

GOVERNMENT RESPONSE

**House of Representatives Standing Committee on
Primary Industries & Regional Services Report on
“Bioprospecting: Discoveries changing the future”**

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Regional Services Report on
"Bioprospecting: Discoveries changing the future"
Government Response

Ch 3: Overcoming impediments in establishing Australian bioindustries

1. The committee recommends that the Commonwealth government
 - increase funding for baseline studies of the Australian biota;
 - target additional funds for collecting activities in bioactive hot spots;
 - fund a larger volume of taxonomic work than at present and ensure sufficient young taxonomists are being trained to undertake this work;
 - provide more funding to maintain and expand existing collections so that they provide a comprehensive coverage of Australia's biota, including microorganisms; and
 - ensure that commercial users contribute in kind or financially, through benefit sharing arrangements, to growing and maintaining collections and databases.

Supported in principle

A key element of the Commonwealth Government's environment policy, *A Better Environment*, is the *National Objectives and Targets for Biodiversity Conservation 2001-2005*. This sets out the ten priority outcomes to be achieved by the Commonwealth and the States and Territories over the next five years. This document has been signed by Commonwealth and five State and Territory Environment Ministers.

Consistent with the Committee's focus on the importance of the study of Australia's biota, the *National Objectives and Targets for Biodiversity Conservation* includes proposed action on taxonomy, such as:

“9.1.2 By 2003, all jurisdictions have identified and mapped the biogeographically important populations of native flora and fauna, taking into account centres of endemism, refuges for primitive species, significant sites for migratory species, critical habitat for threatened species and ecological communities.

9.1.4 By 2005, there is a 20% increase nationally in the number of taxa described for Australian fungi and non-vascular plants; and a 5% increase in the number of taxa described for Australian invertebrates, bacteria and other microorganisms.

9.2.1 By 2005, scientific collections are being conserved and augmented.

9.3.1 By 2003, there is a networked and distributed system of databases that is accessible to scientists, planners, decision-makers and the community containing information about the important components of biodiversity.

9.3.2 By 2005, a universally accessible, Internet-based, integrated Australian flora information system is completed.”

Also, the task of “Identifying Australia’s species” was an area of priority research in the 2001 report Biodiversity Conservation Research: Australia’s Priorities (Australian and New Zealand Environment Conservation Council and the Biological Diversity Advisory Council).

The Government notes that it already provides funding for taxonomy through the Australian Biological Resources Study (ABRS), and through a variety of programs helps to increase baseline knowledge of Australian biota. In addition, ABRS chairs a working group to develop the Australian node of the Global Biodiversity Information Facility (GBIF) and this will be utilised to establish greater linkages between our existing biological databases.

In addition to providing support through the ABRS, taxonomic research in the higher education sector is supported by research programs administered by the Education, Science & Training portfolio, including the Australian Research Council. As a result of the Government’s decision in Backing Australia’s Ability to double funding for ARC competitive research grants over a five year period, it is likely that funding for taxonomic research supported by the ARC will increase, subject to the relative quality of grant applications.

In developing the EPBC access regulations, the Government will consider contributions by commercial users to taxonomic knowledge.

Potential for additional funding for this and other initiatives recommended by the Committee will be considered as part of the paper on the development of biobased industries (response to Recommendation 20 refers).

2. The committee recommends that the Commonwealth government provide additional funding for digitising and networking information about all of Australia's biological resources.

Supported

The Government is supporting the development of mechanisms for digitising and networking information about Australia's important biological resources, particularly those with potential benefits for the Australian community, industry and the environment.

The current Australia's Virtual Herbarium (AVH) project will see all plant records held by the major Commonwealth, State and Territory herbaria digitised and available on-line within five years. This is a major project coordinated by the Council of Heads of Australian Herbaria over several years to capture this information. The Commonwealth, through Environment Australia, is providing \$4 million to this effort.

3. The committee recommends that the Commonwealth government, in consultation with state and territory governments, industry and the research community:

- **develop a national strategy for bioinformatics; and**
- **assist in funding its implementation so that the necessary infrastructure and skills are available to provide efficient access to information about Australia's biota.**

Supported in principle

As a potential step towards developing a National Strategy for Bioinformatics, the Government has funded the production of a scoping report, *Bioinformatics Industry Development - Issues and Opportunities*. The Report was written by an expert group – the Bioinformatics Industry Opportunity Task Force (BIOT) chaired by Dr Tim Littlejohn, Managing Director, Biolateral Pty Ltd. The Report has been published and widely disseminated. The Task Force included industry, research, information technology and investment community expertise.

The scoping report examines Australia's bioinformatics capabilities, identifies market opportunities and impediments to and opportunities for bioinformatics development. The report also proposes options for an integrated national approach to the development of Australia's bioinformatics capability, both as an underpinning platform technology for Australia's bioindustries and a service industry in its own right. The Commonwealth Biotechnology Ministerial Council at its meeting on 7 May 2002 agreed to an approach for the mid-term Review of the National Biotechnology Strategy and decided that bioprospecting and bioinformatics be considered in the context of the Review of the National Biotechnology Strategy.

The Government has also recently announced funding for the establishment of a world class bioinformatics unit at the Wills Medical Research Centre — *The Peter Wills Centre for Bioinformatics*. Funding has also been provided for a specific bioinformatics project in the first round of Biotechnology Innovation Fund (BIF) grants. The project relates to the development of a prototype workstation for bioinformatics research and education.

The Government recently announced that it would provide \$20 million to create a world-class Centre of Excellence in bio-informatics in Tasmania under the Federal Government's \$40 million Intelligent Island program.

4. The committee recommends that Biotechnology Australia and the Attorney-General's Department, in conjunction with the state and territory governments, ensure that information about the ownership of biological resources is compiled, and made publicly available as a single, easily accessible source.

Supported in principle

Up to date information about rights to own and use biological resources for bioprospecting in each jurisdiction will help in promoting industrial and collaborative partnerships in developing bioindustries.

The Government is considering aspects of rights to access biological resources in finalising the EPBC regulations.

During consultations with the States and Territories on the implementation of this recommendation, advice will be sought from the Attorney-General's Department.

The Government will determine appropriate arrangements for making this information available, including through the use of electronic gateways.

5. The committee recommends that the Attorney-General ask the Australian Law Reform Commission:

- **to inquire into the impact on the use of native biota of the different property rights regimes across Australia; and**
- **to recommend on a nationally consistent regime that would facilitate this use, with due consideration of the wider ramifications of any changes.**

Not supported

Subject to the outcome of Recommendation 4, the Government will consider the need for an inquiry by the Australian Law Reform Commission.

6. The committee recommends that Environment Australia, in consultation with state and territory agencies:

- **develop an electronic gateway to information about access arrangements in all jurisdictions; and**
- **take a lead in coordinating the development of a simplified, streamlined system of applying for permits.**

Supported

The Government supports the Committee's recommendation to develop an electronic gateway to information about access arrangements in all jurisdictions. This step has already been included in Environment Australia's planning for implementation of Commonwealth access regulations and as a practical element of a nationally consistent approach.

In developing an electronic gateway to information about access arrangements Environment Australia will discuss with States and Territories the arrangements existing in each of the States and Territories and the establishment of active links to appropriate web sites maintained by each jurisdiction. The goal will be a seamless progression from the point of initial contact to the area of direct responsibility.

7. The committee recommends that the regulations governing access and benefit sharing under section 301 of the *Environment Protection and Biodiversity Conservation Act 1999* be subject to review after 12 months to ensure that they are not impeding the development of opportunities arising from bioprospecting.

Supported in principle

The process for preparing the regulations has involved extensive consultation with all relevant interests and will be further considered by the members of the Commonwealth Biotechnology Ministerial Council before they are finalised.

Access and benefit sharing arrangements are intended to be subject to regular monitoring to ensure the achievement of objectives. At the end of the first twelve months of any scheme on access and benefit sharing, a review would not seem practical, as twelve months is likely to be insufficient time to build up the necessary number of applications to justify a formal review process. That notwithstanding, the scheme will be subject to continuing monitoring over the course of its implementation.

Reviews held elsewhere will help this assessment process, as the operation of the scheme is part of the implementation of the National Strategy for the Conservation of Australia's Biological Diversity. This is subject to five yearly reviews. In addition, the EPBC Act provides that the Act itself is to be reviewed within 10 years of commencement.

Additionally, in the course of progressing a nationally consistent approach, the Government will be sensitive to the value of refinements to the operation of the scheme to assist in achieving common goals.

8. The committee recommends that, when finalising the regulations under section 301 of the *Environment Protection and Biodiversity Conservation Act 1999*, the Commonwealth government:

- **ensure that the regulations do not create new property rights;**
- **obtain a detailed regulatory impact statement; and**
- **examine fully the implications of the regulations for Australia's access to overseas plant genetic material.**

Supported

Respect for existing property rights underpins both the development of the regulations under section 301 of the *Environment Protection and Biodiversity Conservation Act 1999* and the earlier recommendations of the (Voumard) Inquiry into Access to Biological Resources in Commonwealth Areas.

The Government released the draft regulations for public comment on 7 September 2001. As part of the process for finalising the regulations, the Government will consider a detailed regulatory impact statement prepared by Environment Australia, including the implications of the regulations for Australia's access to overseas plant genetic material.

9. The committee recommends that Environment Australia and the Department of Agriculture, Fisheries and Forestry - Australia give a high priority to:

- finalising the regulations on access to biological resources and the sharing of benefits from them, under section 301 of the *Environment Protection and Biodiversity Conservation Act 1999*; and
- working with state and territory governments to establish nationally consistent arrangements.

Supported

The Government agrees that the finalisation of the regulations on access to biological resources and benefit sharing arrangements should be concluded quickly.

Environment Australia, in consultation with other Commonwealth departments and agencies, including Agriculture Fisheries and Forestry - Australia, is working to complete this task without delay.

The Government is also committed to working with the States and Territories to achieve nationally consistent regimes on access. This forms part of the Government's National Biotechnology Strategy and is consistent with the terms of the National Strategy for the Conservation of Australia's Biological Diversity. Representatives of Commonwealth, State and Territory agencies with responsibilities for this issue met in Adelaide on 8 November 2001 and affirmed the importance of collaboration.

10. The committee recommends that, when granting access to biological resources, the Commonwealth government:

- ensure access for non commercial activities; and
- with commercial activities, ensure a balance between open competitive access and restricting access by granting exclusive use.
- Exclusivity should be restricted by permit conditions such as duration, area or species collected, and uses to be explored.

Supported in principle

A key objective in the Government's approach on access to biological resources is to balance the Government's interests as owner/manager of such resources and those of its broader interests, roles and responsibilities which include promoting research, development and innovation.

Ensuring facilitated access to biological resources for non-commercial scientific research is an important outcome for the EPBC regulations.

In addition, the Government will address exclusivity considerations in finalising its regulations. These will need to be consistent with principles of competitive neutrality.

11. The committee recommends that, when finalising benefit sharing arrangements, the Commonwealth government ensure that commercial activity is not discouraged by the benefits bioprospectors are required to provide.

- **When negotiating non monetary benefits, emphasis should be placed on providing support for regional development and the lodging of information and specimens in publicly accessible databases and collections (see recommendation 1).**

Supported in principle

The Government recognises that increasingly benefit-sharing considerations are becoming an integral part of access regimes.

There is a need to achieve an appropriate balance between encouraging the further development of industries based on bioprospecting and achieving reasonable returns for the community from the use of resources. This needs to take into account commercial practice and market forces. It also needs to ensure that benefit sharing requirements do not conflict with or undermine existing rights to own and use resources.

In the development of the regulations the Government will take into account regional development considerations and contributions to taxonomic knowledge through lodgement of information and specimens in publicly accessible databases and collections.

The details of these matters will be considered by the Government in finalising the EPBC access regulations.

12. The committee recommends that the *Environment Protection and Biodiversity Conservation Act 1999* be amended to extend export controls to all elements of Australia's non human, native biota, with particular reference to micro-organisms.

Supported in principle

In releasing the draft amendments to the *Environment Protection and Biodiversity Conservation Act 1999* Regulations to provide for access and benefit-sharing, the Government has directed Environment Australia to work with the Australian Institute of Marine Science on the issue of the export of microbes.

These discussions have been productive and are continuing with a focus on evaluating the practical considerations of the identification and handling of microbes. This will allow a detailed proposal to be developed and considered. Environment Australia is consulting each of the Biotechnology Australia agencies as well as State and Territory bodies.

13. The committee recommends that the Commonwealth government ensure that the major publicly funded research organizations are sufficiently well funded to purchase the equipment needed to meet present and future demands.

Supported in principle

Public funding for biodiscovery is provided in a competitive environment that provides for contestability and priority setting against competing research needs.

The Government has decided that between \$150-170 million of ARC grants arising from the 2003 funding round will be allocated to four priority research areas, one of which is “genome:phenome” research. Funding for research infrastructure to support this (and other quality) research will be met from programs administered by the DEST portfolio. In particular, *Backing Australia's Ability* boosted university research infrastructure by \$583 million over five years.

The Government has provided \$14 million to the Australian Genome Research Facility as one of the Major National Research Facilities funded as a part of *Backing Australia's Ability*. The facility will provide state-of-the-art facilities to the scientific community and industry, that will enable the large-scale generation of genomic and genetic data including, DNA sequencing, genotyping and genetic mapping, transcription analysis and cloned gene libraries. The facility will centralise and consolidate genomics data and research from the fields of agriculture and medicine.

The ARC and the Grains Research & Development Corporation established a major research entity known as the Australian Centre for Plant Functional Genomics at the University of Adelaide in May 2002. The Centre will contribute to ensure that Australia maintains its international competitiveness in a crucial area of plant science research and that continuous innovation occurs in crop production and processing in the grains industry.

14. The committee recommends that the Commonwealth government facilitate the establishment of a national biotechnology transfer centre that should include scaling up facilities for bioprocessing.

Supported in principle

The Government will examine the proposal for the establishment of a national biotechnology transfer centre as part of its general commitment to promote innovation.

15. The committee recommends that the Commonwealth government:

- **audit the availability of skills needed in the biotechnology sector, including those required to develop bioindustries;**
- **ensure that relevant training is available; and**
- **promote uptake of training opportunities.**

Supported

A study on Learning Outcomes and Curriculum Development in Biotechnology has been commissioned by the Australian Universities Teaching Committee, a national body aimed at improving Australian university teaching and learning. It will assess the current status of biotechnology teaching in Australian universities and provides for an international benchmark of biotechnology teaching and learning. Employment trends and needs for the emerging biotechnology industry in Australia will be assessed, providing information to improve the biotechnology teaching and learning processes in Australian universities.

The study is being conducted by a team of researchers from the University of New South Wales, the University of Queensland and Flinders University. The first phase of the project will be completed by the end of 2001 and the report is due by mid-2002.

16. The committee recommends that the Commonwealth government:

- continue to provide extensive information about biotechnology in its public awareness program; and
- ensure that the contribution of bioprospecting and biodiscovery to economic development is covered in this program, including the benefits that bioindustries offer to the environment, medicine and agriculture.

Supported

The Government considers that communicating information about bioprospecting is best undertaken as part of a balanced, coherent, broader biotechnology public awareness strategy. The Government will direct Biotechnology Australia to consider the contribution made by bioprospecting and biodiversity to economic development and what elements could be covered in its public awareness program. Biotechnology Australia will take a proposal to the Commonwealth Biotechnology Ministerial Council for consideration.

Ch 4: Regional activity

17. The committee recommends that Biotechnology Australia make information about grant programs available on its web site in a clear and easily accessible form, and provide a link to the GrantsLINK web site.

Supported

The Government will ensure that clear links to information about generic grant programs are available from the Biotechnology Australia website, and that there are appropriate cross-linkages to those of its member agencies, including AFFA, and a reciprocal link to the GrantsLINK website.

18. The committee recommends that the Rural Industries Research and Development Corporation:

- **aggregate funds into a specific program for researching and promoting the development of industries based on bioprospecting Australia's native biota and bioprocessing using introduced plants; and**
- **implement this program in the context of all the components of business development involved in establishing a new industry.**

Not supported

While Rural Industries Research & Development Corporation (RIRDC) will not be pursuing the aggregation option at this time, it will continue to invest strongly in the bioprospecting agenda.

RIRDC has a wide industry coverage ranging from the new and emerging industries to established industries like rice, chicken meat and honey. Many of the research programs for these industries are funding projects which involve bioprospecting and bioprocessing.

Each of RIRDC's research programs is managed in close partnership with industry. These partnerships generate strong benefits in terms of the focus of the programs, getting the results adopted and getting the industry to provide significant funds for the research. RIRDC considers that aggregation of this research effort into a specific program would weaken this partnership.

RIRDC is also considering the development of a specific industry plan where the directions of its research effort can be more clearly delineated. Once this is done, RIRDC will then give consideration again to the appropriate delivery mechanism.

The Government accepts RIRDC's approach.

Ch 5: Environmental impacts

19. The committee recommends that Environment Australia give a high priority to continuing its work with state and territory governments to develop a nationally consistent approach to establishing conservation areas that comprehensively cover all species and ecosystems.

Supported

Environment Australia is giving a high priority to its work with State and Territory governments in establishing conservation areas that comprehensively cover all species and ecosystems.

Building on the 8 million hectares added to the national reserve system since 1996, the Government intends to expand the national reserve system by:

- working with the State and Territory governments and regional organizations to establish, by 2005, a representative sample of each bioregion within the national reserve system; and
- supporting the purchase of property for addition to the national reserve system through the National Heritage Trust.

Ch 6: A national strategy for the development of new biobased industries

20. The committee recommends that:

- a national strategy be developed to promote bioprospecting, bioprocessing and the establishment of industries based on these activities; and
- Biotechnology Australia sponsor the development and implementation of the strategy.
- The strategy should:
 - indicate how bioprospecting will be used over the next two decades to contribute to existing industries and develop new ones;
 - provide information about the government support available for bioproduct development, especially for the earlier stages in the bioproduct chain;
 - promote collaboration and networking; and
 - address biobased industry development in regional Australia.

Supported in principle

The Commonwealth Biotechnology Ministerial Council at its meeting on 7 May 2002 agreed to an approach for the mid-term Review of the National Biotechnology Strategy and decided that bioprospecting and bioinformatics be considered in the context of the Review of the National Biotechnology Strategy.

21. The committee recommends that Biotechnology Australia be sufficiently funded to develop and implement the strategy.

Supported in principle

It is likely that funding issues for Biotechnology Australia will be considered by the government in the context of the review of the government's National Biotechnology Strategy.

22. The committee recommends that Department of Agriculture, Fisheries and Forestry - Australia:

- **give a higher profile to promoting the development and establishment of industries based on bioprospecting and bioprocessing; and**
- **work closely with AusIndustry to promote opportunities for developing industries from bioprospecting and bioprocessing.**

Supported in principle

The Government is committed to boosting innovation in Australia, particularly through the series of measures introduced in January 2001 under the Backing Australia's Ability package. Also as identified by the committee, a number of other programs and support are aimed at enhancing uptake of new technology. AFFA will continue to work with the Department of Industry, Tourism and Sport, Biotechnology Australia and AusIndustry to ensure that companies are informed about the opportunities available to access such Government assistance programs.

As a member agency of Biotechnology Australia, AFFA would have direct involvement in the development of any national strategy, under the umbrella of the National Biotechnology Strategy, to promote bioprospecting, bioprocessing and industries based on these activities. AFFA would be required to take on additional responsibilities that might emerge as part of the implementation of such a national strategy.

In line with past practice, it is expected that the Minister for Agriculture, Fisheries & Forestry will write to the rural Research & Development Corporations early in the term of the Government setting out the Government's priority areas for R&D. "Bioprospecting" may be added to the list of priority activities identified by the Minister.

It should be noted that Rural Industries Research and Development Corporation sponsored a session entitled Innovative Products from Agriculture as part of the 2002 Outlook Conference, hosted by the Australian Bureau of Agricultural and Resource Economics. The session gave prominence to the potential of new products based on bioprocessing.

The Government agrees that agencies should exploit opportunities for closer working relationships to increase impact of programs on industry development. An examination of eligibility criteria for various innovation and development programs, run by AFFA and AusIndustry, has not established structural impediments to applications from companies or individuals who are involved in biobased industries.