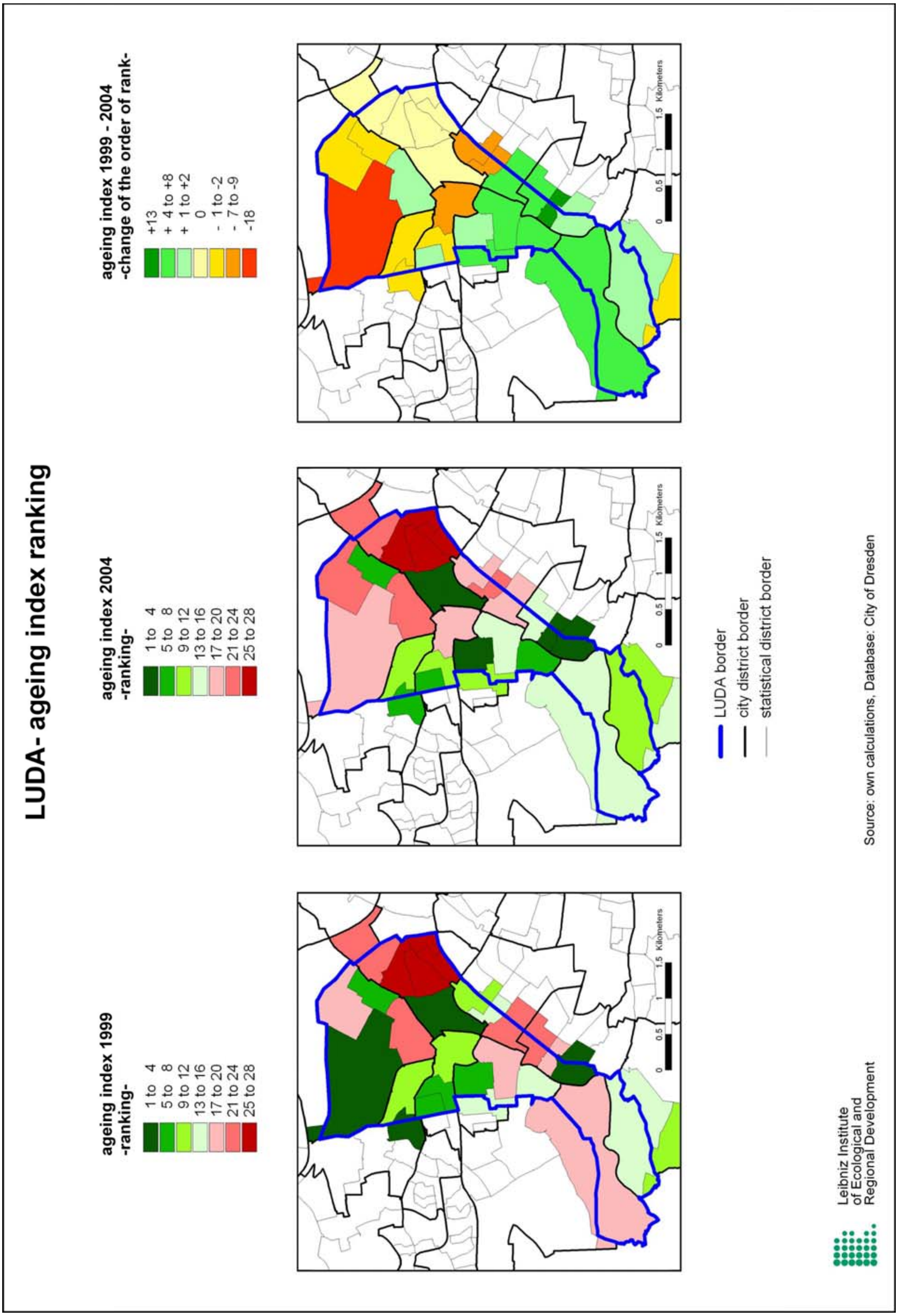
Figure 12: Ranking of standardised ageing indices 1999 and 2004 for pockets of Dresden's LUDA



3.5 How can monitoring results be represented and interpreted?

Methods and tools presented in the previous sections of this handbook provide the opportunity for collecting and analysing a great variety of data and information: statistical data as well as information on internal and external perception on a variety of important issues of quality of life and for different points in time. In how far this plurality of information can be successfully used to monitor and guide activities to improve quality of life in LUDAs very much depends on finding the right way to represent and interpret monitoring results.

It has to be stressed that different groups of stakeholders require information on a different level of detail. While for instance politicians might need a condensed amount of information in order to facilitate the decision taking process, planning professionals need far more detailed information to base regeneration programmes and plans. Therefore the following section of this handbook differentiates ways for representing monitoring results for rapid assessment and ways for representing monitoring results for professional use.

LUDA monitoring makes it possible to compare quantitative and qualitative information as well as evaluate the development over time and assess the quality of life in different urban districts and LUDA pockets. The following section shows some examples how to represent and interpret monitoring results, backed by examples from the Dresden case study.

3.5.1 How can the monitoring results be represented for rapid assessment?

While urban planning professionals often require detailed information to back their plans, for instance politicians, decision takers or investors depend on condensed information that allow them to quickly determine problems and potentials of quality of life as well as their change over time. To provide this kind of information spider graphs might be used.

How can spider graphs be used for rapid assessment?

internal link

Spider graphs (see also **Handbook 5: Spider Graphs**) provide the opportunity to represent information on various aspects, in this case dimensions of quality of life. Figure 13 and Figure 14 show how spider graphs could be used within a system of monitoring quality of life in LUDAs. Figure 13 gives an example how information on internal perception, structured according to the 5 dimensions of quality of life, could be compared for two different points in time (t_0 and t_1). Therefore values that have been gained by perception surveys, in this case on a 5 level ordinal scale, can be transferred to the spider graph. This requires calculating an average value for all answers within the respective urban area. This can be done by multiplying the number of respondents ticking 1, 2, 3, 4 and 5 summing up these values and dividing the sum by the number of respondents. Figure 14 shows the same for comparing statistical information in t_0 and t_1. This requires scaling quantitative data on an ordinal scale as described in **chapter 3.3.1** of this handbook.

internal link

Figure 13: Comparing internal perception for t_0 and t_1

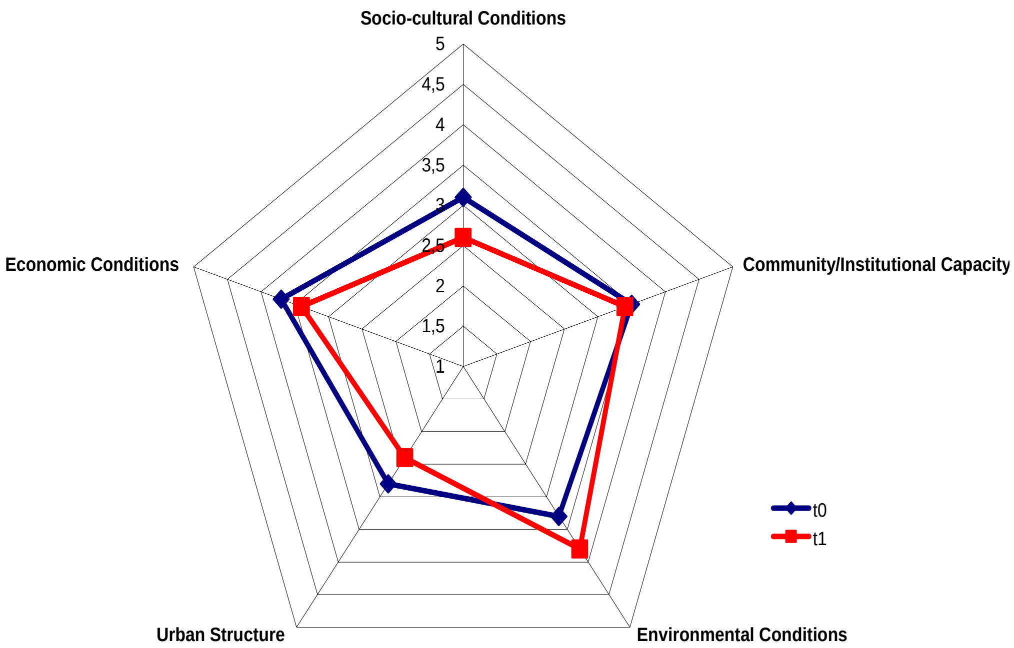
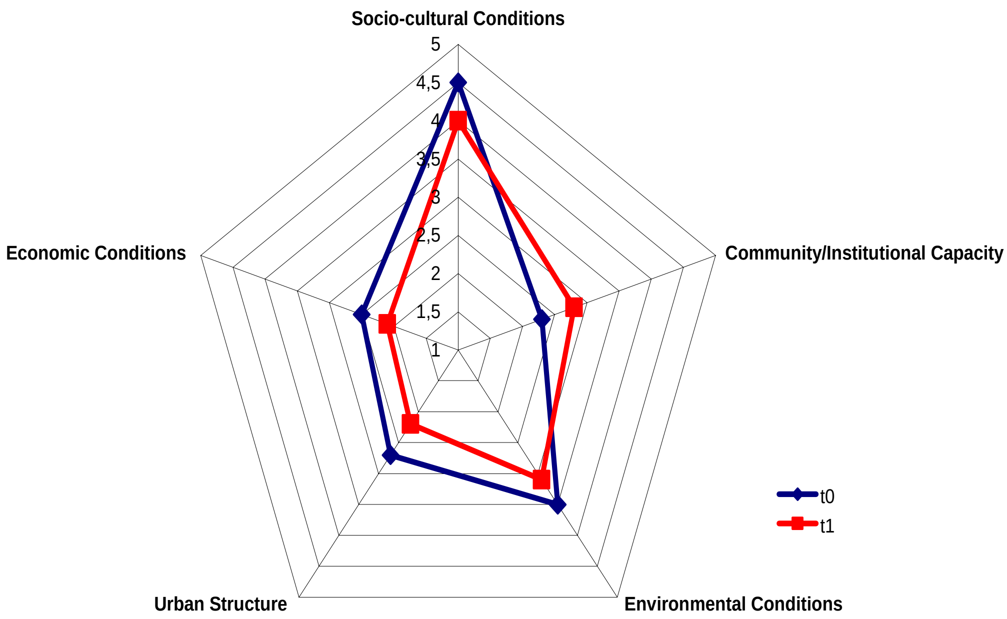


Figure 14: Comparing statistical data for t_0 and t_1



Box 34: Elaborating spider graphs for Dresden Weißeritz

Elaborating spider graphs requires scaling data on an ordinal scale as explained in **chapter 3.3** of this handbook. Table 16 shows scaled statistical data for the LUDA Dresden Weißeritz, presenting one core indicator per dimension. Data has been scaled according to 5 level ordinal scales based on targets that should be achieved in the area long-term.

Table 16: Scaled statistical data for LUDA Dresden Weißeritz

	Statistical data 2003		
Dimension	Indicator	Data	Ordinal
Socio-cultural Conditions	Unemployment rate	14,3 %	5
Economic Conditions	Housing vacancies	18,85%	3,8
Urban Structure	Accessibility of public transport	96,2%	1
Environmental Conditions	Proportion of brown fields	15,7%	3,9
Community / Institutional Capacity	Participation in local elections	39,1%	5

Ordinal values representing internal perception are gained by calculating the average of all answers for the area Friedrichstadt, representing one important area of the LUDA (see Table 17). Therefore the number of answers is multiplied with the ordinal value (1, 2, 3, 4, 5), these values are summed up and divided by the number of answers.

Table 17: Scaled information on internal perception for LUDA Dresden Weißeritz

	Internal perception 2002 (area Friedrichstadt)	
Dimension	Indicator	Ordinal
Socio-cultural Conditions	Satisfaction with personal economic situation	2,6*
Economic Conditions	Satisfaction with urban design and maintenance of buildings and streets	3,1*
Urban Structure	Satisfaction with public transport	2,4*
Environmental Conditions	Satisfaction with green space	2,6*
Community / Institutional Capacity	Interest in local policy	2,7**

* assessed on a scale with 1 very satisfied and 5 not at all satisfied
** assessed on a scale with 1 very much, 2 much, 3 medium, 4 little, 5 not at all

Figure 15 and Figure 16 overleaf show the representation of the scaled data on spider graphs. By regularly collecting the data and information on internal perception these spiders can in future be used to show the development of quality of life within the LUDA (as shown in Figure 13 and Figure 14).

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Figure 15: Statistical data in Dresden Weißeritz 2003

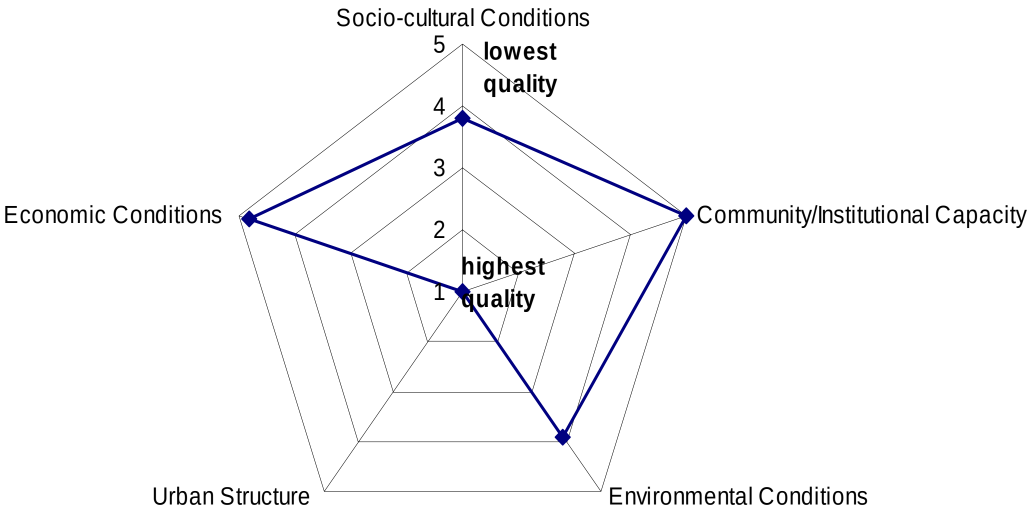
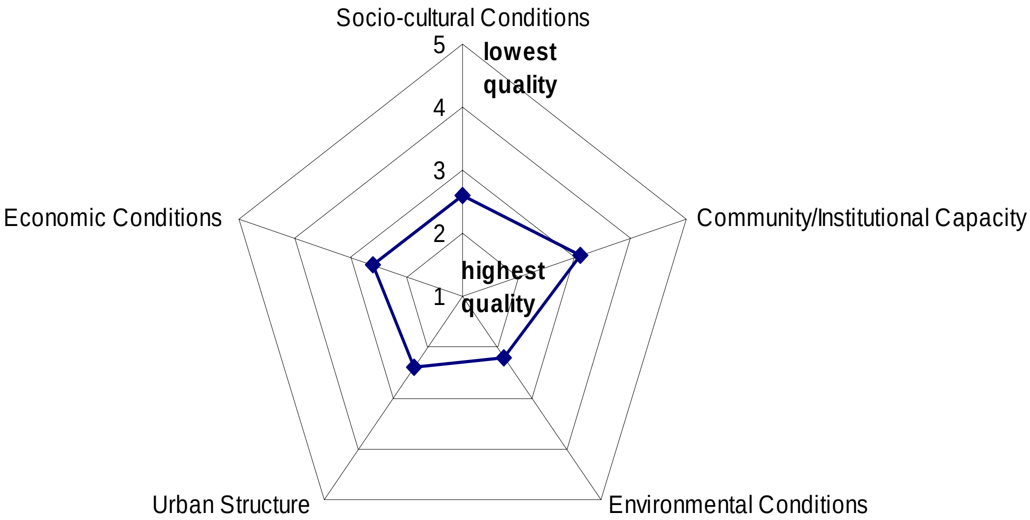


Figure 16: Internal Perception in Dresden Weißeritz in 2002 (area Friedrichstadt)



3.5.2 How can the monitoring results be represented for professional use?

Professional urban planners need most detailed information on quality of life to found their planning of regeneration activities on. Histograms can help them to better interpret data and information by providing further background information, e.g. on the distribution of satisfaction with living conditions. GIS-based maps allow professional urban planners to visually compare quality of life in various areas of a city or region. Timelines provide the opportunity to follow the direction of development over a longer period of time, recognising improvements as well as decreases of quality of life.

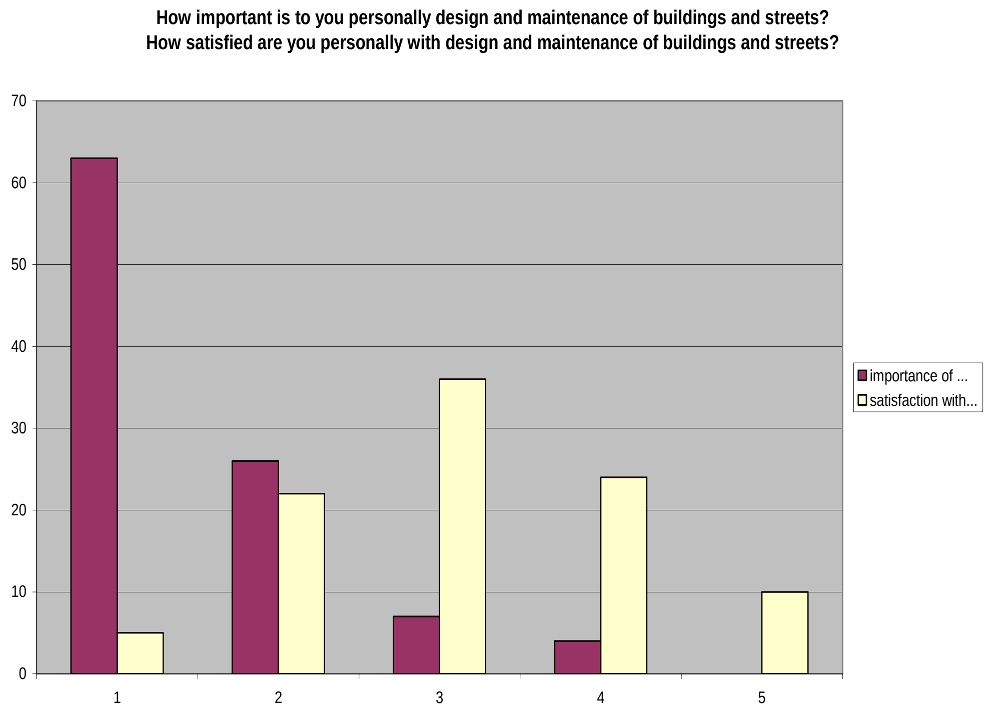
What do histograms tells us about the monitoring results?

While spider graphs are a tool for rapid assessment, aggregating information in one value, urban planning professional need more detailed information. These could for instance be provided by histograms. Box 35 shows an example for a histogram describing internal perception based on Dresden's citizen survey.

Box 35: Histogram of satisfaction with design and maintenance of buildings and streets in Dresden Weißeritz

While within the spider graph the information on inhabitants satisfaction with design and maintenance of buildings and streets has received an aggregated assessment of 3,1 on a 5 level scale, Figure 17 provides more detailed information, showing the percentage of inhabitants judging design and maintenance of buildings and streets as an important or unimportant issue (1 = very important; 5 = not at all important) as well as the percentage of inhabitants being satisfied or unsatisfied (1 = very satisfied; 5 = not at all satisfied) with this issue. From the histogram it can first be concluded that the design and maintenance of buildings and streets is an issue of high importance to the inhabitants. Satisfaction with this issue is quite normally distributed with the majority of respondents choosing the middle category of satisfaction. However more inhabitants are not or not at all satisfied than very satisfied or satisfied, showing a tendency for a below average assessment.

Figure 17: Satisfaction with design and maintenance of buildings and streets in Dresden (according to citizen survey 2002)



(1 = very important / very satisfied; 5 = not at all important / not at all satisfied)

Although Dresden's citizen survey provides valuable information on internal perception it has to be noted in general that the question for satisfaction with design and maintenance of buildings and streets is a highly aggregated value, including several questions at the same time: the question for design of buildings, design of streets, maintenance of buildings and maintenance of streets. These kind of questions should better be avoided in standardised surveys when clear information is needed concerning one important aspect of quality of life.

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How can GIS-based maps contribute to compare quality of life in urban areas?

The representation of monitoring results in maps by the help of GIS applications allows comparison of the quality of life both between and within different LUDA pockets (see also **Handbook 5: Geographic Information Systems**). GIS-based maps can also be used to compare information on data and perception as shown in the following example as a proposal for representing monitoring information based on data from the city of Dresden (see Box 36).

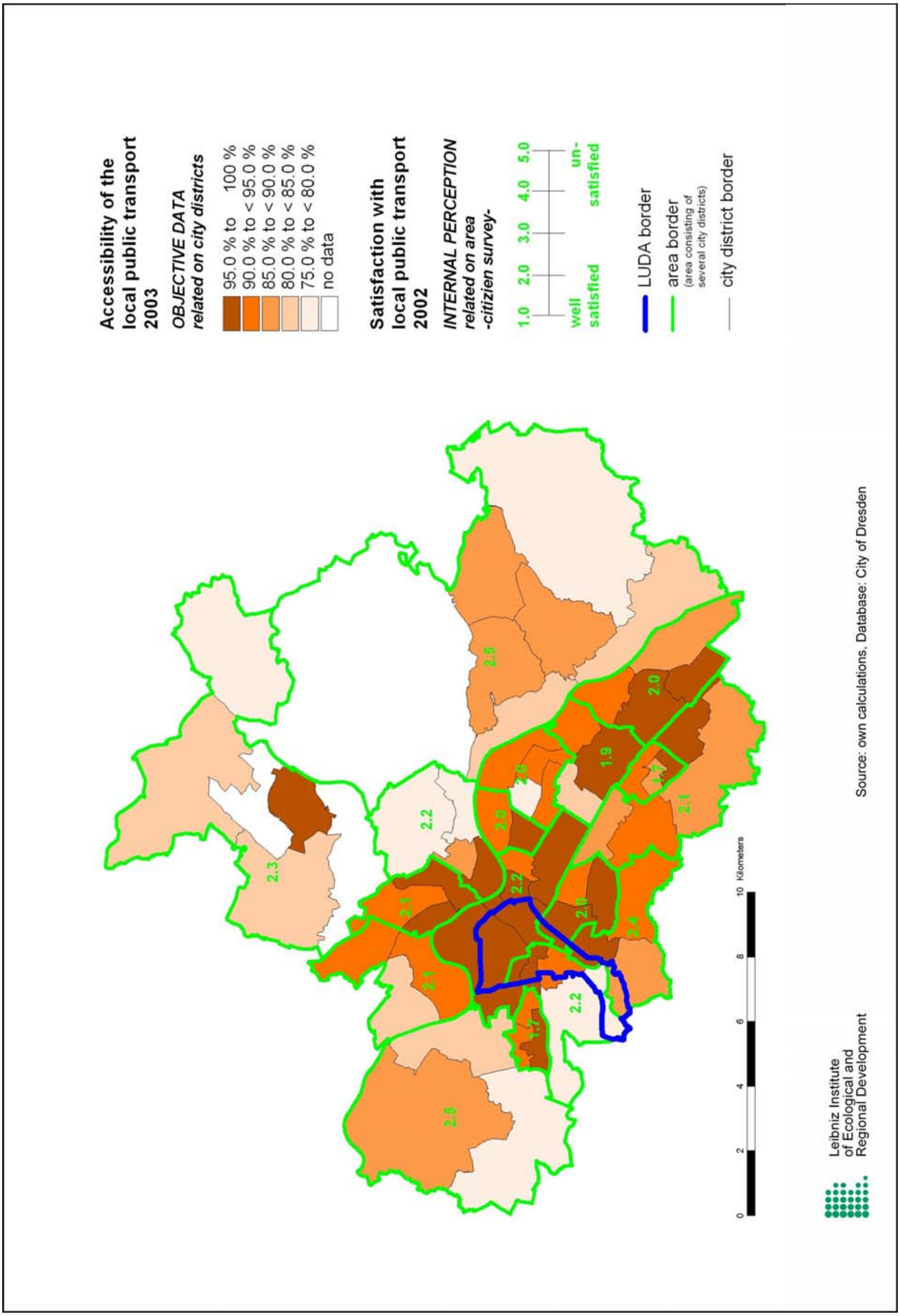
internal link

Box 36: Comparing statistical data and internal perception on supply with local public transport for Dresden

Figure 18 overleaf combines geographical information on the accessibility of local public transport as assessed by objective data and the satisfaction of inhabitants with their local public transport. The objective accessibility of the local public transport is measured by calculating the percentage of population that is located within a 300 m-radius of a bus/tram stop in the city centre, a 400 m-radius of a tram stop in the remaining city area or within a 600 m-radius of an urban railway (S-Bahn). Satisfaction with the local public transport is asked for within Dresden's citizen survey and is measured on a 5 level ordinal scale, with 1 representing a very high satisfaction and 5 a very low satisfaction. Whereas objective accessibility is measured on the level of urban districts, the areas of analysis for the citizen survey are larger, containing 3 to 4 urban districts.

The map first of all reveals that there is not necessarily a compliance of accessibility of public transport and the satisfaction with local transport. While some areas with an accessibility of more than 95% show high satisfaction values such as 1.7 other areas with the same accessibility have lower values of satisfaction such as 2.2. On the other hand, this degree of satisfaction is also experienced within areas of lowest accessibility of 75% to 80%. In general accessibility of (not below 75%) and satisfaction with local public transport in Dresden (not below 2.5) is high. Thus the variation of values is minor with accessibility between 75% and 100% and satisfaction from 2.5 to 1.7. A good accessibility and satisfaction is also reached in the largest part of the LUDA, with an objective accessibility of larger than 90%. However, at least regarding the objective accessibility, the LUDA also reveals considerable variations with low accessibility at the southern fringe. Satisfaction with public transport within the LUDA ranges from 2.0 to 2.2. Problems of the large areas surveyed within the citizen survey become obvious when assessing satisfaction with local public transport. So an area with a satisfaction of 2.2 includes pockets with an objective accessibility ranging from the lowest (75-80%) to the highest (95-100%) accessibility.

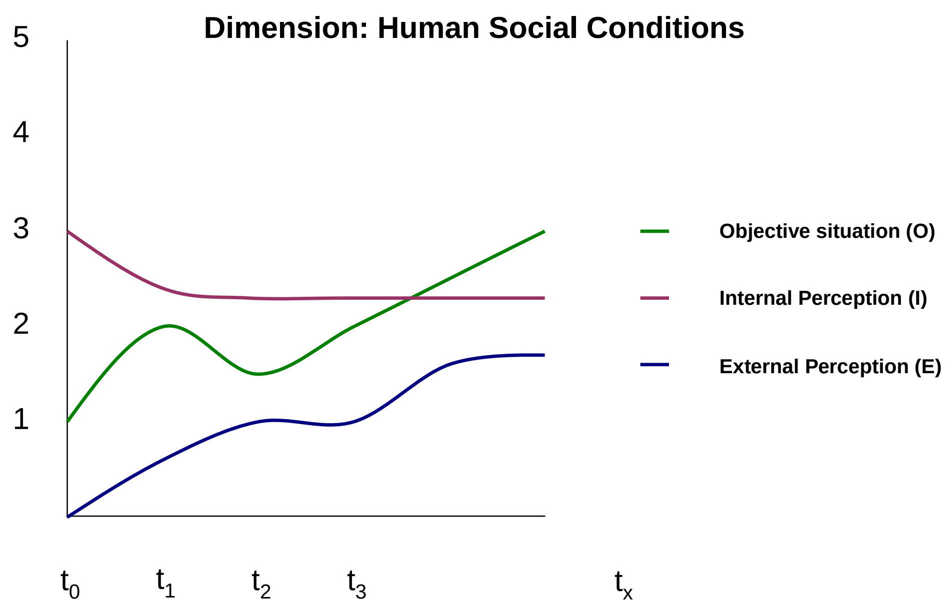
Figure 18: Accessibility of and satisfaction with local public transport in Dresden (own calculation by data from the city of Dresden)



How to monitoring the direction of development by the help of timelines?

Monitoring the direction of development aims to find out, whether the regeneration process is heading into the planned direction, whether the development is constant, positive or negative in comparison to objectives. Therefore it is useful to monitor the development of important issues over a longer period of time. When sufficient data is available, timelines should also be used to assess the development taking into account the three perspectives (objective situation, internal perception, external perception) as shown in Figure 19. Timelines can also be used to compare the development of different LUDA pockets as exemplified in Box 37 for Dresden.

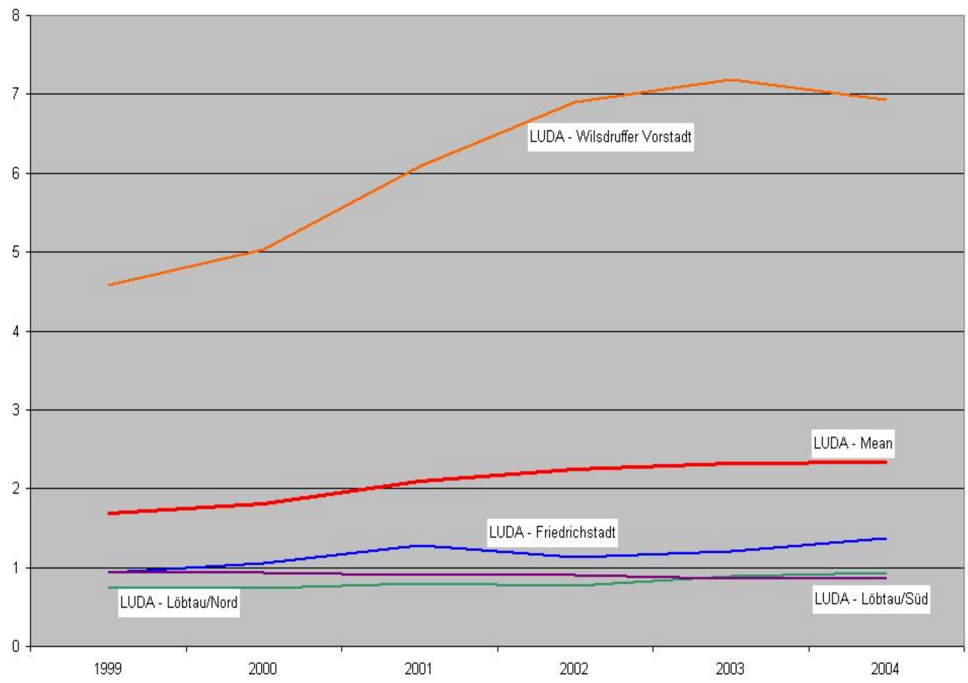
Figure 19: Timeline comparing objective and subjective information



Box 37: Development of ageing index in urban districts of LUDA "Dresden Weißeritz"

The ageing index is a ratio of the number of inhabitants with an age above 65 divided by the number of inhabitants under 18 and is an indicator for the degree of ageing within an area. A high ageing index indicates ageing while a low ageing index shows a young population. Figure 20 below presents the development of the ageing index within 4 urban districts of the LUDA. While in three urban districts the ageing index develops similarly, one of LUDAs' urban districts is characterised by high ageing. Already in 1999 the ageing index of the urban district 'Wilsdruffer Vorstadt' is approximately five times higher than within the other urban districts. Between 1999 and 2004 'Wilsdruffer Vorstadt' also suffers from a considerable increase of the ageing index.

Figure 20: Timeline of ageing index in urban districts of the LUDA Weißeritz



3.6 How can the organisational frame of the monitoring system be set up?

Due to differences of administrative structures in European countries and cities, it is difficult to make recommendations regarding organisational responsibilities for establishing and managing a monitoring system of LUDAs. However, for practical reasons it may sound reasonable to establish it close to where the responsibilities for improving the quality of life in LUDAs lie. Moreover, there should be a close collaboration with the stakeholders concerned. Also constant feedback should be secured.

The frequency of data collection has to be decided separately for each indicator taking into account the cost of data collection. However, to achieve usable results that indicate the progress of regeneration activities most of the indicators should at least be collected on an annual or bi-annual basis.

Monitoring results should be made available to all internal and external stakeholders taking part in the rehabilitation. To improve transparency and accountability monitoring results should be widely published and discussed.

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4. What are the pointers and pitfalls in monitoring the quality of life?

The key challenge for monitoring quality of life is to make available objective data and subjective information on the appropriate small scale level frequently and continuously. The final section of this handbook lists as a conclusion some pointers and pitfalls to be taken into account when establishing a system for monitoring quality of life.

As already outlined each monitoring systems will have to be adapted to the specific LUDA case so that the pointers and pitfalls give guidelines to be roughly followed but not to be implemented one-to-one.

Pointers

- Monitoring is a long-term and continuous process. This requires collecting comparable data and information for a longer period of time, e.g. by using the same set of questions within citizen surveys over a longer period of time. However the system will also have to be flexible enough to take on board new emerging important issues.
- Quality of life is a multidimensional matter requiring data and information from various sources. Therefore monitoring quality of life asks for co-operation first within the administration and second with private stakeholders such as housing associations or service providers.
- Quality of life cannot be measured by quantitative data alone, therefore information on internal and external perception should be included into the monitoring system.
- As monitoring is a long-term task it requires long-term commitment and therefore an organisational framework assigning clear tasks and responsibilities. The organisational structure should be established in a way to ensure long-term stability of collecting and analysing data and information.
- Monitoring information will best be understood when graphically or geographically represented. Therefore monitoring should be combined with GIS applications.
- As quality of life is a multidimensional issue with considerable heterogeneity within the city, monitoring requires information on the small area level. Therefore it should be taken care to improve in the long run availability of data on the small area level.

Pitfalls

- Although quality of life is a complex and multidimensional issue not each and everything should be measured, as collecting and processing too many data and information is related to considerable efforts.
- Too much complexity when analysing and aggregating information should be avoided to ensure transparency of monitoring results.
- Fear of not establishing the perfect system should not hinder to start a monitoring system at all. When not all requirements can be fulfilled at once the monitoring system should gradually be improved.

5. Further Reading & Links

The chapter further reading provides detailed information on references the handbook is backed on for each section of the handbook. It serves as a guide where to find further information on respective monitoring methodologies as well.

1. What are the basic concepts for monitoring the quality of life in urban regeneration?

1.1 What is monitoring?

Beanland, R.; Huser, B. (1999): Integrated Monitoring, A Manual for Practitioners, prepared for Environment Waikato, Regional Council, Hamilton East, retrieved July 2005 from http://www.qp.org.nz/pubs/3578.pdf

Hemphill, L; Berry, J.; McGreal, S. (2004): An Indicator-based Approach to Measuring Sustainable Urban Regeneration Performance: Part 1, Conceptual Foundations and Methodological Framework, in: Urban Studies, Vol. 41, No. 4, 725-755.

Moore, B; Spires, R. (2000): Monitoring and Evaluation, in: Roberts, P.; Sykes, H. (Eds.): Urban Regeneration, A Handbook, published with the British Urban Regeneration Association. London, Thousand Oaks, New Delhi.

ODPM (Office of the Deputy Prime Minister UK) (2005): Neighbourhood renewal Unit Glossary, retrieved July 2005 from http://www.neighbourhood.gov.uk/glossary.asp#M

SIP Monitoring and Evaluation Unit (Social Inclusion Partnership Monitoring and Evaluation Unit Geddes Centre for Planning Research School of Town and Regional Planning University of Dundee) (1997): SIP Monitoring and Evaluation Manual, retrieved July 2005 from http://www.trp.dundee.ac.uk/research/geddes/monitor/plan.htm

1.2 What does monitoring the quality of life mean in urban regeneration?

Beanland, R.; Huser, B. (1999): Integrated Monitoring, A Manual for Practitioners, prepared for Environment Waikato, Regional Council. Hamilton East. July 2005 from http://www.qp.org.nz/pubs/3578.pdf

DTLR (Department for Transport, Local Government and the Regions UK) (2001): Urban Regeneration Companies – Learning the Lessons, Regeneration Research Summary Number 42, 2001. London. http://www.odpm.gov.uk/index.asp?id=1128610

Hemphill, L; Berry, J.; McGreal, S. (2004): An Indicator-based Approach to Measuring Sustainable Urban Regeneration Performance: Part 1, Conceptual Foundations and Methodological Framework, in: Urban Studies, Vol. 41, No. 4, 725-755.

Moore, B; Spires, R. (2000): Monitoring and Evaluation, in: Roberts, P.; Sykes, H. (Eds.): Urban Regeneration, A Handbook, published with the British Urban Regeneration Association. London, Thousand Oaks, New Delhi.

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SIP Monitoring and Evaluation Unit (Social Inclusion Partnership Monitoring and Evaluation Unit Geddes Centre for Planning Research School of Town and Regional Planning University of Dundee) (1997): SIP Monitoring and Evaluation Manual, retrieved July 2005 from http://www.trp.dundee.ac.uk/research/geddes/monitor/plan.htm

UNDP (United Nations Development Programme) (2004): Human Development Report 2004, Cultural Liberty in today's diverse world, retrieved 29.03.06 from http://hdr.undp.org/reports/global/2004/pdf/hdr04_frontmatter.pdf

World Bank (2004): Monitoring and Evaluation: Some Tools, Methods & Approaches. Washington D.C.

1.3 What are the current challenges when monitoring quality of life in urban regeneration?

Barth, R.; Fuder, A.; Roder, M. (2003): IMPEL-Project Implementing Article 10 of the SEA Directive 2001/42/EC, Final Report, Project within the IMPEL Network (European Union Network for the Implementation and Enforcement of Environmental Law), Freiburg, Darmstadt, Berlin, München; retrieved July 2005 from http://europa.eu.int/comm/environment/impel/pdf/sea_directive.pdf

Beanland, R.; Huser, B. (1999): Integrated Monitoring, A Manual for Practitioners, prepared for Environment Waikato, Regional Council. Hamilton East. July 2005 from http://www.qp.org.nz/pubs/3578.pdf

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