

CHAPTER 4

A NATIONAL APPROACH

Role of State and Territory Governments

4.1 The States/Territories are moving towards integrated catchment management involving the community, industry and all levels of government.⁵⁰⁸ The benefits of this approach include:

- . the coordination of agencies allowing for better informed decision making;
- . streamlining of organisation procedures;
- . definition of responsibilities, powers and roles of agencies;
- . definition of boundaries;
- . the setting of environmental targets;
- . focus on community involvement and the use of their resources, energy and views on land use; and
- . coordination of community activities.

4.2 The States/Territories which have had significant problems with blue-green algal blooms have formed blue-green algal task forces, and have State/Territory contingency plans and regional bodies to develop local contingency plans. This focus has enabled better communications, assessment of priorities, research coordination, data collection and the implementation of more streamlined arrangements for algal identification, cell counts and toxicity testing.

4.3 The Regional catchment groups are sufficiently large to deal with problems of the magnitude of toxic algae, and they can be self monitoring. The role of the regional committees is to provide community advice and develop and implement management strategies ensuring safe water supplies, while coordinating committees utilise technical and professional regional officers and central specialists to support the regional committees. The New South Wales State Algal Coordinating Committee has members representing Queensland, Victoria and South Australia, and there is an interchange system facilitating information flow.

508 Ray L Wallis and Sally J Robinson, 'Integrated Catchment Management: the Western Australian Experience', *Environment*, 33(10) December 1991, pp.31-33.

4.4 Under the Constitution, the States have the primary responsibility for environmental issues. State instrumentalities therefore need to consider all potential users of the river system⁵⁰⁹ and need to balance community expectations against the management of environmental and water resources. Trade-offs between environmental and community needs will require community involvement in establishing acceptability of various options. An effective system will vary from State to State depending on the existing government organisation, but will only succeed with the support and involvement of both rural and urban communities.

4.5 The Committee was told that lack of communication between some departments was causing confusion⁵¹⁰ and that agency culture can be a problem.⁵¹¹ For example, problems were experienced at Edenhope because of the lack of a clear definition of responsibility.⁵¹² Also the Moree Plains Shire Council planned to establish a wetland at Mungindi and were able to acquire a funding grant and the support of the Departments of Water Resources and Public Works. However, the New South Wales Environment Protection Authority expressed concerns relating to the project late in the planning process. These situations can only be overcome if there is a clear definition of institutional responsibilities and accountabilities, where responsibility is shared, and there is timely communication and consultation.

4.6 The integrated catchment management approach will facilitate the expeditious resolution of disagreements in relation to interstate water sharing. A problem has arisen in relation to the reliance on significant inflow from Queensland to New South Wales,⁵¹³ and this matter can be expected to get worse as Queensland develops its own irrigation industry with the effect of further reducing flow. This matter will fall within the jurisdiction of the Dumaresq-Barwon Border Rivers Commission and under the umbrella of the Murray-Darling Basin Commission and will be considered in the ICM approach.

509 Treweeke, Evidence, 4 August 1993, p.659.

510 Jones, Evidence, 5 August 1993, p.701.

511 Robinson, Evidence, 22 October 1992, p.370.

512 Hall, Submission No.14, p.2.

513 Arnott, Evidence, 5 August 1993, p.711.

4.7 One of the major roles of State/Territory governments is to provide the regulatory framework which sets standards to be achieved by upstream communities. Single issues managed by separate government authorities have led to a plethora of regulations. Governments are now working at overcoming this type of regulatory fragmentation, and any new legislation should link natural resource industries and the environment.

Recommendation 30

The Committee recommends that the development of new legislation or other regulatory measures be required to demonstrate that due consideration has been given to the link between the natural resource industries and the environment.

4.8 The regulatory mechanisms need to clarify the responsibilities and roles of various government agencies. The Committee was told that even when there were acts of parliament which specified the responsibilities of particular government agencies, there was scope for them to deny that issues and responsibilities fell within their charter.⁵¹⁴

Recommendation 31

The Committee recommends that as part of the National Water Quality Management Strategy, regulatory mechanisms be reviewed to ensure that the respective responsibilities and roles of various government agencies are clearly defined.

4.9 The Committee was told that the introduction of legislation to ensure maintenance of adequate environmental flows should be considered.⁵¹⁵ The agricultural industry should be subject to the same regulations and planning controls, in relation to matters such as

514 Cauchi, Evidence, 3 August 1993, p.539.

515 Culgoa-Balonne Minor Distributary System Water Users' Association, Submission No.37, p.10.

location and effluent discharge, as other industries.⁵¹⁶ This approach would require that farmers' land rights also need to be recognised in determining future strategies and should be clarified at the State/Territory level.

4.10 The counter view was that incentives would be more effective in improving agricultural techniques than a regulatory approach.⁵¹⁷ The view was also given that regulations on one side of the river should be applicable to the other side even if it is across a State/Territory border.

Recommendation 32

The Committee recommends that as part of the National Water Quality Management Strategy, consideration be given to the effectiveness of incentive schemes for improving agricultural techniques in relation to maintaining water quality.

4.11 When State/Territory and local authorities are responsible for the allocation of water rights, these bodies need to clarify the rights to compensation when water rights are not met due to an over-allocation upstream. The Committee was told that there was a need for more control of water extraction in terms of monitoring quantity and rate of removal.⁵¹⁸

4.12 Different States/Territories have approached these matters in different ways. For example, Western Australia has developed Environmental Protection Policies and Statements of Planning Policy to ensure implementation of environmental management targets for the catchments and the development of industry codes of practice. In Western Australia, the focus on environmental protection may mean increasing restraints on agricultural developments.⁵¹⁹ Western Australia has moved to a regional allocation approach which integrates

516 Cullen, Submission No. 42, p.7.

517 Murray River Management Board and Murray Irrigation Area and District Management Board, Submission No.52, p.3.

518 Arnott, Evidence, 5 August 1993, p.710.

519 Office of Premier, Western Australia, Submission No.47, p.6-7.

a conservation strategy with other environmental needs.⁵²⁰ In 1990, the Office of Catchment Management was established as the focus for integrated catchment management.

4.13 The trend towards 'corporate agriculture' has made large irrigation projects economically viable without government financial support⁵²¹ and governments have less influence over these projects than State/Territory supported projects. For example, Cubbie Station is an integrated water conservation and management project near Dirranbandi in Queensland which aims to achieve efficient use of water by deep storage reservoirs to reduce evaporation, no runoff and the use of floodplains in a manner which enables the continued passage of flood water.⁵²²

4.14 Research has shown that the farmers' main source of information on irrigation is the people selling irrigation equipment or the media.⁵²³ There needs to be infrastructure that enables the community to get information on water quality and the efficient use of irrigation water quickly. The Committee was told that there was room for improvement in the development of clear lines of communication between those in the field and those required to make the decisions. The role of the government is the dissemination of information to the community, who can then develop and implement their own programs.⁵²⁴

4.15 The Committee was told that the provision of manuals to show people how to do things was preferable to a regulatory approach.⁵²⁵ States/Territories are preparing information sheets and booklets aimed at increasing public awareness. For example, New South Wales Department of Water Resources has produced a set of guidelines under the interim plan for unregulated flow management. Under these

520 Office of Premier, Western Australia, Submission No.47, p.6.

521 Culgoa-Balonne Minor Distributary System Water Users' Association, Submission No.37, p.3.

522 Cubbie Station, Submission No.36, p.1.

523 Day, Evidence, 12 August 1993, p.818-9.

524 Day, Evidence, 12 August 1993, p.812.

525 Blainey, Evidence, 2 August 1993, p.470.

guidelines, farm storage dams are used to supplement reduced licence allocations with unregulated flows.⁵²⁶

Role of Local Governments

4.16 Local authorities have a primary role in the implementation of environmental policies in their areas of jurisdiction and therefore in the development of policies or contingency plans in relation to blue-green algal blooms. Under the total catchment management concept, the State/Territory and local governments have the opportunity to work together to develop long term strategies to ensure the financial viability of schemes and select the most cost effective alternative to meet predetermined objectives set by the community.⁵²⁷ Local governments provide the formal link between the community and State/Territory governments and can develop the community's appreciation of bureaucratic processes of State/Territory and Federal governments.

4.17 Local authorities often control water supply, sewage disposal and planning of developments. There are other cases, however, when local authorities do not have control over the total management of the catchment area, and a number of agencies may be responsible for water and waste water services, storm water and rural drainage. For example, the Campaspe Region Water Authority does not have control over the management of the catchment area.⁵²⁸ The Shepparton Water Board is responsible for water and waste water services but not for storm water and rural drainage.⁵²⁹ In Victoria, the Rural Water Corporation has responsibility for the management of the river and catchment areas.⁵³⁰

4.18 These situations emphasise the need for a coordinated and cooperative approach. A common set of standards will help address interregional inequities, and the policing of standards is important to

526 Browne, Evidence, 5 August 1993, p.715

527 The Response of the Queensland Government to the Industry Commission's draft Report on Water Resources and Waste Water Disposal. May 1992 p. 4.

528 Campaspe Region Water Authority, Submission No.32, p.2.

529 Shepparton Water Board, Submission No.97, p.7.

530 Shepparton Water Board, Submission No.97, p.12.

prevent illegal water diversion and pollution.⁵³¹ The Committee sees the step to reduce the number of water authorities in Victoria from 120 to about 30 as a positive step in pooling financial and human resources and coordinating tasks.

4.19 The Moree Plains Shire Council has established a development committee which aims not only to improve water availability, quality and effluent use but also:

to conduct suitable forums to ensure that the overall community is aware of the benefits, issues, surveys and investigations that have been undertaken in regards to water quality and quantity; and finally, to lead the community in any joint venture approach to water development.⁵³²

The Condamine-Balonne Water Committee has prepared a set of training notes for water quality monitoring.⁵³³ As the integrated catchment management concept develops, it is expected that other local government bodies will expand their role in it.

4.20 There needs to be some sort of public accountability mechanisms which require reporting to the community, for example, groups managing integrated catchment management systems could provide annual reports to enable an audit of their activities, and provide information for the community. There should be an independent body which can make public the failure of the water suppliers to meet standards, the results of monitoring programs and instances of downgrading of quality of the water provided because of financial constraints.⁵³⁴

4.21 In the past, accountability requirements have led to a reluctance to implement strategies because the increased public scrutiny has

531 Murray-Darling Association Inc (formerly Murray Valley League for Development and Conservation Inc), Submission No.54, p.4.

532 Jones, Evidence, 5 August 1993, p.699.

533 Rayment G and Popawski W (1992) *Training Notes on Sampling for Water Quality Monitoring*, Condamine-Balonne Water Committee, May 1992.

534 The Response of the Queensland Government to the Industry Commission's Draft Report on Water Resources and Waste Water Disposal. May 1992, p.15.

caused everyone to wait for the perfect solution. In some situations it may be necessary to take the best available option rather than do nothing: although there may be some mistakes, there will be progress overall. Problems in this area may be minimised if strategies are devised on the basis of community preferences for water quality standards, in consultation with technical managers making decisions on the communities' behalf.

Role of the Community

4.22 Subsequent to the 1991 algal bloom in the Murray-Darling Basin, there has been a great deal of publicity given to the blue-green algae problem. The public is now more aware of its extent. The drop in the employment levels during the drought has also given an insight into possible future social problems associated with inadequate water availability.⁵³⁵ This has heightened the community awareness of these issues.

4.23 Community involvement is an expensive and slow process, and the community must be well informed to be an active participant in the process. It is the community who pays the increased cost of improved treatments and the willingness to pay determines the water quality. This may create a difficulty in that everyone is involved but the authorities are still responsible, and majority decisions are not always correct in relation to technical and efficiency considerations.

4.24 Substantial progress has been made in communicating the concept of ecologically sustainable water resources in some jurisdictions where successful initiatives have been based on individual approaches to each member of the community. The New South Wales State Algal Coordinating Committee reports that the State Algal Contingency Plan is operating successfully and that the communities are now in a much better position to deal with algal blooms.⁵³⁶

4.25 There must be a balance between providing sufficient information to enable national and State/Territory wide consistency, and the importance of avoiding a bureaucratic takeover of the community

535 Browne, Evidence, 5 August 1993, p.714.

536 New South Wales State Algal Coordinating Committee, Supplementary Submission No.53(a), pp.1-2.

process. It should be a process of the government assisting the local community to manage its own affairs while ensuring a clear decision making process which outlines the ground rules, and clear responsibility and authority for decisions. If government views are imposed on the community, then participation will cease when the funds are no longer forthcoming. If authorities do not have a genuine commitment to take on board community views then the community will become disinterested. Integrated catchment groups should be a partnership which has equal say for all parties.

4.26 It is not clear to what extent the current groups are representative of the community as a whole. It is important that all potential contributors be given the opportunity to participate in the development of local policy and be kept informed. Total catchment management groups must not alienate sections of the local community, including Aboriginal communities, and should be accountable for their performance. All residents within the area covered by an integrated catchment management body should be eligible for and vote for election to these bodies.⁵³⁷

4.27 Community education in relation to algal blooms has largely involved the symptoms and causes but now the emphasis is shifting to management strategies and action plans and is becoming achievement oriented. The Committee was told that the bottom up approach to changes in land management will facilitate the coordination of the social and economic features in developing a strategic plan.⁵³⁸

4.28 There should be more publicity given to successful models so that others can build on successes of those groups. The Committee was told that in some areas community education was still needed as to what the real issues were.⁵³⁹ The extent to which the community now understands the true situation and the necessary measures is uncertain in many areas, and even the level of community concern is not known. Little information is available on the extent of the community's awareness and knowledge, and this information would be beneficial in developing new policy approaches. It is necessary that this be assessed to enable adequate planning of future educational programs.

537 Alexandra, Private Briefing, 26 November 1993, p.33.

538 Smith, Evidence, 12 August 1993, p.833.

539 Austin, Evidence, 3 August 1993, p.630.

Recommendation 33

The Committee recommends that as part the National Water Quality Management Strategy, the state of community awareness in relation to algal blooms be assessed so that specific problem areas can be identified.

4.29 The Chaffey Dam Advisory Committee was held up as an effective model for dealing with environmental problems because it involved landholders, government agencies and members of the total catchment management committee.⁵⁴⁰ The Committee was also given the example of the Nepean Hawkesbury Catchment Management Committee which has members representing 11 councils and 10 government agencies as well as the community.⁵⁴¹

4.30 In contrast, the South Australian River Murray Wetlands Management Committee does not have community members and sees its role as coordinating agency groups and technical agents.⁵⁴² It did invite members of the community with particular expertise to their first workshop on flow management strategy. It will seek community membership once it has determined the options for flow management on a ten year plan.⁵⁴³

4.31 The resources needed to take a regulatory approach are also expensive in order to measure, monitor and report. The resources would be better spent in getting the communities to understand the issues and make the changes.⁵⁴⁴

4.32 Many communities will be slow to develop a collective ownership of the toxic algae problem because of the spatial and temporal separation of cause and effect. Those members of the community who have had algal blooms in farm dams, had to provide alternative water

540 Sinclair, Evidence, 5 August 1993, p.735.

541 Cauchi, Evidence, 3 August 1993, p.543.

542 Jensen, Evidence, 12 August 1993, p.775.

543 Jensen, Evidence, 12 August 1993, p.775-6.

544 Blackmore, Evidence, 27 August 1993, p.908.

supplies for stock, had to truck in water or been subjected to water restrictions when urban water supplies have been affected or have been denied access to recreational areas will have a greater appreciation of the problem.

4.33 In some areas there is still an issue of how to motivate communities that are not interested in addressing the problem. The community must be provided with a clear statement of the purpose of and need for their involvement in the development of the strategy. A system of networking with community leaders can be very effective in stimulating community involvement. The Committee was told that community involvement may be enhanced if the process is driven by a 'champion' who is closely associated with the catchment.⁵⁴⁵

4.34 The media can play an important role in stimulating community involvement. Community support will be greater in areas where information is available in an easily understood form and in manageable quantities, and could be incorporated at all levels in the education system.

4.35 The Committee was told that the word educate implies that 'someone knows and someone else does not and that you are doing them a favour', and so the extension principle which involves the sharing of information and knowledge and working with the community is a better approach.⁵⁴⁶ Getting technical information across to the community groups means building trust and working through issues, not just sending them published information.⁵⁴⁷ It is not sufficient simply to write to community groups and interested parties as a form of consultation.

4.36 Information can be provided by the agricultural extension officers, as they are the people with the communication networks in the agricultural industries.⁵⁴⁸ The Soil Conservation Council in South

545 Hart, Evidence, 27 July 1993, p.421.

546 Sledge, Evidence, 3 August 1993, p.595.

547 Cullen, Evidence, 27 August 1993, p.872.

548 Cullen, Evidence, 27 August 1993, p.873.

Australia has developed a manual and is establishing demonstration sites for field days to show land management techniques.⁵⁴⁹

4.37 Another avenue for providing information for the community is in the preparation of the guidelines provided by the National Water Quality Management Strategy to explain the costs and mechanisms to achieve the water quality levels.⁵⁵⁰ The National Strategy also includes a number of educational seminars around the country, which are also providing information to the regional areas.⁵⁵¹

4.38 Other areas still need attention. For example, with regard to educating the community through schools and universities, Professor Williams pointed out that most textbooks in biology at the first year level are American.⁵⁵² The Murray-Darling Basin Commission is preparing a kit of curriculum materials through the Teachers Released from Industry Program which is suitable for primary and secondary schools.⁵⁵³

4.39 The Committee was told of a number of successful models of total catchment management committees that involve communities. For example, the South Australian Water Resources Council, which advises the Minister of Public Infrastructure, has a majority of community members, representing local government, commerce, industry, farmers, unions, environmental groups and domestic water users, and also includes the chief executives of the four relevant departments.⁵⁵⁴

Landcare

4.40 The Commonwealth National Landcare Program community grants are available to enable the Landcare groups to undertake

549 Butler, Evidence, 12 August 1993, p.837.

550 Lambert, Evidence, 27 August 1993, p.888.

551 Lambert, Evidence, 27 August 1993, p.893.

552 Williams, Evidence, 12 August 1993, p.807.

553 Murray-Darling Basin Ministerial Council, Algal Management Strategy for the Murray-Darling Basin, Draft August 1993, p.19.

554 Barratt, Evidence, 12 August 1993, p.822.

projects.⁵⁵⁵ The Commonwealth Natural Resource Management Strategy program provides \$13 million to support community projects.⁵⁵⁶ Proposals for funding are considered by the relevant total catchment management committees, which consist of community and agency representatives.⁵⁵⁷

4.41 The National Landcare program has had a significant impact in local areas.⁵⁵⁸ Twenty-five per cent of rural landholders are participating in these types of activities and another 25 per cent get this type of information from other sources.⁵⁵⁹ The National Landcare movement is different from the others as it involves hobby farmers, full-time farmers and urban people working together⁵⁶⁰ and provides the opportunity to integrate catchment management on a regional basis. The Landcare movement originally had a focus on land-based, soil-based activities, but there has been a gradual move away from that towards a water-related focus.⁵⁶¹ The Landcare program has been very successful, but there is also a need to reach those members of the community who are not involved with it.

Waterwatch

4.42 The Commonwealth Waterwatch program aims to facilitate a set of standard monitoring processes for community groups. This program is based on the Ribbons of Blue program established in Western Australia. It targets the local community through schools and is designed to reach some members of the community who are not involved with Landcare.⁵⁶² Further, this program helps overcome the

555 Reville Evidence, 27 August 1993, p.893.

556 Blackmore, Evidence, 27 August 1993, p.905.

557 Blackmore, Evidence, 27 August 1993, p.906.

558 Smith, Evidence, 12 August 1993, p.834.

559 Johnson, Evidence, 12 August 1993, p.841.

560 Crawford, Evidence, 12 August 1993, p.842.

561 McDonald, Private Briefing, 26 November 1993, p.32.

562 Phillips, Evidence, 27 August 1993, p.893.

'pass the buck upstream' syndrome.⁵⁶³ This provides information on marked changes within the waterways which can be further tested by the relevant authorities. The Commonwealth will provide \$2-9 million to establish the program which will link with and support State/Territory based programs.⁵⁶⁴

4.43 Streamwatch is a similar program in Sydney, and other groups are operating in South Australia, Queensland and Tasmania.⁵⁶⁵ In Western Australia, some government monitoring has been able to be cut back in areas where the community is gathering data.⁵⁶⁶ State/Territory programs are guided by steering committees which involve the relevant agencies, and the Commonwealth Government will provide \$700,000 to facilitate the process.⁵⁶⁷

4.44 Despite the success of these programs and others, there are still areas where it is difficult to motivate the local communities. Existing government policies may indirectly encourage local communities to wait until a problem becomes critical so that State/Territory and Federal governments will assist. For example, the provision of funds for sewerage systems as discussed in Chapter 2.

Recommendation 34

The Committee recommends that as part of the National Water Quality Management Strategy, a review be conducted of government policies to establish whether there is potential to provide incentives for members of the community to undertake preventative actions in relation to maintaining water quality.

4.45 Local communities may not see the effects of their actions, positive or negative, as the impact may be visible a considerable

563 Phillips, Evidence, 27 August 1993, p.894.

564 Keating, P (1992) Statement on the Environment. Australia's Environment: a natural asset. 21 December 1992 Adelaide, p.14.

565 Phillips, Evidence, 27 August 1993, p.895.

566 Phillips, Evidence, 27 August 1993, p.896.

567 Phillips, Evidence, 27 August 1993, p.896.

distance downstream. Those who experience the effects may not have control over the causes. This can be overcome to some extent by having communities work on a catchment basis. Again, however, there are difficulties when the catchment is extremely large and many members are remote from the area experiencing difficulties. The community may be divided when it comes down to the question of who pays, and ICM committees must have the correct processes for dealing with resource management conflicts.

4.46 It is difficult to measure the extent to which the integrated catchment management concept has been successful in convincing the community to accept the toxic algae problem and be prepared to participate in measures to reduce the frequency and intensity of blooms. It was suggested that providing a water quality update on the weather report would provide feedback to the community on their success or further problems.

Role of the Commonwealth

4.47 Under the Constitution, the Commonwealth Government does not have jurisdiction over environmental issues. The Commonwealth does, however, have a role in Australia's economic wellbeing and hence a concern in relation to the sustainability of water resources to meet urban, rural and industrial needs. The Commonwealth's role is one of leadership and its water policy relates to the efficient, sustainable and equitable utilisation and development of the nation's water resources.⁵⁶⁸ The Commonwealth is actively involved in national forums to promote this policy, and is participating in the development of a comprehensive strategic approach to the water resources issue.

4.48 The Commonwealth's participation is through: the Agriculture and Resource Management Council; the Murray-Darling Basin Initiative; the Federal Water Resources Assistance Program; and other financial assistance programs, such as the Land and Water Resources Research and Development Corporation. The Commonwealth seeks to foster cooperation from the community, industry and governments and

568 Department of Primary Industries and Energy, Submission No.91, p.4.

where possible to provide institutional arrangements and resolve conflicts enabling sustainable use of Australia's water resources.⁵⁶⁹

4.49 The Commonwealth can facilitate the implementation of a national water management program through resource use changes, and has considered aspects such as access rights, market and regulatory approaches, conflict resolution mechanisms and information exchange.⁵⁷⁰

4.50 The Commonwealth is also involved in a number of other related activities. The Government is required to demonstrate the adequacy of their management of Commonwealth land and land use policies in relation to sound resource management.⁵⁷¹ The Commonwealth Environment Protection Agency is looking at methods of keeping Australian industries up to date on available technologies for reducing pollution levels.⁵⁷² In 1992, the Industry Commission finalised its inquiry into *Water Resources and Waste Water Disposal*.

4.51 The National Landcare Program links a number of programs in the Environment portfolio and Primary Industries and Energy portfolio such as Landcare, the National Soil Conservation Program, Federal Water Resources Assistance Program, the One Billion Trees Program and other programs relating to forestry, water resources and soil conservation.⁵⁷³ The funding of the National Landcare Program for community groups will enable joint projects, reduce administrative costs and provide coordination of programs.

569 Department of Primary Industries and Energy, Submission No.91, p.5; Commonwealth Environment Protection Agency, Submission No.93, p.10.

570 The National Landcare Program. Discussion Paper. *Sustainable Natural Resource Management - Integration of Primary Industries and Energy Programs*. Department of Primary Industries and Energy, April 1992, p.8.

571 The National Landcare Program. Discussion Paper. *Sustainable Natural Resource Management - Integration of Primary Industries and Energy Programs*. Department of Primary Industries and Energy, April 1992, p.8.

572 Commonwealth Environment Protection Agency, Submission No.93, p.10.

573 The National Landcare Program. Discussion paper: *Sustainable Natural Resource management Integration of Primary Industries and Energy Programs*, Department of Primary Industries and Energy April 1992.

4.52 The Commonwealth supports the integrated approach now being taken to water resource issues, which brings together agricultural, industry and community groups to develop strategies which will provide economic benefits as well as sustaining the environment. As part of the Commonwealth's commitment to an integrated approach, the *Natural Resources Management (Financial Assistance) Act 1992*⁵⁷⁴ establishes a National Landcare Advisory Committee and enables funding for integrated resource management. The Federal Government may also exercise some control over agricultural industries through powers over external affairs, trade and commerce, corporations, taxation, customs and excise, and the fiscal powers under section 96 of the Constitution in relation to providing financial assistance to the States.

4.53 The provision of substantial amounts of funding is to stimulate action to address water resources and other landcare issues through partnership arrangements with the States/Territories. Some taxation incentives are also available under Sections 51(1) and 75(b) and (d) of the *Income Tax Assessment Act 1936* to assist primary producers with soil and water conservation management, as well as the 150 per cent tax deductions for relevant research and development projects, such as the Zootech research into zooplankton culture in sewage stabilisation ponds.⁵⁷⁵ Tax incentives are less effective in times of recession, and grants and rebates for money spent on conservation or efficient water use may be more appropriate. The South Australian Soil Conservation Council considered that more incentive monies should be made available for items such as riparian zone protection.⁵⁷⁶

4.54 The Commonwealth also has a role in funding research. The Commonwealth Environment Protection Agency commissions research into environmental resources: CEPA commissioned a report on Seeking Solutions Towards Healthy Rivers, and has instigated the Monitoring of River Health Initiative. The CSIRO has provided \$3 million to research the effects of changes in water flows, toxicology, biological options and conceptual modelling. The Land and Water Resources Research and Development Corporation also coordinates and funds research projects, and has a \$10.5 million budget. The Land and Water

574 *Natural Resources Management (Financial Assistance) Act 1992*, No.242 of 1992.

575 Zootech, Submission No.68, p.8.

576 Smith, Evidence, 12 August 1993, p. 837-8

Resources Research and Development Corporation has given river research a priority in its strategic plan, identifying issues such as flow requirements and development of indicators in river health both in stream and flood plains.⁵⁷⁷ Further, a Cooperative Research Centre for Freshwater Ecology has been established at the University of Canberra. The Department of Environment, Sport and Territories has established a program on the Investigation of Environmental Flow Requirements.⁵⁷⁸

4.55 The Commonwealth also has a role in increasing public awareness, in community, landholders' and farmers' education, and in information distribution.

A National Approach

4.56 During the inquiry the Committee was impressed with the extent to which cooperation between and within the three levels of government and the community was improving. The Committee was told that there had been a 200 per cent improvement in coordination over the previous three years, and there was improved communication.⁵⁷⁹

4.57 The Inter-governmental Agreement on the Environment facilitates a national approach and the proposed National Environment Protection Authority will be able to provide the national oversight.⁵⁸⁰ Under this arrangement the States/Territories will vote on national action,⁵⁸¹ and the ministerial council will determine the national environmental protection measures for water.⁵⁸² The Inter-governmental Agreement on the Environment also provides a greater opportunity for local governments to play a more prominent role.

577 Murray-Darling Basin Ministerial Council, *Algal Management Strategy for the Murray-Darling Basin*, Draft August 1993, p.7.

578 Murray-Darling Basin Ministerial Council, *Algal Management Strategy for the Murray-Darling Basin Draft*, August 1993, p.7.

579 Wardle, Evidence, 2 August 1993, p.514-5.

580 Lambert, Evidence, 27 August 1993, p.886.

581 Lambert, Evidence, 27 August 1993, p.899.

582 Lambert, Evidence, 27 August 1993, p.886.

4.58 The Agriculture and Resource Management Council of Australia and New Zealand, formerly the Australian Water Resources Council (AWRC), includes agriculture, soil and water State/Territories and Federal ministers and provides a whole systems approach. The ARMCANZ is developing a shared policy framework on issues of national concern, and has formed an Algal Blooms Task Force which is preparing a national strategy. A national algal data base is one example of the items on the ARMCANZ agenda.

4.59 The Murray-Darling Basin Commission involves New South Wales, Victoria, South Australia, Queensland and the Commonwealth Governments and is developing an algal management strategy which addresses five key approaches:

- . improved flow regimes and flow management;
- . reduced nutrient concentrations in the streams and storages of the basin;
- . heightened community awareness;
- . improved scientific knowledge; and
- . progressive refinement of the strategy.⁵⁸³

The strategy outlines the roles of the community, local, State/Territory and Commonwealth governments as well as the Commission, research institutions and industry.⁵⁸⁴

National Water Quality Management Strategy

4.60 The National Water Quality Management Strategy aims to integrate environment and resource interests. Both the Australian and New Zealand Environment and Conservation Council, and Agriculture and Resource Management Council of Australia and New Zealand are involved in its formulation and implementation.⁵⁸⁵ The strategy must

583 Murray-Darling Basin Ministerial Council, *Algal Management Strategy for the Murray-Darling Basin*, Draft, August 1993, p.23.

584 Murray-Darling Basin Ministerial Council. *Algal Management Strategy for the Murray-Darling Basins*. Draft, August 1993, pp.29-30.

585 Lambert, Evidence, 27 August 1993, p. 887.

be supported by and enforced in the States/Territories to be effectively implemented.⁵⁸⁶

4.61 It is important that the national guidelines on water quality be sufficiently flexible to be able to be applied to specific locations, and should have an ecological quality requirement rather than a purely physio-chemical basis. Water quality criteria should depend on use (including environmental) and may need to be reviewed as more information becomes available.

Recommendation 35

The Committee recommends that the guidelines for the National Water Quality Management Strategy be based on environmental criteria as well as physio-chemical factors.

Recommendation 36

The Committee recommends that the guidelines for the National Water Quality Management Strategy be sufficiently flexible to accommodate the natural variability in Australian freshwater ecosystems.

4.62 There is also a need to develop performance indicators to measure the effectiveness of outcomes of the proposed strategies in relation to water quality. The determination of performance targets should involve community, industry and regulatory authorities and the relevant government agencies. There need to be clearly defined roles for local, State/Territory and Federal agencies and governments to address catchment specific requirements in relation to water quality.

586 Australian Conservation Foundation, Supplementary Submission No.75(a), p.1.

Recommendation 37

The Committee recommends that the development of performance indicators to measure the effectiveness of outcomes of proposed strategies in relation to water quality be an integral part of integrated catchment management.

Coordinated Control of Major Catchments

4.63 Across Australia there has been a strong move towards integrated catchment management involving the community, industry and all levels of government. The ICM movement has enormous potential to address the environmental problems involved in the management of our waterways, but there are still some matters to be resolved.

4.64 It is essential that adequate resources are supplied to assist with the enormous tasks expected of these groups. The question is what proportion of the total spending on resource management is allocated and controlled by the ICM groups responsible for the catchment.

Recommendation 38

The Committee recommends that adequate funding of integrated catchment management bodies be ensured, possibly as a proportion of the total expenditure on resource management.

4.65 The Committee was told that there was still some duplication in situations where government instrumentalities did not talk to each other.⁵⁸⁷ Coordination of government agencies is essential to provide support and resources for enthusiastic community groups as well as situations where communities are difficult to motivate. There were examples where problems were still being sorted out.

4.66 Another example is the establishment of a coordinating and managing body, the Hawkesbury Nepean Catchment Management Trust, to bring together the multitude of agencies working within that

587 Cauchi, Evidence, 3 August 1993, p.546.

catchment. The Committee notes, however, that this will not include the New South Wales Department of Water Resources or the Department of Public Works and will only involve the lower part of the catchment.⁵⁸⁸ The Trust will rely on existing rights and various mechanisms to require agencies to provide their test results and research information.⁵⁸⁹

4.67 Little is known about the extent to which total catchment management committees and other bodies actually represent the community as a whole. The predominance of rural or urban members in any one area may not always reflect the views of the community as a whole. Insufficient is known of the awareness and support of the community as a whole even in areas where there are very active catchment management committees.

Recommendation 39

The Committee recommends that community representatives be elected by their communities to positions on integrated catchment management committees.

4.68 The Committee found that there was very little support for the formation of an additional national body to oversight the algal situation. Any additional functions or powers should be given to one of the existing bodies, or to the National Environment Protection Authority when it is formed with an appropriate resource allocation. The solution to the algae problem must be addressed on many fronts and this will be difficult through a single authority.⁵⁹⁰

4.69 On the other hand, a plethora of agencies can hinder the process of effective management if everyone is involved but no one is ultimately responsible.⁵⁹¹ There is a need for an effective delineation of roles and responsibilities, and clear definition and separation of powers in all

588 Rozzoli, Evidence, 3 August 1993, p.567.

589 Rozzoli, Evidence, 3 August 1993, p.566.

590 Cauchi, Evidence, 3 August 1993, p.540.

591 Alexandra, Evidence, 27 July 1993, p.428.

spheres of government.⁵⁹² This must be balanced with the need to have flexible methods to address catchment specific requirements. The Western Australian Water Resources Council was able to identify some gaps in responsibility for the coordinated management of rivers, and these have been addressed with an integrated catchment management approach.⁵⁹³ Professor Burton has pointed out that integrated catchment management is not about amalgamating existing bodies but about increasing the extent of cooperation and coordination between groups and agencies and developing a realistic view.⁵⁹⁴

4.70 The Committee is concerned at the number of bodies involved in the management of the waterways where this type of coordination is not inherent in the system. For example, there is no formal link between the Murray-Darling Basin Commission and the Dumaresq-Barwon Border Rivers Commission; however, one of the Commissioners is on both bodies.⁵⁹⁵

4.71 The Committee was told that there should be a great deal of caution before attempting a major upheaval of the current administrative arrangements because of the complex network of interrelationships which are involved.⁵⁹⁶ For example, in the Murray-Darling Basin Commission, the Ministers represent land, water and the environment. Decisions taken at that level assist the coordination that occurs within government agencies.⁵⁹⁷

4.72 Although there has been an improvement in the cooperation between the three levels of government and the community, there could be greater acknowledgment and encouragement of the role played by local government and communities, which in some areas has been substantial. There is a delicate balance between providing enough information to ensure a national and statewide approach and the

592 Alexandra, Evidence, 27 July 1993, p.429.

593 Office of Premier, Western Australia, Submission No.47, p.3.

594 Burton, J (1993) 'The Big Picture' *Water*, October 1993, p.3.

595 Hutton, Evidence, 27 August 1993, p.918.

596 Blainey, Evidence, 2 August 1993, p.481.

597 Blackmore, Evidence, 27 August 1993, p.904.

bottom up approach needed for communities to feel ownership of the problem.

4.73 There needs to be greater consideration of the impact of individual government policies on other policies. It was suggested that there should be a more multi-objective approach to the management of resources. The example was given that the pumping of water to cool a power station could be done in such a way as to destratify water supply reservoirs.⁵⁹⁸ Consideration of further applications for water allocation should require proof that they would not adversely affect environmental flows.⁵⁹⁹ Another example was the construction of drains to control the excess surface water which had the undesirable effect of fast-tracking nutrients to waterways and wetlands. Reviews of the framework within the States/Territories which determines water allocation need to identify commonalities and areas which require a flexible approach. The consideration of all future policy initiatives must take an integrated approach.

Recommendation 40

The Committee recommends that the relevant government agencies be required to demonstrate that due consideration has been given to the impact of individual policies on other government or community programs in accordance with a multi-objective approach to management of resources.

4.74 There needs to be a systematic long term survey to assess the national status of Australia's waterways, and the long term productive capacity of the nation's water resources. In many catchments there is an urgent need to look at the cumulative environmental impacts of the loss of native vegetation, different agricultural pursuits and industrial and urban uses. Strategic approaches require long and short term measures as well as research and monitoring, and may involve all relevant agencies and the community for the entire catchment.

4.75 Municipal planning schemes should also include consideration of catchment sensitivities and dynamics. Before strategies are

598 Higgins, Evidence, 2 August 1993, p.484.

599 Cullen, Submission No.42, p.10.

implemented, there is a need to balance the potential amount to be spent on the environment against the perceived benefits of other uses.⁶⁰⁰

4.76 The implementation of economic and regulatory measures must also have an integrated catchment focus. Where market forces operate, such as in a system of tradeable water entitlements, governments should monitor these to ensure that the public interest is served.⁶⁰¹ There may need to be a mix of regulatory and market strategies. If a regulatory system is developed, it must be responsive to local situations and be sufficiently flexible to provide adequate volumes of water for all needs in a timely manner. The advantages of a regulatory approach include the direct impact and predictable outcome.⁶⁰² Although incentives will encourage people to improve their management practices, there is still a need for disincentives for misuse.⁶⁰³

Recommendation 41

The Committee recommends that the relevant government agencies be required to demonstrate that due consideration has been given to the integrated catchment management approach in the implementation of economic and regulatory measures.

4.77 The Committee was told that traditionally matters of water quantity were considered to be most important and the decision making process was dominated by engineers.⁶⁰⁴ With the change in emphasis to water quality there should be more influence given to biologists, microbiologists, chemists and limnologists to give resource management greater prominence relative to issues of accountability and economic

600 Arnott, Evidence, 5 August 1993, p.706.

601 The National Landcare Program Discussion Paper: *Sustainable Natural Resource Management -Integration of Primary Industries and Energy Programs*. Department of Primary Industries and Energy. April 1992, p.7.

602 Department of Primary Industries and Energy, Submission No.91, p.8.

603 Wardle, Evidence, 2 August 1993, p.512.

604 Williams, Evidence, 12 August 1993, p.800.

management which have dominated the decision making processes.⁶⁰⁵ There is a concern that guidelines should be developed by the expertise within industries rather than within the regulatory bodies to ensure a practical approach.⁶⁰⁶ This approach must now be broadened to include communities within the catchment.

Legislation

4.78 There is a need for a review of the regulation/legislation pertaining to water resource issues. Any such revision needs to acknowledge the integration of natural resource issues and the environment. State/Territory differences in regulatory control are largely being addressed through the national approach, but there needs to be a flexible approach in considering the capacity of competing users to adjust to limitations on use.

4.79 There are 16 New South Wales government agencies and 32 Acts of Parliament associated with the management of the waterways, which makes the policing of these acts and regulations difficult.⁶⁰⁷ Regulations will only be effective if they are adequately policed. The Committee was told that developers can get away with a lot because they know that councils have limited resources and when caught can avoid penalties on a point of law.⁶⁰⁸ The Committee was told that the prosecution of cotton growers was an incentive for improved management practices.⁶⁰⁹

4.80 In some situations, there is still a need to clarify who has the burden of proof, for example in instances such as fish kills.⁶¹⁰ There is also a need to clarify the legal position in a number of other circumstances. If the responsible authority does not provide adequate warning or restrictions on the use of waterways what is the liability for negligence? Is the erection of warning signs sufficient or is there a

605 Williams, Evidence, 12 August 1993, p.800.

606 Baker, Evidence, 2 August 1993, p.494.

607 Simmons, Evidence, 3 August 1993, p.571.

608 Cauchi, Evidence, 3 August 1993, p.552.

609 Baker, Evidence, 2 August 1993, p.495.

610 Cullen, Submission No.42, p.6.

need to check their effectiveness? The Committee was told that when the New South Wales Department of Water Resources wanted to erect warning signs on the Hawkesbury River this was stopped by the local council who felt that the presence of signs would imply that the other areas were safe.⁶¹¹ Water supply managers may close water supplies as a precautionary measure to avoid any risk of liability. There is also still a need in some situations to clarify who has responsibility for particular water bodies.

4.81 In situations where corporations or individuals have contributed excessive levels of nutrients to the waterways but have subsequently left the business or improved their operating practices to meet current standards and have always met any standards current at the time, what is the potential liability? It may be that nutrients have built up historically, and relatively small contributions by current companies/individuals are sufficient to exceed the threshold level sufficient to promote the development of algal blooms. The legal position of all of these situations will need to be clarified.

Development of Research Priorities/Guidelines for Action

4.82 The Water Resources Management Committee of the former AWRC developed a mechanism to focus research effort into and dissemination of information on algal bloom management. The Committee's National Projects Manager for Algal Bloom Research prepared a register of current research and interests to enable areas of duplication and gaps to be identified and research priorities set for more efficient funding arrangements. This will form a register of research activities, such as those being carried out in universities.

4.83 In 1982 the Australian Water Resources Council stated:

Australia's current water research effort is inadequate, fragmented and poorly balanced, and has substantial gaps. Immediate national needs are sound management, leadership and substantially increased funding.⁶¹²

611 Johnstone, Evidence, 27 July 1993, p.403.

612 Australian Water Resources Council (1982) *Water Research in Australia: New Directions*. Report of the Working Group on Water Research Policy. Australian Water Resources Council. Water Management Series No.1.

This is finally being addressed in the development of the Algal Bloom Research Framework.⁶¹³ The workshop conducted by the Algal Research Board produced a list of priority research areas, looked at the current funding arrangements and considered areas where research was inadequate.⁶¹⁴

4.84 The Murray-Darling Basin Commission is currently investing \$21 million per year in information generation and community action, and some of this will assist the algal problem.⁶¹⁵ There was \$10.5 million being spent on algal research, and much is being done in relation to the general water quality improvement which is of benefit to the study of algae.⁶¹⁶

4.85 The Committee was told that there were still substantial deficiencies in the knowledge of effective farm management techniques which required further research funding,⁶¹⁷ particularly regarding irrigation methods⁶¹⁸ and the encouragement of the principles embodied in the Best Management Practices for farming communities.⁶¹⁹ The irrigation industry also provided substantial funds for research. The South Australian Farmers Federation cited the example of research being done by commodity groups which might be useful to other groups.⁶²⁰

4.86 The Australian Irrigators' Council had taken this a step further and required researchers to explain the adoption process for the

Department of National Development and Energy. Canberra.

613 Johnstone P (1993) *Establishing Priorities for National Algal Bloom Research*. April 1993. AWRC National Project Manager.

614 Agriculture and Resource Management Council of Australia and New Zealand. *Priorities for National Algal Bloom Research*, pp.1-17.

615 Blackmore, Evidence, 27 August 1993, p.902.

616 Johnstone, Evidence, 27 July 1993, p.396.

617 Australian Irrigation Council, Submission No.58, p.7.

618 Cullen, Submission No.42, p.7.

619 National Water Quality Management Strategy *Water Quality Management in the Rural Environment*. Discussion Paper August 1992, p.3.

620 Day, Evidence, 12 August 1993, p.818.

implementation of the results before it funded projects.⁶²¹ The environmental audit of the cotton industry commented on the well developed research and development system, and the strong link between growers and researchers.⁶²² The cotton industry also had extension personnel who worked alongside farmers to implement measures.⁶²³

4.87 The objectives of the National Algal Bloom Research Program included ensuring effective communication between researchers and other parties, identification of information needs and provision of advice on funding and management of research.⁶²⁴ This would enable the establishment of a mechanism for the identification and funding of future research needs, and ensure a coordinated, cost-effective approach, eliminating duplication of effort. This could partially address the need for more coordination of State/Territory-based research programs to complement national programs and address the specific needs of the States/Territories.⁶²⁵

4.88 In his keynote speech to the Water Allocation for the Environment Seminar, in November 1991, Professor Williams suggested that there should be a balance between 'excessive and sensible bureaucracy' and between 'intrusive and enlightened control'.⁶²⁶ The Agriculture and Resource Management Council of Australia and New Zealand is also in a prime position to determine research priorities and prepare guidelines and information dissemination. The Council is currently looking at the reallocation of resources within research fields

621 Wardle, Evidence, 2 August 1993, p.511.

622 Gibb Environmental Sciences and Arbour International. *An Environmental Audit of the Australian Cotton Industry*. Executive Summary. October 1991, p.15.

623 Wardle, Evidence, 2 August 1993, p.511.

624 National Project Manager, Algal Bloom Research, ARMCANZ, Submission No.33, p.4.

625 New South Wales Blue-Green Algae Task Force. Final Report. *Blue Green Algae*, August 1992, p.xix.

626 Williams W (1991) *Water for sustainable resource management within a semi-arid continent*. Seminar and workshop on Water Allocation for the Environment, November 1991. p.14.

and the opportunity to direct research funds into areas where needed.⁶²⁷

4.89 Governments must provide a consistent approach to funding to enable long term research and investigations underpinning effective management. The Murray Valley League pointed out that the funding of short term research projects provided short term answers, and possibly discouraged the dissemination of information to maintain a short term funding advantage.⁶²⁸ It is important to use successful outcomes to justify more resources from the government, and there is a need to reduce the amount of red tape for research projects.

4.90 Professor Williams considered that one of the major constraints in the management of Australia's water resources was a lack of 'stable and consistent attitudes from governments towards funding, implementation of aquatic research and investigations underpinning effective management'.⁶²⁹ For example, the previous core funding of the 13 research centres provided by the Australian Water Research Advisory Council was discontinued by the Land and Water Resources Research and Development Corporation.⁶³⁰

4.91 It is the view of the Committee that a balance must be struck between rushing into doing something merely to be seen to be doing something and the tendency to continue research ad infinitum to justify a preconceived view or to delay making hard decisions. There must, however, be sufficient research to define the efforts which will have the greatest impact.

4.92 Much of the research conducted into overcoming the blue-green algae problem has a larger application to the health of waterways generally.

627 Johnstone, Evidence, 27 July 1993, p.397.

628 Murray-Darling Association Inc (formerly Murray Valley League for Development and Conservation Inc), Submission No.54, p.7.

629 Williams, W.D. *Water for sustainable Resource Management Within a Semi-arid Continent*. Keynote Address for seminar and workshop on Water Allocation for the Environment, November 1991, p.13.

630 Water Studies Centre, Submission No.61, p.3.

Recommendation 42

The Committee recommends that the current level of Commonwealth Government funding for research be maintained if not increased, and that consideration be given to long term funding security for approved research projects.

Market Approach to Water Use

4.93 The Federal Government has the power to allocate funds, introduce taxes and provide tied grants.⁶³¹ There are a number of reviews currently being conducted of water charges as incentives to improve efficiency of irrigation practices. It was suggested that a 'license and charge strategy' may be more effective than prohibiting activities.⁶³² A system of transferable water entitlements is being trialled in some areas, which will allow inefficient consumers to leave the market.⁶³³

4.94 In addressing the causes of blue-green algal blooms and other water resource issues, there may be a need for a mix of regulatory and market strategies. Regulatory systems must be responsive to local situations and be sufficiently flexible to provide adequate volumes of water for all needs in a timely manner. Regulatory approaches may have a more direct impact and a more predictable outcome than other approaches. The introduction of a pollution levy to charge farmers for the consequences of their pollutants downstream would not affect well managed irrigation farms and would only affect those that were causing degradation.⁶³⁴

Early Warning System

4.95 As part of the development of a nationally coordinated early warning system, there needs to be a clear definition of the algal levels at which warnings should be given. Warning limits should depend on

631 Greenpeace Australia, Submission No.2, p.5

632 Cullen, Submission No.42, p.9.

633 Cullen, Submission No. 42, p.8.

634 Cullen, Submission No.42, p.9.

toxicity levels, but until these can be adequately quantified it may be necessary to rely on the type and density of algae present (hence the potential threat). Warnings against inappropriate use may avoid the closure of water storage supplies. Consumers may complain of odours and taste at what is technically a safe level for consumption and may need to be advised accordingly.

4.96 It is essential that sufficient quality information is available in a timely manner to justify to health authorities the need to provide adequate warnings to the public and in some areas to close the water bodies. Water authorities usually prefer to close water supplies rather than risk possible liability. Many of the early warning systems relate to the lack of agreement on what constitutes a problem and at what stage is it worthwhile taking action. The lack of monitoring in recreational areas may also mean that there is no warning system in place.

4.97 The Committee was told of many examples of situations where blooms were detected in the early stages of development and were treated successfully. The Committee was concerned, however, that although developing blooms could be detected in water supplies during routine monitoring, serious blooms in recreational waters may not be detected because of the lack of monitoring, or not reported because of the potential impact on the local tourist industry. This type of information was not forthcoming during the inquiry but may pose a problem in some areas.

4.98 Once a problem has been acknowledged, in most situations mechanisms are in place to treat the bloom or implement satisfactory avoidance procedures. It is very important to advise the public when the waterway has returned to normal and can be used. The impact on the tourist industry can be devastating, and restrictions on the use of water bodies should be seriously considered before implementation.

4.99 One way of informing the public is to provide information as part of the weather report in the same manner as ski reports. This could provide information on any problems, the removal of those problems and provide feedback to integrated catchment management participants on successes within the catchment and areas needing further work.