

Chapter 10

URBAN, MUNICIPAL AND COMMUNITY APPLICATIONS

Devuyt *et al.* (2003) introduces the concept of sustainability assessment and provide examples of practical ways to reach a more sustainable state in urban areas through such tools as SEA, sustainability assessment, direction analysis, baseline setting and progress measurement, sustainability targets, and ecological footprint analysis.

10.1 The BEQUEST categorisation

As part of a project undertaken by the *BEQUEST* (Building Environmental Quality Evaluation for Sustainability through Time) network, a survey was undertaken to develop a directory of available methods for assessing urban sustainability (accessible on <http://research.scpm.salford.ac.uk/bqextra/>) which report on and provide statements about the environmental, economic and social sustainability of development (Deakin *et al.* 2001). The methods are categorised in two classes: ‘environment in general’ – tending to focus on assessments of ecosystem integrity; and those augmenting into particular forms of ‘life cycle assessments’ – tending to focus on building the environmental capacity (Table 10.1).

Table 10.1: The BEQUEST categorisation of environmental assessment methods: Examples (Source: Deakin et al, 2001)

Environment in General	Forms of Life Cycle Assessment	
	Environmental Appraisal	EIA
<ul style="list-style-type: none"> • Contingent valuation • Cost benefit analysis • Hedonic analysis • Multi-criteria analysis • Travel cost theory 	<ul style="list-style-type: none"> • Compatibility matrix • Eco-profiling • Ecological footprint • Environmental auditing • Flag method • Spider analysis 	<ul style="list-style-type: none"> • Project • Strategic <ul style="list-style-type: none"> - economic - social • Community evaluation • ASSIPAC (assessing the sustainability of societal initiatives and proposed agendas for change) • BEES (Building for economic and environmental sustainability) • BREEAM (BRE environmental assessment model) • Eco-points • Green building challenge • MASTER framework • Meta-analysis (pentagon method) • NAR (net annual return) model • Quantitative city model • Regime analysis • SPARTACUS (System for planning and research in towns and cities for urban sustainability) • Sustainable city model • Sustainable communities • Sustainable regions • Transit-oriented settlement • Urban intensification

10.2 Municipal approaches

A number of local authorities have introduced sustainability assessment systems. For example, the Dutch city of Tilburg uses a checklist approach to assess the way in which new initiatives relate to the local sustainable development policy (Smaal and Wiersinga, 1997). This **DOTIS** (Dutch acronym for sustainable development in Tilburg, modern industrial city) system is an impact assessment approach and consists of a questions within eight areas of examination (of specific importance to Tilburg): spatial development, economic activity, environmentally conscious performance of households, construction, traffic and transportation, waste management, energy management and water management.

The complete list of questions covers issues important to sustainable development in Dutch urban areas. Goals, measures and effects each have their known scoring system. Box 10.1 provides some examples of the types of questions asked by DOTIS

Box 10.1: Examples of issue considered in DOTIS

Goals: does the policy proposal lead to:

- enhanced spatial coherence and/or quality of different functions;
- improving environmental quality, nature in the city and public spaces;
- flexibility/inclusion of future (innovative) forms of traffic infrastructure, waste collection, energy supply, underground constructions;
- increasing spatial quality?

Measures: are the following measures included in the policy proposal:

- using open spaces in the city;
- building along the outskirts of the city;
- adding new functions to a monofunctional area;
- differentiation of types of living quarters, industries and shops;
- increasing the amount of green spaces;
- increasing coherence between green spaces;
- compensating loss of green spaces;
- moving, cleaning up, zoning and screening off of environmentally harmful activities;
- improving the identity of the urban space through coherent square structure, pluriform architecture, and strong structural lines;
- increase social safety through involvement of the citizens, attractiveness of the surroundings, limiting physical vulnerability?

Effects: will the policy proposal have an effect on the number of:

- functions in the city/neighbourhood;
- kilometres driven by cars and trucks;
- kilometres driven by public transportation;
- kilometres driven by bicycles;
- residences bothered by noise, smell and/or risks;
- percentage area with soil pollution suspected;
- area and coherence of green spaces; and on
- safety?

(Source: Smaal and Wiersinga, 1997)

In Norway “direction analysis”, which is a form of *municipal sustainability assessment* has been used on an experimental basis as part of a project of the Norwegian Association of Local and Regional Authorities (Aall, 1999). In Belgium, the federal authorities have shown interest in sustainability assessment, as has the city of Hasselt.

The City of Melbourne has developed a TBL (triple bottom line) toolkit in collaboration with ICLEI-A/NZ¹ and local government sector which includes tools for reporting, planning and policy, and decision-making (see www.iclei.org/anz/tbl) Amongst these is a complex *sustainability assessment questionnaire* used to measure the city’s corporate performance. This includes mandatory questions, process guidelines, issues to consider, underlined words explained in a glossary. The questionnaire is organised as a matrix listing the city’s key sustainability aims against which scores are required for impacts, their magnitude, and likelihood of occurrence. The scores for each of these (for particular aims) are multiplied and, if the product exceeds a trigger threshold, then the impacts must be described (following prompt questions) (an example of part of the questionnaire is given in Figure 10.1).

In the UK, Stockport Metropolitan Borough Council has started to undertake a *Quality of Life Appraisal* to identify the key sustainability impacts and inform their best value action plan. Initially, the integrated approach was developed to streamline the numerous checklists that had been developed across the Council (eg for anti poverty, sustainability, etc.). It was agreed that a single checklist should be developed based on the five challenges of Council’s community strategy: putting people first; promoting a strong economy; creating healthy and safe communities; protecting the environment and heritage; developing learning communities (Lock 2003).

However, a recent report by the UK Improvement and Development Agency (I&DEA) (cited by Lock, 2003) suggests that while such sustainability checklists are a helpful start, they are not sufficient for achieving the goals of local authorities and need to be supported by the active involvement of ‘product champions’ in organisations, and should include training, advice, and monitoring processes.

Other approaches focus less on assessing sustainability related impacts or progress but are concerned with appraising the extent to which sustainable development is mainstreamed within local government authorities. For example, for this purpose, the UK Forum For the Future has developed a *Sustainable Development Matrix*, using a format based on the Hampshire Sustainability Coordinators Matrix. It can be completed by a small group (4-6 people) from across an authority. The vertical axis is divided into themes: commitment and scope; mechanisms to assist mainstreaming SD; decision-making and performance; policy-making, service and financial planning; procurement adherence to SD community strategy; sustainable development function; community leadership; and community involvement. The horizontal axis comprises categories for performance: excellent, good, fair, weak and poor. The cells of the matrix contain a series of statements which can be ticked according to which are closest to the current situation. The column with most ticks should indicate the level at which the authority is performing on that particular theme (www.forumforthe future.org.uk/uploadstore/SD). The Forum suggests that four key factors are needed for an optimal ‘sustainable development local authority’:

- High level commitment and corporate approach (eg systematic approach to strategic processes such as community strategy, Local Agenda 21, public service agreements);
- Mechanisms to assist mainstreaming sustainable development;
- Sustainable development function (eg a dedicated SD unit, communicating good practice);
- Community involvement and leadership.

¹ ICLEI-A/NZ: International Council for Local Environmental Initiatives - Australia and New Zealand

Figure 10.1: Part of City of Melbourne Sustainability Assessment Questionnaire

Mandatory questions

Process guidelines

Issues to consider

All words underlined are in the glossary of terms

DOI – prompt questions if triggered.

CITY OF MELBOURNE SUSTAINABILITY ASSESSMENT QUESTIONNAIRE

REPORT DETAILS (Report Title, Type, Date, Committee, Agenda Item if known)

Anticipated consequence of activity
 No Impact = no change from

Level of change i.e.
 - duration
 (transient/temporary/permanent)
 - no. of people it affects
 - % deviation from the norm

High: expected to occur in most circumstances
 Medium: probably occur in most circumstances
 Low: may occur at some time

Trigger if further assessment is required

Provide:
 - figure where possible
 - % deviation from the normal
 Describe impact in written terms

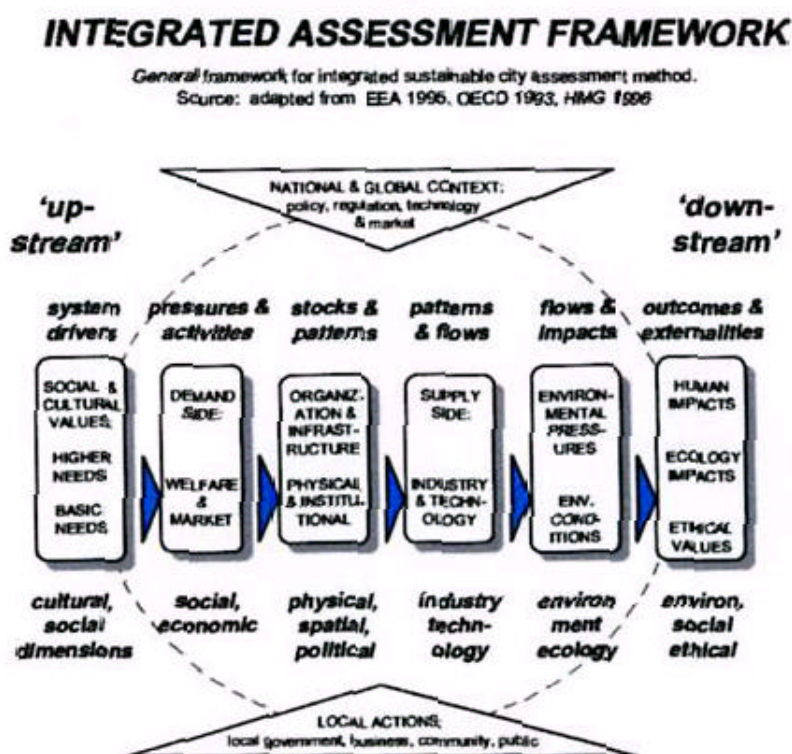
SOCIAL FACTORS

	City of Melbourne Key Sustainability Aims	Impact (1)	Magnitude of impact (2)	Likelihood of Occurrence (3)	Trigger (1 x 2 x 3)	Description of impacts (DOI)
		Not applicable N/A Unknown 1 Positive 2 Negative -2 No impact Nil	High 3 Moderate 2 Minimal 1	High 3 Medium 2 Low 1	If Trigger = > 8 or <= 8 please complete DOI	Using the questions below as prompts, please describe the likely impacts associated with the proposal. Please quantify the impacts wherever possible.
SOC 1	COMMUNITY SERVICES What effect will the proposal have on the quality, quantity and accessibility of education, leisure, cultural, health and other community services? <i>AIM: Deliver and provide access to facilities and services to support people living in, visiting and working in the City (SD 3.2)</i>		<ul style="list-style-type: none"> - Community access to information - Promotion of good health & well being - Aged and disability services - Specialised needs services - No. of teachers to pupil ratio - Pram friendly spaces - Drug treatment programs - Home and community care services - Location - Legislation against discrimination of disadvantaged groups. 			What will be the increase (or decrease) in the range and number of education, leisure, cultural, health and other services available to the community? How will the proposal promote an improvement (or decline) in the quality of education, leisure, cultural, health and other services available to the community?
SOC 2	ACTIVE AND ENGAGED COMMUNITY What effect will this proposal have on the development of a culturally diverse, healthy, equitable, active and involved community in Melbourne? <i>AIMS: Welcome and facilitate all sections of the community to participate in City life (SD 3.1)</i> <i>Promote, celebrate and further develop Melbourne as a City for the Arts and a sporting capital with a rich and vibrant cultural life (SD 3.3)</i>		<ul style="list-style-type: none"> - Preventative services i.e immunisation programs, family planning etc; - Encourage groups to work together for common benefit - No. of businesses involved in community programs - Volunteer hrs conducted in community - Additional no. of users - Foster care - No. of health cases - Demand for services. 			How will the proposal increase (or decrease) the level of cultural activities within the public domain? How will the proposal encourage more (or fewer) people to participate (actively and / or passively) in cultural, leisure and/or recreational activities? How will the proposal lead to a reduction (or escalation) of health impacts and improvements (or declines) in community health? How will the proposal provide more (or fewer) stakeholders with the opportunity to participate in Council's decision making processes? Does the proposal reflect the multicultural nature of Melbourne's community?
SOC 3	CULTURAL AND HERITAGE VALUE OF BUILT FORM What effect will this proposal have on the cultural heritage of Melbourne's neighbourhoods and buildings? <i>AIM: Protect Melbourne's distinctive physical character and ensure it continues to develop a strong sense of place and identity (SD 3.6)</i>		<ul style="list-style-type: none"> - Visually compatible - Enable different uses in the future - Character of locality 			How will the proposal facilitate the protection (or loss) of buildings, precincts or areas of significant cultural or heritage value in Melbourne? Will the proposal be compatible with the existing built form and streetscape? How will the proposal enhance or preserve cultural heritage?

10.3 ISCAM (integrated sustainable cities assessment method)

ISCAM is a conceptual framework developed by Ravetz (2000a) at the University of Manchester that helps map linkages between environmental, economic and social factors as well as political and spatial systems (Figure 10.2). It combines with purpose-designed software in a transparent environment-economy scenario accounting model for the total 'environmental metabolism' of a city or region, which helps to map out scenarios, indicators, targets, and 'trend to target' assessments (Box 10.2). These scenario accounts are also useful for strategic assessment and sustainability appraisal of policies and programmes, where "indeterminate and cumulative effects can be placed in a whole-system context of trends, projections, goals and targets". ISCAM is also being applied to futures workshop exercises and indicators programmes for national and regional bodies. This model is only one possible approach to sustainability assessment for cities or regions. It aims at total transparency and simplicity, and while the details are technical, the method is designed to be a tool for discussion and communication. It will be useful as a backup for Local Agenda 21 vision work, for more technical studies, and long range policy work, particularly in regard to climate change.

Figure 10.2 (Source: Ravetz 2000b)



Note: Applying this framework to practical issues such as transport or housing, the combined effects of changes to lifestyle, market measures, regulation, technology, environmental management or ethical values can be seen together. Local policies and actions can be shown below, and external conditions and assumptions above. The central part of the chain generally has more quantitative factors suitable for computer modelling; while other equally important factors are often intangible and need more in-depth exploration with many stakeholders.

Box 10.2: ISCAM (integrated sustainable cities assessment method)

Core accounts

ISCAM identifies factors in the urban-environmental system which can be most easily and simply quantified and linked together. A set of spreadsheets shows basic scenarios with the minimum of data input, maximum transparency, and each sector on one page. These are the 'core accounts' of the scenarios.

On one axis of these core account spreadsheets are the system components shown in Figure * – drivers, pressures, stocks, patterns, flows and impacts. On the other axis are the current accounts with:

- Current values, with historic comparison where possible;
- 'Business-as-usual (BAU) projections;
- 'Sustainable development' targets (SD);
- 'Policies/plans/programmes (PPP).

These are drawn to a common horizon, such as 25 years. BAU 'trends' are interpolated from national and industry data. SD targets come from a judicious balance of environmental, economic and social goals, combining scientific advice and political reality. PPP scenarios are based on detailed assessment and expert judgement.

Core indicators

The most critical and sensitive factors are represented by 'key drivers' or 'core indicators'. These can be identified through sensitivity testing of scenarios. The core indicators are then put together in a summary table, with a related set of satellite indicators, which are based on environment-economic and environment-social linkages.

Trend-target index

For each core indicator, the main question is often not its value, but the relationship of its trend to its target – the gap between where it is heading, and where we want it to be. The ISAM software assesses the gap or distance between BAU trends, SD targets and PPP scenarios, and expresses them as a ratio or index. This is not a scientific value, but an expression of the 'normative tension' for each one of a consistent and linked set of indicators.

For instance, if current NO_x emissions are 100kt/yr, the BAU trend is 120, and the SD or scientific target is 40, then the 'trend-target' index would be –33%. If the effect of a PPP is estimated as 80kt/yr, then its 'policy-target' index would be +33%, i.e. a third the distance from policy to target values.

Indicators and targets

System indicators. Appropriate indicators are not easy to select or communicate, and there is a need for consistency where possible between different units, from the nation to the neighbourhood. But, the linkage of indicators in multiple chains better represents complex systems, in both the human and natural worlds. For example, an indicator of 'high public transport use' might show an 'eco' city, or simply a poor city, with its effects depending on utilisation, trip length, emissions and other factors. Figure * is useful for mapping and linking many indicators, where the system cannot be represented by any one in particular. The framework also enables more qualitative indicators to be attached, such as 'quality of ride' or 'perceived security'.

Compound indicators take environmental-economic or environmental-social linkages to express integrated system performance. For economic linkages, it can be simple to take emissions per £GDP or per job. For social linkages, the ratios focus on more intangible human welfare or impact, and need careful selection: examples include 'energy poverty' or 'quality of open space'.

Dynamic indicators show change over time, and in a scenario-based approach these show up as the

most critical. The 'rate of de-carbonisation per GDP', for instance, can be compared with GDP/head and population growth rates, as a series of trend lines which capture the essential system dynamics.

Integrated framework. All this starts to build up an integrated framework for indicators. First there is a systems concept for linking indicator chains; then an IA framework for compounding key ratios; then a scenario-based approach to dynamic indicators. This can be applied to questions such as national sustainability indicators. A hierarchy with several layers of disaggregation enables consistency and comparability between national and local levels, and between technical and public types of indicators.

Sustainability appraisal

SEA and similar techniques experience many of the problems inferred above – uncertainty and lack of knowledge, cumulative impacts, converting intangible to tangible factors, and translating complex findings into decision-makers' output. To tackle such limits, SEA techniques can be placed within an IA context. This enables the effects of a PPP to be seen within the overall 'environmental metabolism' of an urban or regional system. It also provides a dynamic context for such systems, with a set of consistent trends and targets. In practical terms, the anticipated effects of a PPP would be estimated by expert judgement: they can then be seen alongside an integrated set of BAU trends and SD targets. The trend-target index above can be worked out where useful, and relevant core indicators compared.

For example, a set of regional policies might aim to reduce the need to travel: in-depth appraisal might show that these on their own would reduce baseline travel levels by –0.5% per year, while BAU levels are increasing by +3%, and SD targets aim to reduce by –2% per year. So, for this indicator, the PPP achieves only one tenth of the trend-target gap. Alongside there are many related indicators which need to be linked into the appraisal.

Such an IA or sustainability appraisal method does not remove the problems above of scoping, boundaries and uncertainties. But it does promote an integrated approach, both 'latitudinal' in terms of linkages between sectors; and 'longitudinal' in terms of its trend and scenario-based approach. This is useful for addressing wider sustainability questions rather than purely technical ones.

Source: Ravetz (2000b)

10.4 Campus sustainability assessments

Even universities are taking up the challenge of championing the sustainability issue by undertaking campus sustainability assessments. The Washington-based Association of University Leaders for a Sustainable Future (ULSF) has developed a qualitative sustainability assessment questionnaire (SAQ) to help universities and colleges assess the extent to which they are sustainable. It aims to:

- Raise consciousness and encourage debate about what sustainability means to higher education practically and philosophically;
- Give a snapshot of the state of sustainability on the campus;
- Promote discussion on next steps.

The SAQ is intended to be used in a 3-4 hour exercise on the campus with a group of about 10 representatives including staff, students, faculty and administrators. It covers a range of dimensions including: curriculum, research and scholarship, operations, faculty and staff development and rewards, community outreach and service, students opportunities, and institutional mission, structure and planning. Indicators of sustainability are included for each dimension (www.ulsf.org/programs_saq/html). An indicator-based approach was also used by the University of Michigan (Box 10.3).

Box 10.3: Sustainability assessment of Ann Arbor Campus, University of Michigan

A sustainability assessment of the Ann Arbor campus was undertaken in 2002 by Masters Degree students utilising the triple bottom line concept. The environmental, social and economic “spheres” were each divided into categories and further into indicators. Environmental categories ranged from water use to greenhouse gas emissions; social categories from wages to community development; and financial categories from revenues to investment policies. A total of 50 indicators were established: 25 environmental, 20 social and 5 economic. Some of these were normalised into metrics in order to account for the growth of the campus. Geographic boundaries delineate activities occurring in the Ann Arbor campus system, including education, research, medical care, housing, food service, recreation, arts and community development. The study covered the time period 1990–2001. Life cycle analysis was used for certain indicators to measure upstream and downstream impacts. Data gathering was conducted in close collaboration with over 30 university departments.

The results show both positive and negative trends and provided a baseline for setting short- and long-term goals. The study recommended that the university institutionalise annual sustainability.

Source: css.snre.unich.edu/CSS_doc/CSS02-04.pdf

10.5 Citizen-based assessment

Municipalities in many countries are becoming concerned to motivate and help citizens to develop lifestyle practices that conserve natural resources and protect the environment. Traditional methods used by municipalities – information and financial incentives – have achieved awareness and some behavioural change, but are inadequate to help people change lifelong habits, and they fail to tap the enormous potential for resource savings that citizens are often willing and usually able to achieve. New tools are therefore being tested to help achieve change. Amongst these is *citizen sustainability assessment* developed in the USA by the Empowerment Institute (EI) with funding provided by the Environmental Protection Agency. This tool aims to enable municipal decision-makers and citizens evaluate how sustainably they are utilising the community’s natural resources. It assesses the effectiveness of the various municipal policies and programmes that enable citizens to conserve the community’s natural resources and protect the environment, identifying the incentives and disincentives built into the system.

Citizen sustainability assessment (CSA-cit) may be performed either as a self-assessment exercise (managed by a lead agency or municipality staff person), or by a citizen advocate group or group. In the case of the latter, research to identify and access required data is needed. The assessment involves answering a series of questions for four key areas: solid waste, water, energy and transportation. The sections of the assessment guide for each of these areas suggests the likely agency sources for needed information. Box 10.4 provides an example of the questions for solid waste management.

The Global Ecovillage Network (GEN) (www.gaia.org) is developing the concept of sustainability auditing to provide ‘measuring rods’ for individuals and for existing villages and communities to compare their current status with ideal goals for ecological, social, and spiritual sustainability (<http://gen.ecovillage.org/activities/csa/>). GEN has developed a *community sustainability assessment* checklist (Box 10.5) which is expected to take about 3 hours to complete (as an individual) or several sessions if done by a group. The tool is seen as a learning instrument – pointing out actions that aspiring individuals and communities can

take to become more sustainable. It is intended that the CSA be repeated periodically to monitor progress.

Box 10.4: Citizen sustainability assessment: key questions for solid waste management

“The agencies involved in solid waste management may have different names in each community. Generally they will fall under the following categories: municipal public works or solid waste agency, recycling coordinator, county or regional solid waste agency, private solid waste hauler or recycling hauler, local transfer station, and local landfill operator.

1. List the programs your community has in place to help citizens reduce the amount of solid waste they generate, e.g., recycling, composting or source reduction programs.
2. Describe why each programme came into existence and its current goals.
3. What have been the principal strategies utilised to achieve citizen participation? Which have been successful and why? Which have been unsuccessful and why?
4. How is success measured? Include the numerical targets of the programme. If there are no targets, how might targets be established?
5. What percentage of citizens participate in each programme?
6. What percentage of solid waste does each programme divert from the waste stream?
7. What have been the participation and solid waste diversion rates for each programme over the last three years? Have participation and diversion rates increased, levelled off or decreased? Please explain what is causing this trend.
8. What neighbourhoods have the most successful participation and solid waste reduction rates? Why is this? Please describe what has been learned.
9. What neighbourhoods have the least successful participation and solid waste reduction rates? Why is this? Please describe what has been learned.
10. What incentives are there in the municipality, if any, for solid waste reduction? e.g., regulatory compliance with state or regional targets, landfill closing, avoided costs of expanding or building new infrastructure, increase in tipping fee expenses, city ordinance committing to natural resource conservation as a principal of community sustainability, etc.
11. Which service providers benefit from residential solid waste reduction? e.g., solid waste haulers in reduced tipping fee expenses, collection and transport costs, recycling service providers in increased feedstock to sell, and landfill operators in extended life of the landfill, etc.
12. If fiscal benefits are derived from residential waste reduction, how could these be calculated and projected over time? e.g., pounds of solid waste diverted equals a certain amount of financial savings for hauler, landfill operator, etc.
13. Are there any policies to reinvest these financial savings into creating greater solid waste reduction? Please describe. If not, how might a policy be established?
14. What disincentives are there in the municipality, if any, for residential solid waste reduction? e.g., contractual commitment to supply a fixed amount of residential solid waste to be placed in a landfill, financial obligations to pay off landfill site development based on tipping fees, etc.
15. Which service providers do not benefit from solid waste reduction? e.g., solid waste haulers who increase revenues from pounds of solid waste collected, landfill operators who increase revenues from tipping fees, etc.
16. Are there any municipal policies for assuring that incentives to solid waste diversion are enhanced, and disincentives eliminated? If not, how might these be pursued?
17. If the municipality has created disincentives to solid waste diversion, what can be done to remedy this? e.g., renegotiate contracts with service providers based on providing incentives for solid waste reduction, redesign policies, etc.

Source: www.globalactionplan.org/Files/SLC_CSA.htm

Box 10.5: Community sustainability assessment checklist

The questions set out in the checklists developed by the Global Ecovillage Network are divided into categories under three main headings (below). For each question, answer options are provided and a score is entered in a box. The scores are summed to provide an overall score:

- 999+ indicates excellent progress towards sustainability;
- 500-998 indicates a good start;
- 0-449 indicates actions are needed.

Ecological checklist

- Sense of place – community location and scale; restoration and preservation of nature;
- Food availability, production and distribution;
- Physical infrastructure, building and transportation – materials, methods, designs;
- Consumption patterns and solid waste management;
- Water – sources, quality and use patterns;
- Waste water and water pollution management;
- Energy sources and uses.

Social checklist

- Openness, trust and safety; communal space;
- Communication – the flow of ideas and information;
- Networking outreach and services – resource exchange (internal/external);
- Social sustainability – diversity and tolerance; decision-making; conflict resolution;
- Education;
- Health care;
- Sustainable economics – healthy local economy.

Spiritual checklist

- Cultural sustainability;
- Arts and leisure;
- Spiritual sustainability;
- Community glue;
- Community resilience;
- A new holographic, circulatory world view;
- Peace and global consciousness.

Source: <http://gen.ecovillage.org/activities/csa/>

10.6 Municipal project sustainability assessment

Many municipalities are now requiring a sustainability assessment of proposed developments. Usually, an assessment form must be submitted. For example the form for the Borough of Islington, London (www.islington.gov.uk/pdf/environment/udpsustainabilityassessment.pdf) has sections covering:

- *A description of the proposal* – design, size or scale and materials used in construction;
- *Site analysis* – information about the site and its surrounding, including consideration of the opportunities and constraints detailing how the design had had regard to these factors;

- Key sustainability criteria – assessment of the impact of the development on the a list of criteria, describing the ‘significant’ direct and indirect effects (as either positive, negative, no significant impact, or uncertain) and any relevant mitigation measures on the environmental, social and economic goals of sustainable development. A comprehensive set of criteria is included covering:
 - *Environmental*: nature conservation, biodiversity, landscape, land, archaeology, historic, pollution, energy, waste, built environment, and transport;
 - *Social*: community, affordable housing, community facilities and locality;
 - *Economic*: employment, training, enterprise.

