

Salinity Inquiry
Submission No. 58

Inquiry into the Coordination of the Science to Combat the Nation's Salinity Problem



AUSTRALIAN SPATIAL INFORMATION BUSINESS ASSOCIATION

Submission by:

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Executive Summary

The Australian Spatial Information Business Association (ASIBA) believes that:

1. The salinity problem is being managed in a haphazard manner. There is no overarching National strategy. There is no test of sustainable public good through proper maintenance programs.
2. Alleviation of salinity problems is being retarded by reliance on random projects without due consideration given to coordination, priorities, and monitoring of outcomes over time.
3. Reliance on public sector research and development limits the prospect for a range of effective mitigation techniques.
4. Public sector salinity-based R&D is not adequately quantified nor qualified. There is no process for determining the best solution, but rather an acceptance that National Science Agencies know best.
5. No mechanism exists for aggregating salinity data and distributing it through an open system to stakeholders. Results of work carried out by the public and private sector are held in data silos without a single repository or metadata reference source. Failure to maintain a single salinity data infrastructure means duplication and conflicting results.
6. There are no accepted standards for the collection and maintenance of salinity data.
7. There is neither policy framework nor funding for maintenance of data collected in support of salinity mitigation programs. Failure to maintain this critical infrastructure means that there is a lack of effective monitoring of outcomes over time, resulting in wasteful duplication when reassessment becomes necessary.
8. Failure to include the private sector in salinity programs limits the opportunity for techniques and systems to be exported to other nations.
9. There is a strong case for implementing a salinity audit across the entire continent. The audit will provide a base line of spatial information for all researchers to utilise and map changes in a coordinated monitoring program.
10. Government and industry must establish a single National Salinity Management Coordination Council to develop and promote a National Salinity Strategic Plan.

Background

The Australian Spatial Information Business Association (ASIBA) represents the interests of the spatial information industry and aims to assist Australia to become a world leader in the provision and use of spatial information.

Spatial information is a key enabling technology, with applications across many industries and offering great economic, social and environmental benefits to the greater community. Spatial information is a high-growth industry that must expand its market development activities to play a crucial role in Australia's future success and so enhance this country's share of world markets and make it an integral part of the global information economy.

The spatial industry is largely composed of small and medium sized enterprises (SMEs), all with the potential to emerge as a progressive and important part of Australia's economy. To survive and grow, these companies need fair and reasonable opportunity to tender for contracts that are commensurate with their specific business focus and skills. When government organisations provide services in direct competition with those offered by private companies, the exploitation of unfair advantage has a detrimental outcome to the growth of SMEs and, consequently, to the economy of democratic enterprise as a whole.

Spatial Information

Spatial information is information that describes the location, features of, and relationships between objects in the real world.

The development of technologies associated with spatial information (eg. satellite imagery, laser scanning, global positioning systems and geographic information systems) is encouraging new ways of thinking about this sort of information.

Spatial information is the foundation for many of the facilities and services that we take for granted today. Everything from postal codes to weather maps is referenced to geographic location. It is pervasive and a core component of our society and our economy.

In fact, spatial information is an infrastructure just as highways, telecommunications, health care, air traffic control, and policing are infrastructures that we depend on and use daily.

Spatial information is a significant subset of the information explosion that we have experienced over the last decade. In the broadest sense, spatial databases include information about the location (street address, latitude/longitude, section/township/range) of features in the databases. For many information technology applications, this locational information is a key component that facilitates the integration, analysis, and visualisation of data.

Use of Scientific Data

Science and scientific research enables governments to meet their obligations in paying for the health, safety, and well being of its citizens; ensuring safe and abundant housing; offering education; maintaining public lands; and furnishing dependable travel venues to move commerce and ensuring a healthy environment for the future.

We all accept that our world is changing at a faster pace than ever before. There is an expectation that governments must understand the impacts of these changes and learn how best to manage them. Without scientific research, leaders and decision makers at all levels find themselves trying to lead the country down a road without a road map.

It is well understood and accepted that public sector bodies are the largest producers and holders of spatial information. This spatial information is recognised as a major, but so far under-exploited asset, which should be promoted as a fundamental building block of the 'new economy'. Commercial exploitation would help to maximise the value of this publicly held spatial information to governments, citizens and business alike.

The spatial information sector has long argued that the information created, collected, and held by the public sector is the factual raw material for the products and services that support day to day decision-making in all walks of life.

While the principle reason for creating and collecting this data is for the public good, its wider use encompasses a range of infrastructure requirements such as company results used for business planning, to mapping information essential for travelling; from statistics for research and analysis, to weather forecasting produced for television or localised delivery to WAP mobiles.

Market needs are best served by commercial exploitation of government held spatial information. Salinity data is important to a range of commercial uses such as soil analysis for viticulture, crop planning, road construction amongst other things. The private sector is already well credentialed to participate in programs to prevent, rehabilitate and monitor salinity.

Linkages between Research and Implementation

There appears to be a perception that only government scientific organisations have the skills, knowledge and technologies to manage and resolve the salinity issue. The Committee Terms of Reference further limit the scope of coordination and dissemination of research and data to *jurisdictions and agencies, catchment management bodies and land holders*.

Conversely, the Review of External Earnings Targets Policy Applying to National Science Agencies (DEST, May 2002) acknowledged the benefits of research industry partnerships in the planning and conduct of research. The Report proposes that "SMEs are most likely to take up the results of long term strategic research, and to develop

new technology-based applications". It further states that National Science Agencies should "assist industry in both established and emerging sectors...to maintain efficiency and international competitiveness...and to assist in the development of new capability".

The Federal Government has long held the view that science policy should "encourage [National Science Agencies] to improve links with industry"¹. Similarly, government policy on CRC's clearly favours the involvement of the private sector in Research and Development (R&D).

However, as long as government agencies are encouraged to mimic and compete openly with the private sector – performing work for other federal, state and local government agencies and even for that small portion of private sector work placed to open tender – ASIBA and the companies it represents believes they will have a stranglehold on business opportunities and stifle economic growth.

Scientific research has a valued social benefit. It is important that this social benefit is appropriately managed to ensure that outcomes are achieved in an acceptable timeframe and within budget. The private sector is driven by commercial reality, which includes being held accountable for performance. This discipline does not hinder quality outcomes nor limit the research and development skills of the sector.

The profit motive does not work as a detriment to good science, but rather adds a level of discipline that is not necessarily expected of government agencies.

Industry Perspective

ASIBA believes that there is a need for a National Salinity Action Plan to better manage expenditure on salinity projects. It would appear that there is no overarching plan that measures the extent of the problem over the nation; identifies a strategy for dealing with the problem to ensure that outcomes are not only achieved but that there is a monitoring process in place to ensure that strategies are sustainable.

A spatial map of the salinity problem provides a base for planning all mitigation activities in a structured way. This will not only ensure that best use is made of limited financial and human resources, but also provides a mechanism to measure change over time. Working with two variables over time will allow researchers to detect regional differences in the lag between events that give rise to salinity.

ASIBA supports the role National Science Agencies play in areas where the agency's skills, experience, services and intellectual property actively support local industry (in particular, SMEs). Similarly, ASIBA considers that the agency's skills and services, experience and intellectual property should be made available unreservedly to all Australian industry organisations for projects and business development operations.

¹ *Review of the External Earnings Targets Policy Applying to CSIRO, ANSTO and AIMS*, Department of Education, Science and Training, May 2002

Whilst the private sector accepts the tenets of the free enterprise economy, facing competition from agencies that are not regulated by the same economic conditions is not acceptable and has negative implications on the private sector and its perceptions of and dealings with government agencies.

Broadly speaking, ASIBA does not support publicly funded institution undertaking or acting as prime bidder for projects where that bid competes directly with the private sector, *unless* the work related to the project clearly cannot be effected by any alternative bidder.

Furthermore, where National Science Agency skills and experiences are applicable to competitive opportunity, ASIBA believes that all Australian companies should have access to such skills and experience as part of their own bid; that is, CSIRO should not reserve its services exclusively for any one organisation over another.

Conclusion

Former United States Vice President, Al Gore, believed in the need for a "Digital Earth" - a multi-resolution, three-dimensional representation of the planet, into which we can embed vast quantities of geo-referenced data (spatial information); a concept supported by ASIBA.

He recognised that no one organisation in government, industry or academia could undertake such a project. Like the World Wide Web, he believed it would require the grassroots efforts of hundreds of thousands of individuals, companies, university researchers, and government organisations from around the World.

Although some of the data for the proposed Digital Earth would be held in the public domain, the conceptual infrastructure might become a digital marketplace for companies selling a vast array of commercial imagery and value-added services.

A Digital Earth could provide a mechanism for users to navigate and search for spatial information - and for producers to publish it.

Gore believed that, rather than the infrastructure being maintained by a single organisation, it would be composed of both publicly available information and commercial products and services from thousands of different organisations.

In support of the foregoing, ASIBA believes that:

- The continued acceptance that only National Science Agencies are equipped to provide sound scientific solutions has consequences for business in higher costs, lower research and development investments and threatened marginal products. The results to consumers are higher prices and reduced products and services.

- Good government policy requires an understanding of the physical, economic and human geography of the Nation and the changes over time of that geography. It is essential that governments develop sound and consistent policy to maintain a reliable environmental database infrastructure to serve the nation.
- Quality R&D is not restricted to government agencies. The private sector has been involved in salinity projects where new methodologies have been tested. The broader the scientific experience the greater the chance of a successful solution(s).
- By assuming that only National Science Agencies hold the answer to the salinity problem, government limits creative endeavour, extends the life of the problem and undermines the work of many private sector companies engaged in quality R&D programs.
- It is important for the Committee to consider the difficulties of addressing environmental and sustainable development issues in the context of analysing geographic information across various disciplines. Researchers and practitioners are all too often hampered by the lack of interoperability between types of spatial data processing systems, vendor brands, data sources and computing platforms.

Recommendations

1. Establish spatial systems that deliver accurate and reliable measurement and link information on funded activities to established indicators.
2. Define the extent and objectives of publicly funded projects within a National Strategic Plan for Salinity Management. The strategy to include a base map of the problem, priority targets for mitigation and prevention, and a mechanism for monitoring outcomes over time.
3. Translate this model into a comprehensive business plan, performance measurements and indicators, optimisation of resources, minimisation of costs and maximise outcomes.
4. Provide an effective mechanism for communication to end users/beneficiaries, to properly formulate information requirements for decision-making by building a comprehensive clearinghouse of spatial information on salinity.
5. Develop a mechanism by which National Science Agencies and the private sector can exchange knowledge and skills to build creative solutions.
6. Provide a mechanism for recording and measuring the knowledge spill-over from public agencies to the private sector.
7. Develop a long-term strategy for creating better partnerships between National Science Agencies and the private sector, which will improve collaborative and export and local industry opportunities to mutual and widespread advantage.
8. Provide training and education on the utility of and techniques for environmental management and land usage through spatial information and technologies.