

Chapter 4

Organisational Linkages on Natural Resource Management in the Herbert River Catchment, 1992-1998

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1. INTRODUCTION

Stakeholder representation and participation is well recognised as an essential element of legitimate and successful natural resource management policy initiatives (eg. Lang 1990; RAC 1993; Gardner and Stern 1996). The degree to which there is adequate and responsive communication and coordination between stakeholders of these initiatives is a key factor underlying the effectiveness and fairness of their outcomes.

Fundamental to the conception of the Integrated Catchment Management (ICM) policy initiative in Queensland is that it will rely on existing authorities/organisations and varied programs of federal, state and local governments and private sector activities to accomplish ICM objectives and implement the catchment management strategy (eg. Department of Primary Industries 1991; Rowland and Begbie 1997). In this institutional context, the system of organisational structures and linkages is a critical mechanisms for facilitating the exchange of information and supporting a coordinated and inclusive approach to catchment management decision-making.

A broad range of community, industry and government organisations with some level of responsibility or an interest in resource use management and planning are present in the Herbert River Catchment. This study investigates the change in the system of organisational structures and linkages on natural resource management within the Herbert River catchment from the inception of the Herbert River Catchment Coordinating Committee in 1993 to 1998.

2. METHODS FOR MONITORING ORGANISATIONAL LINKAGES

1.1 Data Sources

The investigative methodology for this longitudinal study was based on:

- Periodic semi-structured interviews with key members of the Herbert River Catchment Coordinating Committee (HRCCC) to identify government, industry and community organisations with an interest or functional role in natural resource management in the catchment;
- Review of documentation (eg. annual reports, strategic plans, consultancy reports) on local government, statutory authorities and industry organisations in the Herbert River catchment from 1992/93 to 1998/99 to identify linkages and their presentation of natural resource management issues; and
- Review of the minutes of HRCCC meetings and supporting documentation from its inception in March 1993 to December 1998 to identify linkages and related programs.

2.2 Organisational Mapping

The information from the three sources was synthesised to produce organisational mapping of the system of organisational structures and linkages on natural resource management for 1993, 1995 and 1998 for the Herbert River catchment. Organisations were identified under the following groups:

- Federal government
- State government
- Local government
- Industry
- Community
- Collaborative/Joint Ventures

Linkages between organisations were classified as:

- Regulatory/statutory
- Membership
- Secretariat support
- Coordinative/collaborative arrangement/venture
- Proposed joint funding arrangement

Figures 1, 2 and 3 identify the organisations with some role or responsibility on natural resource management in the Herbert River Catchment in 1993, 1995 and 1998 respectively.

3. RELEVANT COMMONWEALTH AND STATE AGENCIES ACTIVE IN THE HERBERT RIVER CATCHMENT, 1993-1998

The key roles and responsibilities of the federal and state government agencies and the related legislation actively engaged in the Herbert River catchment in 1993 are briefly outlined in Table 1.

An examination of Figures 1, 2 and 3 shows that Commonwealth and State Government organisational structures on natural resource management have evolved since the inception of ICM in the Herbert. In 1993, their functional role was predominantly concerned with regulation in respect of land, water, vegetation and coastal management and the provision of research. Over time the number of organisations with an interest has increased and the functional role of these linkages has expanded from this regulatory and research role to also encompass joint funding of collaborative ventures (eg. Herbert Resources Information Centre, Sugar Industry Infrastructure Package).

4. LOCAL GOVERNMENT, INDUSTRY AND COMMUNITY ORGANISATIONS AND THEIR LINKAGES ON NATURAL RESOURCE MANAGEMENT, 1993-98.

The functional roles and responsibilities of the key local government and related statutory authorities, and industry and community organisations in the Herbert River catchment and their involvement in and presentation of natural resource management issues in organisational documentation are briefly outlined below

4.1 Local Government

Local Governments in Queensland are constituted under the *Local Government Act* with responsibilities for:

- Operation of water supply and sewerage treatment works; solid waste disposal; local roads; urban stormwater drainage under the *Local Government Act*.
- Town planning and sub-division; building approvals; camping grounds; regulation of quarrying activities; impact assessment under the *Local Government (Planning and Environment) Act*.
- Management of erosion prone areas and coastal management control districts under the *Beach Protection Act*.

Figure 1. Organisations in the Herbert Catchment with an Interest or Role in Natural Resource Management in 1993

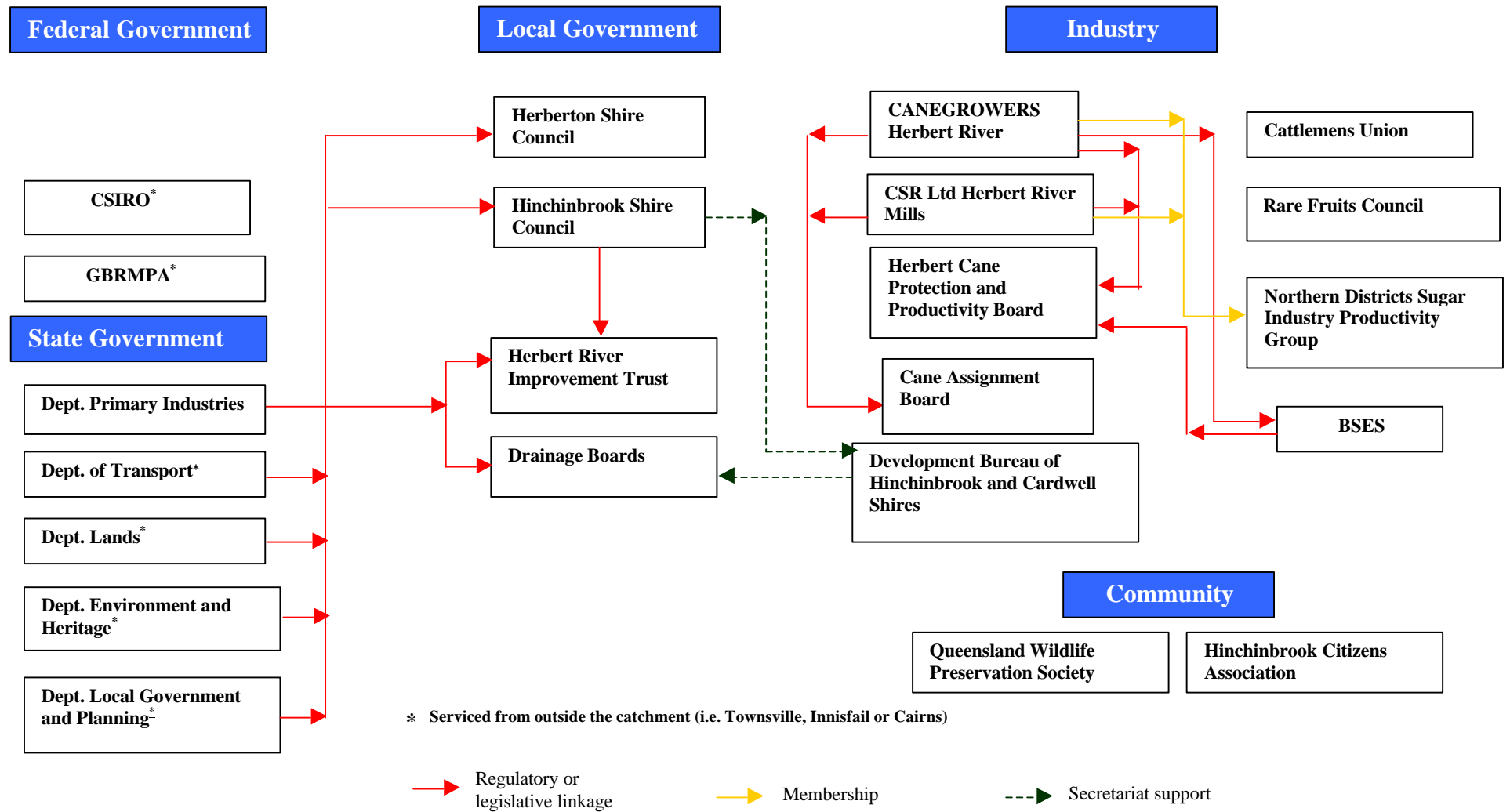


Figure 2. Organisations in the Herbert Catchment with an Interest or Role in Natural Resource Management in 1995

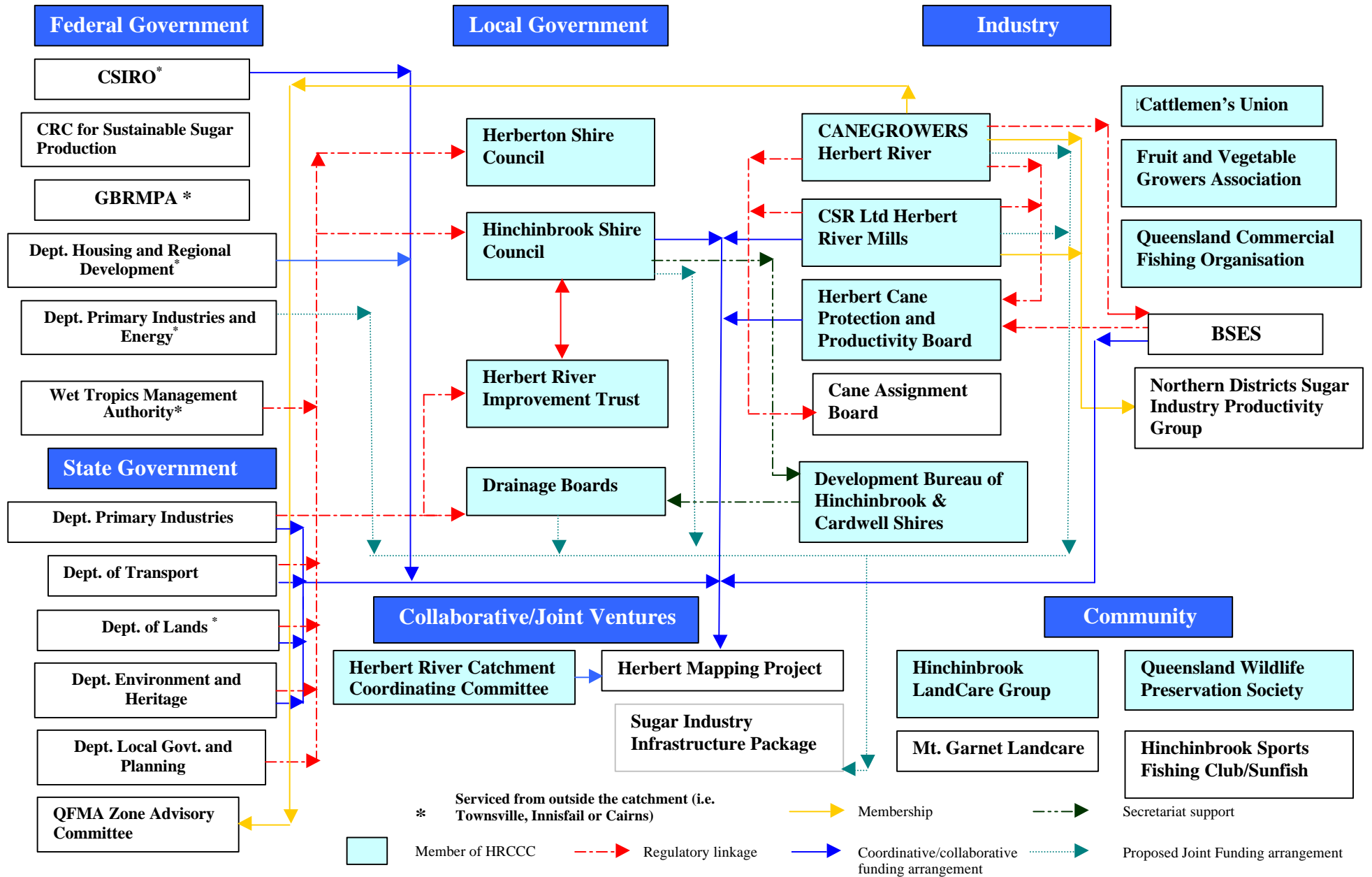
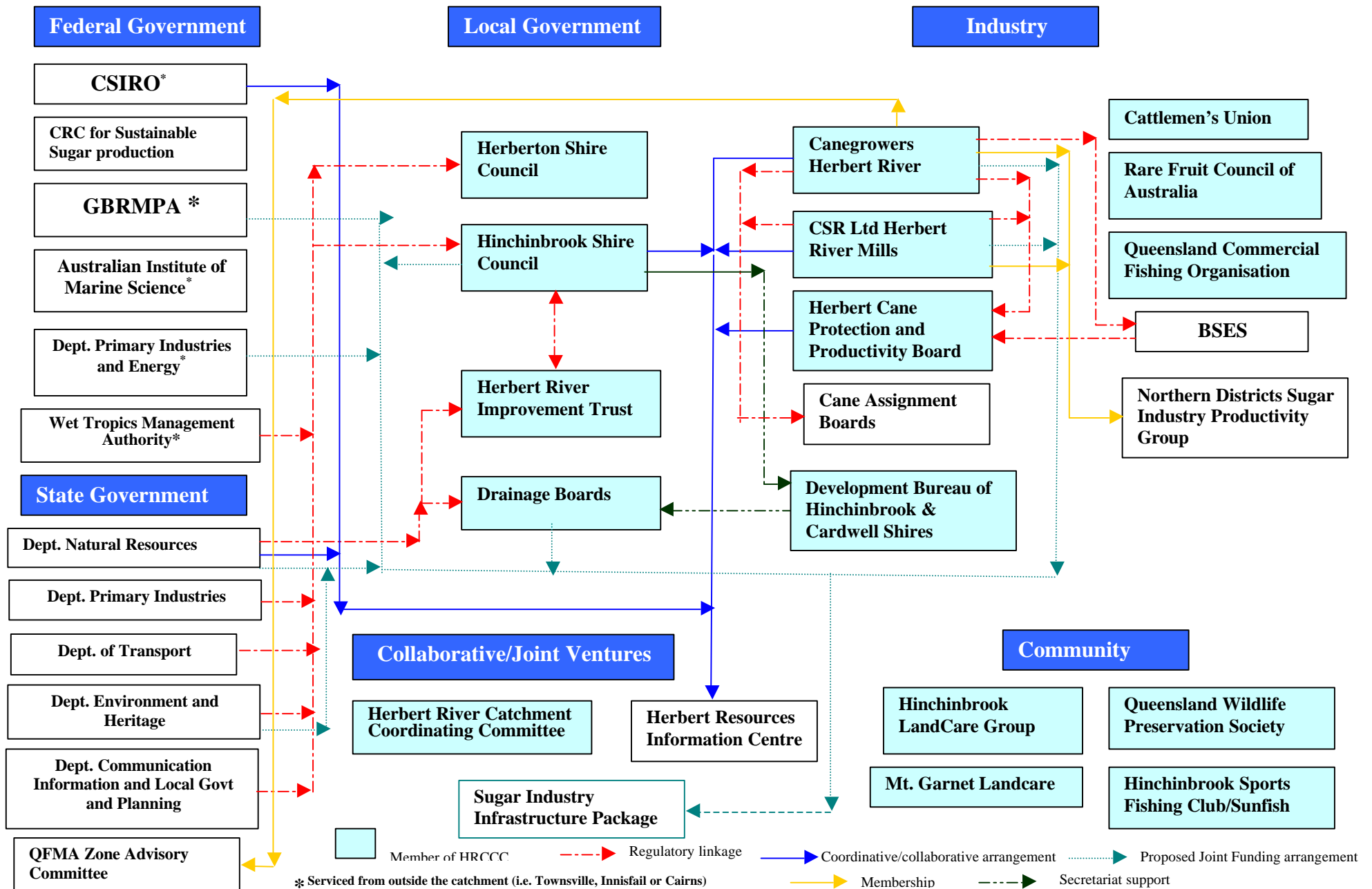


Figure 3. Organisations in the Herbert Catchment with an Interest or Role in Natural Resource Management in 1998



ORGANISATION	MAJOR AREAS OF RESPONSIBILITY	LEGISLATION
	Co-ordination of Impact Assessment studies Protection of items of cultural heritage Identification, assessment and management of contaminated land	Management Act State Development Public Works Organisation Act Queensland Heritage Act Contaminated Land Act
Department of Lands	Reservation and management of Crown lands for public purposes; leasing of Crown lands and setting lease conditions; reclamation of lands below high water Definition of legal coastal cadastral boundaries Control of noxious plants and animals	Land Act Surveyors Act Rural Lands Protection Act
Department of Transport (DOT)	Licensing commercial boating activities, small craft facilities; strategic port planning; reclamations of lands below high water Regional transport planning, construction and maintenance declared roads	Marine Act/Harbours Act Transport Infrastructure (Roads) Act
Department of Housing, Local Government and Planning (DHLGP)	State planning policies, land use strategic planning and development; approval of local authority town planning schemes; impact assessment guidelines Integrated Development Approval System Regional planning advisory committees Establishment and management of integrated resort developments	Local Govt. (Planning and Environment) Act --- --- Integrated Development Resort Act
Dept. of the Premier, Economic and Trade Development	Facilitation of major projects and strategic planning	State Development and Public Works Organisation Act
River Improvement Trust	Protection, repair and improvement of beds and banks of rivers; prevention and mitigation of flooding	River Improvement Trust Act
Drainage Boards	The construction, maintenance, protection and administration of drainage works under its control and management in gazetted drainage board areas	Water Resources Act
Beach Protection Authority	Control of coastal land use and development in a zone 100 metres landward of the mean spring AHD	Beach Protection Act
Bureau of Sugar Experimental Stations (BSES)	To conduct research into sugar cane growing and sugar milling and to communicate these results to growers and millers.	BSES Board under the Sugar Experimentations Act

Local Government is involved in resource and environmental management and planning by way of referred powers from the State Government. The nature of powers given to local governments in Queensland extends from powers to make by-laws or ordinances, to licensing, to the carrying out of works, and to impact assessment and effective decision-making on development. Moreover, strategic plans prepared by local authorities have force of law in Queensland.

The Herbert River catchment is located within the local authority boundaries of Hinchinbrook Shire Council and Herberton Shire Council.

Hinchinbrook Shire Council

The Hinchinbrook Shire (HSC) is a dominantly rural shire that covers an area of 2,600 sq. km and a population of 13,434 persons in 1996. In 1993, the Hinchinbrook Shire Council's responsibilities on regional development and land use planning focussed on community service delivery in accordance with the *Local Government Act* (ie. transport infrastructure, water supply, sewerage, rural and urban drainage), town planning and subdivision including impact assessment in accordance with the *Local Government (Planning and Environment) Act*, and management of erosion prone areas and coastal management control districts in accordance with the *Beach Protection Act*.

The Hinchinbrook Shire Council's Annual Reports for 1992/93 identify the "Protection of the Environment" program which included street cleaning and watering, beach restoration and protection, flood and river management (see Herbert River Improvement Trust), anti-litter enforcement, pest/noxious plant destruction, community amenities and cemeteries maintenance. In 1997/98 this program had broadened to include environmental management activities (HSC 1997):

- "Revegetation of damaged riverbanks and planting at Longpocket in association with the local Catchment Coordinating Committee resulted in a major land protection scheme being put in place. The "soft" aspects of tree planting in the scheme achieved not only a buffer against floods but enhancement to the area and an aesthetically pleasing appearance" (HSC 1997, p.19).
- "Tyto" wetlands project – creation of a wetland reserve "to provide for an environmentally acceptable standard of disp[osal of sewerage effluent as an alternative to existing treatment practices through the development of wetland areas/methods".

Importantly the Council gazetted a new strategic plan in 1997 under the new *Integrated Planning Act* that "captures current day planning processes which will provide greater flexibility in Council's decision-making when assessing land-use applications". The new plan is discussed in detail in Vella (1999) including its links to ICM in the Herbert.

4.2 Herbert River Improvement Trust

The Herbert River Improvement Trust (HRIT) is a statutory authority constituted under the provision of the *River Improvement Trust Act 1940* by Order-in-Council dated 8 May 1942. Its key functions are to protect and improve the beds and banks of rivers; to repair and prevent damage to the bed and banks of rivers; and to prevent or mitigate flooding of land by riverine flood. The primary role of the HRIT is to plan, design, finance, undertake and maintain stream improvement works for the benefit of the community within the Hinchinbrook Shire area. The *RIT Act* provides the HRIT with the powers to undertake these functions, including ability to raise funds, enter onto land, occupy land, enter into contracts, and carry out works. The HRIT is sponsored by the Hinchinbrook Shire Council and its jurisdiction essential covers the lower Herbert River floodplain.

Membership in 1998 comprised a Chairman appointed by the Governor in Council, two representatives appointed by the Hinchinbrook Shire Council, and a 'special interest member' appointed from the DNR.

The HRIT supported a Herbert River Catchment and Management Scoping study to provide a blueprint for addressing river management issues. Since 1994/95 its Annual Reports have identified a key aim of maintaining “a close liaison with the local ICM Committee and consulting with them on relevant issues”. The Trust also jointly supported a land protection scheme with the Herbert River Catchment Coordinating Committee (HRCCC) at Long Pocket on the Herbert River which received funding from the National Landcare programme following an application from the HRCCC. This project involved revegetation of damaged riverbanks.

4.3 Drainage Boards

Under the *Water Resources Act* Drainage Boards are constituted with the responsibility for the construction, maintenance, protection and administration of drainage works under its control and management in gazetted drainage board areas.

There are four formal ‘gazetted’ drainage boards (Ripple Creek/Seymour, Foresthome, Loder Creek and Mandam) and three informal boards (Lagoon Creek, Ti Tree Creek and Macknade) that operate within the lower catchment in the Hinchinbrook Shire and cover approximately 11,000 hectares. These boards assess drainage applications in their respective areas.

The structure and functional roles of drainage boards are currently being reviewed under the Sugar Industry Infrastructure Package (SIIP) with the intent of amalgamating formal and informal boards.

4.4 Development Bureau of Hinchinbrook and Cardwell Shires

The Development Bureau is an incorporated body responsible to the Hinchinbrook Shire Council. It is responsible for promoting rural development activities in the region of the Hinchinbrook and Cardwell Shires. It also acts as a secretary and administrator of 3 District Drainage Boards in the Hinchinbrook Shire and the local Chamber of Commerce. It has a primary focus on tourism and related activities as well as employment programs in the region.

The Bureau is an incorporated body managed by a Board of Management and in 1998 comprised 21 members:

- An Executive Committee of 4 members
- 6 elected members from the Hinchinbrook Shire
- 6 elected members from the Cardwell Shire
- 2 appointed members from the Hinchinbrook Shire
- 2 appointed members from the Cardwell
- 1 appointed member from North Queensland Economic Development Board (NORQEB)

In 1997/98 it received financially support from both the Hinchinbrook and Cardwell Shire Councils, and in the past it has also had financial support from NORQEB. In addition, it receives secretariat fees from the Drainage Boards and the Hinchinbrook Chamber of Commerce. Other important sources of funding are membership fees from individuals, businesses and industry in the region, as well as project funding from various Government Agencies (eg. Dept. Tourism, Small Business and Industry).

The Bureau’s focus has remained much the same since 1991. Importantly, the Bureau has continued to lobby for integrated approach to drainage in the Herbert catchment, and it has been actively involved in ICM in the Herbert River Catchment as a founding member of the Herbert River Catchment Coordinating Committee in 1993. It has also been involved in issues of drainage of agricultural lands

through both on-farm advice and through the establishment of formal and informal Drainage Boards and Committees in the lower Herbert River community.

4.5 Herbert River District CANEGROWERS

CANEGROWERS is a statutory organisation established under the *Primary Producers' Organisation and Marketing Act 1926* as the formal body representing all canegrowers in Queensland. It is financed by a levy on growers based on tonnes of cane supplied. The Herbert River District Canegrowers' Executive aims to promote the prosperity of all canegrowers in the Herbert River catchment by addressing common district issues and problems and also providing client service for individual growers (CANEGROWERS Victoria Area Annual Report 1993). It has two Mill Supplier's Committees – one for the Macknade Mill area and one for the Victoria Mill area – and it is responsible for the Harvesting Equity Tribunal and the Caneland Assignment Committees. It also provides secretary and administrative support for the Mandam Drainage Board, the Hinchinbrook Landcare Group and in the past the Herbert River Catchment Coordinating Committee. The CANEGROWER Executive also has a representatives on the Queensland Fish Management Authority Zone Advisory Committee – the regulatory agency for Queensland Fishing.

Key issues identified in the 1992 and 1993 Annual Reports of the Mill Supplier Committees were:

- industry expansion and the introduction of a Continuous Crushing Agreement and rostered harvesting;
- water management and a submission to the Commonwealth and Queensland Governments for drainage infrastructure (ie. SIIP);
- cane transport and handling (in particular siding capacity limitations transport servicing issues);
- the cane price formula based on the measurement of CCS; and
- Commonwealth Government proposal for the deregulation of the industry including the phasing out of tariff support.

Important activities in which the District Executive was involved in 1993 included:

1. *Support for the formation of the HRCCC under the Queensland's Government Integrated Catchment Management program.* CANEGROWERS had direct representation in ICM in the Herbert through one Executive member and indirect representation through the Landcare representative and the Canegrowers Executive Manager who acted as Secretary for the HRCCC. Its role was described as:
2. *"The HRCCC provides industry and community groups with representation on a body that is focussed on coordinating land use and water management in the catchment and dealing with issues that have impact"* (p.8).
3. *Sugar Industry Infrastructure Package (SIIP).* A collaborative bid was made with the millowner, CSR Limited, and the support of the Water Resources section of the DPI, Hinchinbrook Shire Council, the combined Drainage Boards, the HRIT and the HRCCC, for funding for projects in the Herbert River district for both water management (drainage) and cane transporting infrastructure. The bid was partially successful in that water management projects in existing cane areas were granted conditional approval for funding subject to the formation of a Water Management Board covering the project's entire area and the provision of one third local funding of the project's total estimated cost of \$5.82M. The CANEGROWERS concluded that "the conceptual ideas are in general in line with those in the Cameron McNamara Rural Drainage Plan".
4. *Land Opening Project – Lower Stone (Wharps Holding).* The CANEGROWERS Executive worked with the Department of Lands, Hinchinbrook Shire Council and CSR Limited to open up 1100 hectares of land for future sugarcane farming. A provisional allocation of land has been made to applicants.
5. *Herbert Mapping Project.* A joint venture was being negotiated with several government departments, CSR, CSIRO, Hinchinbrook Shire Council and the HCPPB for more accurately

mapping the area which would “be of enormous benefit for planning anything to do with the use of land including drainage, the location of sidings, roads, etc.” (p.9).

In 1994 and 1995, the major issues identified in the Herbert District CANEGROWERS Annual Report related predominantly to cane supply and mill capacity issues:

- The emerging problem of the reliability of mill crushing capacity with the “season being plagued with mill performance difficulties that tested the endurance of harvesting crews and prompted groups to consider risk sharing arrangements with rotation agreements” (Canegrowers Annual Report 1995, p.2).
- Estimating accuracy was continuing to be a concern in the management of harvesting equity.
- Cane transport and handling needs of growers and contractors, including lengthy delays in obtaining approvals for new cane railway line to Crystal Creek.

Other local issues raised in the Annual Report included:

- Involvement in the development of a district code of practice for sustainable cane growing. Cane land expansion and conditions for granting assignment needed to “reflect an appropriate level of care for the environment” with:
 - ↳ “local issues such as the mahogany glider protection plan and riparian zones for new cane areas being addressed in conditions for the allocation of assignment”.
 - ↳ Collaboration in a BSES-monitored trial to assess the potential for rat baits to harm non-target species such as owls.
- CANEGROWERS had contributed \$22K to the Herbert Mapping Joint Venture (or 6.3% of the cost) which provides it with full right to all mapping products. A flow on result of this venture was the decision to establish a Herbert Resources Information Centre (HRIC).
- The preliminary design for SIIP water management projects were completed and an Impact Assessment Study (IAS) and Environmental Management Plan (EMP) was being prepared.

The 1994 Annual Report notes the appointment of a Catchment Coordinator funded by NLP and the State’s Integrated Catchment Management Program. The primary function of the Committee was described as “to work towards the development of a land and water management strategy for the catchment” while the HRCCC itself “provides a venue for industry, community groups and local governments with an interest in land and water management issues in the catchment to focus on those issues”(Annual Report 1994, p.4). Expenditure on administrative support for the HRCCC was recorded as \$5042 and \$5043 in 1994 and 1995 respectively.

By end of 1997, the main issues identified in the Annual Report were:

- Recommendations on Industry Structure evolving from the Sugar Industry Review Working Party Report, especially:
 - ↳ the focus on localising the commercial arrangements for raw sugar production through a negotiated contract with the millowner in place of the annual Award;
 - ↳ The loss of the Tariff; and
 - ↳ the move towards export parity pricing of raw sugar sales to domestic refiners.
- Recommendation for the negotiation of a single-district crushing season agreement, a single Local Award and a single district CCS. The important issues involved are season length, risk management and appropriate financial incentives, cane transport infrastructure and inter mill transfers.

Other local issues raised included:

- The sustained improvement in district yield and the increase in the assigned area presented challenges to mill crushing capacity. Therefore the district did not participate in any expansion in

1997, and it was agreed that the assigned area in 1998 will be the maximum area until further allocations are considered.

- Broader community expectations are creating greater pressure for the sugar industry to manage its impacts and downstream effects, and so the industry has been proactive in conducting an environmental audit.
- The District Executive provides secretarial support for the Hinchinbrook Landcare Group and is supporting a NHT application for tree planting.
- The District Executive also provides secretarial and administrative support to the HRCCC and been actively involved including providing funding support for the CD version of the Herbert River Catchment Atlas. The report notes that the HRCCC “provides a forum for community and industry groups interested in catchment issues to exchange views on overall catchment management strategies” (Canegrowers’ Annual Report 1997, p. 9).
- The delay again in the implementation of water management projects under SIIP attributed to a combination of resource limitations, landholders concerns regarding design and the need to alter designs to ensure that they impact less on the sensitive fish habitat areas. Constraints being imposed by the regulations covering fish habitat and mangrove protection.
- Following damage by the January 1998 flood, catchment management issues were emerging in regard to tramlines, drainage and levee bank coordination.

Recently Herbert River CANEGROWERS have developed a protocol with DPI Fisheries for cane farming activities and work adjacent to tidal areas which allows different levels of permit relating to impacts of activities on marine plants (eg. mangroves).

4.6 Herbert Cane Protection and Productivity Board

The Herbert Cane Protection and Productivity Board (HCPPB) is a statutory authority under the *Sugar Industry Act 1991* responsible for administering regulations concerning plant quarantine, pest and disease control in the sugar industry. It was formed in April 1993 following an amalgamation of the compulsory Victoria Mill area Board and the voluntary Macknade Mill area Board. Its jurisdiction covers the whole lower Herbert River floodplain sugar growing area and it has a regulatory linkage to the BSES. The HCPPB comprises 9 members:

- 3 representatives of canegrowers from the Macknade Mill area;
- 3 representatives of canegrowers from the Victoria Mill area;
- 3 representatives of the millowner CSR Ltd.;
- 1 officer of the BSES.

The Board’s funding is based on an equal contribution from growers and millers based on a levy on total tonne of cane delivered annually.

In 1993, the key focus as identified in the HCPPB Annual Report for 1993 was pest, weed and disease control, a study of rat damage in cane, and farm extension on productivity. The key issues for cane productivity were cane varieties, rodent control (particularly the importance of baiting, weed control and harbourage manipulation as a component of rat control), and the spread of Sicklepod. The area damaged by rodents in 1993 encompassed an area of 5260 hectares of cane for a calculated loss of 28,265 tonnes of cane. However, the damage by rats in 1997 was estimated as 6576 tonnes with another 10,701 tonnes lost due to pig damage.

In 1998, the HCPPB had expanded its services into laser levelling using the latest technology, caneland mapping by remote sensing and GIS for assessing productivity and its variation in the region, and encouragement of a philosophy of an environmentally sustainable production, including Integrated Pest Management (IPM) and Integrated Catchment Management (ICM).

The HCPPB mission as identified in the HCPPB's Strategic Plan 1998-2002 is:

To enhance the productivity of the sugar industry in increasing the quantity and quality of sugar cane grown in the Herbert Valley in an environmentally sustainable and economically viable manner. (HCPPB, October 1997).

To this end, the HCPPB role in 1998 is identified as:

- Actively encourage the adoption of farming techniques and practices which improve the cane growing environment to maximise the productivity of cane varieties, in a sustainable way.
- Accommodate requests from the BSES and other research organisations for assistance and cooperation with research activities.
- Provide the necessary advice to control losses from pests and diseases.
- Encourage growers to accept the philosophy of Integrated Catchment Management.
- Provide the necessary training to the Board's staff in response to technological advances.
- Extend research findings to improve industry productivity and profitability.
- Determine productivity trends, using GIS technology.
- Long term financial and managerial support to the Herbert Resource Information Centre (ie. HRIC).
- Encourage and advise practices that will maintain and enhance sugar quality.
- Provide a laser survey-design service to the local industry.
- Encourage sound environmental practices to ensure long term industry sustainability.

The key issues identified in the Strategic Plan for 1998 (CPPB 1997 Annual Report) were:

- Drainage and conservation of water
- Reduction of ratoon stunting disease
- Integrated Pest Management (IPM) strategies for rodent control
- Planting methods and practices
- Land usage
- Productivity analysis and productivity reports
- Sustainable agriculture/environmental integrity
- Noxious (plant and animal) pest control.

4.7 Caneland Assignment Boards

While the Queensland Sugar Corporation (QSC) is responsible for implementing the *Sugar Industry Act 1994*, it has delegated much of the responsibility for mill-area decision-making to Local Boards. The Local Board acts as an 'agent' for the QSC and receives and determines applications for new and increased assignment (Shrubsole 1997). A canelands assignment provides an entitlement to have cane harvested, crushed and paid for under a collectively bargained Award arrangement with existing mill capacity (CANEGROWERS Victoria Area Annual Report 1996, p.6).

In the Herbert River District, each of the two CSR mills – Victoria and Macknade – has its own Local Board. Shrubsole (1997) found that since 1993 the Local Boards in the Herbert River District have incorporated environmental considerations into decision-making on cane assignment through (i) forming *ad hoc* technical review committee in 1995; (ii) requiring all applicants to submit a property management plan, and (iii) developing conditions of assignment. Shrubsole *et al.* 1999 provides a more comprehensive analysis of the cane land allocation process in the Herbert River catchment.

4.8 Northern Districts Sugar Industry Productivity Group

Essentially a lobby group for improved drainage in sugar areas in the 1970s and 1980s. By the early 1990s it ceased being very active and overtaken by other processes such as ICM and the SIIP.

4.9 Sunfish

Initially Sunfish was established as the Queensland Sport and Recreational Fishing Council, which during its 20th year of operation underwent an official name change to Sunfish. Sunfish is the peak body representing over 882,000 recreational anglers throughout Queensland and is composed of representatives from State organisations such as the Queensland Game Fishing Association, the Australian National Sportfishing Association, the Queensland Amateur Fishing Clubs Association, the Australian Underwater Association Queensland Branch, the Freshwater Stocking and Fishing Association of Queensland, 10 Regional Branches and Individual Membership.

The Branch structure of Sunfish allows local fishers to play an active role in local fishery management and issues. Sunfish is an apolitical body, which liaises with the Queensland Government, and statutory bodies on recreational fisheries issues. It works closely with the Department of Primary Industries Fisheries Branch and the Queensland Fish Management Authority

5.0 COLLABORATIVE GROUPS/VENTURES

5.1 Herbert River Catchment Coordinating Committee (HRCCC)

Integrated Catchment Management (ICM) in the Herbert River Catchment operates under the Queensland Government's ICM policy framework (DPI 1991). An ICM Strategy for Queensland was released by the Queensland State Government in October 1991 outlining broad policy and structural arrangements. It provides a framework for fostering cooperation and coordination between landholders and other resource users, community groups and government agencies from all levels (i.e. federal, state and local) involved in the use and management of natural resources. The strategy promotes ICM as a participative and consultative process that takes a strategic and planned approach to tackling important natural resource management issues. The Queensland Department of Natural Resources is the lead government agency for implementing the Strategy. Other state government agencies, such as the Department of Primary Industries, Department of Environment and Heritage, and the Department of Local Government and Planning, also play a role in promoting and supporting relevant aspects of the ICM policy initiative. As ICM in Queensland is a voluntary community-based policy initiative that has no legislative basis, its success will ultimately reflect the ability of relevant public and private interests to voluntarily effect required action.

An ICM process commenced in the Herbert Catchment in 1992 with the formation of a Catchment Steering Committee of community leaders and government agency representatives, which established the Herbert River Catchment Coordinating Committee (HRCCC) in early 1993. A full-time Catchment Coordinator facilitates the process. The HRCCC involves representatives of a broad range of rural industry, community and local government and other statutory organisations that have an interest and/or role in natural resource management in the catchment. As such, the membership reflects the influential groups, power structures, and prominent community interests in the catchment. In 1998, the HRCCC had a local Chairman and 16 other members representing community, industry and local government and statutory bodies in the catchment (see Fig. 3).

Significantly, until 1999 the HRCCC had no formal State Government agency representatives although locally-based officers from the Department of Natural Resources frequently participate in meetings.

The Catchment Coordinator is funded from the federal government's National Landcare Program with additional support provided by the Department of Natural Resources. In addition, local stakeholder groups including Local Government and sugar industry bodies have provided in-kind support in terms of office accommodation, administrative support and their HRCCC member's time. State and federal government grants that are awarded through a competitive bidding process also provide financial support for many on-ground HRCCC activities. Through involvement in HRCCC meetings and activities, ICM in the Herbert Catchment is attempting to engage a range of key stakeholders in ESD.

The HRCCC has identified its role as (HRCCC 1998):

- (i) Coordinate government agencies and the community to pursue common goals;
- (ii) Seek community involvement in Catchment management;
- (iii) Identify and rectify natural resource degradation;
- (iv) Promote ways to prevent and reduce natural resource degradation;
- (v) Promote the wise use of all natural resources within the Catchment;
- (vi) Identify key indicators of biodiversity and monitor as a measure of catchment health;
- (vii) Encourage the retention of significant natural habitats within the Catchment.

In May 1997, the HRCCC released a Herbert River Catchment Management Strategy for public comment (HRCCC 1998). This strategy is intended to provide a strategic framework for the future management of the Herbert River catchment's natural resources. It was prepared by HCCC members through a series of working groups and internal workshopping. The strategy identifies a broad range of priority management and planning issues. These issues involve not only interaction between many components of the catchment, but also many individuals and organisations with an interest in the catchment.

Bellamy and Johnson (1999) have identified the key achievements of ICM in the Herbert River catchment as:

- (i) Initiating a range of focussed or single-issue land management projects to establish credibility and raise awareness of ICM process and natural resource management in general with the Herbert community (rather than focussing on issues of strategic importance to catchment management).
- (ii) Achieving recognition as a legitimate community referral agency for the state and local government authorities on proposed developmental and infrastructure projects and other natural resource issues in the catchment.
- (iii) Development of a Herbert River Catchment Management Plan that provides the essential elements of a 'sustainable' vision for the catchment.
- (iv) Establishing a lead role within the Herbert River community as a principal broker negotiating funding for industry and community groups to undertake natural resource management projects and activities in the catchment.
- (v) Providing an effective community forum for discussing and progressing catchment issues, including revealing the range of different stakeholder perspectives on these issues as well as highlighting potential areas of community conflict.
- (vi) Information provider and disseminator through HRCCC meetings providing a 'community forum', initiating focussed activities that locally have a relatively high profile, as well as through the existing communication networks of HRCCC member organisations.

5.2 Herbert Mapping Project

The Herbert Mapping Project (HMP) was a cooperative mapping project started in 1993 in to collect geographic information relevant to industry, the community and researchers on the Lower Herbert River catchment. The HMP mapped the Herbert River floodplain at a scale of 1:10 000. This data capture process resulted in an orthophoto map series and some subsequent digital data as a by-product.

The data sets collected included sugarcane blocks, digital elevation model, houses, hydrology, rail, roads, topography, and waterbodies.

5.3 Herbert Resources Information Centre

The HRIC is a rural, collaborative, community focussed GIS. It has six signatory partners to a 10 year agreement - CSR Sugar Mills; Herbert Cane Protection and Productivity Board, CSIRO, Hinchinbrook Shire Council; Canegrowers Herbert River; and Queensland Department of Natural Resources.

The HRIC aims to provide essential resource information to assist in the planning and decision making activities of key venture partners. The core business of the HRIC is to manage and coordinate the joint venture resources for the:

- identification, collation, and capture of geographic information;
- support of Joint Venture Partners and community based resource planning and management initiatives, through the provision of geographic information, GIS expertise, and technology;
- management and maintenance of HRIC digital data sets;
- maintenance of a high level of GIS technical skills; and
- provision of training for Joint Venture Partners and the wider community.

5.4 Sugar Industry Infrastructure Package

The Queensland Sugar Industry Infrastructure Package (SIIP) is an initiative of the Federal Government, Queensland Government and the Sugar Industry to increase sugar production. Approximately \$3.3M has been made available for infrastructure development in the Herbert River district under a project jointly funded by CANEGROWERS Herbert River District, CSR Herbert River Mills and Hinchinbrook Shire Council. The total scheme intends to develop and implement a program of structural works and non-structural measures which will provide for enhanced sugarcane production by improving drainage conditions for existing and future cane growing lands. Phase I relates to existing cane areas and Phase II mainly to expansion areas.

Within the five schemes which constitute the Phase I Herbert Existing Cane Area Water Management Project, a combined total of up to 15600 hectares of existing caneland currently suffers productivity losses due to flooding and waterlogging associated with heavy rainfall events (SIIP 1993; 1995; 1998). Four of the schemes (Macknade Scheme, Foresthome Scheme, Lagoon, Loder & Ti-tree Creeks Scheme, Mandam Scheme) concern coastal canelands adjoining mangrove wetlands. While the fifth, the Ripple Creek-Seymour River Scheme, concerns canelands adjacent to a freshwater wetland on an old distributary channel.

The primary purpose of the Phase I project is to increase cane production on the Herbert River floodplain by addressing the needs of the existing canefarmers with regard to wet season crop losses and yield decline associated with poor residual drainage and waterlogging. The intent is that this will be achieved through the coordinated implementation of drainage improvements including improved capacity drains and outfalls, and controlled inter-catchment transfers (SIIP 1995). Funding for Phase I was approved conditional upon:

- Approval of an Impact Assessment Study and associated Environmental Management Plan for the project by the SIIP Central Review Committee.
- The formation of a Water Management Board under Section 9 of the Water Resources Act 1989 to undertake construction of works and ongoing scheme management;
- One third funding of the total project cost being contributed by the local community.
- Negotiations are still continuing in late 1998 with implementation/approval not expected until 1999.

The Phase II project proposal involves:

- (i) the expansion of the 'Hinchinbrook Rural Drainage Plan' (originally produced in 1984) "to facilitate orderly, properly drained new farm uptakes in proposed expansion areas; and
- (ii) aerial photography and data capture of existing cane blocks as a future starting point for future cane farm development proposals by the Hinchinbrook Council (Herbert SIIP Project – Phase II, 1997)

A consultancy will be let shortly for the new land and water management plan, and it is anticipated that it will have strong links to the Hinchinbrook Shire Planning Scheme.

5.5 Agricultural Planning for the Hinchinbrook Shire

The 'Agricultural Planning for Hinchinbrook Shire' package provides information to landholders on planning for material change of use under the Integrated Planning Act 1997 for the Hinchinbrook Shire and to assist cane growers in planning for further assignment. A Property Development Plan is required by the Hinchinbrook Shire Council as part of the application for converting land to intensive agriculture. Intensive agriculture in this context means the use of more than 5 hectares of land for the intensive production of crops including the growing of cane, watermelons and bananas.

The Shire Council cannot refuse an application but may impose reasonable and relevant conditions on the proposal. In addition Local Sugar Assignment Boards require Property Development Plans for applications for increases in assignment or any variation of assignment description that includes land not currently in their 'Present Assignment Description'.

The HRIC, Canegrowers and BSES assist individual farmers to design a farm layout. The applicant then submits the plan to a Technical Committee made up of DNR, DPI, DEH and BSES staff who appraise the plan against legislative requirements, such as the Water Resources Act, Environment Protection Act and Policies, the Nature Conservation Act, 'The Codes of Practice for Sustainable Cane Growing in Queensland', Local Board conditions and other applicable guidelines. The process is illustrated in Fig. 4 and the organisations involved and the organisations involved and their linkages in Fig. 5.

The important development in this package is the formal linking and coordination of the approach to land use planning between State Government, Local Government and industry in the lower Herbert River catchment.

Figure 4. Agricultural Planning Process

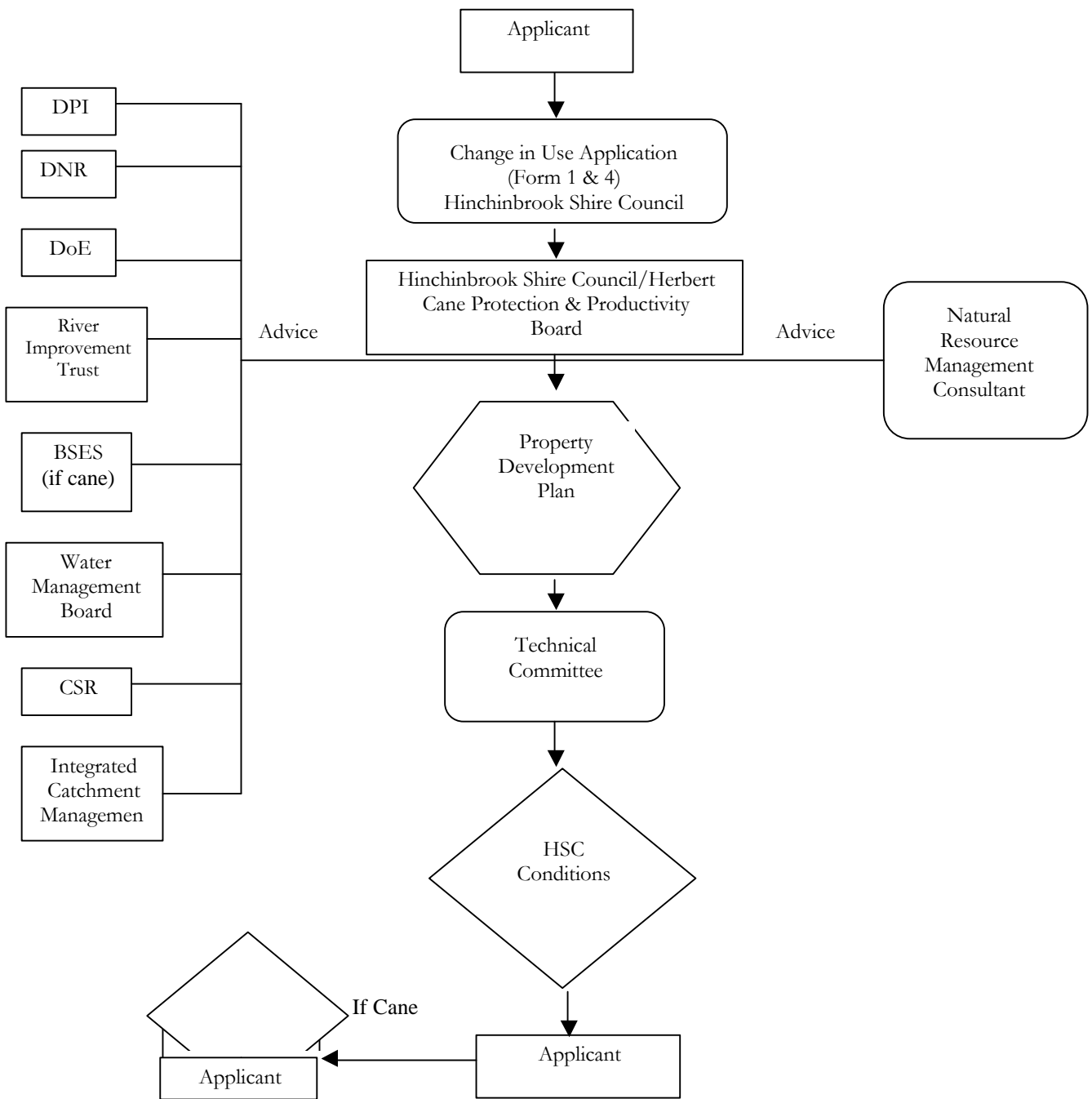
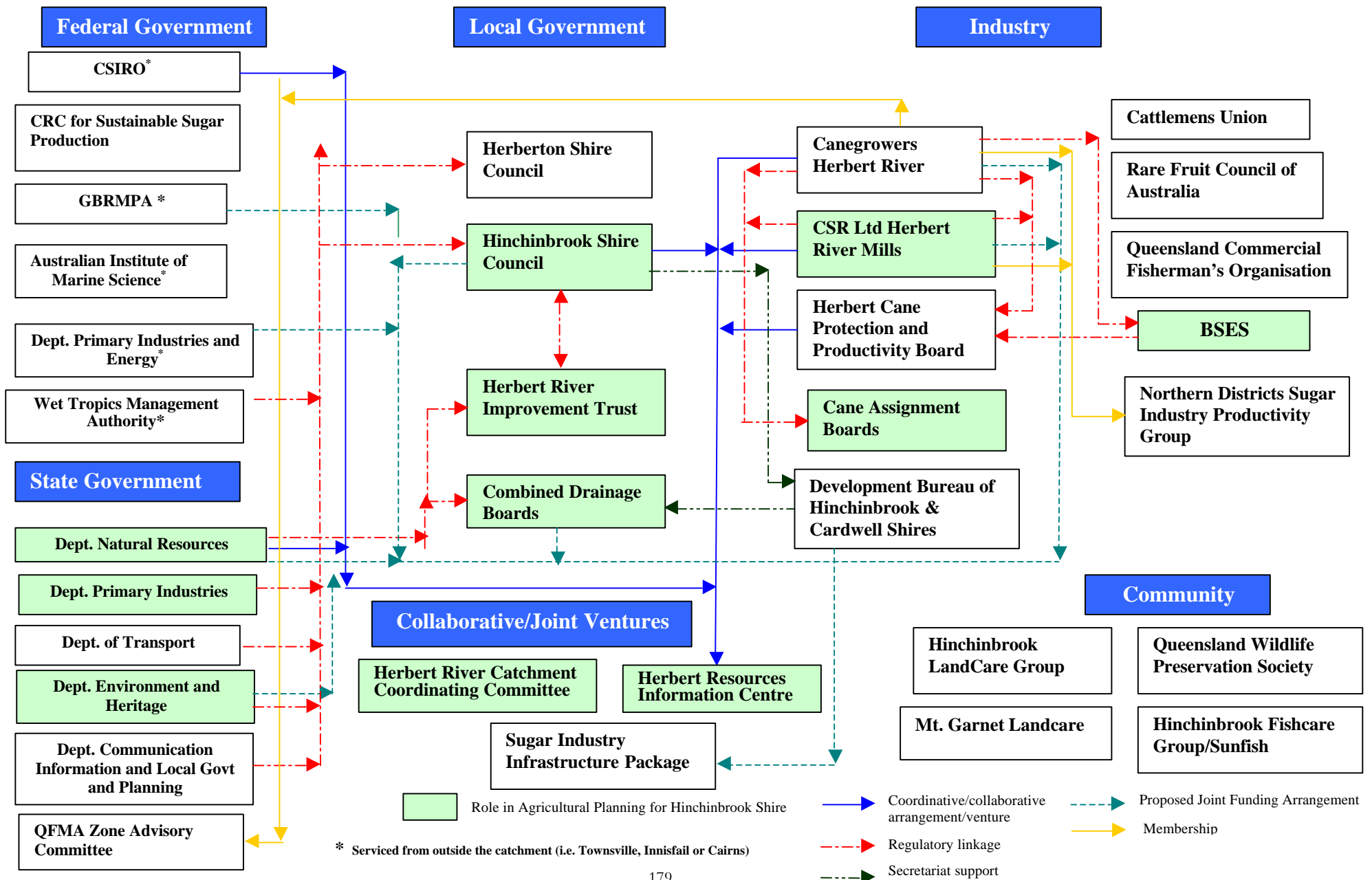


Figure 5. Organisations involved in the new Agricultural Planning Process for the Hinchinbrook Shire in 1999



6. EVOLUTION IN ORGANISATIONAL ROLES AND LINKAGES ON NRM IN THE HERBERT RIVER CATCHMENT

This study shows that there have been significant changes in the system of organisational linkages on natural resource management in the Herbert River catchment since the inception of an ICM process in 1992. Key elements of these changes include:

- *Increased number of linkages:* A demonstrable increase has occurred in the number of linkages (both regulatory and non-regulatory) between (a) local government and related statutory bodies and industry and other community organisations in the Herbert catchment and (b) these Herbert River organisations and state and federal agencies.
- *Increased linkages based on collaboration:* There has been an emergence of a number of significant coordinative, collaborative and/or joint funding initiatives for NRM purposes. The Herbert Mapping Project and the establishment of the HRCCC in 1993 appear to have provided the catalyst for further collaborative ventures on NRM.
- *Local Government developing a significant role in NRM:* A significant increase has occurred in the role and responsibility of local government in catchment management and planning. This has emerged through (a) an influential role based on active membership on the HRCCC and (b) regulatory and statutory processes (including major changes to the Hinchinbrook Shires Planning Scheme and HRIT activities).
- *Emergence of the HRCCC as an coordinative and informative forum for NRM issues:* The ICM process in the Herbert River catchment through the activities of the HRCCC has provided a key integrative forum for facilitating information exchange and more inclusive debate on NRM issues that had not existed before in the catchment.
- *Broadening of the focus of industry organisations to encompass NRM concerns:* several industry organisations (notably the Herbert Cane Protection and Productivity Board and CANEGROWERS) have shifted their focus from a almost exclusive concern with productivity and efficiency issues and impacts to a recognition (at least in principle) of the importance of natural resource management to the long term sustainability of the industry. In the case of the HCPPB a demonstrable change has occurred in its functional role from a prime focus on productivity to also encompass and promote environmental sustainability.
- *Improvement in NRM data capture and delivery mechanisms:* There has been an emergence of collaborative ventures between local government, industry and state and federal government agencies to improve the capture of relevant data on NRM issues (eg. Herbert Mapping Project and a Catchment Atlas) and provide locally accessible mechanisms for integrating data and information delivery or service provision.

In sum, the system of organisational structures and linkages on natural resource management in the Herbert River Catchment has evolved to be more coordinated and more inclusive of key stakeholder groups with the establishment of the HRCCC in 1993. Significantly, the HRCCC is providing a key integrating and informing functional role on NRM within this system.

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