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TOOL EXPLORATION

FOR

**Green Building Council of
Australia**

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Adam Beck



Green Building Council of Australia

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1 INTRODUCTION

Sustainable Built Environments (SBE) was engaged by the Green Building Council of Australia (GBCA) to undertake a tool exploration exercise, which will input into a future research project that will critically review existing tools that contribute to sustainable communities. This exercise and research project will inform the development of the Green Star Communities tool.

2 METHODOLOGY

The methodology for this tool exploration exercise was as follows :

- A broad range of tools (both existing and under development) from Australia and overseas that may be relevant to the development of the Green Star Communities tool was identified ;
- A high level categorisation process was undertaken for each of the identified tools against the GBCA's nominated criteria, with particular reference to the five principles outlined in the Draft National Framework for Green Star Communities i.e. Liveability, Economic Prosperity, Environmental Quality, Place Making and Urban Governance ;
- The GBCA's Tool Exploration Matrix was completed ;
- Where possible, relevant information about the identified tools was downloaded and provided on a CD to the GBCA ; and
- Observations made during the completion of this tool exploration exercise were noted and outlined in this Report.

3 TOOLS CONSIDERED

Sustainable Built Environments (SBE) has explored a number of tools both in Australia and overseas that assess the various sustainability aspects of communities.

The list of tools explored as part of this study came from a number of sources :

- SBE's knowledge of sustainable community assessment tools and our reference library ;
- A review undertaken by the Australian Institute of Landscape Architects (AILA) of international and Australian climate adaptation tools (tool list published on the 5th Estate website on the 21st May 2010) ; and
- A scoping study on national sustainability assessment methodology for urban development prepared for the Department of the Environment, Water, Heritage and the Arts by the Institute for Sustainable Futures in 2008.

The full list of tools considered can be found in Appendix A.

The Tool Exploration Matrix can be found in Appendix B.

4 OBSERVATIONS : PROCESS

A number of observations were made whilst undertaking the tool exploration exercise. They are outlined as follows :

Tool classification

The majority of the identified tools are considered to be "assessment tools" i.e. tools that facilitate the assessment of the sustainability aspects of an urban development according to a set of criteria. A number of the identified tools are considered to be "frameworks" i.e. tools that provide guidance on how to deliver a sustainable community. Some of the identified tools are considered to be "indexes" i.e. tools that assess the sustainability aspects of a project and rank it in order of performance. There are a few tools under development where their final format is "unknown".

The "framework" tools are as follows :

- Adaptation Wizard (UK Climate Impacts Programme), CRISP Framework (EC-funded Thematic Network), DPSIR (UNEP), Green Plan (City of Guelph, Canada), Manchester Guide to Development (Manchester City

Council, UK), Sustainable Urban Landscapes – Site Design Manual for BC Communities (University of British Columbia) and Liveable Neighbourhoods (Department of Planning & Infrastructure, WA).

The “index” tools are as follows :

- BioCity Health Index (McGregor + Coxall, NSW), European Urban Audit (EU Initiative), LESS (Hassell), Star Community Index (ICLEI, USGBC, Center for American Progress) and The Singapore Index on Cities’ Biodiversity (Convention on Biological Diversity).

The tools under development where their final format is “unknown” are :

- Ecological Footprint Model and Sustainability Modelling Framework (SA LMC), Integrated Model for Urban Sustainability (University of SA) and Sustainability Management System (Department of Planning WA).

The rest of the tools are considered to be “assessment tools”.

Categorisation

In completing the Tool Exploration Matrix, it was sometimes difficult to separate the identified tools’ criteria into the two Green Star Communities Principles, “**Liveability**” and “**Place Making**”, as some aspects that should be considered under these two Principles (as outlined in the Draft National Framework) are similar. For example, connectivity and adaptability.

Some of the identified tools contained requirements or guidelines on the economic prosperity of the proposed urban development project, whereas others focused on the economic bottom line of the developer. In both cases a “Y” was placed in the “Addresses **Economic Prosperity**” column.

All of the identified tools contained requirements or guidelines regarding the environmental quality of the proposed urban development project. However, these varied from a single focus on energy efficiency or biodiversity, to criteria for a broad spectrum of environmental attributes. In all cases a “Y” was placed in the “Addresses **Environmental Quality**” column.

Public availability of the tool

A “Y” was placed in the “Tool Publically Available” column if the identified tool is publically available on the website, or if user registration with the tool owner is required to access it, or if the software is downloadable, whether free or at a cost.

Incomplete information

If the identified tool is under development and/or where there was insufficient detail about the tool on the internet, “under development”, “unknown” or “TBC” has been indicated in the Tool Exploration Matrix.

For some of the identified tools, downloadable information was not available on the internet. In this case, the Tool Exploration Matrix indicates the website where the information may be viewed.

5 OBSERVATIONS : TOOLS

A range of tools potentially relevant to the development of the Green Star Communities tool was explored. Each tool has been developed for a specific user group and, accordingly, addresses a select range of sustainability criteria. These tools range from holistic tools that address the broad spectrum of sustainability issues to single-purpose tools that address energy efficiency only. Observations on each of the tools are as follows :

Adaptation Wizard, UK Climate Impacts Programme

This is a web-based framework consisting of a five step process that helps organisations to assess their vulnerability to current climate and future climate change, identify options to address their key climate risks, and help them to develop a climate change adaptation strategy.

AGIC Rating Tool, Australian Green Infrastructure Council

This tool, currently under development, assesses the sustainability attributes of infrastructure projects, such as roads, rail, bridges, tunnels, distribution grids and water infrastructure.

ASPIRE, Arup International & Engineers against Poverty

This software based tool is an integrated planning, monitoring and evaluation tool for appraising the sustainability and poverty reduction performance of infrastructure projects. The tool can be used internationally, but there is no evidence of its use in Australia as yet.

Green Mark for Districts, Building & Construction Authority (BCA), Singapore

This is a benchmarking scheme for precincts that incorporates internationally recognised best practices in environmental design and performance.

BioCity Health Index, McGregor + Coxall, NSW

This tool, currently under development, assesses the sustainability attributes of a city and allocates a corresponding number and ranking for comparative purposes. Note that it is an index of cities, and not developments within them, though the principles can be applied to developments.

BREEAM Communities, Building Research Establishment, UK

This is a voluntary environmental assessment method for communities that sets the standard for best practice in sustainable design.

CASBEE for Urban Area + Buildings, Japan GreenBuild Council & Japan Sustainable Building Consortium

Used in conjunction with the CASBEE Urban Development tool, this is an environmental performance assessment tool for urban developments comprising groups of buildings (or single buildings on a site of high community importance) and including the assessment of the buildings themselves.

CASBEE for Urban Development, Japan Sustainable Building Consortium

This is an environmental performance assessment tool for urban developments comprising groups of buildings. The buildings themselves are not assessed.

CRISP Framework, EC-funded Thematic Network, 5th Framework Programme

This is a database comprising forty systems of urban-scale European sustainability indicators that can be used by planners, building firms and developers.

DPSIR, United Nations Environment Program

This is a general framework for organising information and reporting about state of the environment.

East Lake Planning Tool – Integrated Sustainability Assessment Platform, CSIRO & ACT Planning & Land Authority, ACT

This tool, currently under development, assesses the sustainability impacts of an urban domain, particularly, health, water, transport and energy.

Ecological Footprint Model, South Australian Land Management Corporation (LMC)

Information about this tool was unable to be found on the LMC website or related internet sites. Whilst there were references to calculating the ecological footprint of the Lochiel Park project, there was no mention of an LMC-specific tool or methodology. It is most likely a tool used internally at LMC for its developments. It was included in the Matrix as more information about this tool may become available in the future.

EnviroDevelopment, Urban Development Institute of Australia QLD

This is a branding system designed to make it easier for purchasers to recognise and select more environmentally sustainable homes.

EPRA Sustainability Assessment Tool, East Perth Redevelopment Authority & GHD, WA

This tool is used internally by EPRA to assess the sustainability impacts of its developments.

EQUER, Mines Paris Tech, Centre for Energy & Processes

This is a life cycle simulation software tool.

Estidama Pearl Community Rating System, Abu Dhabi Urban Planning Council

This is a framework for the sustainable design, construction and operation of communities. The scheme provides a set of measurable guidelines for rating the sustainability performance of communities and requires accountability of the operational phase of a development to verify performance.

European Urban Audit, EU Initiative

This is an index corresponding to a database of two hundred and fifty indicators for European cities across eight domains.

Green Globe Precinct Planning and Design Standard, Green Globe International

This framework, designed for hotel and eco-resort type developments in the early stages of planning and design of precincts, buildings and associated infrastructure, makes it possible to track and record progress towards sustainability goals.

Green Plan, City of Guelph, Canada

This plan consists of a set of environmental challenges, goals and objectives and a process for evaluating and implementing the recommendations.

GreenPrint, Building Research Establishment, UK

The GreenPrint methodology has been developed to assist design teams in delivering masterplans that maximise the potential for sustainable communities. The framework sets out logical sustainability objectives and benchmarks for eight key sustainability areas and a target rating is achieved.

Integrated Model for Urban Sustainability, University of South Australia

This Model, currently under development, will be a framework to assess sustainability risks to sustainable urban development at a small area level, and to prioritise action for responding to issues of concern. Further information or details about this tool was unable to be found on the internet. It was included in the Matrix as more information about this tool may become available in the future.

Integrated Resources Management (IRM) tool, Arup International

This is a systems analysis tool that adopts a Life Cycle Assessment (LCA) approach and applies this to regional or town/city masterplans, or at the project-specific development level. The tool can be used internationally, but there is no evidence of its use in Australia as yet.

LEED for Neighborhood Development, United States Green Building Council

This rating system integrates the principles of smart growth, urbanism and green building into neighborhood design. Certification provides independent, third-party verification that a development's location and design meet accepted high levels of environmentally responsible, sustainable development.

Liveable Neighbourhoods, Department of Planning & Infrastructure, WA

Liveable Neighbourhoods operates as a development control policy, or code, to facilitate the development of sustainable communities. This tool consists of a set of objectives and requirements for eight sustainability elements and facilitates the design and assessment of the sustainability attributes of structure plans, subdivisions, and urban developments.

Local Area Envisioning & Sustainability Support system (LESS), Hassell

This is a weighted index tool that indicates the state of "health" of four aspects of local government areas: environment, socio-economic, infrastructure and governance. The tool is under development and due for launch in 2010. Further information or details about this tool was unable to be found on the internet. It was included in the Matrix as more information about this tool may become available in the future.

Manchester Guide to Development, Manchester City Council, UK

This is a framework consisting of a set of principles which aims to guide developers, designers and residents in the creation of sustainable communities.

Neighbourhood Sustainability Framework, Beacon Pathway, NZ

This is a framework consisting of two tools (Observational and Resident Self-Report) for people and organisations aiming to improve the sustainability of the neighbourhoods that they are planning, retrofitting and managing. The Observational Tool assesses the buildings and structures of the neighbourhood through observed and measured

data and determines whether the identified pre-requisites fundamental to good neighbourhood outcomes have been met. The Resident Self-Report Tool assesses what the residents think of the neighbourhood through a survey process.

PLACE3S, California Energy Commission, Oregon Dept. Energy, Washington State Energy Office, USA

This is a planning approach and a geographic information systems (GIS)-based analytical tool to support community land use and transportation planning.

PlanSmart NJ, New Jersey, USA

This is a range of assessment tools and calculators aimed at creating sustainable communities, including calculators for greenhouse gas emissions, workforce housing, commuting distances, impervious cover, open space opportunities etc.

Precinx, Landcom, NSW

This is a mathematical diagnostic tool that aims to assist developers plan and design sustainable communities by modelling key environmental, economic and social indicators.

Sustainable Design Scorecard (SDS), City of Port Phillip, VIC

This is a tool for assessing the environmental impact of non residential buildings, particularly commercial, industrial and retail buildings.

Smart Growth Assessment Tool (SGAT), City of Wanneroo, WA

It does not appear that this tool is in operation. However SGAT strategy and policy is. The policy consists of four goals covering environmental sustainability, healthy communities, economic development and corporate management and development, and fifty two strategies to achieve these goals.

Star Community Index, ICLEI, U.S. Green Building Council, Center for American Progress

This is a national, voluntary consensus-based framework for gauging the sustainability and liveability of communities.

Sustainable Tools for Environmental Performance Strategy (STEPS), Moreland City Council, VIC

This is a web-based tool for assessing the environmental impact of residential buildings.

Subdivision Energy Analysis Tool (SEAT), California Energy Commission

This software tool, currently under development, enables the user to optimise solar access by providing feedback on energy impacts as the user develops or modifies street layout designs.

SUE-MoT, Dundee, Glasgow Caledonian, Loughborough & St. Andrews Universities consortium

This tool, currently under development, will be a web-enabled framework that assesses the sustainability of urban developments. The tool will be the final stage of a study into Metrics, Models and Toolkits for Whole Life Sustainable Urban Development. The first stage of the tool development, a comprehensive literature review on urban development tools, has been undertaken.

Sustainability Checklist, Department of Planning WA

The Sustainability Checklist was released for “public comment” as a first step in the development of a Sustainability Scorecard. As there is no further information available on the website it is unclear as to whether this Checklist or Scorecard is in active use. It was included in the Matrix as more information about this tool may become available in the future.

Sustainability Management System, Department of Planning WA

The Department of Planning & Infrastructure WA is now the Department of Planning WA. Information about this tool was unable to be found on the website or other internet sites. There was however mention of a Sustainability Checklist (outlined above). It was included in the Matrix as more information about this tool may become available in the future.

Sustainability Modelling Framework (SMF), South Australian Land Management Corporation

Information about this tool was unable to be found on the website or other internet sites. Whilst there were references, there was no mention of an LMC-specific tool or modelling framework. It is most likely a tool used

internally at LMC for its developments. It was included in the Matrix as more information about this tool may become available in the future.

Sustainable Community Rating, VicUrban, VIC

This scheme, consisting of three tools (for Master Planned, Urban Renewal and Provincial Communities) provides a common language to assist developers in the planning and delivery of sustainability in new residential communities.

Sustainable Project Appraisal Routine (SPeAR), Arup International

This is a methodology framework to assess the sustainability of projects, products or an organisation.

Sustainable Sites Initiative, American Society of Landscape Architects, Lady Bird Johnson Wildflower Center (University of Texas, Austin) and the United States Botanic Garden

This is a voluntary national rating tool for the design, construction and maintenance of sustainable landscapes.

Sustainable Systems Integrated Model (SSIM), EDAW AECOM

This is an assessment tool with an integrated whole- systems approach aimed at creating sustainable communities. The tool can be used internationally, but there is no evidence of its use in Australia as yet.

Sustainable Urban Landscapes – Site Design Manual for BC Communities, University of British Columbia

This tool consists of voluntary good practice development and engineering standards for the design of new (and for the retrofit of existing) communities.

System for Planning in Towns & Cities for Urban Sustainability (SPARTACUS), EC, 4th Framework Programme

This is a strategic urban planning system based on a land use / transport model combined with a set of urban sustainability indicators. The “USE-IT” module is used for evaluating the results of policy options based on weighted indicator values representing social, environmental and economic effects of the policies.

The Singapore Index on Cities’ Biodiversity (CBI), Convention on Biological Diversity

This is an index of a city’s biodiversity comprising an evaluation tool that benchmarks the city’s environmental stewardship and biodiversity.

Tool for Urban Sustainability – Neighbourhood Tool, Waitakere City Council, New Zealand

This is a web-enabled design and analysis tool for assessing the sustainability of neighbourhoods.

Urban IT model, City Futures Research Centre, Australian Institute of Landscape Architects

This is a research project using Building Information Modelling (BIM) software. GIS and 3D visualisation modelling will be linked together to create a planning tool, which is currently under development.

ZEN Precinct Greenhouse Gas Calculation Tool, Sustainability Victoria

This tool, currently under development, assesses the environmental impacts of a neighbourhood. In particular energy, water, waste and transport.

There are seven “tools” listed in Appendix A that were not included in the Tool Exploration Matrix as they are considered to be initiatives and programmes, not assessment tools or guidelines. Furthermore, it was not possible to assess these “tools” against the five principles outlined in the Green Building Council of Australia’s Draft National Framework for Green Star Communities. These initiatives include:

- **Bristol Development Framework, Bristol City Council, UK**

This is a suite of planning documents to guide development decisions in the city of Bristol over a 20-year period. <http://www.bristol.gov.uk/ccm/navigation/environment-and-planning/planning/local-development-framework/>

- **Climate Adaptation Tools for Sustainable Settlements (CATSS), Australian Institute of Landscape Architects**

This is a one year project (reporting in June 2010) to undertake a preliminary review of Australian and international examples of climate adaptation tools and strategies for responding to the impacts of climate change in the context of cities and their urban environments.

<http://www.aiala.org.au/climate/catss/>

- **HIA Greensmart, Housing Industry Association**

This is a voluntary industry-driven initiative that aims to provide market recognition for environmental endeavours by assessing the credentials of builders and other professionals constructing and delivering environmental homes.

<http://hia.com.au/hia/channel/builder/region/national/classification/greensmart.aspx>

- **Local Climate Change Visioning Project, Collaborative for Advanced Landscape Planning, University of British Columbia, Vancouver, Canada**

This is a research project consisting of the development of a 3D climate change visualisation tool that aims to assist local decision-making.

<http://www.calp.forestry.ubc.ca/projects/local-climate-change-visioning-tools-and-process-for-community-decision-making/>

- **Programme Landscaping for Urban Projects & High Schools (LUSH), Singapore Building & Construction Authority**

Information about this programme was not found on the Singapore Building & Construction Authority website. There is however a “LUSH programme – Landscaping for Urban Spaces and High Rises” undertaken by the Singapore Urban Redevelopment Authority. This is a programme of initiatives to enhance Singapore’s distinct identity as a tropical City-in-a-Garden and to benefit the environment by mitigating the urban island heat effect and improving air quality.

<http://www.urc.gov.sg/circulars/text/lushprogramme.htm>

- **Sustainable City Program of Vancouver, City of Vancouver, Canada**

This is a programme of sustainability initiatives being implemented by the City of Vancouver.

<http://vancouver.ca/sustainability/>

- **United Nations Environment Programme (UNEP) Yearbook**

This document presents work in progress on scientific understanding of global environmental change, as well as foresight about possible issues on the horizon.

<http://www.unep.org/yearbook/2010/>

APPENDIX A – LIST OF TOOLS CONSIDERED

The national and international urban development sustainability assessment tools that were considered as part of this study are listed below :

List 1

Australian – existing:

- Envirodevelopment (Urban Development Institute of Australia, QLD.)
- HIA Greensmart (Housing Industry Association)
- Liveable Neighbourhoods (Department of Planning & Infrastructure, WA)
- SDS Sustainable Design Scorecard (City of Port Phillip, VIC)
- Smart Growth Assessment Tool (City of Waneroo, WA)
- STEPS Sustainable Tools for Environmental Performance Strategy (Moreland City Council, VIC)

Australian – under development:

- AGIC Sustainability Rating Tool for Infrastructure (Australian Green Infrastructure Council)
- BioCity Health Index (McGregor Coxall, NSW)
- East Lake Planning Tool – Integrated Sustainability Assessment Platform (CSIRO & ACT Planning & Land Authority, ACT)
- EPRA Sustainability Assessment Tool (East Perth Redevelopment Authority & GHD, WA)
- Ecological Footprint Model (South Australian Land Management Corporation)
- GBCA Green Star Communities Framework tool (Green Building Council of Australia & VicURBAN, VIC)
- Integrated Model for Urban Sustainability (University of South Australia)
- LESS Local Area Envisioning & Sustainability Support system (HASSELL)
- PRECINX project (Landcom, NSW)
- Sustainability Modelling Framework SMF (South Australian Land Management Corporation)
- Sustainable Community Rating Tools (VicURBAN)
- Sustainability Management System (Department of Planning & Infrastructure WA)
- Urban IT model (City Futures Research Centre) Australian Institute of Landscape Architects

International – existing:

- Adaptation Wizard (UK Climate Impacts Programme)
- ASPIRE (Arup International & Engineers against Poverty)
- BREEAM Communities (BRE Global UK)
- BREEAM (BRE Global UK)
- CASBEE UD (Japan Sustainable Building Council)
- CASBEE UD+ (Japan Sustainable Building Council)
- CRISP Framework (EC Thematic Network)
- DPSIR (United Nations Environment Program)
- EQUER (Centre for Energy & Processes, France)
- European Urban Audit (EU Initiative)
- Green Plan (City of Guelph)
- GreenPrint (BRE, UK)
- IRM Integrated Resources Management tool (Arup International)
- LEED ND (Green Building Council, USA)
- Manchester Guide to Development (Manchester City Council, UK)
- Neighbourhood Sustainability Framework (Beacon Pathway, NZ)
- PLACE3S (California, Oregon & Washington State Energy Commissions, USA)
- PlanSmart NJ (New Jersey, USA)
- PPDS Precinct Planning & Design Standard (Green Globe, Earthcheck)
- SPARTACUS System for Planning in Towns & Cities for Urban Sustainability (European Commission consortium)
- SPeAR Sustainable Project Appraisal Routine (Arup International)
- SSIM Sustainable Systems Integrated Model (EDAW AECOM)
- Sustainable City Program of Vancouver (City of Vancouver, Canada)

- Sustainable Sites Initiative (Green Building Council & Partners, USA)
- Sustainable Urban Landscapes – Site Design Manual for BC Communities (University of British Columbia)
- TUSC Tools for Urban Sustainability Code of Practice (Synergine & Waitakere City Council, NZ)
- UNEP Yearbook (United Nations Environment Programme) Australian Institute of Landscape Architects Climate Adaptation Tools for Sustainable Settlements (CATSS)

International – under development:

- BCA Green Mark for Parks (Singapore Building & Construction Authority)
- Bristol Development Framework (Bristol City Council)
- Local Climate Change Visioning Project (Centre for Advanced Landscape Planning, Vancouver, Canada)
- LUSH Programme Landscaping for Urban Projects & High Schools (Singapore Building & Construction Authority)
- Singapore Index on Cities' Biodiversity CBI (Singapore National Parks Board)
- SEAT Subdivision Energy Analysis Tool (California Energy Commission PIER Programme)
- SUE-MoT (Dundee, Glasgow, Caledonian, Loughborough & St. Andrews Universities consortium)

Source List 1 : Review undertaken by the Australian Institute of Landscape Architects (AILA) of international and Australian climate adaptation tools that deal with strategies for adapting to climate change in urban centres. This Review was undertaken in consultation with the International Federation of Landscape Architects and the CSIRO, and received funding from the Commonwealth Department of Climate Change and Energy Efficiency. Published on the 5th Estate website on the 21st May 2010.

List 2

International neighbourhood-scale SAMs (Sustainability Assessment Methodology) include:

- LEED for Neighbourhood Development (Green Building Council, USA)
- GreenPrint (BRE, United Kingdom)
- Sustainable Project Appraisal Routine (SPeAR) (Arup International)
- Neighbourhood Sustainability Framework (Beacon Pathway, New Zealand)
- Tools for Urban Sustainability: Code of Practice (TUSC) (Synergine and Waitakere City Council, New Zealand)

Australian neighbourhood-scale SAMs in pilot phase or use include:

- EnviroDevelopment (UDIA)
- Sustainable Community Rating (VicUrban)
- Smart Growth Assessment Tool (City of Waneroo, WA)
- Precinct Planning and Design Standard (University of Queensland)
- BASIX (NSW Government)

Australian neighbourhood-scale SAMs currently under development or being planned for development include:

- East Lake urban planning assessment rating tool (ACT)
- Sustainability Management System (WA)
- Landcom tool (NSW)
- Land Management Corporation ecological footprint model (SA)
- East Perth Redevelopment Authority Sustainability Assessment tool (WA)
- Green Building Council of Australia neighbourhood-scale tool

Source List 2: A scoping study on national sustainability assessment methodology for urban development prepared for the Department of the Environment, Water, Heritage and the Arts by the Institute for Sustainable Futures in 2008.

APPENDIX B – TOOL EXPLORATION MATRIX

Tool Name	Tool Owner	Web Link	Tool Used in Australia	Tool Used Overseas	Tool Publically Available	Addresses Liveability	Addresses Economic Prosperity	Addresses Environmental Quality	Addresses Place Making	Addresses Governance
Adaptation Wizard	UK Climate Impacts Programme	http://www.ukcip.org.uk/index.php?id=147&option=com_content&task=view	N	Y	Y	N	N	Y	N	N
AGIC Rating Tool	Australian Green Infrastructure Council	http://www.agic.net.au/AGICscheme.htm	under development	N	N	N	Y	Y	Y	Y
ASPIRE	Arup International & Engineers against Poverty	http://www.engineersagainstopoverty.org/major_initiatives/aspire.cfm http://www.arup.com/Services/International_development.aspx http://www.oasys-software.com/products/sustainability/aspire/	unknown	Y	Y	Y	Y	Y	Y	Y
BCA Green Mark for Districts	Building & Construction Authority, Singapore	http://www.bca.gov.sg/GreenMark/green_mark_buildings.html	N	Y	Y	Y	N	Y	Y	N
BioCity Health Index	McGregor + Coxall, NSW	http://biocitystudio.com/ http://biocitystudio.com/the-concept/biocity-health-index/	under development	under development	N	Y	Y	Y	Y	Y
BREEAM Communities	Building Research Establishment, UK	http://www.breeam.org/ http://www.breeam.org/communities	N	Y	Y	Y	Y	Y	Y	Y
CASBEE for Urban Area + Buildings	Japan GreenBuild Council, Japan Sustainable Building Consortium	http://www.ibec.or.jp/CASBEE/english/index.htm	N	Y	Y	N	N	Y	Y	N
CASBEE for Urban Development	Japan Sustainable Building Consortium	http://www.ibec.or.jp/CASBEE/english/index.htm	N	Y	Y	N	N	Y	Y	N
CRISP Framework	EC-funded Thematic Network, 5th Framework Programme	http://crisp.cstb.fr/ http://ec.europa.eu/research/environment/print.cfm?file=/comm/research/environment/newsanddoc/article_1703_en.htm	N	Y	Y	Y	Y	Y	Y	Y
DPSIR	United Nations Environment Program	http://www.unep.org/ http://maps.grida.no/go/graphic/the_dpsir_framework	Y	Y	Y	N	N	Y	N	N
East Lake Planning Tool – Integrated Sustainability Assessment Platform	CSIRO & ACT Planning & Land Authority, ACT	http://www.csiro.au/science/Integrated-Assessment.html http://www.actpla.act.gov.au/topics/significant_projects/planning_studies/eastlake_urban_renewal	under development	N	N	Y	N	Y	N	N
Ecological Footprint Model	South Australian Land Management Corporation	http://www.lmc.sa.gov.au	unknown	N	N	unknown	unknown	unknown	unknown	unknown
EnviroDevelopment	Urban Development Institute of Australia, QLD	http://www.envirodevelopment.com.au	Y	N	Y	Y	N	Y	Y	Y
EPRA Sustainability Assessment Tool	East Perth Redevelopment Authority & GHD, WA	http://www.epra.wa.gov.au/ http://www.ghd.com/enews/sustainability/oct06/print.htm#project3	Y	N	N	Y	Y	Y	Y	Y
EQUER	Mines Paris Tech, Centre for Energy & Processes	http://www.cenerg.enscm.fr/english/logiciel/cycle/html/15log.html	N	Y	Y	N	N	Y	N	N
Estidama Pearl Community Rating System	Abu Dhabi Urban Planning Council (UPC)	http://www.estidama.org/	N	Y	Y	Y	Y	Y	Y	Y
European Urban Audit	EU Initiative	http://www.urbanaudit.org/ http://ec.europa.eu/regional_policy/conferences/urbanaudit2008/index_en.htm	N	Y	Y	Y	Y	Y	N	N

Tool Name	Tool Owner	Web Link	Tool Used in Australia	Tool Used Overseas	Tool Publically Available	Addresses Liveability	Addresses Economic Prosperity	Addresses Environmental Quality	Addresses Place Making	Addresses Governance
Green Globe Precinct Planning and Design Standard	Green Globe International	http://www.greenglobe.org/ http://www.greenglobeint.com/standards/precinct/ http://www.greenglobecertification.com/ http://www.earthcheck.org/ http://www.ec3global.com/	Y	Y	N	Y	Y	Y	Y	Y
Green Plan	City of Guelph, Canada	http://guelph.ca/living.cfm?smocid=1948	N	Y	Y	Y	N	Y	N	Y
GreenPrint	Building Research Establishment, UK	http://www.bre.co.uk/page.jsp?id=1290	N	Y	Y	Y	Y	Y	Y	N
Integrated Model for Urban Sustainability	University of South Australia	http://www.unisa.edu.au/isst/Research/featuredproject/ARC/linkage.asp http://www.sapo.org.au/project/project645.html	under development	N	N	unknown	unknown	unknown	unknown	unknown
Integrated Resources Management (IRM) tool	ARUP International	http://www.arup.com http://www.sustainabilityatwork.org.uk/casestudies/view/36	unknown	Y	N	N	Y	Y	N	N
LEED for Neighborhood Development	United States Green Building Council	http://www.usgbc.org http://www.usgbc.org/DisplayPage.aspx?CMSPageID=148 https://www.leedonline.com http://www.gbci.org	N	Y	Y	Y	N	Y	Y	Y
Liveable Neighbourhoods	Department of Planning & Infrastructure, WA	http://www.planning.wa.gov.au	Y	N	Y	Y	Y	Y	Y	N
Local Area Envisioning & Sustainability Support system (LESS)	Hassell	http://www.hassell.com.au/	under development	N	N	unknown	unknown	unknown	unknown	unknown
Manchester Guide to Development	Manchester City Council, UK	http://www.manchester.gov.uk/info/856/local_development_framework/1528/the_guide_to_development_in_manchester/1	N	Y	Y	Y	Y	Y	Y	Y
Neighbourhood Sustainability Framework	Beacon Pathway, NZ	http://www.beaconpathway.co.nz/neighbourhoods/article/the_neighbourhood_sustainability_framework	N	Y	Y	Y	Y	Y	Y	Y
PLACE3S	California Energy Commission, Oregon Dept. Energy, Washington State Energy Office, USA	http://www.places.energy.ca.gov/places/ http://www.smartcommunities.ncat.org/articles/place3s.shtml http://www.sacog.org/services/I-PLACE3S/	N	Y	Y	Y	Y	Y	Y	N
PlanSmart NJ	New Jersey, USA	http://www.plansmartnj.org/services.html	N	Y	N	Y	Y	Y	Y	N
Precinx	Landcom, NSW	http://www.landcom.com.au	Y	N	N	Y	N	Y	N	N
SDS Sustainable Design Scorecard	City of Port Phillip, VIC	http://www.portphillip.vic.gov.au/sds	Y	N	Y	N	N	Y	N	N
Smart Growth Assessment Tool	City of Wanneroo, WA	http://www.wanneroo.wa.gov.au	unknown	N	N	Y	Y	Y	Y	Y
Star Community Index	ICLEI, U.S. Green Building Council, Center for American Progress	http://www.icleiusa.org/star	N	Y	N	Y	Y	Y	Y	Y
STEPS - Sustainable Tools for Environmental Performance Strategy	Moreland City Council, VIC	http://www.morelandsteps.com.au/	Y	N	Y	N	N	Y	N	N
Subdivision Energy Analysis Tool (SEAT)	California Energy Commission	http://www.energy.ca.gov/research/seat/index.html	N	Y	N	N	N	Y	N	N
SUE-MoT	Dundee, Glasgow Caledonian, Loughborough & St. Andrews Universities consortium	http://www.sue-mot.org/	N	under development	N	unknown	unknown	unknown	unknown	TBC

Tool Name	Tool Owner	Web Link	Tool Used in Australia	Tool Used Overseas	Tool Publically Available	Addresses Liveability	Addresses Economic Prosperity	Addresses Environmental Quality	Addresses Place Making	Addresses Governance
Sustainability Checklist	Department of Planning WA	http://www.planning.wa.gov.au/	unknown	N	Y	Y	Y	Y	Y	Y
Sustainability Management System	Department of Planning WA	http://www.planning.wa.gov.au/	unknown	N	N	unknown	unknown	unknown	unknown	unknown
Sustainability Modelling Framework (SMF)	South Australian Land Management Corporation	http://www.lmc.sa.gov.au	unknown	N	N	unknown	unknown	unknown	unknown	unknown
Sustainable Community Rating	VicUrban, VIC	http://www.vicurban.com.au http://www.sustainablecommunityrating.com	Y	N	Y	Y	Y	Y	Y	Y
Sustainable Project Appraisal Routine (SPeAR)	ARUP International	http://www.arup.com/Services/Sustainability_Consulting.aspx	Y	Y	N	Y	Y	Y	Y	Y
Sustainable Sites Initiative	American Society of Landscape Architects, Lady Bird Johnson Wildflower Center (University of Texas, Austin) and the United States Botanic Garden	http://www.sustainablesites.org/	N	Y	Y	Y	Y	Y	Y	Y
Sustainable Systems Integrated Model (SSIM)	EDAW AECOM	http://www.aecom.com/What+We+Do/Economics/Sustainability	unknown	Y	N	Y	Y	Y	Y	N
Sustainable Urban Landscapes – Site Design Manual for BC Communities	University of British Columbia	http://www.jtc.sala.ubc.ca/projects/DesignManual.html	N	Y	Y	Y	Y	Y	Y	Y
System for Planning in Towns & Cities for Urban Sustainability (SPARTACUS)	EC, 4th Framework Programme	http://www.fhwa.dot.gov/planning/toolbox/spartacus_overview.htm	N	Y	N	Y	Y	Y	N	N
The Singapore Index on Cities' Biodiversity (CBI)	Convention on Biological Diversity	http://www.cbd.int/authorities/gettinginvolved/cbi.shtml	unknown	Y	Y	N	N	Y	N	N
Tool for Urban Sustainability – Neighbourhood Tool	Waitakere City Council , New Zealand	http://tusc.synergine.com http://www.waitakere.govt.nz	N	Y	N	N	N	Y	N	N
Urban IT model	City Futures Research Centre, Australian Institute of Landscape Architects	http://www.fbe.unsw.edu.au/cf/research/cityfuturesprojects/urbanit/ http://www.aila.org.au	under development	N	N	unknown	unknown	unknown	unknown	unknown
ZEN Precinct Greenhouse Gas Calculation Tool	Sustainability Victoria	http://www.resourcesmart.vic.gov.au/zen http://www.sustainability.vic.gov.au	Y	N	N	N	N	Y	N	N