



Submission to the Quarantine and Biosecurity Review

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1. Executive Summary

The use of spatial information and technologies in areas of emergency management, national security, water resource management and climate change is increasing rapidly throughout the world.

Given the importance of this *enabling technology* to planning, decision-making and managing significant national imperatives, the Australian Spatial Information Business Association (ASIBA) believes that the Quarantine and Biosecurity Review should recognise:

1. The important contribution of spatial information and technologies to the management of an event/threat.
2. The requirement for universal adoption of a number of key information management principles (of which spatial information management principles form an integral part) such as standards, inter-operability and access that impact and underpin biosecurity and quarantine operations.
3. The capacity of the Australian Spatial Information Industry to support emergency management and the quarantine and biosecurity sector to address the above.

ASIBA further proposes that the Department of Agriculture, Fisheries and Forestry establish an appropriate mechanism to further the recommendations outlined above in cooperation with the spatial information industry.

2. The Importance of Spatial Information for Emergency Management

Information represents a substantial asset for today's organisations, and much of this information has a spatial component with a geographic context. We call this spatial information. Ready access by all stakeholders to relevant, reliable and understandable spatial information is recognised as critical to enhanced performance in all forms of Emergency Management (EM) including biosecurity operations.

Bio-security for Australia's primary industries and the broader environment depends upon the ability to launch appropriate response action in the event of a serious incident. Failure to prevent and/or control these incidents could result in billions of dollars lost in export revenues as well as increases in production costs. Most decisions regarding biosecurity issues either require or are significantly enhanced by high quality and readily available spatial information.

Many organisations are constrained by the lack of flexibility and incompatibility of their spatial information systems. What they most often encounter is spatial data that is highly dispersed, not easily accessible, and not conforming to standards which, when coupled with complicated technologies and bureaucratic management and support components, do not make decisions dependent on spatial information any easier.

Spatial Interoperability is the ability to link together (via the adoption of standards) spatial data, information and processing tools between different applications, regardless of the underlying software and hardware systems and their geographic location.

The ability to link all relevant information to a map, and share this in real-time between agencies and jurisdictions, has proven to be invaluable in creating a common operating picture in the planning, preparation, response and recovery phases of EM.

3. Spatial Interoperability in Emergency Management

ASIBA has demonstrated the criticality and feasibility of Spatial Interoperability to support of better and faster decision in making in EM, during the Spatial Interoperability Demonstration Project (SIDP).

The SIDP was a collaborative initiative between the public and private sectors of the Australian Spatial Information Industry. The main purpose of the project was to demonstrate that Spatial Interoperability is real and can help solve real-world problems. The aim of the project was to add real value to the end user community, working with organisations in the sectors of Emergency Management, Insurance and Utilities.

4. Benefits for Quarantine and Biosecurity

Focussed and coordinated use of spatial information and technology will deliver important benefits to the Quarantine and Biosecurity community in Australia, particularly in relation to the issues faced in relation to the Pre-Border, Border and Post-Border contexts.

Pre-Border

Significant benefits arise from having access to faster and more reliable pre-border intelligence through real-time integration of relevant spatial information from multiple (national and overseas) sources for rapid assessment of regional, off-shore risk profiles.

This requires consistent and timely storage, management and communication of pre-border intelligence to relevant stakeholders.

Spatial Interoperability Demonstration Project (SIDP)

"The SIDP, which is funded through the Innovation Access Program administered by my Department, has proven to be an effective vehicle for industry and government collaboration in the application of new technology to issues of national importance, such as emergency management."

**[Former] Minister for Industry, Tourism and Resources,
Ian Mcfarlane
(11 April 2006)**

"Private sector capacity development reflects the private sector's increasing role in the spatial information realm. For example, members of the Australian Spatial Information Business Association are active in supporting the establishment of national standards and policy for spatial data and associated geospatial information technology. Use of private sector services, especially in specialist areas, is likely to increase."

**COAG Bushfires Inquiry, National Inquiry on Bushfire
Mitigation and Management
(31 March 2004)**

Border

Risk management procedures are improved dramatically through the verification of produce and livestock origin and transit histories against current regional risk profiles.

Much of these procedures rely upon spatial technologies to streamline and automate the processing of what in many cases can be very large data sets.

Examples of these procedures include those established by the governments of Victoria and New South Wales for managing livestock.

These approaches not only address biosecurity risks but also have direct economic and other management benefits for Australia's livestock industry.

Post-Border

Improving inter-agency and cross-jurisdictional interaction and information sharing through interoperable spatial systems is critical for managing events crossing jurisdictional boundaries (see Equine Influenza case-study).

Until recently, the national coordination of regional response teams has been hampered by a differing management practices, information management systems and other variations between jurisdictions.

However, this is set to change with the implementation of a new suite of IT applications, built using contemporary spatial information technology, to address these shortcomings (see BioSIRT insert).

Border Case Study: Livestock Tagging

Australia's beef industry trades on its clean and green image in a world market where overseas producers have been blighted by outbreaks of foot and mouth and mad cow disease. To reinforce this positive image, a new high-tech system has been introduced to for tracking cattle.

The National Livestock Identification System (NLIS) is Australia's system for identifying and tracking beef and dairy cattle. Government and cattle industry organisations have agreed to work together to fully implement the NLIS so that consumers in Australia and overseas can have confidence in our beef and dairy products.

The NLIS will enable cattle to be reliably identified and tracked from their property of birth to slaughter, protecting the reputation of Australia's cattle industry as a supplier of "clean" wholesome beef and dairy products and providing a competitive advantage in domestic and export markets.

Spatial information management systems directly underpin and support the operation of the NLIS in Australia.

Post-Border Case Study: Equine Influenza

The first outbreak of Equine Influenza (EI; also known as "horse flu") in Australia was confirmed by the New South Wales (NSW) Department of Primary Industries (DPI) on August 24, 2007 in Sydney.

By the next day the Queensland (Qld) Department of Primary Industries and Fisheries (DPI&F) had quarantined a significant horse event at Warwick and placed the whole of Qld under a stock standstill notice for all equine species.

Within 3 days the outbreak of EI had been confirmed in South East Qld, and collaboration between NSW DPI and Qld DPI&F was well underway to contain, and hopefully eradicate, EI in Australia using strategies underpinned by their Geographic Information Systems (GIS).

Without collaboration between NSW, Qld and the other states, and an appreciation of the geographic relationships between infected horses and properties, the movement of horses (and other mechanisms for virus spread) would have escalated infection and had huge economic impact.

BioSIRT represents a determination by all jurisdictions to eliminate inter-jurisdictional barriers and enable a consistent approach to bio-security issues.

5. R&D Collaboration

The relevance of spatial information management in this domain is further illustrated by the close collaboration and synergies between the Collaborative Research Centre for Spatial Information (CRC-SI) the both Biosecurity CRCs (Australian Biosecurity CRC and the CRC for Plant Security).

Post-Border Case Study: BioSIRT

The Primary Industries Ministerial Council with the full support of all States, Territories and the Commonwealth has decided to develop a new computer application to be known as BioSIRT (Bio-security, Surveillance, Incident Response and Tracing).

BioSIRT will be used by each jurisdiction for managing emergency and routine incidents of disease, pests or incursions. The use of a single application suite will enable information to be quickly exchanged between jurisdictions to facilitate a coordinated response, especially in an emergency incident.

The initial version of BioSIRT will include three main components – SQCR (Survey, Quarantine, Control and Recovery), CRIS (Client Resource Information System) and RMP (Resource Management Package) - all closely integrated. BioSIRT will be deployed within each jurisdiction, both as part of the main IT infrastructure but also onto a stand-alone server for use in the field in an emergency. When deployed in the field, BioSIRT will be able to operate independently. When deployed to a jurisdiction's main IT infrastructure, it will make use of the jurisdiction's existing CRIS system.

6. Recommendations

That the Quarantine and Biosecurity Review recognises:

1. The important contribution of spatial information and technologies to the management of an event/threat.
2. The requirement for universal adoption of a number of key information management principles (of which spatial information management principles form an integral part) such as standards, inter-operability and access that impact and underpin biosecurity and quarantine operations.
3. The capacity of the Australian Spatial Information Industry to support emergency management and the quarantine and biosecurity sector to address the above.

Policy context	Principle
Skills	<p>A spatially enabled knowledge economy and society is built both on professional skills and technical occupations, as well as a widespread awareness of the potential benefits to society of spatial information and its applications.</p>
Innovation	<p>The commercialisation of research and development in spatial information should continue to be supported through ongoing support for the CRC SI and the innovation programs of AusIndustry.</p> <p>An industry/government partnership programme along the lines of the Canadian GeoConnections programme would augment these efforts.</p>
Fundamental data	<p>Gaps in Australia’s spatial information base should be funded where it is a matter of national priority and international competitiveness. These should be identified on a whole-of-government basis by COAG.</p> <p>In principle, governments should directly fund the costs of collecting or capturing fundamental spatial information of national significance, as well as the costs of maintaining the currency and accuracy of the spatial information so that it is fit for purpose by end users.</p>
Spatial data infrastructure	<p>High priority should be given to the development of a fully operational ASDI to ensure that Australian society can realise the benefits from spatial information management systems and Australian industry can maintain and increase its international competitiveness.</p> <ul style="list-style-type: none"> • a national data framework, integrated from federal, state and local sources • common data policies, agreed to by federal, state and local governments and agencies • technical standards, governing web services and interoperable information • enabling architecture, based on open standards and specifications.

Access to data	<p>All suppliers and distributors of spatial information should adhere to the ANZLIC guiding principles for access to spatial information as being in the best interests of users of spatial information.</p> <p>In developing the ASDI, work must be done to ensure simple and effective access to spatial information and address the problems in ensuring data quality.</p>
Pricing	<p>The market for value-added services should in general be the exclusive domain of the private sector, unless government business enterprises compete on a fair and equitable basis in line with the competitive neutrality principles established by COAG.</p>
Statistics	<p>Unless the spatial information industry's contribution to the national economy is measured regularly, policy makers will be unable to assess progress in changes to Australia's international competitiveness and GDP from the national spatial information reform agenda.</p>
Policy leadership	<p>The Online and Communications Council should be responsible for coordinating action between governments to progress the national reform agenda.</p> <p>At the Commonwealth level, responsibility for implementing the recommendations should rest within the portfolio of a Minister represented on this Council.</p> <p>A central agency should be given the responsibility for administering the programme and implementing policy. This agency should be placed within the portfolio responsibilities of this Minister.</p> <p>Partnership between ASIBA and Government in implementing the reform agenda will be fundamental to success as established in the Action Agenda.</p>

8. About Spatial Information and ASIBA

What is ASIBA?

The Australian Spatial Industry Business Association (ASIBA) is the peak body representing industry interests on issues specific to spatial business – broadly, government relations and industry development. Since its emergence in July 2001, ASIBA has moved quickly to establish its credentials at both state and federal levels. It has assumed a significant role in public policy debate, enhanced the profile of the industry, identified opportunities for growth, and provided direct financial benefits to members.

What is spatial information and technologies?

The spatial information industry acquires, integrates, manages, analyses, maps, distributes and uses geographic, temporal and spatial information and knowledge. The industry includes basic and applied research, technology development, education and applications to address the planning, decision-making and operational needs of people and organizations of all types.

Spatial information technologies include satellite based global positioning systems (GPS) and imagery, geographical information systems (GIS), information and communication technology systems (ICT) and a range of simulation and modelling software that enables a wide range of geospatial data to be layered onto digital maps.

Economic impacts of the spatial industry

The impact on GDP in 2006-07 of the spatial information industry is estimated to range between \$6.43 billion and \$12.57 billion. Almost all industries and governments at all levels benefit from spatial information.

Key net benefits derive from a wide range of areas, including:

- safer air and sea transport
- vastly improved systems for asset management
- more efficient management of utilities and infrastructure
- better environmental and natural resources management
- more efficient production in agriculture fisheries and forestry
- more efficient management of threats from pests and disease in agriculture
- higher levels of security from terrorism
- more efficient and timely emergency management systems
- better decision making and policy formulation and implementation.