2

The conceptual basis: developing a framework for sustainability

> EVOLUTION OF SUSTAINABILITY

In 1987 the Prime Minister of Norway, Gro Harlem Brundtland, launched the book *Our Common Future* that effectively began the era of sustainability. Prime Minister Brundtland chaired the United Nation's World Commission on Environment and Development ('the Brundtland Commission') which had worked for two years to try and resolve a major problem in global politics: the apparent conflict between the environment and development.

> *Sustainability as a proposed solution was necessarily an attack on conventional thinking and practice, though not in all interpretations a radical attack. It recognised that it would eventually be suicidal to allow a further undermining of ecological life support systems, locally and globally. But at the same time it demanded development - not just to eliminate destitution and ensure material security but also to allow individuals and communities more choices and more power to exert greater control over the factors affecting their lives. Together these demanded development with sustainability - development pursued in ways that would protect resources and ecological integrity over the long term while greatly improving human well-being, especially among the poor.*
>
> RB Gibson[3]

Ecologists around the world had been warning from the 1960's that the earth had reached certain limits:

- human-induced climate change seemed certain as the atmosphere had increased its CO_2 concentration by 28% and certain new chemicals (CFCs) were threatening the ozone layer
- deforestation and land degradation from overgrazing and overcropping were spreading rapidly
- fresh water supplies and groundwater were being depleted and polluted
- human beings across the globe had toxic chemicals in their tissues
- the continued loss of species and threats to important ecosystems was everywhere apparent.

Scientific evidence on the problems was mounting and scientists began to speak out. Ecologists warned that population growth must stop and further economic growth must be prevented as it was driving problems like those listed above. At the same time those in developing countries, faced with continued poverty and deprivation, did not share the ecologists' viewpoint. For them development was essential: they needed food, clean water and shelter. The one billion people living in poverty had a strong case for economic development.

The Brundtland Commission concluded that there ought to be development but it must now be different: it must be *sustainable* development. Development needed to be more directed to meeting the needs of the poor in a way that no longer causes environmental problems but helped to solve them. In other words development must meet the needs of current and future generations through simultaneous social, environmental and economic improvement of the human-ecological system. This would not happen quickly as the world's economy was built around short-term gains that did take into account these long-term issues (see Box 2).

[3] RB Gibson, *Specification of Sustainability-Based Environmental Assessment Decision Criteria and Implications for Determining 'Significance' in Environmental Assessment*, 2001, p. 9, viewed 5 August 2002, <http://www.sustreport.org/downloads/Sustainability,EA.doc>

BOX 2 THE GLOBAL NEED FOR SUSTAINABLE DEVELOPMENT: TIME TO RE-EXAMINE THE FUTURE

Emeritus Professor Ian Lowe is working with the Environmental Protection Authority to prepare a position paper, entitled *Towards Sustainability*, from the perspective of the Environmental Protection Authority. A section in the position paper will highlight global environmental issues.

- Nearly 50% of the earth's land surface has been transformed for human activity.
- More than half of the earth's accessible fresh water is now being used, directly or indirectly.
- More nitrogen is being fixed synthetically in fertiliser than naturally.
- More than half of all mangroves and coastal wetlands are lost.
- The rate of species extinction is between 1,000 and 10,000 times what it would be naturally.
- In the second half of the twentieth century the human population doubled but grain production trebled, energy use quadrupled and economic activity quintupled.
- Although the world economy has grown from US$5 trillion over the last 50 years, the number of people who live on US$1-2 a day is projected to increase from two to four billion within the next 25 years.
- Global oil production is nearing its peak with nine barrels consumed for each one discovered.
- The global atmosphere has increased in greenhouse gases by 28% over the past 130 years and has reached a point where noticeable and sustained climate change is now occurring.
- The global loss of land to salinity and other land degradation is around 12 million hectares per year, about the size of the Wheatbelt.

I Lowe. *Towards Sustainability*, 2002, unpublished.

The United Nations began a long-term project to make the global economy more sustainable. The United Nations Conference on Environment and Development was held in 1992 in Rio de Janeiro, Brazil, to coincide with the 20th anniversary of the first international Conference on the Human Environment in Stockholm. A detailed program of action for the 21st century, *Agenda 21* was agreed at the Rio Conference. Negotiations on an international agreement on climate change commenced at this conference (which led to the Kyoto Convention) and agreements on forestry and biodiversity were initiated.

Australia responded to the global call for sustainability by developing the *National Strategy for Ecologically Sustainable Development* (ESD) between 1989 and 1991. Twelve working groups examined every aspect of the Australian economy in terms of the new ESD principles. Little immediate action was taken on these reports, though the ideas developed began to spread as state and local government started to take the concept seriously. The 1996 and 2001 Australian State of the Environment Reports also contain many ideas on how sustainability can be addressed in Australia.

The global sustainability process continues to evolve and expand. The World Summit on Sustainable Development convened from 26 August to 4 September 2002 in Johannesburg. At this time the nations of the world reported on progress towards sustainability. At the same time hundreds of non-government organisations and business groups shared information and assessed progress. For example, the World Business Council on Sustainable Development (including the Minerals, Mining and Sustainable Development process) reported on how companies are responding to sustainability. Thousands of local governments reported on how they have implemented Local Agenda 21 and the Cities for Climate Protection Program.

Western Australian Governments have considered sustainability over the past decade but the Labor Government was elected with a strong set of commitments to produce a sustainability strategy across the whole of government.

Box 3 demonstrates why Western Australian must pursue a sustainable future.

BOX 3 THE WESTERN AUSTRALIAN SITUATION

Examples of Western Australia's significant environmental and social issues include:

- 4.4 million hectares are affected by salinity or at risk of further salinisation and this could double over the next 50 years
- rainfall runoff in the South West of Western Australia has reduced by 50% over the past 25 years partly due to greenhouse induced climate change
- salinity and overgrazing threaten about one quarter of endangered plant species
- South West Western Australia ranks twelfth out of the world's 25 most significant biodiversity 'hotspots'
- Western Australians, consume a lot of resources especially water, land and transport energy
- health and social indicators reveal high levels of deprivation in Indigenous communities
- the population and economies of many rural communities and parts of Perth are in decline with consequent social and environmental problems

What sustainability means

In this draft Strategy, sustainability is defined as *meeting the needs of current and future generations through simultaneous environmental, social, and economic improvement.* [4]

The definition of sustainability, interpreted literally, is very challenging. It implies that an activity that only meets two of the factors simultaneously (say economic and social but 'trades off' the environment) is ultimately not sustainable.

Sustainability is sometimes described as the 'triple bottom line', to reflect the importance of environmental, social and economic factors in decision-making. However, the definition proposed here goes beyond the triple bottom line through emphasising the importance of integration between these factors and achieving them simultaneously. The draft Strategy demonstrates where this is occurring already and identifies opportunities to support the transition to a more sustainable future through strategic action in 42 priority areas.

There is considerable discussion about the meaning of sustainability, particularly in academic and professional circles. Pezzoli[5] has found ten types of definition on sustainability in four key areas of concern. For many, the difficulty in pinning down a precise meaning is reason enough for them to consider that the concept has no relevance.

Such dismissal misses the point. The concept has not come from academia or the professions, it has come from global politics as a way of asking the world to resolve a fundamental tension that has developed between environmental, social and economic improvement. The resolution of this tension is the challenge for sustainability.

The concept of sustainability is simple but implementation is difficult. New Zealand academic Professor John Peet[6] described the problem of ascribing meaning to sustainability as similar to trying to analyse the meaning of love or hope. These words, he says, are dialectical; they become meaningful mostly when applied. Sustainability is fundamentally a 'fuzzy' concept when analysed by itself. It begins to make sense when it is applied to specific issues, such as land management, energy, settlements, projects or specific communities.

This strategy seeks to give sustainability meaning for Western Australia: its regions, its issues, its projects, its communities. It accepts that there are tensions between economic, environmental and social goals and seeks to resolve them through finding mutual benefit.

Character of the strategy

When the United Nations World Commission on Environment and Development defined sustainability in 1987 the world was facing a major environmental dilemma. The debate was largely about resolving how development could be environmentally responsible. Although the debate also considered how development could be socially responsible, the environment was the overwhelming focus for government and industry in the 1990s.

[4] This is a different definition than that proposed in the consultation paper for the State Sustainability Strategy. That definition included reference to simultaneously meeting social, environmental and economic *goals* and did not refer to *needs*. The current definition responds to the views expressed in many written submissions which suggested that the definition of sustainability must include the notion of genuine need and that the use of the word goals made the definition unnecessarily ambiguous.

[5] K Pezzoli, *Sustainable development: a transdisciplinary overview of the literature*, 1996, Paper at joint international congress of Collegiate Schools of Planning and the Association of the European Schools of Planning, Toronto, July.

[6] J Peet, Sustainable Auckland Conference, 2001. Auckland Regional Council, Auckland, September.

Many submissions acknowledged the need for more integrated approaches, suggesting that the greatest need is to find out how to integrate social needs and processes into sustainability.

Significant attention and progress has been made in resolving the dilemma between environmental protection and development. Techniques have been developed like environmental assessment, eco-efficiency, green procurement, zoning land for environmental purposes, renewable energy facilitation and regulation of pollution. Much less progress has been made on resolving the social aspects of development.

The State Sustainability Strategy attempts to incorporate the social dimension into sustainability by demonstrating that it is possible to create a stronger economy and a healthier environment by more fully integrating the social dimension. It suggests that by thinking differently and more inclusively, the 'deep clues' as to how to resolve fundamental environmental and economic conflicts can be discovered. The solutions are not to be found only in environmental science and engineering, but in the social sciences, humanities and business.

A number of submissions suggested the sustainability consultation document did not sufficiently emphasise the economic dimension of sustainability. The sustainability agenda was created to find ways of incorporating environmental and social considerations into the economic development process, recognising that they are not subservient but mutually supportive. While the economic side of development and decision-making is well entrenched, globally and locally, nevertheless at times an environment-dominant perspective has replaced an economic-dominant perspective, instead of integrating the two perspectives. The State Sustainability Strategy explores how these perspectives can be integrated.

The social and economic agendas also frequently overlap, for example creating jobs in regional areas or for particular groups like Indigenous people achieves a simultaneous economic and social gain. However the achievement of social goals can never be assumed merely because economic development is possible.

These kinds of integration–where environmental, social and economic factors begin to mutually reinforce each other–are often found in situations where business, communities and governments form creative partnerships.

The Case Studies in Sustainability developed as background to this Strategy[18] bears testament to this process. The character of the State Sustainability Strategy is one of establishing processes where people can enter dialogue about issues to enable creativity and partnerships to flourish.

Opportunities for sustainability

The approach adopted within the State Sustainability Strategy recognises that while there are many economic opportunities, not all of these are socially and environmentally responsible.

Australia has developed in the context of centuries of debate and criticism about the way in which development has occurred. These include economic opportunities based on slavery, child labour, excessive working hours and dangerous work practices. Australia and the world is now incorporating the ideas of sustainability and other insights (especially from Indigenous cultures) into decision-making. This means that certain economic opportunities are no longer pursued. The end of logging in Western Australia's old growth forests is one example of where this has occurred in recent times. The growing community concern to protect coastal areas from unsustainable development is another. Sustainability is not about halting progress but it does demand that we take a deep breath and think again about particular issues.

The pursuit of sustainability provides many new economic opportunities. The fastest growing sector of the global economy is the development of environmental technology, estimated conservatively to be worth $1 trillion annually. United Kingdom Prime Minister Tony Blair calls this the 'sustainability revolution'.

The State Sustainability Strategy assists Western Australia to become part of this global revolution and every issue considered in this Strategy has a section that considers opportunities in Western Australia for global sustainability.

[18] <http://www.sustainability.dpc.wa.gov.au/docs/CaseStudies.htm>

Ethics and sustainability

There has also been a growing awareness that sustainability is an ethical issue, particularly in the business sector. A set of background papers considering ethics and sustainability was collected from a diverse range of ethicists, philosophers, creeds and religions (see Appendix C and the CD-ROM).

Several common threads can be seen to unite them and each provide a sense of hope that sustainability is worth pursuing. They show that human beings can be better stewards of the natural world and society–perhaps more so than they have over the past few centuries. The sustainability principles used in this document resonate with the approaches suggested in the background papers.

Source: Midwest Development Commission

A sustainability framework

How can the Western Australian Government approach sustainability? The first step has been to create a framework for thinking and decision-making.

The concept of sustainability is simple but it is difficult to implement because of our tendencies to work in isolation. Most professions, corporations, institutions and government practices around the world have been built around the separation of the environmental, social and economic dimensions with economic factors being the dominant consideration. Sustainability is challenging everyone to find a new way of approaching the future. Western Australia is joining this process. It can only do this if there is a re-evaluation of the principles, visions and goals that guide how we operate.

The draft Strategy proposes a set of sustainability principles that guide the way in which government, industry and communities should think about and approach the management of resources. These principles are aimed at facilitating change that has net social, environmental and economic benefit for current and future generations. Sustainability principles will underpin the State Strategic Plan and other government policies such as the Regional Policy Statement.

The sustainability framework consists of:

- seven foundation principles and four process principles that reflect the core values of sustainability
- six visions for Western Australia's sustainability
- six goals for government and forty-two priority areas for action.

The framework is described graphically through the pullout poster at the back of this document and the linkages between the three areas of the framework are illustrated in Figure 1.

Figure 1: The Sustainability Framework

Sustainability principles

Sustainability principles have often been developed through global agreements and have begun to be placed in legislation over the past decade in Australia and overseas. These principles often do not incorporate the social aspect of sustainability and rarely the economic. Therefore the draft State Sustainability Strategy deliberately attempts to incorporate the social and economic dimensions into the proposed sustainability principles.

The first seven principles in the draft Strategy are foundation principles that establish the basis of sustainability through long-term economic health (see Box 4), equity, ecological integrity, efficiency (see Box 5), community, net benefit and common good. The last four principles are process principles that stress the need for integration, transparency and engagement, precaution and gradual change towards a broad vision.

FOUNDATION PRINCIPLES

Long-term economic health

Sustainability recognises the needs of current and future generations for long-term economic health, diversity and productivity of the earth.

Equity and human rights

Sustainability recognises that an environment needs to be created where all people can express their full potential and lead productive lives and that significant gaps in sufficiency and opportunity endanger the earth.

Biodiversity and ecological integrity

Sustainability recognises that all life has intrinsic value, is interconnected and that biodiversity and ecological integrity are part of the irreplaceable life support systems upon which the earth depends.

Settlement efficiency and quality of life

Sustainability recognises that the earth can only adjust to a more balanced state if settlements reduce their ecological footprint (ie. less material and energy demands and reduction in waste), while they simultaneously improve their quality of life (health, housing, employment, community...).

Community, regions, 'sense of place' and heritage

Sustainability recognises the significance and diversity of community and regions for the management of the earth, and the critical importance of 'sense of place' and heritage (buildings, townscapes, landscapes and culture) in any plans for the future.

Net benefit from development

Sustainability means that all development, and particularly development involving extraction of non-renewable resources, should strive to provide net environmental, social and economic benefit for future generations

Common good from planning

Sustainability recognises that planning for the common good requires equitable distribution of public resources (like air, water and open space) so that natural carrying capacities are not exceeded and so that a shared resource is available to all.

PROCESS PRINCIPLES

Integration of the triple bottom line

Sustainability requires that economic, social and environmental factors be integrated by simultaneous application of these principles, seeking mutually supportive benefits with minimal trade offs.

Accountability, transparency and engagement

Sustainability recognises that people should have access to information on sustainability issues, that institutions should have triple bottom line accountability, that regular sustainability audits of programs and policies should be conducted, and that public engagement lies at the heart of all sustainability principles.

Precaution

Sustainability requires caution, avoiding poorly understood risks of serious or irreversible damage, designing for surprise and managing for adaptation.

Hope, vision, symbolic and iterative change

Sustainability recognises that applying these principles as part of a broad strategic vision for the earth can generate hope in the future, and thus it will involve symbolic change that is part of many successive steps over generations.

BOX 4 BALLIOL AND ARALUEN: LONG-TERM THINKING

Horticulturalist, ABC TV weather presenter and Araluen Foundation President John Colwill tells a story about sustainability thinking in action and the importance of long-term thinking.

Balliol College at Oxford University discovered that beetles were eating the oak superstructure of its dining hall. The great beams of oak were 500 years old and the engineers suggested that they should be replaced but oak trees of sufficient size were no longer available. It appeared that the engineers would have to come up with an alternative. Fortunately the master of Balliol mentioned the problem to the head gardener who responded, 'We was wondering when you was going to ask sir. 500 year ago we planted a forest just for this purpose. It's ready now.' So, thanks to considerable foresight, Balliol College was able to replace its beautiful oak structure.

The Araluen Botanic Park Foundation recently refurbished the park's massive memorial pergola with old growth jarrah and realised that such timber is unlikely to be available in the future. Taking a leaf from the Oxford gardeners they have set aside some land and planted it with jarrah. The trees are protected by a covenant that dedicates them for use in the Park's maintenance programmes over the next 50 to 100 years.

Source: John Colwill

BOX 5 RESOURCE USE AND SUSTAINABILITY

One of the key characteristics of sustainability is the decoupling of resource use and wealth. For most of the past two hundred years it has been assumed that as wealth increases then so will the consumption of resources such as energy, minerals, water and land.

Although the benefits of decoupling this relationship can be easily seen at the individual level of a firm or a household, where using fewer resources costs less, the situation is less obvious at a societal level. Sustainability has helped to show that this link can and should be uncoupled after a certain minimum level of material prosperity is achieved. The process has been clearly demonstrated with electricity consumption in the past few decades where in many developed countries per capita wealth has grown but electricity per capita has declined. This has corresponded with the change to the knowledge economy.

In Australia, a similar situation applies with water use. In the past 10 to 15 years most Australian cities have reduced per capita water consumption, except Perth where this occurred in the previous decade. The consumption of water demonstrates that demand management has reduced the use of water at the same time as our economic health has improved.

In cities, land consumption per capita used to parallel wealth per capita, that is, wealthier people chose bigger blocks and lived further and further out of the city. This has reversed in the past decade with increased demand for smaller blocks closer to the city. This has resulted in reduced transport energy, not only due to the shorter distances travelled, but from improved public transport and easier walking and cycling[7]. The equity aspects of these trends are considered under *Sustainability and settlements.*

Extraction of minerals continues to increase as the world grows in population and wealth. However, there is the potential for this to slow as patterns of consumption begin to reflect the cleverer use of resources, more recycling, a reduced priority on consumption and slowing growth in population (as discussed in Contributing to global sustainability: Population, development aid and environmental technology).

In general terms, the same could also apply to agriculture. The viability of Western Australia agriculture has been under consideration for some time as terms of trade for agriculture have been declining for decades.

The trend towards decoupling resource use and consumption provides two important policy considerations:

- the need to diversify the economy and embrace the knowledge economy more fully and directly
- the need to constantly demonstrate the sustainability of our primary production.

Both are pursued in the draft Strategy.

Around the world increasingly knowledgeable purchasers tuned into sustainability will look for products that are 'clean and green' and add social criteria to their consumption choices. As has occurred with forest products, people will increasingly choose not to buy products that they perceive are produced unsustainably. Western Australian companies have an opportunity to win markets in the future not just through competitive pricing but also through demonstrating sustainable quality production.

[7] P Newman and J Kenworthy, *Sustainability and Cities*, 1999, Island Press, Washington.

SUSTAINABILITY VISIONS FOR WESTERN AUSTRALIA

Based on these eleven principles it is possible to approach any sustainability issue whether it is to do with a firm, an institution or a state like Western Australia. The State Sustainability Strategy has suggested that these principles mean Western Australia needs a set of visions for governance, global contributions, natural resources, settlements, community and business. By establishing these visions the sustainability principles begin to become more practical.

Governance

Western Australia's system of governance is world famous for being responsive to sustainability issues, effective and financially responsible in its programs, transparent and inclusive in its processes and reflects its globally significant responsibilities towards the land and its people.

Global contributions

Western Australia contributes to the solution of global sustainability issues particularly population pressures and poverty, climate change, threats to biodiversity and oil vulnerability and in so doing creates significant local opportunities for new jobs in the rapidly growing sustainability economy.

Natural Resources

Western Australia's vast landscape, intricate web of biodiversity and natural resources are managed and used sustainably for the common good closely involving the community in management and planning processes that are transparent and visionary.

Settlements

Western Australia's settlements are among the most attractive places to live in the world, constantly becoming more innovative and efficient in their use of resources and management of wastes while simultaneously being more liveable and equitable.

Community

Western Australian communities in cities and in regions have a strong sense of place, supportive networks receptive to local needs, and through this respond uniquely to the sustainability agenda.

Business

Western Australian businesses, large and small, are globally innovative and responsive, leading to the resolution of sustainability issues at home and abroad and achieving competitive advantage and prosperity.

Once the visions are in place the necessity is to see what they can mean for the government. What should be the government's goals to deliver such visions and what are the priority areas for action to achieve them?

SUSTAINABILITY GOALS AND PRIORITY ISSUES FOR GOVERNMENT

The State Sustainability Strategy has six goals which together guide government action towards achieving the visions for a sustainable Western Australia. The priority areas for sustainability in Western Australia are listed under each goal. Each of the Goals corresponds to a section of the draft Strategy.

Goal 1 Ensure that the way we govern is driving the transition to a sustainable future

Sustainability assessment
Institutional change
Embracing sustainability in government agencies
Partnerships for action
Planning for sustainability
Sustainability in the regions
Indigenous communities and sustainability
Research and development for sustainability
Sustainability information online
Recognising sustainability excellence

Goal 2 Play our part in solving the global challenges of sustainability

Population, development aid and environmental technology
Maintaining our biodiversity
Responding to greenhouse and climate change
Oil vulnerability, the gas transition and the hydrogen economy

Goal 3 Value and protect our natural environment and ensure the sustainable management of natural resources

Sustainable agriculture
Sustainable fisheries and aquaculture
Sustainable forests and plantations
Sustainable mining and petroleum production
Sustainable tourism
Protecting aquatic systems
Sustainable coastal and marine environments
Sustainable rangelands management

Goal 4 Plan and provide settlements that reduce the ecological footprint and enhance quality of life at the same time

Managing urban and regional growth
Revitalising declining centres and suburbs
Integrating land use and balanced transport
Managing freight and regional transport
Preserving air quality
Reducing and managing waste
Our water future
Sustainable energy
Preserving cultural heritage and landscapes and creating ‘sense of place’
Building sustainably

Goal 5 Support communities to fully participate in achieving a sustainable future

Community services and development
Housing and sustainability
Sustaining healthy communities
Education and community awareness for sustainability
Sustainability through culture and the arts
Multiculturalism and sustainability

Goal 6 Assist business to benefit from and contribute to sustainability

Training and facilitation for sustainability
Financial reform and economic instruments for sustainability
Eco-efficiency and industrial ecology
Industry sustainability covenants

Key indicators and targets for sustainability

Over the past five years there has been extensive work at the international, national, state and local levels to develop indicators and targets for sustainability. For example, the United Nations has been developing global indicators for sustainable development (<http://www.un.org/esa/sustdev/isd.htm>) and in 2002 the Australian Government issued its first report on the National Headline Indicators for Sustainability (<http://www.ea.gov.au/esd/national/indicators/index.html>).

However, in most cases existing indicators do not adequately integrate social, economic and environmental aspects of sustainability.

The headline sustainability indicators outlined in Table 1 are designed to provide an overall guide for how Western Australia should be trying to move. They reflect the definition of sustainability and also relate to the sustainability principles. The real test for sustainability indicators is that they are achieved *simultaneously* through economic development, community action and government activity. Additional work will be required to develop a suitable set of integrative headline sustainability indicators for Western Australia.

Suggested indicators and targets are also provided for each of the priority areas considered in the draft Strategy to assess progress against objectives.

Table 1. Examples of integrative headline sustainability indicators

Sustainability	Indicator should Measure	Measured by
Wealth increasing	All economic activity and also how wealth is distributed (as in Principles 1 and 2).	Gross State Product per capita or when it is available the Index of Economic Welfare - (GSP amended to exclude negative externalities like road accident costs, crime costs). Distribution is measured by a Gini index.
Ecological footprint decreasing	Energy use, waste, land & water use (as in Principles 3 and 4).	Ecological footprint index per capita as measured in the Australian State of Environment report.
Social capital increasing	Strength of community networks and interaction (as in Principles 5, 6 and 7).	Social capital index as used by Health Department or by a more fully developed index as suggested by the Western Australian Council of Social Services.
Sustainability governance improving	Extent to which sustainability is embedded in government (as in Principles 8, 9, 10, and 11).	Numbers of sustainability action plans, sustainability assessments conducted and sustainability annual reporting by agencies (combined index).
Sustainability awareness increasing	Extent to which community is aware of local and global sustainability issues (as in Principles 5 and 7).	New index based on a survey of selected key sustainability issues to test for awareness and interest in issues.

BOX 6 TECHNIQUES FOR SUSTAINABILITY

Increasing effort is being directed to developing a set of practices or techniques for sustainability. A number of the techniques relevant to Western Australia and currently in use by national, state and local governments and progressive industries and businesses are listed below. Many of these techniques are designed to aid in decision-making.

The State Sustainability Strategy advocates the demonstration of these innovative techniques through pilot projects prior to their broader application to programs, policies and legislation.

Ecological economics

Seeking economic valuation of environmental and social assets and services, the 'polluter pays' principle, the need for full life cycle costing of goods and services (including asset replacement and waste disposal) and incentive mechanisms for achieving sustainability goals.

Eco-Efficiency, industrial ecology and waste minimisation

Reducing resource requirements in industrial processes, exchanging wastes for resource needs in industrial estates, minimising waste through recycling and re-use, and seeking zero waste discharge.

Facilitating sustainable technology options

Facilitating renewable energy, energy efficient modes of transport, resource efficient appliances and buildings, and other sustainable technology by providing the infrastructure and increasing the ability of people to choose these options.

Multi-criteria analysis

Assessment of options by listing criteria, measuring these where possible or rating them where not, weighting the criteria through community involvement, and providing integrated options from the analysis.

Voluntary partnerships

Providing partnership agreements between all levels of government and between business, the community and government to provide voluntary commitments to mutually beneficial solutions.

Breaking down barriers

Seeking holistic solutions through breaking down the barriers between different disciplines, different professions and different government agencies

Regulation, enforcement and opportunity

Providing enforceable regulation to ensure common good outcomes in such a way that they form the basis for new economic opportunities.

Strategic and statutory plans

Providing long-term visions from transparent and fully engaging community processes to provide achievable, organic steps towards sustainability goals, with the detailed frameworks that express common good outcomes being laid out in statutory plans.

Community development processes

Enabling community-based solutions through development approaches that recognise the inherent ability of local people to be creative and innovative and which assist through the removal of barriers and provision of access to information and resources.

Artistic innovation

Facilitating artistic creativity focused on the changes required in unsustainable elements of our culture, community and a greater sense of place.

Scenario planning

Creating alternative future visions with linkages to the present through 'backcasting' to the first steps for change.

Value frame analysis

Analysing the different value frames used by various parties in dispute over a sustainability issue to find common ground for a solution.

Education

Providing sustainability education (formal and informal), training and accreditation of all professional activity that recognises and increases awareness of sustainability principles and how they can be applied in daily life.

Research, innovation and demonstration

Facilitating solutions to long-term issues with significant environmental, social and economic outcomes through scientific research and commercial development on sustainability issues, as well as the use of social demonstration projects to enable innovations in sustainability to be trialled.