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Principles of *Australian Quarantine*[†]

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This article provides an overview of the report on Australia's quarantine policies and procedures, *Australian Quarantine*. The Report proposes fundamental changes to Australia's approach to quarantine and recommends: the development of a partnership between industry, governments and the general public; the establishment of a statutory authority to develop Australia's quarantine policy and to ensure national delivery of quarantine services; acknowledgment of the importance of maintaining Australia's unique natural environment; the need to redress the imbalance between the plant and animal sectors; development of a more formally structured process for conducting risk analyses; and expanding the scope of quarantine beyond the 'barrier' to cover pre-border, border and post-border activities.

1. Background to the Australian Quarantine Review

Compared to other countries, Australia is relatively free of many of the debilitating diseases of humans, plants and animals. This 'privileged health and quarantine status' confers considerable benefits not only on the agricultural sector but on 'the Australian community as a whole through reduction in the use of chemicals to prevent and control pests and diseases, protection of native flora and fauna, promotion of Australia as a tourist destination, and enhancement of the quality of life of all Australians' (Nairn, Allen, Inglis and Tanner 1996, p. 11). Quarantine controls are an essential element in maintaining Australia's relative freedom from many serious diseases and in ensuring that international trade does not lead to the spread of pests and diseases.

During the early 1990s, the ability of the Australian Quarantine and Inspection Service (AQIS) – the organisation responsible for development and

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implementation of Australia's quarantine policy and programs – to maintain Australia's privileged health and quarantine status was called into question by the large number of incursions into Australia of exotic pests and diseases (including western flower thrips, papaya fruit fly, Siam weed, chalkbrood, northern Pacific starfish and Japanese encephalitis), which attracted considerable media attention. Concern about the adequacy of Australia's quarantine policy and programs and the technical skills of the AQIS staff was exacerbated by controversy surrounding the entry conditions for a number of products including cooked chicken meat, fresh salmon and pigmeat. The inability of Australian industry and AQIS staff to reach common ground on deciding issues on scientific merit led to a highly politicised and public debate on proposed entry conditions (Nairn *et al.* 1996, p. 3). As a consequence of these events and the keen interest taken by the media in the quarantine debate, the community became concerned about the efficacy of Australia's quarantine service. At the same time, there was a number of major developments in world trade and other quarantine-related areas, including:

- the conclusion of the Uruguay Round which opened up opportunities for trade in agricultural products and increased the trade expectations of exporters;
- the negotiation of the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement), which defined the rights and obligations of members of the World Trade Organization with respect to the development and implementation of quarantine controls;
- the increasing use of the 'clean, green' reputation by food-exporting nations such as Australia in international marketing;
- rapid increases in the volume of world trade and international passenger movements (of the order of 10 per cent per year), which placed heavy demands on border control measures designed to exclude exotic pests and diseases; and
- significant scientific advances in surveillance and identification techniques for plant and animal pests and diseases.

(Nairn *et al.* 1996, pp. 3–4)

The mounting public concern about quarantine issues, together with the recommendation of the most recent major review of Australia's quarantine policy chaired by Professor David Lindsay that another major review be conducted in about 1994 (DPIE 1988), led to the establishment by the then Minister for Primary Industries and Energy, Senator Bob Collins, of an independent committee to review Australia's animal and plant quarantine policies and programs. The review, set up in December 1995, was subsequently endorsed by the new Minister for Primary Industries and Energy, Mr John Anderson, following the change of government in March

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1996. The Australian Quarantine Review Committee, chaired by Professor Malcolm Nairn, presented its report, *Australian Quarantine: A Shared Responsibility*, to the Minister in October 1996. The aim of this article is to provide an overview of that Report.

2. The approach of the Australian Quarantine Review Committee

As already indicated, quarantine affects, directly or indirectly, all members of the Australian community. Early in its deliberations the Committee took the view that to achieve a successful outcome it would be necessary to develop an understanding of what the Australian community expected from the quarantine service, given the changes affecting quarantine in the 1990s. Based on this understanding, it would then be necessary to establish a set of broad principles which would ensure that these expectations were met. Given the high profile accorded a number of quarantine-related issues by the media and the consequent community concern about quarantine, it is not surprising that the Australian Quarantine Review attracted a good deal of interest. The Committee received 167 written submissions from a wide cross-section of the Australian and international community – governments, industry and the general public. In addition, public hearings were held throughout the country and site visits made to quarantine facilities around Australia and overseas.

3. Expanding the scope of quarantine

In the course of the Review, it became apparent that the scope of what was considered part of the quarantine function needed to be broadened to reflect better the community's expectations of quarantine. The scope of quarantine as defined in the Quarantine Act 1908 is quite broad in its application to humans, animals and plants but it does not specifically mention the natural environment or native flora and fauna. A significant number of submissions to the Review emphasised the fundamental importance to the community of maintaining Australia's unique natural environment. The Committee argued that effective quarantine policy and programs are essential to achieving this objective. Although decision-making under the Act must conform with the relevant provisions of Australia's environmental legislation and related arrangements dealing with environmental impact assessment, protection of endangered species, and protection of World Heritage areas and the National Estate, the Committee formed the view that the Act should be amended to reflect specifically the importance of quarantine to the natural

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environment. Environmental considerations also need to be specifically included in all import risk analyses.

It was thought that the balance between quarantine measures affecting human, animal and plant health also needed to be considered. Over the years, the emphasis of quarantine has changed from a strong focus on human health in the early twentieth century to the current focus on animals and plants of agricultural significance. Although exotic human disease issues are of less significance than a few years ago, due to improved treatments and international eradication or control of a number of serious diseases, increasing prevalence of malaria in the South-East Asian region and the outbreak of Japanese encephalitis in the Torres Strait region highlight the need for continued vigilance on human quarantine at seaports and airports.

The evidence presented to and collected by the Committee indicated a severe imbalance in the resources devoted to plant and animal quarantine and in the treatment of the two sectors. The focus on animal quarantine has tended to be stronger (and the availability of resources greater) than for plant quarantine. This imbalance was also found to occur internationally. Reasons for this inconsistency include:

- the industry infrastructure to support animal health is more highly developed and integrated than for plants;
- the number of economically important species of plants is significantly greater than that of animals, and the level of information on many plant pests and diseases tends to be less than that available for most animals;
- plant diseases are often present for a longer period of time before detection and their spread is usually more insidious and less dramatic than animal diseases;
- the number of pests and diseases that can affect plants is far greater than those affecting animals (so plant pests and diseases are more difficult to address and have been put in the 'too hard' category);
- the existence of one well-organised professional body concerned with animal diseases – the Australian Veterinary Association – in contrast to the plethora of groups of plant pathologists, entomologists, mycologists and weed scientists concerned with plant health and diseases issues has led to a more focused approach to health and quarantine for animals than for plants; and
- the effects of an outbreak of an exotic disease of animals tend to have a greater visual and emotive impact on the community than disease outbreaks affecting plants.

(Nairn *et al.* 1996, p. 14)

The larger number of exotic pest and disease introductions affecting plants, as compared to animals, over the past 25 years may also reflect this imbalance.

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Independent reports commissioned by the Committee indicate that, conservatively, the rate of incursions of plant pests and diseases into Australia was about ten times greater than for animal pests and diseases (see Nairn *et al.* 1996, appendix B). The Committee was strongly of the view that increased resources need to be devoted to plant health and quarantine, although not at the expense of resources devoted to animal health and quarantine.

This broadening of the scope of quarantine is reflected in the Committee's Recommendation 2 that 'the goal of national quarantine should be to prevent the establishment and spread within Australia of exotic pests and diseases that are deemed to have a significant deleterious effect on humans, animals, plants or the natural environment'. This recommendation raises the profile of the environment and foreshadows the extension of the scope of quarantine to include preparedness and response capacity.

4. Principles for achieving the quarantine goal

In the past, the focus of Australia's quarantine system has been on preventing the entry of pests and diseases into Australia by measures applied at the 'barrier' or border. Where pests and diseases were successful in permeating the quarantine barrier and became established, their eradication or control became the responsibility of a separate (usually State) agency. The Committee took the view that, with the movement of international passengers and freight increasing at about 10 per cent per year (and the rate expected to increase), the quarantine goal could be most effectively achieved by a broader approach to quarantine extending beyond the border and including:

- off-shore measures to reduce the threat of entry;
- well-targeted border controls;
- procedures to detect incursions at an early stage; and
- emergency response plans to contain, control or eradicate any incursions.

(Nairn *et al.* 1996, p. 16)

Such a continuum of quarantine would provide a nationally coordinated system of surveillance, inspection and control using pre-border, border and post-border measures to prevent the establishment and spread of pests and diseases. The continuum approach to quarantine has already been adopted for Northern Australia. In the Committee's view, the Northern Australia Quarantine Strategy (NAQS) which comprises pre-border, border and post-border measures, is an efficient and effective quarantine system which should be adopted nationally.

The development of programs with a national focus and consistency of delivery are seen as important principles for Australia's quarantine system.

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The current arrangement is for AQIS to have overall responsibility for national quarantine policy and service delivery, although there are well-established consultative mechanisms which allow for the States and the Commonwealth to work together on specific policy issues. Delivery of quarantine programs is carried out by AQIS in all states except Tasmania, Western Australia and the Northern Territory where staff from State quarantine services operate under AQIS guidelines.[1] However, it became apparent to the Committee 'that in delivering quarantine policy on behalf of the Commonwealth, States have tended to overlay their own imperatives or interpretation on some national quarantine policies, resulting in inconsistency of implementation and confusion for industry, domestically and internationally' (Nairn *et al*. 1996, p. 18). The issue of inconsistency of quarantine delivery, particularly with respect to inspection procedures, was raised in a number of submissions and was observed by the Committee during visits to quarantine facilities. The Committee expressed the view that a lack of uniformity and consistency of procedures is detrimental to efficient and effective quarantine delivery and severely undermines confidence in the system.

Transparency of quarantine arrangements, both in policy development and the delivery of quarantine services, was seen by the Committee as crucial to the effective operation of the Australian quarantine system. Whilst quarantine has a vital role to play in safeguarding the community from the significant losses that can be associated with the spread of pests and diseases, quarantine controls also have implications for efficient resource allocation and trade. Importers, Australian producers and consumers are affected by quarantine regulations in different, and often opposing, ways. Quarantine controls have the capacity to provide strong protection against alternative suppliers by totally banning imports or by increasing the cost of importing. This provides an incentive for local producers to argue for the imposition of quarantine measures which are more onerous than needed to satisfy legitimate quarantine concerns. Of course, not all Australian producers benefit from the imposition of quarantine controls: those producers using imported products as inputs may be penalised by quarantine controls. Consumers of foodstuffs are affected by higher prices and/or reduced choice. The Committee believed that greater transparency of the assessment of import requests and the delivery of quarantine services was needed to ensure that quarantine controls can be justified on a scientific basis and comply with the SPS Agreement (see Nairn *et al*. 1996, appendix C).

[1] Prior to 1994, all Commonwealth quarantine service delivery was carried out by State agencies on the Commonwealth's behalf.

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Another important principle underlying the Committee's recommendations is that quarantine should be a shared responsibility, involving a partnership between governments, industry and the general public. The need for government regulation of quarantine, based on its public good characteristics, is well recognised (Hinchy and Fisher 1991; IAC 1987). The nature of the benefits of quarantine is such that, left to their own devices, importers undertaking quarantine activities would not undertake as much quarantine as would be efficient from a community perspective. The regulatory approach to quarantine can be viewed as an attempt by government to correct this apparent market failure. Where the beneficiaries of quarantine are readily identifiable, quarantine services are funded on a 'user-pays' basis but where the beneficiaries are diverse and not readily identifiable, quarantine is government-funded. Quarantine affects all the community, not just the agricultural and public health sectors – which are widely viewed as the traditional stakeholders in quarantine – but also forestry, aquaculture, tourism, the natural environment and the consuming public. It became obvious during the review process that there was a pervasive desire on the part of a wide cross-section of the community for an effective and practical quarantine system. The Committee believed that this commitment needs to be strengthened and harnessed. Effective consultation and awareness campaigns are needed to encourage the general community, as well as industry and governments, to accept responsibility for maintaining Australia's relative freedom from serious pests and diseases.

Following broad consultation, the Committee developed the following set of principles for guiding the direction of Australia's quarantine system:

- programs should be national in their approach;
- objectives, formulation of policy and delivery within and between programs should be consistent;
- programs should be effectively co-ordinated to ensure that objectives are met;
- programs should be transparent;
- effective consultation and communication are necessary to ensure community awareness and ownership of programs;
- programs should aim to maintain or improve the protection of Australia's human, animal and plant health status and its natural environment; and
- programs should reflect Australia's national and international obligations with respect to international trade and the environment.

(Nairn *et al.* 1996, p. 16)

These principles are embodied in Recommendation 3 that the 'goal of quarantine be achieved through a nationally co-ordinated, consistent and

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transparent quarantine system using pre-border, border and post-border measures'.

5. Major changes recommended in the Report

The Report recommends some fundamental changes to the culture of quarantine and the way in which quarantine policies should be developed and implemented. In total, 109 recommendations covering all aspects of quarantine are proposed. The partnership approach to quarantine – involving government, industry and the general public – and the need to develop a sense of ownership of quarantine by all members of the Australian community have been discussed already. Mention has also been made of the need to expand the scope of quarantine to cover the environment and the continuum of quarantine. Other major changes recommended by the Committee are: the replacement of AQIS by an independent statutory authority which would be responsible for all the current AQIS policy and program functions, except for meat inspection; and changes to the way risk analysis is conducted on applications to import animals and plants or their products into Australia. There is clearly a lack of confidence in the process used for risk analysis and the recommended changes are designed to rectify the problems brought to the Committee's attention by making the process more transparent, scientifically based and subject to appeal. The establishment of the statutory authority and the changes to the risk analysis process are both designed to reduce the politicisation of quarantine policy-making and to put the risk analysis process at arm's length from government. The establishment of a statutory authority is discussed later in this article. For a discussion of the changes to the risk analysis process, see Nairn *et al.* (1996, chapter 7) and Nunn (1997).

The changes recommended in the Report can be summarised as:

- development of a partnership approach to quarantine policies and programs involving the whole Australian community – the general public, industry and governments; police and ensure consistent national delivery of quarantine services;
- establishment of a more balanced approach to animal and plant health and quarantine by providing additional inputs for plant health and quarantine;
- development of a more formally structured process, designed to be at arm's length from government, for conducting risk analyses to provide a scientifically based foundation for a policy of manageable risk;
- acknowledgment of the fundamental importance of quarantine to the natural environment;

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- expansion of the scope of quarantine by recognising the importance of activities in all three elements of quarantine – pre-border, border and post-border – as a continuum; and
- enhancement of the focus on pre-border and post-border activities of the continuum of quarantine in the achievement of Australia's quarantine goal.

(Nairn *et al*. 1996, pp. 11–12)

6. The establishment of a statutory authority

From submissions to the Committee, it was clear that there was considerable disquiet within some sectors of the Australian community about the recent performance of AQIS. There appeared to be a lack of confidence in the ability of the organisation, as currently structured, to provide an adequate quarantine service. There was also strong criticism from overseas governments, particularly with respect to the conduct of risk analyses on applications to import apples, chicken meat and salmon. AQIS, one of seven operating groups within the Department of Primary Industries and Energy (DPIE), is responsible for both export inspection and import quarantine services and manages the associated technical and operational support systems. Although AQIS possesses considerable operational independence, it is ultimately responsible through the DPIE Executive Board to the Minister for Primary Industries and Energy. AQIS is currently divided into two divisions: policy (or regulatory) and operations (or service/delivery). This split is designed to improve the performance of the separate divisions. Independent advice to the Minister on the structure and performance of AQIS is provided through the Quarantine and Inspection Advisory Council (QIAC).

Based on the goal and scope of quarantine, the Committee developed a set of principles that should be embodied in the organisational structure. In the view of the Committee, the optimal structure for the organisation should:

- provide for the development of a culture, both within the organisation and in the community, that embraces the goal of quarantine and the continuum approach to quarantine;
- enhance the establishment of a partnership with stakeholders – namely, governments, industry and the general public – to ensure community ownership of quarantine policies and programs;
- permit effective, efficient and transparent development and delivery of Australia's quarantine policies and programs across the continuum of quarantine;

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- allow flexible application of resources and procedures to develop and deliver quarantine policies and programs;
- provide appropriate mechanisms for ensuring ongoing delivery of the public good elements of quarantine;
- provide the ability to deliver commercial objectives consistent with the goal of quarantine, government policy and community needs;
- establish credibility with stakeholders and confidence with domestic and international consumers and overseas quarantine agencies;
- forge strong links with appropriate external groups to provide expert input into the development and delivery of policies and programs across the continuum of quarantine;
- be practical in both form and in delivery of functions;
- maximise accountability to stakeholders;
- be responsive to the interests and concerns of the community;
- instil and encourage the development of professionalism within the organisation;
- ensure fairness and equity in the discharge of the organisation's duties; and
- ensure independence from undue influence from any section of the community.

(Nairn *et al.* 1996, pp. 35–6)

How to structure the quarantine service to improve its performance was one of the issues most frequently addressed in submissions and at public hearings. However, it was clear that key organisations held widely disparate views on the optimal structure.[2] The range of structures placed before the Committee was as follows:

- continuation of the current structure;
- separation of export inspection and quarantine import functions;
- separation of quarantine policy development and quarantine operational roles;
- separation of both export inspection and quarantine import functions and the policy development and service delivery roles within these two functions – a four-way split;
- relocation of the quarantine functions from DPIE to another government portfolio; and
- establishment of a statutory authority to manage Australia's quarantine functions.

[2] For a discussion of the arguments for the various structural options see Nairn *et al.* (1996, pp. 36–43).

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The Committee evaluated the above structures together with the option of privatising the quarantine service. Even though privatisation was not supported in any of the submissions – indeed, a number strongly opposed such an approach – it is clearly an option and the Committee was of the view that it should be considered.

In the Committee's opinion, the goal of quarantine and the continuum approach would be best achieved by the establishment of a statutory authority separate from DPIE but responsible to the Minister of Primary Industries and Energy. The proposed new authority would be responsible for all the policy development and delivery functions currently carried out by AQIS, except for export meat inspection. As with other independent statutory authorities, the new authority – Quarantine Australia – would be managed by a Board of Directors, appointed by and directly accountable to the Minister for Primary Industries and Energy. It should be noted that the proposed structure and functions of the Board are quite different to those of QIAC which would become redundant.

The Committee was aware that establishing a statutory authority responsible for both policy development and delivery functions outside the control of a department would be breaking new ground for the Commonwealth. Whilst the proposal was recognised as controversial, recent experience with import risk analyses indicates that there is a need to ensure that quarantine policy-making is at arm's length from government. The proposed structure would provide greater independence than is currently the case with AQIS being located within DPIE. Although Quarantine Australia would clearly be required to act within the overall framework of government policy, it would not be subject to day-to-day direction.

Establishing a statutory authority independent of a department would also allow greater flexibility with respect to employment conditions because staff would no longer be employed under the Public Service Act 1922. This change has the potential to provide higher job satisfaction, greater efficiency and flexibility of resource use, and more financial flexibility than any of the other options except for privatisation. The financial flexibility available to an independent statutory authority would overcome the current highly inefficient system whereby charges to be paid by users are negotiated with industry each year and any funds collected from 'overcharging' in any year are subsequently refunded to industry. However, any financial shortfall from 'undercharging' for services in any one year must be met from the quarantine budget. Surpluses and shortfalls are inevitable given the large variation in the volumes of many imports (and exports). Under the recommended structure, charges could be negotiated with industry for a longer period of time (say, three years), surpluses could be able to be carried forward and invested in improved

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service delivery (which is not possible currently, even with industry agreement) and any shortfalls amortised.

The Committee was strongly of the view that the policy formulation and operational functions of quarantine must remain with Quarantine Australia for the organisation to be effective. Moreover, the development of effective and efficient quarantine policy is compromised if divorced from implementation. In addition, it is difficult to ensure that operational staff achieve the objectives of programs if they are denied input to their development. The Committee had the opportunity to observe the separation of policy and delivery during its visit to New Zealand and noted that the New Zealand authorities were experiencing a number of management problems. In particular, quarantine delivery staff felt isolated and excluded from the development of programs that they were contracted to deliver. The Committee was cognisant of the concerns of those advocating a separation of policy and delivery functions of AQIS who argued that policy development should be independent of the operational functions in which AQIS was seen to have a vested interest. The Committee sought to address their concerns about independence and transparency of policy formulation by the establishment of a skills-based Board drawn from a broad cross-section of the Australian community, the development of a model for risk analysis which would enhance transparency and independence, and the development of better consultative processes. (For further discussion see Nairn *et al*. 1996, chapters 3, 4 and 7.)

The advantages of an independent statutory authority can be summarised as:

- functional independence from DPIE;
- a suitable structure for engendering a cultural change in the organisation;
- potential for greater job satisfaction for staff;
- clearer identification of ministerial and authority responsibilities in the enabling legislation;
- competitive management;
- greater resource efficiency and flexibility;
- financial independence;
- greater community ownership and responsiveness to stakeholders; and
- more public accountability.

(Nairn *et al*. 1996, pp. 42–3)

The Review Committee recognised that there are also potential disadvantages associated with the establishment of an independent statutory authority responsible for quarantine. These include:

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- increased vulnerability to budget cuts;
- greater pressure to increase external revenue;
- the perception that policy decisions may be susceptible to sectional interests; and
- weaker links with relevant government departments and agencies.

(Nairn *et al.* 1996, p .43)

Budget cuts and the need to increase external funding are pressures which have already been experienced by AQIS as a government agency. The Committee believed that the recommended structure (including a Board selected on the basis of a broad range of skills) and the changes to the risk analysis process would ensure that Quarantine Australia would not become captive to sectional interests. The threat to links with relevant agencies (such as DPIE, Australian Customs Service, State departments of agriculture, Department of Environment, Sport and Territories, and Australia Post) could be addressed through the development of appropriate consultative mechanisms.

7. The continuum of quarantine

As previously indicated, the concept of extending the scope of quarantine beyond border activities, which have been traditionally viewed as being 'quarantine', to include pre-border and post-border activities is one of the fundamental changes recommended in the Report. National coordination of activities across the continuum of quarantine is seen as essential to the quarantine system maintaining Australia's relative freedom from serious diseases, given the increased flow of international passengers and cargo, and the large number of exotic pests and diseases (particularly of plants) which are potential threats. However, it should be noted that the nationally coordinated approach advocated by the Committee 'does not necessarily imply that a single authority should have sole responsibility for the development, implementation and funding of all quarantine-related programs' (Nairn *et al.* 1996, p. 17). As is currently the case, some activities would be carried out by State agencies and by industry but national coordination is essential to ensure that 'gaps' do not occur in the quarantine system.

7.1 Pre-border activities

The Report recommends that greater focus be placed on off-shore activities with disease problems being kept away from Australian shores in the first instance. This approach of 'managing quarantine risks off-shore' should include, where feasible, 'pushing back the border' and reducing the 'pool' of

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potentially threatening diseases in neighbouring countries and countries which pose a significant source of disease threat through tourism or trade (Nairn *et al.* 1996, p. 70). Recommendations 27 and 28 propose that 'Quarantine Australia co-ordinate the identification of disease threats' in such countries and 'assess the need for, co-ordinate, broker and where necessary participate in co-operative programs' in such countries, in 'pest and disease monitoring and surveillance; pest and disease control and eradication; preparedness and response against incursions; and relevant education training and diagnostic services'. The Committee was aware of the cooperative work already being undertaken off-shore by universities, government departments and some industry groups (such as collaborative research involving the Bureau of Sugar Experiment Stations and the Papua New Guinea sugar industry) but believed that a higher priority needs to be accorded such projects as part of the quarantine continuum.

Pre-clearance of passengers and goods in their country of origin is another means by which the risk of disease threats can be reduced. Where pre-clearance of horticultural imports has been undertaken, for example in New Zealand, a better understanding of Australian requirements has resulted in a decrease in the number of rejections of product by Australian inspectors. Another important means of keeping disease risks off-shore is to raise the awareness of risks and knowledge of the Australian quarantine system by visitors and returning residents and to improve the information available to both these groups. Raising the awareness of travellers to quarantine risks, especially from foodstuffs, has become a higher priority as the range of countries from which visitors originate has become more diverse and as Australian residents travel to a wider range of destinations, especially in Asia and Africa. The Report makes a number of recommendations concerning the need to raise traveller and general community awareness of quarantine-related issues.

7.2 Border activities

Because of their highly regulatory nature, border programs have the highest profile of the various quarantine activities and attract the most public interest. Border programs cover quarantine-related activities at airports, seaports and international mail exchanges for humans, animals, plants and their products. These activities encompass the inspection and clearance of cargo, mail, live animals, foodstuffs, fresh fruit, vegetables and cut flowers, timber and biological products; the operation of quarantine stations for entry of plants, animals and birds; and the development of new technologies for detection of disease risks at the border. (See Nairn *et al.* 1996, appendix E for a description of the various border programs.) As previously

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indicated, delivery of border programs is carried out by AQIS except in Western Australia, Tasmania and Northern Territory where State agencies operate under contract to AQIS.

A large number of concerns were raised about aspects of the border activities by industry, the scientific community, the general public and the AQIS staff in discussions during on-site visits. Because many of the concerns covered more than one program, the Committee decided to make recommendations based on issues rather than on programs. The principles underlying the implementation of effective controls are to:

- determine, through a process of risk analysis, the level of risk posed by items of human, plant and animal origin passing through the border;
- identify and target high risk pathways through which items of potential quarantine concern may gain undetected entry to Australia;
- develop appropriate border controls to prevent undetected entry, particularly through the use of new technology;
- promote awareness of quarantine and the dangers presented by risk items, particularly to the travelling public;
- foster close and effective relationships with other agencies that have border responsibilities;
- deliver quarantine border programs in the most effective and efficient way, including contestable third-party delivery arrangements;
- deliver nationally consistent border programs; and
- undertake regular audit and review of border controls and procedures.

(Nairn *et al*. 1996, p. 117)

The Report makes 40 recommendations concerning border programs, some of which are quite specific. Fundamental are the recommendations that 'Quarantine Australia use risk analysis based on comprehensive detection databases and information systems to target resource allocation to increase the efficiency and effectiveness of border activities' (Recommendation 48), 'ensure consistent, effective and efficient national delivery and reporting of quarantine services' (Recommendation 49), 'make increased use of X-ray technology' (Recommendation 61) and expand the detector dog program (Recommendation 65).

The need to use risk analysis to determine the efficiency of current border programs and to allocate resources to areas of higher risk has become more acute since it was proposed in the Lindsay Report (DPIE 1988). Effective risk analysis requires the development of suitable databases. The Committee proposed that all border activities should be subject to risk profiling and analysis over the next few years and, in the interim, three areas warrant more attention and resources: international mail exchanges and courier depots,

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seaports (particularly wharf surveillance which has been neglected due to the focus on cost-recoverable activities) and air cargo.

At a time when the quarantine border is coming under increasing pressure, recent developments in soft-tissue X-ray machines for baggage and parcel examination make such machines well suited for screening food items, agricultural products, foliage and cuttings. The most-recent-generation machines are programmable and allow flexibility in the items to be targeted. A trial with a multi-energy X-ray machine at Sydney International Airport demonstrated its ability to detect a wide range of undeclared food items in passengers' baggage. Detector dogs have been used in Australia for quarantine work since 1992 and have proved very successful. The Report recommends that use of the new technologies should be expanded to cover not just airports but also seaports, international mail exchanges and courier depots.

Recommendation 68 which advocates the discontinuation of aircraft disinsection is likely to be controversial. Since the Second World War, aircraft arriving in Australia have been disinsected at their first port of call. The effectiveness of this procedure in significantly decreasing the risk of pest and disease entry has been the subject of extensive debate. It was questioned in the Lindsay Report (DPIE 1988, p. 153), it was subsequently examined by AQIS and an interdepartmental working committee, and a series of trials was conducted. The Committee consulted widely on the issue and the 'prevailing view is that although disinsection may well kill insects, there is no sound scientific evidence to confirm that the process significantly reduces the risk of introduction of exotic pests and diseases' (Nairn *et al.* 1996, p. 140). The recommendation will no doubt be welcomed by the airlines (which pay for the procedure) and the tourist industry (which expressed concern about tourists being exposed to insecticides) but some sectors of the scientific community are expected to oppose the recommendation. The Report also recommends that 'galley waste and other refuse from international aircraft be disposed of at a municipal or other commercial waste disposal facility under standard waste control measures, and subject to audit by Quarantine Australia' (Recommendation 79). In view of the strict quality controls imposed on the preparation of airline food and the consequent low level of risk involved, and the fact that food refuse swill is no longer fed to pigs in Australia, the current practice of disposal by incineration, deep burial or heat treatment cannot be justified.

7.3 Post-border activities

Post-border programs are the third part of the continuum of quarantine. These activities comprise:

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- monitoring (the 'passive' collection and collation of data on Australia's animal and plant health status);
- surveillance ('active' measures, such as surveys, to detect new diseases and pest incursions or changes in the distribution and prevalence of endemic pests and diseases); and
- preparedness and response (measures for early detection and diagnosis of exotic pest and disease incursions, and contingency plans for their eradication or control).

The Report advocates a nationally coordinated, partnership approach to these post-border activities, including increased government support based on the public good component of activities such as monitoring, surveillance and disease eradication campaigns. Effective monitoring and surveillance networks will be essential to Australia in fulfilling its international obligations. The expectations raised by the SPS Agreement are that member countries will establish scientifically that they are free from pests and diseases, rather than simply claiming such freedom. The imbalance between plant and animal quarantine and health issues is also addressed in the post-border section of the Report. The recommendations on the establishment of an Australian Plant Health Council (analogous to the existing Australian Animal Health Council) and a Chief Plant Protection Officer (analogous to the Chief Veterinary Officer) within the DPIE will go some way to achieving a higher status for plant health and quarantine-related issues. Interested readers are directed to Nairn *et al.* (1996, chapters 9 and 10) for a full discussion of post-border activities.

8. Concluding comment

It is clear from the submissions received and the research undertaken by the Committee that there is serious public concern about the effectiveness of AQIS and the way in which quarantine policy is developed. It is time for a fresh approach to quarantine. The essence of the Committee's recommendations is that the quarantine system can be made more effective and efficient through a partnership approach involving the general public, government and industry, stimulated by a targeted public awareness campaign and greater consultation with the various stakeholders, including the public. There is a need to extend the scope of quarantine to cover the natural environment and to place greater emphasis on pre-border and post-border activities as a means of extending the effectiveness of quarantine policy. Continuing disquiet about current methods of risk analysis on import requests highlights the need for urgent attention to this process to ensure that

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Australia complies with the SPS rules and that quarantine procedures are not used as a non-tariff barrier to trade.

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