



Western Australian Land Information System
Government of **Western Australia**

FOCUS ON THE FUTURE
STATE SUSTAINABILITY STRATEGY 2002

“SPATIALLY INFORMING SUSTAINABILITY”
COMMENTS FROM WALIS AND ITS COMMUNITY

FEBRUARY 2003

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EXECUTIVE SUMMARY

The Premier Geoff Gallop released *Focus on the future - the Western Australian State Sustainability Strategy* was released in draft form in August 2002. The Premier sought comment from the Western Australian community by the end of February 2003.

WALIS (the Western Australian Land Information System) is an alliance of diverse public and private sector organisations as well as community groups. The mission of WALIS is to build networks of people and technology to share spatial information, and to continually improve its usefulness and accessibility.

This paper is the result of almost six months of consultation and consideration with the wider WALIS community about the draft State Sustainability Strategy. The paper reports on the comments and views of that community in relation to the Draft Strategy but more particularly on the inter-relationship between sustainability and spatial information, as well as the way forward to strengthen this inter-relationship.

Overall, WALIS is seen by its stakeholders as an important tool for the sustainability agenda. It provides a network for people involved in and around industry to connect on spatial and sustainability issues.

Planning has commenced to ensure that this occurs in the future. These plans are oriented around the Sustainability Strategy goals and as such, provide a robust framework for the future integration of spatial information and sustainability in Western Australia.

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

WALIS will support the achievement of this goal through its biennial strategic planning program and by facilitating a wider knowledge of the support that spatial information can provide to enable change.

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

WALIS will support the achievement of this goal by partnering with a wide range of stakeholders and interested bodies to underpin research and business endeavours aimed at sustainability policy outcomes.

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

WALIS will support the achievement of this goal by continuing to support the provision of high quality fundamental spatial data through the State Land Information Capture Program.

Goal 4 Plan and provide settlements that reduce ecological footprint and enhance our quality of life

WALIS will support the achievement of this goal by expanding its education and discussion forums.

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

WALIS will support the achievement of this goal by building closer connections with the community sector and those private and public sector groups providing community-level services.

Goal 6 Assist business to benefit from and contribute to sustainability.

WALIS will support the achievement of this goal by continuing to expand its connections with those organizations and individuals in business who offer to assist in spatially informing sustainability.

From these goals, it can be seen that the State Sustainability Strategy offers the WALIS community integration at urban and regional level. Additionally, it provides a focus of attention across social, economic and environmental networks and provides for interaction within WALIS across the government, business and community sectors.

BACKGROUND

Introduction

Premier Geoff Gallop released *Focus on the future - the Western Australian State Sustainability Strategy* in draft form in August 2002. The Premier sought comment from the Western Australian community by the end of February 2003.

"The State Sustainability Strategy is both a response to the global sustainability agenda, set by events such as the World Summit of Sustainable Development, and a set of policies and actions to help Western Australia solve its own complex, local sustainability challenges.

Sustainability is meeting the needs of current and future generations through simultaneous social, environmental and economic improvement. A sustainability framework has been produced as a guide for this Strategy and further work into the future. It consists of 11 global principles, 6 visions for Western Australia and 6 goals for Government.

The six goals are summarised below:

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|---------------|--|
| <i>Goal 1</i> | <i>Ensure that the way we govern is driving the transition to a sustainable future</i> |
| <i>Goal 2</i> | <i>Play our part in solving the global challenges of sustainability</i> |
| <i>Goal 3</i> | <i>Value and protect our natural environments and ensure the sustainable management of natural resources</i> |
| <i>Goal 4</i> | <i>Plan and provide settlements that reduce ecological footprint and enhance our quality of life</i> |
| <i>Goal 5</i> | <i>Support future communities to fully participate in achieving a sustainable future</i> |
| <i>Goal 6</i> | <i>Assist business to benefit from and contribute to sustainability."</i> |

(from Focus on the Future, The Western Australian Sustainability Strategy, Draft for comment, August 2002)

This paper

This paper is the result of almost six months of consultation and consideration by the wider WALIS community about the draft State Sustainability Strategy.

It describes the WALIS community and spatial information, as well as the framework for the consultations.

The paper reports on the comments and views of that community in relation to the Draft Strategy, but more particularly on the interrelationship between sustainability and spatial information.

About WALIS

WALIS (the Western Australian Land Information System) is an alliance of diverse public and private sector organisations, as well as community groups. The mission of WALIS is to build networks of people and technology to share spatial information, and to continually improve its usefulness and accessibility.

Established by the WA Government in 1981, WALIS has served as the prime spatial information coordination body in WA ensuring that mutual benefits may be achieved. It oversees the management of spatial information across the Western Australian community and the capture and maintenance of fundamental spatial data through the State Land Information Capture Program.

The WALIS Office, the central hub around which most activities are organised, formulates strategies and produces general standards and policies for data management and access. It also provides core services – the WALIS Atlas and Interragator, which is the definitive land information metadata directory for WA.

In summary, the WALIS community is committed to the ongoing development and management of strategies that will continue to:

- provide and improve access to the data,
- promote the sharing of information,
- discourage duplication and, thereby, reduce the costs associated with using spatial information held across the WALIS community.

Historically, WALIS' activities have centred around land information and related information sources particularly from the government sector.

With the recent impetus on sustainability, there is a growing requirement for social and economic information to be integrated with land and related information. This increased demand is becoming more apparent as WALIS expands its target sectors, connecting more widely with the business sector, as well as the general community.

What is spatial information?

Spatial information consists of two types of data:

- land and geographic information used when making maps (e.g. contours, administration boundaries, waterways etc) and producing images (e.g. air photos)
- information that can be recorded for geographic locations and areas (e.g. property owner's name, distribution of bush fires, Aboriginal dreaming tracks).

Spatial information can also be integrated or analysed to generate new and quite different spatial information.

Western Australia's economic development and standard of living rely heavily upon land-related activities and information. Government agencies depend on land and geographic information in the provision of services (agricultural, planning, emergency), and the management (transport, forests and property information) and development (resource development, mining and petroleum) of the State.

Spatial information provides an important framework to describe and understand physical and cultural environments, and especially to enhance decision-making.

Linking sustainability and spatial information

The goal of sustainability is to meet the needs of current and future generations through simultaneous environmental, social and economic improvement.

This goal requires:

- evaluation of both simple and complex data,
- distribution of useful information to stakeholders throughout the WA community,
- management of competing goals and values across the community,
- establishment of a credible safeguards and monitoring system.

Spatial information provides a readily accessible and understandable structure to address the challenge of sustainability. Geography offers the disciplinary framework to which environmental and social scientists turn to address the problems of analysis and theory building. Moreover, spatial information comprises a common 'language' for inter-disciplinary enquiry, much of which in recent times has focused on issues closely related to sustainability. Large businesses, particularly in the primary resources sector, are now taking leadership on sustainability strategies and this includes the use of spatial information as a tool for planning and decision support.

CONSULTATION METHODOLOGY

The WALIS community (government, business and the community) operates on a consultative basis. With the launch of the draft State Sustainability Strategy, WALIS initiated a consultation process to seek the views and opinions of a wide range of WALIS members and other key individuals throughout the Western Australian community..

A two-stage consultation process was developed.

- | | |
|---------|--|
| Stage 1 | A widely ranging group of stakeholders were involved in a forum titled “Spatially Informing Sustainability in WA” in November 2002 |
| Stage 2 | One-to-one interviews were undertaken with a smaller group of stakeholders early in 2003. |

Stage 1 Spatially Informing Sustainability in WA

In November 2002, the forum “Spatially Informing Sustainability in WA” was held at the WA Constitution Centre in conjunction with the Sustainability Policy Unit in the Department of the Premier and Cabinet.

The purpose of the Forum was threefold:

- seek high level advice about WA’s strategic vision for a sustainable future;
- gain participant involvement in promoting sustainability;
- learn about what information is critical to you to make good decisions that underpin sustainability.

Over 100 stakeholders were invited to attend the forum. Of these, 65 people attended (list of attendees at Appendix 1). Attendees included people from government, business, academe, the local community, community groups, and represented the social, economic and environmental sectors in Western Australia.

Pre-reading for the forum was provided in the form of information sheets including case studies which were developed by WALIS and the Sustainability Policy Unit, Premier and Cabinet.

Small-group workshops were provided to allow people with a common interest in the following areas to discuss further the State Sustainability Strategy from that perspective.

These groups covered:

- Biodiversity
- Healthy Settlements
- Integrated Community Services
- Carrying Capacity / Sustainability Assessment
- Online Information for Sustainability
- Regional Sustainability Planning

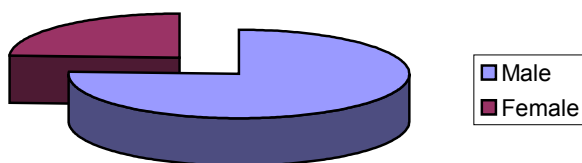
The results of the workshop were circulated to the participants in early December together with an overall summary.

Stage 2 Stakeholder Interviews

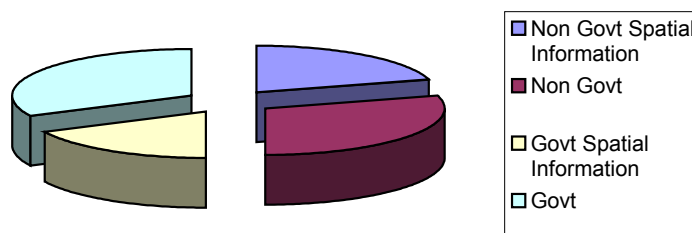
In January 2003, the second stage of the consultations by WALIS was put in place. A process was developed to target a group of about 35 key stakeholders who in the main had attended the November Forum. The group was selected to represent WALIS' key stakeholders, i.e. government, business, academe, the local community, community groups, and represented the social, economic and environmental sectors in Western Australia.

Graphical depictions of the representation of the WALIS stakeholder group from various perspectives are:

Stage 2 Consultations



Stage 2 Consultations - Stakeholder Categories



Synthesis of the range of issues and discussion arising from the Forum resulted in the development of the following set of five key issues - these formed the framework for the semi-structured interviews:

1. Discussions on the linkage between spatial information and the State's Sustainability Strategy helps promote environmental and sustainability issues to the broader community.
2. Progressing the Sustainability agenda requires a 'whole of community' approach that parallels the current WALIS Community-based model.
3. Frameworks need to be established to assist in measuring success of sustainability programs.
4. Integration of social / economic / environmental matters can occur with assistance from a spatial information framework.
5. Undertaking sustainability assessments and developing / monitoring regional sustainability plans need to systematically incorporate spatial information.

A semi-structured interview tool was developed around these issues for use seeking qualitative information by the two interviewers, as well as a short opinion-recording tool (quantitative) about the spatial information action agenda concerning sustainability.

The interviews were held at the stakeholders' offices during January-February 2003, and followed a preliminary letter providing the stakeholder with background information on the key issues for discussion.

The results of the interviews were analysed from both qualitative and quantitative perspectives and the analysis subsequently utilised to develop this paper.

A meeting of the WALIS Advisory Committee (WAC) in January 2003 considered the linkages between the State Sustainability Strategy and spatial information, and the views from WAC also contributed to this paper's development.

RESULTS OF THE CONSULTATION PROCESS

Analysis and synthesis of the range of issues and discussion arising from Stage 1 of the consultation process resulted in the development of five key statements. These have been used to frame the more detailed overall consultation findings below.

1. Discussions on the linkage between spatial information and the State's Sustainability Strategy helps promote sustainability issues to the broader community.

Feedback from stakeholders indicates that the discussion/networking approach utilised by WALIS is important to provide information and energise debate on the interrelationship between spatial information and sustainability.

"There was an interesting and wide range of people there, and it was good to hear their views."

"Despite the diverse group, there was a commonality of thought."

"There were a good mix of stakeholders attending, and this networking approach should continue."

"It was valuable to show how little people know about sustainability."

"It was good to connect and hear their views."

"The Forum was an opportunity for Argyle Diamonds to share information about their 18 month old sustainability strategy, as well as have input and guidance into WALIS.

It is important to Argyle that it knows where information resides, how it is collected, what form it is in and that there is transparency around this."

"These seminars can help greatly to put the process in place."

"We next need to aim at better clarifying the current state of play in specific State Sustainability Strategy areas, undertake planning and develop an action agenda. This should be done in three seminars that investigate each of these three matters."

The four areas of discussion listed below arose during the consultations, and are covered in more detail in Appendix 3.

- Sustainability;
- Government, business and community;
- Spatial information;
- Workshops/forum as a medium for discussion.

2. Progressing the Sustainability agenda requires a ‘whole of community’ approach that parallels the current WALIS Community-based model.

Despite a general lack of awareness of the WALIS community based model, there is a general endorsement for a whole of community approach in relation to sustainability.

Other points made during the consultations and discussed in Appendix 3 are:

- Who is doing what?
- The need for vision;
- Leadership;
- Users of spatial data.

3. Frameworks need to be established to assist in measuring success of sustainability programs.

There is widespread agreement that frameworks need to be established. However, there is also a strong view that sustainability goals need to be established in order to facilitate the measurement of success.

“Need to have buy in from the community – there will be resistance from the community until the identification of common ground is complete.”

“The purpose of a framework, of which WALIS is a component, is to provide a structured approach for State & local government to deliver strategic sustainability outcomes.”

Consultations brought up these additional points, which are discussed in more detail in Appendix 3:

- Setting the frameworks;
- Goal setting;
- Measurement.

4. Integration of social / economic / environmental matters can occur with assistance from a spatial information framework.

Stakeholders feel strongly that the integration between social/economic/environmental matters is not easy. There also is a strong, consistent view that spatial information is an important tool to support sustainability, particularly around decision-making.

“Integrating community services into a sustainability framework is new – hard to work out where and how it sits.”

“Integrated spatial information framework will support & enhance achieving triple bottom line outcomes through better decision support.”

“Although environmental issues are in the spotlight, I feel that it will be the social dimensions (health, disadvantage etc) that will make the contribution in terms of the sustainability agenda.”

“Ken Colbung’s *dreaming stones* was a good illustration of qualitative information and how it can fit with quantitative information.”

Other points made during the consultations (see Appendix 3) concern the following areas:

- Social/economic/environmental integration;
- Qualitative and quantitative information;
- Data and information products;
- Hierarchical relationships.

5. Undertaking sustainability assessments and developing / monitoring regional sustainability plans need to systematically incorporate spatial information.

A strong view is again expressed that spatial information is an important tool, but here it concerns support for practical regional sustainability plans and their on-going assessment.

“We need a sophisticated measuring system and better ways to present information in a meaningful way. Spatial information seems to offer a good first step.”

“HIA members would at best see spatial data as a hygiene issue – it’s important but not something they think about, but they would miss it if it were not there.”

“Of course there may be things that we can’t include in our plans and assessments – e.g. the price of happiness”

Other areas raised during the consultations (see Appendix 3) include:

- Regional social/economic/environmental information;
- Dimensions of incorporating spatial information;
- Sustainability monitoring.

FUTURE DIRECTIONS

Sustainability and spatial information

A feature of the results from the six-month consultation process is a clear direction from stakeholders in the WALIS community. The community sees great value in exploring the opportunities around sustainability and holds a strong view that spatial information can support and inform the achievement of sustainability goals and objectives.

The more recent emphasis on sustainability and the economic/social/environmental bottom line is not seen as making spatial information any more important, but it has re-confirmed its importance.

Spatial information is seen as not necessarily an important tool for recording histories; however, spatial information is judged very important for decision support via graphic depictions. This should lead to development of ideas and scenario-building.

There is a common view that spatial information is both critical to one's business and important in supporting government decision-making.

An interesting result is there appears to be a move away from the traditional view of spatial information as a product (e.g. a map) toward one that sees spatial information as a key element of decision-making.

Among more technically-oriented stakeholders, there is enthusiasm for access to e-data that can be manipulated in an infinite variety of ways by the user for a range of purposes. Other stakeholders see an increasing need to interpret a variety of data easily accessed via the Internet using straightforward software tools as-needed.

The State Sustainability Strategy goals are used to frame the following actions now being planned by WALIS to progress the agenda of spatially informing sustainability in WA.

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

WALIS will support the achievement of this goal through its biennial strategic planning program and by facilitating a wider knowledge of the utility of spatial information to enable change.

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

WALIS will support the achievement of this goal by partnering with a wide range of stakeholders and interested bodies to underpin research and business endeavours aimed at sustainability policy outcomes.

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

WALIS will support the achievement of this goal by continuing to support the provision of high quality fundamental spatial data through the State Land Information Capture Program.

Goal 4 Plan and provide settlements that reduce ecological footprint and enhance our quality of life

WALIS will support the achievement of this goal by expanding its education and discussion forums.

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

WALIS will support the achievement of this goal by building closer connections with the community sector and those private and public sector groups providing community-level services.

Goal 6 Assist business to benefit from and contribute to sustainability.

WALIS will support the achievement of this goal by continuing to expand its connections with those organizations and individuals in business who offer assistance in spatially informing sustainability in WA.

CONCLUSION

Over the six-month consultation process, WALIS stakeholders have offered substantial thoughtful comment.

They see WALIS an important tool for the sustainability agenda. This is because the WALIS community provides a network for people involved in and around industry to connect with spatial and sustainability issues.

The State Sustainability Strategy, on the other hand, offers the WALIS community an opportunity to integrate more closely at urban and regional levels.

A number of initiatives are now being planned to ensure that this occurs in the future. These are oriented around the Sustainability Strategy goals and as such, provide a robust framework for the future integration of spatial information and sustainability in Western Australia.

Appendix 1

Consultation Stage 1 Spatially informing Sustainability in WA – Attendees

Allison Hailes	Western Australian Local Government Association
Andy Gulliver	Custom Composts
Angas Hopkins	Department of Premier and Cabinet
Anne Robertson	Department of Land Administration
Associate Professor Neil Drew	Institute for Regional Development
Belinda Heath	Department of Land Administration
Brady McKenzie	Department of Environmental Protection
Bryan Jenkins	Murdoch University
Chris Dibden	Department of Fisheries
Chris Gentle	Sinclair Knight Merz
Chris Tallentine	Conservation Council of WA
Colin Barry	Cooperative Bulk Handling
Dale Newsome	Western Australian Local Government Association
David Hartley	Department of Agriculture
David Nunn	Department for Planning and Infrastructure
David Purnell	Whelans
Dr Derek Milton	Fugro Geosoft Solutions
Dr Janet Muhling	Department of Indigenous Affairs
Dr Jim Limerick	Department of Industry and Resources
Dr Sue Graham-Taylor	Western Australian Museum
Geoffrey Higham	Geoproject Solutions
Grahame Searle	Department of Land Administration
Greg Beeston	Department of Agriculture
Gregg Marshman	Neoprime
Jeff Cooper	Property Council
Jeremy Wallace	CSIRO
Jim Rhoads	WALIS
John Beaton	Geotask (Australia)
Josh Annear	Argyle Diamonds Australia
Keith Claymore	CALM
Ken Colbung	Nyungar Elder, Bibbulman Track Tribal Group
Leanne Barron	WA Council of Social Services
Len van der Waag	Great Southern Area Consultative Committee
Mandi Dia	Aboriginal and Torres Strait Islander Commission
Marion Fulker	Urban Development Institute of Australia
Mark Taylor	Department of Land Administration
Matt Trinca	WA Museum
Matthew Monisse	South West Development Commission
Michael Rowe Policy Unit	Department of Premier and Cabinet, Sustainability
Naomi Brown	Fire and Emergency Services Authority
Noelene Jennings	City of Perth
Paul Drechsler	Hames Sharley

Paul Farrell	National Geographic Information Systems
Paul Reed	Halpern Glick Maunsell
Peter Newman	Department of the Premier and Cabinet
Pilar Kasat	Community Arts Network
Prof Kateryna Longley	Murdoch University
Professor Phil Cocks	University of Western Australia
Professor Richard Nile	Curtin University
Rachel Siewert	Conservation Council of WA
Richard Bentley	National Geographic Information Systems
Richard Riordan	WALIS
Richard McLellan	World Wildlife Fund
Richard Stovold	Department of Land Administration
Robert Lambeck	Greening WA
Robin Piesse	Department of Land Administration
Robyn Williams, AM	Celebrity Speakers - The Christine Maher Group
Roger Bulstrode	Water Corporation
Ross Carew	Water and Rivers Commission
Ross George	Department of Agriculture
Steve Price	Department of Industry and Technology
Ted Lefroy	CSIRO Sustainable Ecosystems
Tim Shanahan	The Chamber of Minerals and Energy
Tom Hatton	CSIRO
Verity Allan	Housing Industry Association
Zanda Cameron	Wheatbelt Development Commission

Appendix 2

Consultations Stage 2 – One-to-one interviewees

Allison Hailes	WA Local Government Association
Andy Gulliver	Custom Composts
Angas Hopkins	Dept of the Premier and Cabinet
Bryan Jenkins	Murdoch University
Chris Gentle	Sinclair Knight Merz
Chris Tallentine	Conservation Council of WA
Colin Barry	Cooperative Bulk Handling
David Hartley	Department of Agriculture
Derek Milton	Fugro Geosoft Solutions
Diana Rosman	Department of Health
Graeme Searle	Department of Land Administration
Greg Beeston	Department of Agriculture
Gregg Marshman	Neoprime
Jeremy Wallace	CSIRO
Jim Codde	Department of Health
Jim Limerick	Dept of Industry and Resources
Josh Annear	Argyle Diamonds
Kateryna Longley	Murdoch University
Leanne Barron	WA Council of Social Services
Marion Fulker	Urban Development Institute of Australia
Michael O'Connor	CSIRO Sustainable Ecosystems
Michael Thorn	Department of Premier and Cabinet
Neil Drew	University of WA
Noelene Jennings	City of Perth
Paul Frewer	Dept for Planning and Infrastructure
Paul Reed	Halpern Glick Maunsell
Phil Cocks	University of WA
Richard Bentley	National Geographic Information Systems
Shawn Boyle	Department of the Premier and Cabinet
Sioux Brooks	Department of Health
Sue Graham-Taylor	Western Australian Museum
Tim Shanahan	The Chamber of Minerals and Energy
Tom Hatton	CSIRO
Verity Allan	Housing Industry Association

Appendix 3

Consultations Stage 2 – Specific Feedback on the Five Key Issues

1. Discussions on the linkage between spatial information and the State's Sustainability Strategy helps promote sustainability issues to the broader community.

Sustainability

- The sustainability concept is difficult and sophisticated.
- There is a synergistic relationship between WALIS and State Sustainability Strategy to support the achievement of sustainability.
- Spatial Decision Support Systems should play an important part of sustainability planning and assessment

Government, business and community

- WALIS as well as WAC needs to better represent the community and promote those linkages that resonate with communities.
- More private sector involvement needed.

Spatial Information

- More data leads to more comprehensive information that, in turn, supports more informed decision-making
- More information can be presented so that solutions emerge.
- Spatial information is particularly important to taking a long-term view of issues, especially sustainability.

Workshops/forums as a medium for discussion

- The Sustainability Forum style of approach to dealing with issues (especially those like Commonwealth NHT program, biodiversity and sustainability) is very useful.
- The Sustainability Forum was an important event, especially as it heightened awareness about how spatial information can be beneficial to address other issues / agendas.
- The nature of the Forum makes it very difficult to drill down on particular issues & concerns and to achieve specific outcomes. There is also an issue about the best size of group to have.
- The next step to take is to bring individual communities of interest together to work through more specific issues

2. Progressing the Sustainability agenda requires a ‘whole of community’ approach that parallels the current WALIS Community-based model.

Who is doing what?

- In the Business sector, mapping people are collecting information on a project basis – where this is factual information it should be more generally accessible.

The need for vision

- The vision isn't clear on sustainability.
- Need policy and vision first.
- Must be multi-disciplinary, inclusive, multi agenda, about outcomes not process.
- Needs a policy and direction so that outcomes can be achieved.
- WALIS doesn't need to be involved in process.

Leadership

- At a regional level, there are new institutional arrangements around structures and story telling. Local governments are leading in this.
- The action bit is really hard – bigness of issues identified has some impact on this.
- Need to have buy-in from the community – there will be resistance from the community until identification of common ground is complete
- Government needs to demonstrate achievement of outcomes on sustainability.

Users of spatial data

- Attributive data is very important to users (especially those who have a strong trading relationship with DOLA, e.g. farmers, real estate, developers for the purpose of land use and development.
- Boundaries between informal and formal are different and there needs to be clarity in this.
- There are significant gaps in data and methods of dealing with that data.
- How to get a to a standard that is uniform
- The sciences need a lot more sophistication to deal with their data, analysis and gathering techniques to better service the decision-making process.

3. Frameworks need to be established to assist in measuring success of sustainability programs.

Setting the frameworks

- Identify what programs are needed by the community.
- Frameworks need to be developed with a whole of community approach - at present it is “best guess” sustainability.
- Where are the solutions applicable and what impact they will have on salinity?
- Programs need to demonstrate a change that shows a difference (especially community values).

Goal setting

- Getting there (ie sustainable community) means that there needs to be goals, mission statements, how to?
- We need to be clear what sustainability means. The Forum group weren't clear on this. We need to be clear about what we want to work out and how we can get there.
- We need to have clear sustainability objectives – create an environment for things to happen.
- There needs to be an acceptable/not acceptable outcome.
- Look to developing strategic goals that produce a success for the community.
- If spatial information is appropriately used, its benefit should be subsumed within the community success.
- Government can help by actions such as a check for sustainability impacts at Cabinet submission level.

Measurement

- WALIS needs indicators at whole of government level.
- We need programs in place. Need work on integrated sustainability indicators
- Need to be clear what the success criteria are.
- Need to know what the results in the field are – e.g. NRM in a rural setting – i.e. change in land management as well as the end result.
- We need to understand the balance between qualitative and quantitative information – we must value qualitative information.
- Monitoring, gathering baseline data and analysis is rudimentary in the vast majority of cases.

4. Integration of social / economic / environmental matters can occur with assistance from a spatial information framework.

Social/economic/environmental integration

- Sustainability is geography based in lots of ways, but this is only one part of the picture.
- Integration is not impossible despite being a challenge.
- Assist in integrating triple bottom line – how? How can it be implemented?
- Environmentally oriented GIS are covered well – but economic and social are less known. There is a quantity of data in social and economic areas – what are the access issues (eg privacy) and cost?
- How well is social analysis e.g. NW Burrup Peninsula – changing air quality/rock art impacts?
- Triple bottom line is a cast iron driver.
- Health, Education, Dept for Community Development (to name a few) need to be brought closer into the WALIS information community, so that sustainability and other policy initiatives can be progressed.
- Need to have criteria for measuring success, and it must be balanced between the three aspects of sustainability.

Qualitative and quantitative information

- Both qualitative and quantitative stories can be included and translated into quantitative information.
- Social and environmental information is harder to collect – how much is needed?
- Need to be clearer how we approach meeting the information needs of the general community.
- Spatial information has a role to play in portraying qualitative and quantitative benchmarks.

Data and information products

- Need creative ways of turning data into information products
- A key thing for sustainability is the inter-relationship between data types, e.g. employment and environmental quality and export \$\$
- Need to be able to answer questions about opportunities in a sensible manner which will give a reliable result, e.g. Outback Resource Atlas showing where one could grow pistachio nuts.
- Collect information that supports the social, economic, environmental issues, e.g. community in the 1900's as compared with that of the 1990's.
- Looking at data spatially is a very strong trend => integrate across areas.
- Difficult to visualize or describe complex objects/situations without a spatial reference.
- Need to remember that spatial information purpose is not about pure information and self-sustaining, rather about stimulating thinking and responding to identified information needs.

Hierarchical relationships

- Spatial information systems should support/facilitate – not strictly govern sustainability.
- Decision support is heightened via spatial information.
- Spatial information must be viewed as a tool, and not an end in itself.

5. Undertaking sustainability assessments and developing / monitoring regional sustainability plans need to systematically incorporate spatial information.

Regional social/economic/environmental information

- Social data is expensive to gather and we need to take note the privacy debate.
- It is essential infrastructure for progressing the State's sustainability agenda.
- Change the emphasis away from spatial information to sustainability outcomes as a focus.
- Spatial information holds great value for progressing the sustainability agenda.

Dimensions of incorporating spatial information

- Yes providing PART of the information.
- Yes for land but not for all information – any agricultural experiment has to account for spatial information, e.g. water/river monitoring or rangeland monitoring at one point.
- Yes where necessary but don't overkill.
- Map information alone is useless – need tools to use it and a way of using it.
- Yes but planning and program and funding for sustainable outcomes, not operational. Who has it – who would need to be involved?
- Data/spatial data is the best way to do this.
- We now have a lot of technology that will facilitate data access electronically.
- Wrong way around => information framework is a service supporting integration and an important predisposing factor for success, – i.e. key support factor.
- People are greater than systems.
- Spatial information will promote open and transparent decision making .
- GIS is a macro-scale technology and may not be widely applicable to progressing the sustainability agenda.
- Speed is of the essence. Implementing the use of spatial information within the sustainability agenda must be progressed soon.
- We mustn't forget that spatial information is always evolving.

Sustainability monitoring

- A fundamental information collection concept should be that knowledge is stored with a location e.g. record spatial coordinates for each piece of data collected. e.g. KOJA place project – computer and servers, scan family photos and make videos – tell the story of the community in the catchment.
- Agree that there is progress in monitoring.
- This is a key issue. Nevertheless, there are now activities being undertaken in the area of targets & monitoring and between the Commonwealth and States. WALIS needs to take the outcomes of these deliberations into account.
- Public – Private Sector Partnership is a key to progressing the sustainability agenda. A win – win situation is achieved.