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Tools for Integrated Sustainability Management

in cities and towns

An overview of how
to work for sustainable development
in your municipality

CONTENTS

Preface

Efforts of local authorities to govern their municipalities towards sustainability have been going on for at least 20 years. During this time a number of actors have developed their systems for how to do this. These systems have been dealing with a number of aspects: how to define a sustainable city (the vision), how to properly describe where you are (the so-called base line), where to go (the goal or target), how to manage the process to come there (the actions), and how to monitor and assess the process (indicators).

The different approaches to urban management have usually different focuses, depending on which situation they are operating in. E.g. the American systems are often very good at visioning and setting goals, while the European systems are more focused on the base-line review and monitoring. Most systems are weak in how to carry out the work itself, the action phase. In practice most of them introduce their own system without using much from other sources.

The present overview of management tools will not introduce one more system. Instead it will use the best tools for each of the different parts of sustainability management, which a city authority will need to deal with. It will also use management experience from other areas. In particular industries have since along time been using management systems, which, to a large extent, are applicable to a local authority. The schemes introduced with EMAS (Environmental Management and Assessment Scheme) of the European Union and the ISO 14000, ISO 9000 and the coming ISO 26000 series of tools developed within the ISO (International Organisation of Standardization) system are useful also for cities.

The by far most challenging part of sustainability management is to deal with integration. Integrated management is coming with large speed in the business world, as managing environmental, social and economic aspects in one system is becoming increasingly important for efficient decision-making. In urban sustainability management integration is crucial. Recently both the Managing Urban Europe 25 (MUE25) and the Sustainment projects have published their final reports, both concerned with integration. Integrated management has thus started in some cities, but we need more experience. The present small manual is intended to support such a process. It is produced as part of the project Sustainability Management in Baltic Cities to support urban sustainable development in the Baltic Sea region. I would like to thank the Baltic Sea unit of SIDA (Swedish International Development and Cooperation Agency) for financial support.

Uppsala February 2008

Lars Rydén

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The challenge
why we have to act

One would like any book on how to work with sustainable development to begin with a full report on the state of the world. That is not possible. Here it has to suffice with some small indications.

During the last 100 years world population has increased 4 times, the world economy 14 times, and worldwide industrial production 40 times. At some point this development will hit the ceiling. Then production will start to decreased, resources will become scarcer. Partly this is already here. For example world fishing was at its peak in 1996, (and in the Baltic Sea ten years earlier.) World oil production is expected to peak at 2008-2010. In many places it has already peaked, including the North Sea and in the Russian Federation.

The huge resource flow has consequences for the environment. Combustion of fossil fuels has increased carbon dioxide in the atmosphere and cause global warming. Overuse of nitrogen and phosphorus overgrowth in wasters. Industrial chemicals have poisoned ecosystems. Life quality is decreasing for everyone.

We are stepping outside our borders, we are emptying our wallets, and collect an ever larger dept which, in the end, needs to be paid back. Nature and environment is the resource which is overexploited. We use its forests, fields and fishing waters, its underground treasures metals, oil and coal in too big amounts, without taking into account that in fact it is limited. With the present development the possibilities to create a good future for all of us are reduced every year.

Sustainable development is the alternative. In short, it attempts to create a good and meaningful life for everyone while staying inside the borders of the life supporting systems of Earth. It is a development which asks for sound resource management, much increased efficiencies in the use of these resources, and a life which builds on other values than mere increased consumption and economic growth, as usual.

Who is going to build the sustainable future we need? They are many, from the United Nations, in its role as "global governor", to the individual. Some believe that we will have a sustainable future only if and also certainly if the individual chooses

to live in a sustainable way. For sure not the single person, nor the United Nations itself, is that powerful. Many others need to come into the picture. One of them is the local authority.

Local authorities, placed in the middle of this scheme, have a key role. The local authorities will have to create the conditions in which the inhabitants live. They will have to implement the changes, and legal frames under which we may act. Local authorities have daily and real contacts with its inhabitants as well as all other important actors, such as business, schools, NGOs etc. Local authorities also have in most places a planning monopoly and thus have to plan for the long term future, which sustainable development is all about.

The local authority is a key actor to achieve sustainable development

Read more:
http://www.sustainable-cities.eu
http://www.iclei-europe.org

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A common concept of sustainability

Despite the very long time that sustainable development has been a crucial issue in politics, business and civil society there is not a common understanding of what it actually is. Very often it seems to be understood as a new expression for environmental protection. Often it is connected to some kind of sacrifice of material standard. But this is not sustainability. When working systematically for sustainability in a local society it is necessary to have at least a minimum of common understanding of the concept. Let us start with the very basic:

A sustainable society (or, in general, a system) is able to continue for ever. Such a society (system) is characterized by sustainability. A sustainable development is a development which approaches sustainability.

Of course nothing on our planet will last "for ever". But for sure we talk about several generations. Several generations have been a time scale relevant for planning measures in many human civilisations since ages. It seems like our civilisation has forgotten about it.

But which are then the conditions we need to fullfill to achieve sustainability? These conditions have to be described precisely and general enough to be applicable in all societies. They also have to be labelled as necessary and/or sufficient. If such conditions can be found we have tools to judge if the society we set out to reach will be sustainable or not.

The Natural Step Foundation have developed requirement for proper resource management, the so-called four systems conditions. These are in brief summary
- Not accumulating substances mined from Earth
- Not accumulating substances made by society
- Not use natural renewable resources beyond their capacity to renew
- Use all resources in an efficient and equitable way

The four systems conditions are severely violated by our present industrial society: Carbon dioxide from fossils accumulates in the atmosphere; phosphorus from mines accumulates in the water system and various chemicals like PCB made by mankind is found in all kinds of life forms. To achieve sustainability we need to out-phase fossils in the energy system and stop using chemicals which can not be broken down in nature.

There is also a set of biological conditions for sustainability. These include that natural systems should not be over used; that a sustainable system is eventually depending on the sun; that a sustainable system recycles all resources; protects diversity and has a capacity to adapt.

Sustainability also requires that we protect and develop the social net we all depend on and secure basic welfare. Experience tells us that it is not only of interest in itself but also in practice necessary for the physical conditions to be respected. Without a minimum of welfare, societies will destroy the environment they depend on in order to survive day by day.

For whom is the sustainable development taking place? Its long term character protects coming generations (fairness across time). Many point to justice for the present generations (fairness across space)

or respect for nature (fairness towards other life forms). Each one has to develop an ethics of sustainable development. It is clear that sustainable development is to a large degree a moral issue.

Sustainability requires that

- the physical conditions are fulfilled
- the biological conditions are considered
- the ethics or justice is respected

Read more:
http://www.naturalstep.org
http://www.balticuniv.uu.se/esd

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A systems view
how to describe a city

A local community is complex. It has inhabitants, greenery and parks, streets and buildings, transport and traffic systems, business operations, traditions, history, and culture. How is it possible to deal with and manage change in such a complex system? Let us first recognise that we all are used to complexity. For example a person is a complex system, with mind and body and the body consist of a multitude of organs, tissues, cells, and innumerable different molecules. Medical doctors are trained to deal with the complexity of a person, to find what is wrong and provide health. The same we have to do with the city.

In order to work with the city we need a proper description. It is not realistic to make only the business life or traffic or energy management sustainable. The thousands of aspects are all linked to each other. They have to be treated together as one system.

Traditionally we use to refer to sustainable development as dealing with environmental, economic and social aspects. Is this also the best way to describe the system, the society which we work with? This three-part division is still prevailing in the business world as the so-called triple bottom line. But it has quite often been abandoned by city administrations.

Alan Atkisson use the compass metaphor to describe the system of a city. Here the four directions, North, South, East and West are used to designate Nature (N), Society (S), Economy (E) and Wellbeing (W). It is nice and philosophically pleasing as it points out that sustainability requires that north and south, nature and society, need to be in balance, and that economy (east) should provide wellbeing (west).

It is important that the structure is suited for work with management. The Urban Forum (BUUF) project, conducted by the Baltic University Programme as cooperation between universities and cities in the Baltic Sea region during 2002-2006, developed a resource perspective. The five resources chosen in the Urban Forum project have both a theoretical and a practical platform.

The resources are material resources (all material flows, water, energy, solid waste etc); urban space resources (green structure, built environment and transport infrastructure); human resources (inhabit-

ants and their education, care and work); societal resources (democratic institutions, the municipal governance; culture); and economic resources (economic units companies, households, etc.).

The Forum for the Future network in the UK uses a similar system but talks about five capitals: natural, human, social, manufactured and financial capitals. Forum for the Future works mostly with business and less with cities.

The system description is in a way possible to choose freely. But in reality one needs to adapt to what is practical to manage, is understandable, and leads to some consensus.

The five resource model of a city

1 material resources
2 urban space resources
3 human resources
4 societal resources
5 economic resources

Read more:
http://www.balticuniv.uu.se/buuf
http://www.forumforthefuture.org.uk
http://www.atkisson.com/accelerator

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Planning the work

When starting a work for sustainable development of the municipality it is essential that the broad lines are clear. What do we need to do? Which are the rules of the game? How should we conduct the work? How to recognise success? There are many metaphors for the work. One of them is to play cards. We need to know which are the cards (the system in other words); how to play (the rules, strategies etc); what is winning, and how to calculate the scores (monitoring and evaluation).

The first step is to agree on what is sustainable development and sustainability. This discussion may involve a large part of the city or only a few in the administration. The final common description should be available for everyone, and be shared by as many as possible.

Secondly one has to agree on a long term goal, what the work attempts to achieve. How could you do good work if you do not know where you are heading? This is the vision of the city as sustainable in a long term future. This visioning process is in many cases a very large part of the work. It should involve as many as possible. In some cases many inhabitants are included in various campaigns and festivals and discussion groups. In other cases key stakeholders are active. It often takes time.

The vision of the city is mostly created in a time perspective of 50 or even 100 years. The longer perspective allows for more radical rethinking. A long time perspective usually makes consensus easier, as very basic values, often shared in a community, dominate. The vision may refer to common treasures "we want the park (or church etc) to be preserved" or more technical parts for example how to provide the city with energy or public transport. The vision has to be made public and easily available, e.g. be exhibited.

All aspects which have been part of the vision needs to be monitored and reported. This requires indicators. Indicators are measurements which reflect the situation for a specific property of sustainability, e.g. energy provision, green areas, work situation of inhabitants, or satisfaction with the city. The number of indicators required is often quite many, 50-200. Some are traditional statistics and available since long. Others may be new and a system for measurements and reporting has to be developed.

Next step is the baseline review, the evaluation of the present state of the city. The review should include all aspects which are part of the vision. It should include the values for all indicators listed in the work. If possible, there should also be indicator values for a time period, e.g. for 10 or more years. This is often possible for basic data such as energy, unemployment etc.

The road from the present to the vision in the future, can be drawn as a line over time for each of the indicators. This line allows to do back casting. Back casting means to identify the value of the indicator for a specific year, e.g. 3 years into the future. It may be the goal for a three years working period towards the vision.

The work towards sustainability can now start. This work is long term. It is important that there is a unit in the city which is responsible, which owns the process, a unit of sustainability management. How the unit can operate will be discussed below.

Planning the work:

1 Agree on what is sustainable development
2 Create a vision of how the city will look like when sustainable at a future time, say 50 years
3 Establish indicators for each of the important properties
4 Make a baseline review of the city
5 Do back casting and establish intermediary term goals
6 Start the work

Read more:
http://www.urbanworks-toolkit.eu
http://www.globalcommunity.org
http://www.naturalstep.ca/scp/sustainablecommunities.html

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How to measure success
the indicators

For all kinds of work we need to be able to follow how we proceed. We need to use something, which can be observed or measured. These are indicators. If there is a concern, indicators always appear. It is interesting to note the massive amounts of indicators in the economic field. Everyday, in all kinds of media, we are brain-washed with hundreds of data on everything from GDPs to values of shares in companies and currency exchange rates.

A fairly large set of indicators are needed for sustainability work. In the BUUF project a set of six core indicators in each of nine key areas covered the five resources. Each of these had a "subset" of data asked for. In total there were thus 50 core indicators, and a number of data subsets. This seems to be rather typical for a municipality. The Japan For Sustainability, JFS, project designed 20 indicators to monitor a vision of a sustainable Japan in 2050. These 20 indicators were addressing the four areas of the compass (Nature, Economy, Society and Wellbeing). Each of them had ten subsets so there were a total of 200 datasets. There are several open sources where in-

formation on community development indicators is available.

For each indicator we need to define or estimate the value for the vision, when the city is sustainable. This is the sustainability value. It may be that the sustainability values are approximate, but still they are needed, to know where we are heading and allow systematic work. Values for the past allows us to make a time series, to develop as work proceeds. A time series is especially important for indicators where the final sustainability value is rather uncertain, as the change is not uncertain. Comparing the sustainability value with the present value gives the sustainability gap. The gap tells us how much is left to do to achieve sustainability.

To discuss what would be a sustainability value of an indicator is a very good exercise even if the result may not be so precise. It will leave the participants with an understanding of what constitutes sustainability in the area the indicator monitors. Environmental indicators often have a science platform for target values. For social indicators it may not be so easy. Then benchmarking – comparison with the experience from oth-
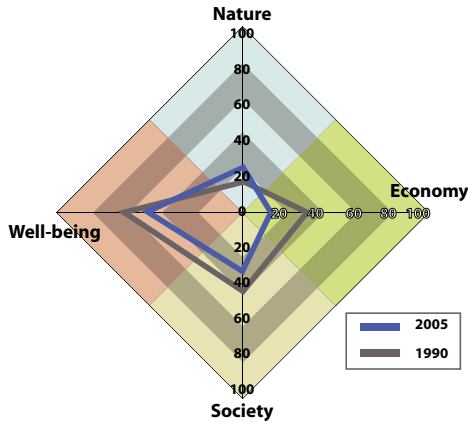
Nature / Economy / Well-being / Society

2005
1990

er cities – seems to be the most reasonable starting point for choosing a target value. For example the United Nations has proposed that a Human Development Index of 0.8 is reasonably good (=Sustainable!).

The target group is important. The chosen indicator should inform and serve the persons or organisations it is meant for. Indicators may be intended for the city administration, for management, but quite often they are addressing the general public or the politicians. Then they may not be too technical and has to have a symbolic dimension. Indicators allowing a wider use are the best.

One may for each year summarise indicator values in a single measure of sustainability. In the Japan for Sustainability project the values were given for the vision and collected for each year from 1990 to 2005. The team finally calculated the sustainability in percent – compared to the vision for each of the indicators. Then all the 20 indicators were combined to a single value, 58% for

the year 2005. The value had been constantly decreasing from 77% in 1990 to 58% in 2005 and is still decreasing. The difference 100-58% = 42% is the sustainability gap.

Sustainability indicators

1 monitor progress
2 communicate the state of the municipality to the inhabitants
3 are used to plan the projects
4 may be expressed in percent (%) to indicate how sustainable your municipality is.

Read more:
http://www.balticuniv.uu.se/buuf
http://www.rprogress.org/sustainability-indicators/community-indicators.htm
http://www.sustainabilitymeasures.com/indicators
http://www.japanfs.org/en/view/

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Action
projects and management systems

All cities work for an improved future. Larger cities may have many hundred of projects running. Many of these projects contribute to an improved sustainability, while others may reduce it. To work for improved sustainability is nothing easy. It requires a proper organisation to know what to do, to follow the process, and evaluate it. Good models for this are the now widely used management systems, such as EMS, Environmental Management Systems, or even better IMS, Integrated Management Systems.
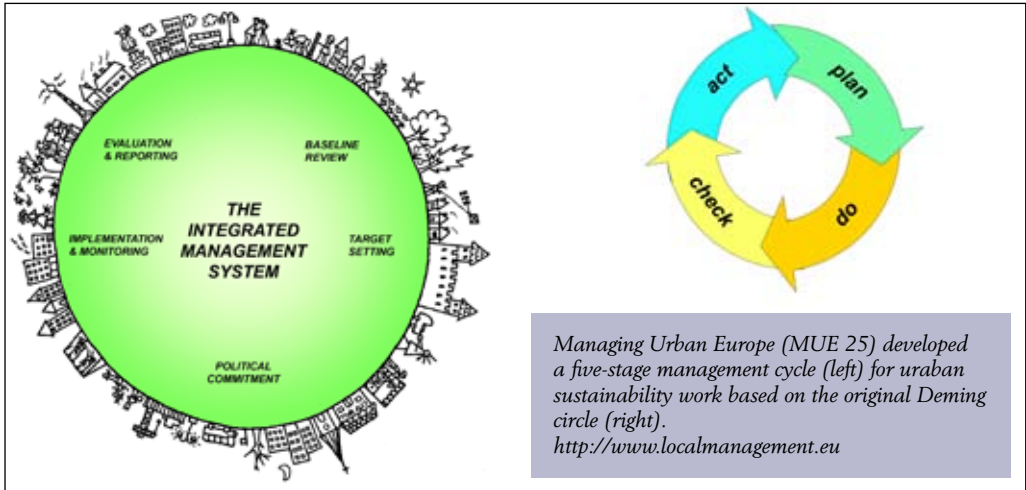
The management cycles, well established in business since long, follows the plan-do-check-act logic, originally known as the Deming cycle. It has been adapted to a long series of purposes, among them cleaner production and environmental management relevant for urban management projects. The Managing Urban Europe 25, MUE25, project developed a management system for urban sustainability work. The project is based on the introduction of a management cycle for urban management. MUE25 use a 5-divided schedule: baseline review – target setting – political commitment – implementation and monitoring – evaluation and reporting. This schedule is then run over a three year period. For each year a detailed scheme of what to do has been developed.

The largest challenge in sustainability work is integration. How to bring together the various aspects of sustainability, the environmental, economic and social sides of community life? This requires both a proper management organisation and proper projects. Here we will focus on the action, the projects to be carried out.

A project is understood as a work which has a beginning and an end and a defined budget. A project most often recruits several of the departments of a city. On the project level integration is approached by collecting all projects addressing a defined problem or challenge into a project portfolio. The problems may be a function such as a waste management or energy provision, an area such as a neighbourhood or a park, or a development such as a new industry. Many cities have programmes which more or less constitute portfolios.

The concept of portfolio is much used in economics, where a portfolio is a set of shares or investments which is treated as

Managing Urban Europe (MUE 25) developed a five-stage management cycle (left) for uraban sustainability work based on the original Deming circle (right).
http://www.localmanagement.eu

a unit. A project portfolio often contains some 30 projects but this varies widely. The mobility management centres, which are organised according to the principle of project portfolios, are good models. The portfolios need to be well defined, that is have clear systems boundaries, and be practically possible to manage.

The selection of projects in the portfolio starts from the problem addressed. The projects in the portfolio should support each other; they should make up win-win pairs or groups. No two projects should be in conflict with each other. Portfolios should also best consists of both soft and hard projects, hard being investments such as in infrastructure, and soft being for example education, or campaigns for marketing of new ideas. Projects may be added or removed as the work proceeds to maintain a balanced set in the portfolio.

Project portfolios

- address a defined problem
- consists of a group of both soft and hard projects, and covers the whole problem
- the projects support each other, they are win-win
- portfolios sometimes constitute programmes of the city

Read more:
http://www.localmanagement.eu
http://ec.europa.eu/environment/emas/index_en.htm

7

Setting up an organisation

Work for sustainable development is not one more policy area. It is an overriding principle or goal for the development of the city as whole. This requires for most cities a development of their basic organisation. It is important that the work in a city is properly coordinated to be efficient. It has to be clear who owns the process and has this as a main responsibility.

To create a unit in the city administration responsible for this coordination was the main purpose of the Sustainment project. The participating cities established Sustainability Management Centres, SMCs. It became quite different in different cities. The background studies, however, confirm that the true integration of the work in the city is needed for sustainability.

A similar focus is also needed on the political, decision-making, level. It has been called a cabinet or committee of politicians with special responsibility for sustainability issues and preparation of political decisions in the area. This already exists in many city councils.

The working mode of the coordinating unit or SMC is important. Respect for each partner in the work is essential. Participation is a key word for the governance approach. A relevant source for working modes is the so-called ten Fano guidelines published by ICLEI, in cooperation with several researchers. It is emphasised that the city has to be a learning organisation. It also emphasises the role of a good communication skills. Coordination is mostly a question of communication as all units and persons concerned should be aware of the work. It needs to be a very open process.

A city administration is not able to develop and implement sustainability changes in the municipality on its own. The whole society needs to be part of the change process. Stakeholders in the municipality should take part and also in fact contribute to the process. Important stakeholders include business, as well as e.g. universities. Benchmarking in the BUUF project concluded that a stronger knowledge culture was needed for the work for sustainable urban development.

The coordinating unit job is manifold. It has the task to collect and report on indicator values (not collect data; it is rather specialist work). It should make and report the base-

line review. It should in cooperation with politicians – political commitment is needed – develop the plan and set targets for some three years of work. It should implement, that is, set up the projects and project portfolios, and be aware of who is responsible and the budget for each of them.

After the completion of a management cycle and in order to prepare for the next the SMC or coordinating unit, has the task to collect indicator data and evaluate and report. This forms the basis for the next cycle. Often a considerable discussion is made at this stage to reconsider the indicator set, the definitions and the projects.

A city has to build up this organisation and activity step wise. This is not a disadvantage, but rather necessary to let the sustainable development work grow organically and naturally.

The Sustainability Management Centre

- coordinates all work for sustainability in the city
- manages the indicator work and the project portfolios
- is excellent in communication and participation

Read more:
http://www.urbanworks-toolkit.eu
http://www.localcapacity21.org

8

Beyond the project level
systems integration

It is obvious that the various activities in the city influence each other, often very strongly. Examples are how traffic is dependent on establishment of shopping centres outside cities and how they in turn influence housing; or that schooling is important for employment and traffic is a key reason for air pollution. To work with the whole city is the ultimate challenge for the sustainability manager.

The projects for environment, traffic, democracy, integration, public health etc. together constitute a collection of overlapping portfolios. We may analyse this collection in the same way as a single portfolio. Are there omissions, that is, do we have major problems which are not addressed? Do the portfolios support each other, or are they in conflict? Is the budget balanced?

The challenge is to see the city as a whole. Here systems thinking is needed. Are there positive or negative feedbacks? Are there clear subsystems? For a well worked out analysis one needs systems analysis as a tool. This is described for example in the EarthCAT Workbook Taking action for sustainability which is part of the

Guide for Community Development of the Global Community Initiative. The GCI is perhaps the best organization for work on the whole city level.

The challenge is also addressed in the integrated management systems. Here one works in parallel with the different parts of the activity of an organisation, for example economy and environment. This is the case in the eco-budgets developed by ICLEI. Eco-budgets are used by a series of German cities and start to be used also in other countries, including Sweden and Finland. In the eco-budgets environmental investments are listed alongside with the economic budgets, and the economic value – costs and gains – of environmental work is clear.

In principle it would be possible to use this approach for any kind of sustainability dimension. They all have a value which can be expressed in monitory terms. Some cities start to introduce it for social dimension work. The ecobudgets may then be expanded. Some cities make parallel reports of the dimensions of sustainability. A tool for this parallel reporting is the balanced

scorecards, used by some cities using an integrated management system.

The parallel view is also used in several reporting systems now developed. There are some standards also here, most importantly the Global Reporting Initiative, GRI, which is increasingly used by big companies, but since some time available for public authorities.

The ultimate sustainability management system will include all parts of the city, and address all five resources. Such a system has been developed by some cities, e.g. Stockholm.

Systems integration

- considers all activities in the city at the same time
- looks for interdependencies, e.g. feedbacks, between city processes
- evaluate and report all activities together

Read more:
http://www.earthcat.org
http://www.publicagencyreporting.org
http://www.ecobudget.com
http://www.matisse-project.net

9

Strategies and strategy assessment

It is important to make an analysis of how resources management develops in the projects. The strategy used for a work with a project portfolio or the whole city may or may not be expressed in the decision leading up to the project. If it is decided before hand it is strategy design. If it is looked at afterwards it is strategy assessment.

The BUUF project studied which strategies cities used when working with sustainable development. Twelve main strategies were identified, divided between the five different resources.

Strategies for management of material resources were described as the four Rs, reduce, replace, rescale, recycle. Reduce is to improve efficiency, replace is to take away less sustainable materials and instead introduce more sustainable material, for example toxic by non-toxic. A most efficient strategy is to recycle, that is to use a resource during its entire life cycle, for example waste for some purpose. The most common strategy, however, seems to be to rescale, that is to either provide a service on the micro level, the individual household, or on the macro level that is the city.

Also four main strategies for managing urban space resources were observed. Grow inwards is remediation of brown fields/grey fields, renovation of buildings, and urban healing to avoid to build on green fields and suburbanisation. Develop multifunctional, self reliant neighbourhoods is to promote working, living and recreation in the same neighbourhood, to avoid zoning and support e.g. local support of energy. Make transport public refers to restricting the private car in the city, a sort of up-scaling. Improve the built-blue/green interface maximise the urban/rural interface to improve the use of ecological services of the rural part, but also include building at the waterfronts.

The major strategy for management of human resources was education. This referred both to basic school system and higher education and professional competence development, and training for immigrants. Life long learning was thus a main strategy. Another strategy was to recruit elderly as a resource based on their experience. It is relevant in the ageing society. For the societal resource the main strategy was to support culture. Culture contributes to

the inhabitants' satisfaction with the city and its branding. Another strategy was to support the NGOs which contribute considerably to the life in a community. Finally for the economic resource the support of entrepreneurship was most outstanding. This included training and education, providing space (incubators) as well as small starting capital (loans)

Read more:
http://www.balticuniv.uu.se/buuf
http://www.earthcat.org

Sustainability strategies used by cities:

- Material resources: Reduce, Replace, Rescale, Recycle
- Urban space: Grow inwards, self reliant neighbourhoods, make transport public, improve the urban/rural interface,
- Social resources: education, support culture, support entrepreneurship

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The sustainability management toolbox

A number of organisations and projects have developed methods for work with urban sustainable development. The organisations and companies include the EU Sustainable Cities and Towns Campaign with the Aalborg commitments, ICLEI (now spelled out Local Governments for Sustainability), Union of Baltic Cities (UBC), the Natural Step Foundation, the Global Community initiative, the Forum for the Future, the Baltic University Programme, and the Alan Atiksson Group.

All of the established management systems have extensive list of tools, toolboxes, including e.g. mapping tools, strategic tools, evaluating tools etc. Some of the tools refer to the process itself, others to the projects, and others again to the post project phase, the evaluation.

Systems definition tools are those which describe the system, the city. These include the triple bottom line (environmental, social and economic), the compass (four components) and the habitat model with seven resources. The systems definition tools also contain the sustainability judgement criteria which describes what actually constitutes sustainability.

Monitoring tools are those which allow us to monitor and report what is more or less sustainable. These include the indicators, and also the methods how to define sustainability values or the sustainability targets. As a consequence we can also define the sustainability gaps, simply as the distance to target.

Visioning tools are those which allow us to define the goal of the work as whole, to describe what constitutes a sustainable city or community. The vision defines the sustainability values of the indicators and allow us to make back casting (see below). One should also be aware of the Aalborg commitments, which list what cities, signing this declaration of the European Sustainable Cities and towns Campaign, work for. The STATUS scheme is a monitoring tool for the commitments.

Integration tools allow us to integrate the dimensions of sustainability as well as all projects being run. They include the project portfolios as well as the MUE25 integrated management process.

Process analysis tools allow us to analyse the work. They include strategy assessments, systems analysis, and resource analysis.

A frame for sustainable development refers to a working method. The Agenda 21 Process, the Natural Step methods, the Alan Atkisson pyramid and the attached Accelerator toolbox are examples of frames (the photo shows a group building an Atkisson pyramid). The process of formulating a vision and using back casting for identifying the individual steps is also a frame. This may be the most widely used beginning of a work for improving sustainability.

The "frames" all have the purpose to set up a system. They all have established steps to identify the problems (the sustainability gaps), define the goals or vision of the work (the sustainability targets) and methods to identify what is more or less sustainable (the sustainability indicators).

From the Urban Sustainability Management Toolbox

- Systems definition tools
- Monitoring tools
- Visioning tools
- Integration tools
- Process analysis tools

Read more:
http://www.ubc-action21.net
http://www.localsustainability.eu
http://www.atkisson.com/accelerator
http://www.earthcat.org

Internet resources for urban sustainability management

The European Sustainable Cities and Towns Campaign
http://www.sustainable-cities.eu
ICLEI, Local Governments for Sustainability
http://www.iclei-europe.org
The Natural Step Foundation
http://www.naturalstep.org
The Baltic University Education for Sustainable Development portal
http://www.balticuniv.uu.se/esd
The Forum for the Future, UK
http://www.forumforthefuture.org.uk
The Alan Atkisson group accelerator toolbox
http://www.atkisson.com/accelerator
The Urban Works manual of the Sustainment project
http://www.urbanworks-toolkit.eu
The Global Community Initiative, Vermont, USA
http://www.globalcommunity.org
The Natural Step Foundation, Canada
http://www.naturalstep.ca/scp/sustainablecommunities.html
The Redefining Progress Community Indicators, USA
http://www.rprogress.org/sustainability_indicators/community_indicators.htm
The Japan for Sustainability Indicator project
http://www.japanfs.org/en/view/
The Managing Urban Europe 25 Manual
http://www.localmanagement.eu
The EU Environmental Management and Audit Scheme (EMAS)
http://ec.europa.eu/environment/emas/index_en.htm
The Fano guidelines of good urban management, ICLEI
http://localcapacity21.org
The Global Community Initiative workbook Community Action Tool
http://www.earthcat.org
The Global Reporting Initiative, GRI, public agency sustainability reporting.
http://www.publicagencyreporting.org
Tools and Methods for Integrated Sustainability Assessment, ISA, Sustainable Europe Research Institute, SERI
http://www.matisse-project.net
The Union of Baltic Cities Environment and Sustainable Development Secretariat, Turku Finland
http://www.ubc-action21.net
Local Sustainability Internet portal, ICLEI
http://www.localsustainability.eu
Aalborg commitments
http://www.aalborgplus10.dk
The Ecobudget, ICLEI
http://www.ecobudget.com
Sustainable Community Indicators Program, SCIP, Canada
http://www.ec.gc.ca/soer-ree/English/scip/default.cfm

Pictures and illustrations

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    Mälaren waterfront in Västerås. Photo © City of Västerås, http://www.vasteras.se

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    Use of energy efficient technologies in Dublin (Ireland). The roof houses, wind turbines and photo voltaic panels for producing energy toghether with solar thermal collectors which provide hot water to the building.

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    Hammarby Sjöstad, Stockholm, Sweden. Photo: Lars Rydén

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    Urban underground transport in Belgium

Notes