

## **Chapter 3**

# **Integrated Catchment Management Communication Study: The Herbert River Catchment, Queensland**

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## **1.0 INTRODUCTION**

CSIRO are conducting research on the evaluation of Integrated Catchment Management (ICM) in a wet tropical environment. The objectives of this five year program are to:

1. monitor and document the process of implementation of ICM in the Herbert River catchment and identify the social, economic, and institutional factors that facilitate or hinder this process;
2. evaluate the key impacts of the implementation of the ICM process in terms of attitude and behaviour changes in the community and changes in the severity or tractability of the resource use conflicts for the Herbert River catchment;
3. assess the specific technical and related information needs that are relevant to an effective ICM implementation process in a wet tropical environment; and
4. develop a framework and related methods for evaluating the process of ICM implementation that will facilitate the development of more effective catchment management programs in Australia.

As the success of ICM by definition depends on communication between stakeholders to ensure coordination of inputs, the research included a pilot study on measuring and evaluating communication between significant stakeholders of ICM. Prior to this, very little research had been conducted to measure the degree of communication between stakeholders of ICM and the effectiveness of the communication.

## **2.0 METHODOLOGY**

### **2.1 Structure of the questionnaire**

#### **2.1.1 Introduction**

A brief introduction was read to respondents at the start of their telephone interview which explained what the study was investigating.

#### **2.1.2 Involvement in ICM**

The first questions related to respondents' involvement in ICM: whether or not they had been involved; reasons for involvement; length of involvement; and if the respondent was not involved, awareness of ICM in the Herbert River Catchment or elsewhere in Queensland. Everyone was also asked about any concerns they had regarding environmental management in the Herbert River Catchment.

#### **2.1.3 Communication**

To clarify which communications would be included, respondents were advised that communications may have been:

- formal (eg. a letter or e-mail) or informal (eg. a conversation or meeting at a social occasion);
- for one particular reason or for a number of reasons;
- personal (ie. individuals representing themselves) or official (ie. individuals representing their organisation); or
- 'one off' or a 'group' of communications with the same contact.

The following categories of 'contacts' were used throughout the questionnaire:

- state government in Brisbane;
- state government in Townsville or northern Queensland (regional state government);
- local government;

- Herbert River Catchment Coordinating Committee;
- industry or an industry group;
- individual basis; and
- other contacts.

Respondents were asked firstly how often they had communicated with each of these categories about ICM/environmental issues and secondly, with whom they had communicated. Up to six separate answers were permitted and depending on the category, they may have been departments, organisations or individuals. This was recorded by interviewers on a separate “Communications Sheet”.

Originally it had been hoped to assess the nature and function of the eight communication dimensions identified for large corporations by Roberts and Reilly (1974). These dimensions were not appropriate for ICM and a more open-ended approach was developed. The key dimension, influence, was retained for this study.

The questionnaire (see Appendix A) therefore measured the following aspects of communication reported by respondents about their communication with each of the categories of contacts:

- frequency of communication with contacts over the past year;
- the topics of communication;
- who initiated the contact;
- whether respondents represented themselves or an organisation;
- the outcomes;
- the degree of satisfaction;
- any resultant change in the respondent’s outlook; and
- the respondent’s opinion about resultant change in the contact’s outlook.

The terminology ‘contacts’ and ‘categories of contacts’ will be used throughout the report.

Interviewers referred back to the responses on the Communications Sheet to ask these questions. To prevent order biasing, interviewers used a different order for each interview. To make the administration of this easier, each category was printed in a different colour in the questionnaire and corresponding colours were written next to the categories on the Communications Sheet.

## **2.2 Pre-testing**

Eight pre-tests were conducted with people familiar with ICM issues either in the Herbert River Catchment or elsewhere in Australia. The feedback was used to alter the questionnaire.

## **2.3 The Sample**

The categories of respondents were:

- state government public servants (Brisbane);
- state government public servants (Regional);
- regional participants in ICM in nearby catchments;
- researchers;
- Herbert River Catchment Coordinating Committee (HRCCC) members;
- landholders and general community; and
- people active in the local community (eg local government, community/industry organisations).

Contact details for people in most of these stakeholder categories were obtained from members of the HRCCC and CSIRO researchers in Queensland. Landholders and general community were selected randomly from the telephone book and landholder lists. In categories for which

more respondents were needed, more names were gathered using the “snowball” sampling technique (see Fife-Shaw, 1995).

A total of seventy one people were telephoned to ask if they would participate in the study. Sixty individuals agreed to participate, a response rate of 84.5%. Those people were either interviewed by telephone at that time or at an arranged time. The table below shows the number of people telephoned, the number interviewed, and reasons for not participating. The actual refusal rate was very low by normal survey standards.

### **Response rate and reasons for not participating**

	<b>Contacted</b>	<b>Interviewed</b>	<b>Moved</b>	<b>Retired</b>	<b>Away/not available</b>	<b>Refused</b>
HRCCC	17	16				1
Regional SG	14	9	1		4	
Local people	13	12		1		
SG Brisbane	6	3	2			1
Other ICM	5	5				
Researchers	4	4				
Active locals	12	11			1	
<b>TOTAL</b>	71	60	3	1	5	2

Interviewers were provided with the following definition to read to respondents who asked what ICM meant: “Integrated Catchment Management is a management system that attempts to integrate key resource management issues in a way that enables all stakeholders to work together towards the goal of balancing economic development with environmental protection”.

## **3.0 RESULTS**

### **3.1 Background**

#### **Are you involved either personally or because of other reasons in Integrated Catchment Management (ICM) in the Herbert Catchment?**

Participants were asked whether or not they were involved, either personally or for other reasons, in ICM in the Herbert River Catchment. Of the sixty participants, 45 were involved in ICM. Those fifteen people not involved in ICM in the Herbert were from the following groups: local people (8), regional state government (4), and regional ICM (3).

From this point forward, those involved in ICM were asked about their communication concerning ICM and those not involved were asked about communication concerning environmental issues.

#### **Which of the following are reasons for your involvement?**

Those 45 people involved in ICM were then asked to indicate which of eight reasons were appropriate to explain why they were involved, shown in the table below. More than one answer was permitted.

Reason for involvement	% (n = 45)
Personal interest	75.6
Job related	64.4
Interest in the sugar industry	64.4
Member of a community group	57.8
Because I'm a landholder	48.9
Interest in other primary production	48.9
Live on the catchment	46.7
Scientific research	31.1
Other reasons (eg common sense, interest in a particular issue)	28.9

Three quarters of the sample agreed with *personal interest* as a reason for their involvement in ICM in the Herbert. *Job related* and *interest in the sugar industry* were selected by nearly two thirds of the sample.

Those involved in ICM were asked how long they had been involved. The mean length of involvement for each group of respondents is shown in the following table. The number of respondents is shown in brackets.

Category of respondent	Mean (years)
Researchers (n = 4)	7.2
SG Brisbane (n = 3)	6.3
Local people (n = 3)	6.0
Other ICM (n = 2)	5.5
HRCCC (n = 16)	4.9
Active local people (n = 10)	4.6
SG Townsville (n = 5)	4.4

As the HRCCC was formed in 1993 it is not surprising that the mean length of involvement in ICM for members of the HRCCC was 4.9 years and the modal response was 5 years. Of interest is the fact that researchers had been involved in ICM longer than any other category of respondent.

### **Before this interview were you aware of the ICM program in the Herbert Catchment and elsewhere in Queensland?**

Those people who were not involved in ICM were asked whether they were aware of the ICM program in the Herbert Catchment and elsewhere in Queensland. Ten of the fifteen people not involved were aware of ICM. When asked what they knew about ICM, 5 mentioned previous involvement in ICM, and the remainder were either unfamiliar with the details of ICM, mentioned that it tackled erosion and chemical run-off or that it was related to a review of the Hinchinbrook canals.

### **Do you have any concerns about environmental management on the Herbert Catchment? If yes, what are your major concerns?**

All participants were asked whether they had any concerns about environmental management in the Herbert Catchment and if so, to list their major concerns. For the 55 respondents who did mention concerns, the table lists the frequency of the concerns stated, separately for those people involved, and not involved, in ICM.

Concern	Involved (n = 45)	Not involved (n = 15)
Environment in general (inc biodiversity loss)	18	3
Ineffective decision making processes and communication	15	0
Water quality	10	1
Flooding, drainage and their management	8	5
Vegetation (eg clearing, revegetation and mangroves)	6	0
Impact of industry	4	0
Weeds and weed control (eg arsenic weed, lantana)	3	2
Over use and over allocation of water	3	1
Natural resource management	3	1
Other	11	7

The larger degree of concern by those involved in ICM about *ineffective decision making processes and communication*, *water quality*, and *vegetation* issues may reflect the insight gained to these issues through close involvement with government departments and attempts to address sustainability issues.

The order of concerns expressed by the HRCCC reflected the priorities of people involved in ICM except that *flooding, drainage and their management* rated much lower for the HRCCC.

### 3.2 Overall communication (Recorded on Separate Communications Sheet)

**Over the last year, how often have you communicated with anyone from ... about ICM OR environmental issues?**

1
2
3
4  
 Frequently                      Occasionally                      Once or twice                      Never

This question was asked for the following categories of contacts:

- A. state government in Brisbane
- B. state government in Townsville or Northern Queensland
- C. local government
- D. the Herbert River Catchment Coordinating Committee
- E. industry or an industry group
- F. individual basis (ie. communicating with the person as an individual, and not necessarily as someone representing an organisation).

This question was asked separately for each different contact in the 'other' category at the end of the questionnaire. The following table shows the overall frequency of communication with each of the categories of contacts, with median responses indicated with a tick.

	SG Brisbane	Regional SG	Local Govt	HRCCC	Industry	Individual	Other	Total	%
Frequently					✓			123	38
Occasionally		✓	✓	✓			✓	68	21
Once/twice	✓					✓		37	11
Never								96	30

The overall totals indicate that much of the communication that did occur was fairly frequent. The most frequent communication, on average, was with industry, which reflects the emphasis that ICM groups place on close communication with industry and industry groups.

**Who did you communicate with? (Up to six responses permitted)**

As mentioned above, respondents were asked to specify who they had spoken to from each category of contact. The sixty respondents reported a total of 348 different contacts they had communicated with about ICM and related issues.

For a detailed list of the different specific contacts for each category of respondent, see Appendix B. A table showing the number of different contacts for each group of respondents with each of the categories of contacts can be found in Appendix C.

Below are the various organisations or departments spoken to from each category, using names current at the time of the survey. Although names of individuals were mentioned by respondents, only the number of different individuals spoken to has been listed. Each of the contacts may have been communicated with any number of times by each respondent.

**State government in Brisbane**

Department of Natural Resources  
 Department of Local Government and Planning  
 Department of Environment  
 Department of Primary Industries  
 Department of Fisheries  
 Queensland Rail  
 Members of coordinating groups

**Regional state government**

Department of Environment  
 Department of Natural Resources  
 Department of Primary Industries  
 Queensland Transport  
 Dept of Local Government and Planning

**Local government**

Thuringowa City Council  
 Hinchinbrook Shire Council  
 Herberton Shire Council  
 Members of coordinating groups  
 Townsville City Council  
 Mayor  
 Council  
 Integrated Pest Management  
 Dept of Local Government and Planning

**HRCCC**

3 different individuals  
 All members

**Industry or an industry group**

Canegrowers Association  
 Cattleman's Union  
 Members of coordinating groups  
 Colonial Sugar Refineries (CSR)  
 Fruit and Vegetable Producers Association  
 Horticulture  
 Queensland Commercial Fisheries Organisation  
 Landcare  
 Individuals  
 Tropical Fruit Group

**Other**

CSIRO  
 Landcare  
 6 different individuals  
 CSR  
 Aboriginal and Torres Strait Islander Commission (ATSIC)  
 local group

The table below lists the mean number of different contacts reported per respondent over the last year with the different categories of contacts.

Categories of contacts

Respondents	SG Brisbane	Regional SG	Local govt	HRCCC	Industry	Individual	Other	TOTAL	Overall mean
Researchers (4)	1.5	1.0	2.0	2.8	1.0	1.5	0.3	40	10
SG Brisbane (3)	2.3	1.3	0.3	1.7	0.7	0.0	0.7	21	7
HRCCC (16)	1.3	1.6	1.3	n/a	2.0	0.4	0.5	114	7.1
Active locals (11)	0.9	1.2	1.1	0.8	0.8	0.7	0.8	70	6.4
Other ICM (5)	1.2	0.4	1.8	0.2	2.2	0.6	0.0	32	6.4
Regional SG (9)	0.7	1.2	1.0	1.0	1.6	0.3	0.0	52	5.8
Local people (12)	0.3	0.3	0.3	0.2	0.2	0.3	0.1	19	1.7
Overall mean	8.2	7.0	7.8	6.6	8.4	3.9	2.3		

On average, researchers had communicated with the highest number of different contacts (10 per person). This was to be expected as they were selected because of their research on ICM issues and therefore had a great deal of contact with others about ICM.

HRCCC members had made an average of 7.1 different contacts per person overall. However, while some members of the HRCCC listed a relatively high number of different contacts (maximum = 26), other members had very few different contacts (minimum = 2). Overall, the number of different contacts for the HRCCC was very high considering the voluntary nature of members' involvement, unlike state and local government respondents and researchers.

State government representatives in Brisbane had a very similar number of different contacts to HRCCC members (7 per person).

The highest number of different contacts within a specific category was reported by researchers with the HRCCC (2.8 per researcher). Researchers also communicated with local government to a relatively high degree (2 per researcher).

The second highest number of different contacts with a specific category was reported by Brisbane state government respondents with other Brisbane state government representatives (on average, 2.3 contacts).

The relatively high number of different contacts that the HRCCC had in industry (2 contacts per person) and that other ICM groups had in industry (2.2 per person) again reflects the emphasis ICM groups place on close communication with industry and industry groups and industry representation on ICM committees.

Active local people had the most even distribution of communication with the different categories of contacts. This places active local people in an ideal situation to assist in coordination efforts.

The low mean number of different contacts reported by local people about ICM or environmental issues (1.7 per person) may indicate a relatively low involvement of the general community in ICM. At this stage, there are no baseline figures of this nature available. In addition, communication with people on an individual basis was very low.

The only linkage completely missing in this matrix of communications was between Brisbane state government respondents with people on an individual basis. Very low numbers of different contacts were reported by other ICM representatives with local government, regional state government and the HRCCC and by local people with all categories of contacts.

### 3.3 Characteristics of communication

#### What were the main reasons for the communication?

All respondents were asked to explain the main reasons for each communication with the different contacts they had listed. The table below shows those reasons mentioned in over 4% of responses by each of the seven groups of respondents. The total number of responses mentioned by each group of respondent is shown in the first row. For each different reason, the percentage of the total number of responses for each group of respondents is shown. For example, 33 responses were mentioned by local people and 9.1% of those responses were *policy/planning/decision making*. It is important to note that ‘reasons for communication’ have not been analysed by ‘who initiated the contact’.

#### Reasons for communication (by groups of respondents)

	Respondents							OVERALL
	Local people	Local active	HRCCC	Other ICM	Regional SG	SG Brisbane	Researchers	
<b>Number of responses</b>	<b>33</b>	<b>79</b>	<b>176</b>	<b>50</b>	<b>90</b>	<b>35</b>	<b>69</b>	<b>532</b>
<b>Reasons</b>	%	%	%	%	%	%	%	%
Policy/planning/decision making	9.1	10.1	9.7	4.0	11.1	5.7	10.1	9.2
Environmental issues	21.2	12.7	5.7	12.0	14.4			8.6
Research/project work			5.1		4.4		30.4	6.4
Follow up on catchment /strategy issues		5.1	4.5		5.6	11.4	10.1	5.3
Meeting/seminar		6.3	5.7	6.0	6.7			4.7
Exchange information	9.1		8.5		5.6			3.8
Drainage action	9.1							3.4
Information collection and follow up		8.9				5.7	5.8	3.0
Funding				4.0		14.3		2.8
Departmental/local issues							10.1	2.6
Understanding			4.5				18.8	2.4
General discussion	3.0			4.0				2.3
Advice on water licencing/allocation issues					7.8			2.1
Gain support or interest in ICM				6.0				2.1
Marine permits					10.0			2.1
Coordination/conflict resolution	6.1			4.0	6.7			1.9
General advice		8.9						1.9
Land use or management	6.1			4.0				1.5
Death of fish or fish habitats								1.3

Overall, the most frequent responses were: *policy/planning/decision making* (9.2%); *environmental issues* in general (8.6%); and *research project work* (6.4%).

The most frequent reasons for communication mentioned by specific groups of respondents were:

- *research/project work* by researchers (30.4%);
- *environmental issues* by local people (21.2%), regional SG (14.4%), local active people (12.7%), and other ICM groups (12.0%);
- *understanding* by researchers (18.8%), mainly in communication with people on an individual basis; and
- *funding* by Brisbane state government (14.3%).

The following table lists the frequency of the same reasons for communication with each category of contact. Again, only reasons mentioned in over 4% of the responses are listed. However, as the number of responses was very low for ‘Other’ contacts, only reasons given in over 5% of responses are listed for this group.

The total number of responses for each category of contact is shown in the first row. The percentage indicates how often each response was mentioned in communication with each category of contact. For example, for communications with Brisbane state government contacts, a total of 88 responses were listed and 12.5% of these were *policy/planning/decision making*.

### Reasons for communication (by categories of contacts)

	Categories of Contacts							OVERALL
	SG Brisbane	Regional SG	Local govt	HRCCC	Industry	Individual	Other	
<b>Number of responses</b>	<b>88</b>	<b>96</b>	<b>86</b>	<b>69</b>	<b>123</b>	<b>45</b>	<b>25</b>	<b>532</b>
<b>Reasons</b>	%	%	%	%	%	%	%	%
Policy/ planning/ decision making	12.5	4.2	12.8	8.7	9.8	4.4	12.0	9.2
Environmental issues	4.5	8.3	16.3	4.3	7.3	8.9	16.0	8.6
Research/ project work	6.8	4.2		15.9	7.3			6.4
Follow up on catchment / strategy issues	8.0		7.0	13.0				5.3
Meeting/ seminar			9.3		4.9	6.7	8.0	4.7
Exchange information	4.5					8.9		3.8
Drainage action	4.5					9.0		3.4
Information collection and follow up		6.3				8.9		3.0
Funding	5.7	4.2						2.8
Departmental/ local issues				11.6				2.6
Understanding						6.7		2.4
General discussion						6.7		2.3
Advice on water licencing/ allocation issues					4.9			2.1
Gain support or interest in ICM				4.3				2.1
Marine permits					4.1			2.1
Coordination/ conflict resolution				4.3				1.9
General advice	4.5						8.0	1.9
Land use or management		4.2				4.4		1.5
Death of fish or fish habitats		4.2						1.3

Frequent reasons mentioned by respondents for communication with particular categories of contacts were:

- *environmental issues* with local government (16.3%) and other contacts (16%);
- *research/project work* with the HRCCC (15.9%);
- *follow up on catchment/strategy issues* with the HRCCC (13%);
- *policy/planning/decision making* with local government (12.8%), state government in Brisbane (12.5%) and other contacts (12.0%).

### Unique reasons for communication to particular respondents and contacts

Some responses were unique to particular groups of respondents (still using the 4% cut-off).

*Drainage action* was mentioned only by local people, in their communications with state government representatives in Brisbane and with people on an individual basis. This result reflects the degree of community concern about drainage in the Herbert River Catchment.

*General advice* was only mentioned by local active people, and was in communications with state government Brisbane and 'other' contacts, indicating that these groups are presently viewed as the best contacts for general advice.

Similarly, some responses were unique to communications with particular categories of contacts. For example, *death of fish or fish habitats* was only mentioned in communications with regional state government representatives. *Understanding* was unique to communications reported with people

on an individual basis and was mentioned by HRCCC members and researchers. This may indicate the importance of communication on an individual basis when trying to gain an in depth understanding of certain aspects of ICM.

*General discussion* was only mentioned in communications with people on an individual basis and was mentioned by local people and other ICM representatives. *Advice on water licensing/allocation issues* and *marine permits* were unique to communications between regional state government respondents with their industry contacts.

### **HRCCC communication**

The following reasons were reported by HRCCC respondents in their communications with the categories of contacts shown.

- *Policy/planning/decision making*: with all categories.
- *Exchange information*: on an individual basis; with SG Brisbane.
- *Environmental issues*: with all categories.
- *Meeting/seminar*: with local government; other contacts; individual basis; industry.
- *Research/project work*: with HRCCC; industry; SG Brisbane; regional SG.
- *Follow up on catchment/strategy issues*: with SG Brisbane; local government.
- *Understanding*: on an individual basis.

By comparison, communication reported with the HRCCC was mainly for the following reasons and was reported by the groups of respondents shown.

- *Research/project work*: by researchers; regional SG.
- *Follow up on catchment/strategy issues*: by SG Brisbane; researchers; regional SG; local active people.
- *Departmental/local issues*: by researchers.
- *Policy/planning/decision making*: by all groups.
- *Environmental issues*: by local people; regional SG; local active people; other ICM.
- *Gain support/interest in ICM*: by other ICM.
- *Coordination/conflict resolution*: by regional SG; local people; other ICM.

Four of the reasons for communication by HRCCC respondents matched the reasons reported for communication with the HRCCC, although in different orders of frequency.

HRCCC respondents mentioned *exchanging information*; *meeting/seminar*; and *understanding* whereas other respondents did not mention these in their communication with the HRCCC.

Other respondents mentioned *departmental/local issues*; *gain support/interest in ICM*; and *coordination/conflict resolution* as reasons for their communication with HRCCC members but these were not mentioned by HRCCC respondents. These particular differences are important in light of two HRCCC key objectives (1998), to “coordinate government agencies and the community to pursue common goals” and to “seek community involvement in catchment management”.

### **Who made contact first?**

For each communication reported, respondents were asked who made contact first. The table below shows the percentage of contacts for each group of respondents made in each direction:

- outward – the respondent initiated communication with the contact;
- mutual – initiated through a mutual contact, meeting or other event; or
- inward – the contact initiated communication with the respondent.

<b>Groups of respondents (number of communications)</b>	<b>Outward %</b>	<b>Mutual %</b>	<b>Inward %</b>
Local people (19)	47.4	42.1	10.5
Local active people (60)	38.3	50.0	11.7
HRCCC (108)	27.8	49.1	23.1
Other ICM (32)	53.1	40.6	6.3
Regional SG (51)	31.4	58.8	9.8
SG Brisbane (18)	38.9	50.0	11.1
Researchers (39)	23.1	43.6	33.3
<b>TOTAL (327)</b>	<b>111</b>	<b>160</b>	<b>56</b>
Overall %	33.9	48.9	17.1

Overall, approximately half (48.9%) of the communications were reported to be mutual, which illustrates the high degree of initial contact made through previous contacts or at meetings and other events. This result will be important to utilise in any attempts to improve communication between stakeholders of ICM or environmental issues.

Researchers were the only group contacted more often by others (inward) than they initiated communication (outward). The HRCCC also received a large degree of inward communication which may reflect their central role in providing information on ICM.

For details of the direction of communication between each of the groups of respondents and the categories of contacts, see Appendix D.

### **Were you primarily representing yourself or an organisation or both?**

For each communication, respondents were asked whether they had primarily represented themselves, their organisation, or both. The table shows the frequency of each response for the categories of respondents.

<b>Groups of respondents (number of contacts)</b>	<b>Self %</b>	<b>Organisation %</b>	<b>Both %</b>
Local people (19)	47.4	47.4	5.3
Local active people (65)	13.8	72.3	13.8
HRCCC (113)	12.4	65.5	22.1
Other ICM (32)	6.2	93.8	0
Regional SG (45)	2.2	95.6	2.2
SG Brisbane (21)	0	100.0	0
Researchers (40)	17.5	82.5	0
<b>TOTAL (335)</b>	<b>42</b>	<b>257</b>	<b>36</b>
Overall %	12.5	76.7	10.7

Overall, approximately three quarters (76.7%) of respondents represented their organisation in communication with others about ICM or environmental issues. Members of state government in Brisbane, regional stage government, other ICM groups and researchers predominantly represented their organisations.

Local active people and HRCCC members were more likely than other groups to represent both themselves and their organisation in their communication with others.

### What was the outcome?

Respondents were asked to list the outcomes of each communication they had mentioned. The following table shows the main outcomes of communication with each of the categories of contacts. (The number of responses is indicated by n).

	SG Brisbane	Regional SG	Local govt	HRCCC	Industry	Individual	Other	Overall
	n = 76	n = 75	n = 70	n = 40	n = 87	n = 31	n = 20	n = 399
Outcome	%	%	%	%	%	%	%	%
Progress	18.4	28.0	25.7	27.5	24.1	19.4	20.0	23.8
Understanding of issues	22.4	12.0	31.4	15.0	25.3	16.1	15.0	21.1
Information exchange	17.1	22.7	12.9	5.0	12.6	35.5	30.0	17.3
Unsuccessful	13.2	17.3	7.1	7.5	13.8			10.8
Resolution of issues/ decision	7.9	8.0	7.1	5.0	4.6	6.5	10.0	6.8
Gained information	7.9	4.0	2.9	10.0	6.9	6.5	5.0	6.0
Specific action taken	3.9	1.3	4.3		3.4	3.2	5.0	3.0
Other	3.9	1.3	4.3	5.0	3.4		5.0	3.0
Changed their outlook				15.0	1.1	12.9		2.8
Coordinate/ collaborate	2.6	1.3	1.4	7.5	1.1		5.0	2.3
Coordination needed	3.9	1.3					5.0	1.3
Benefit to industry		1.3	1.4	2.5	1.1			1.0
Gained involvement in project		1.3	1.4		2.3			1.0

The results of this question were generally very positive, with the highest responses being *progress* (23.8%), *understanding of issues* (21.1%), and *information exchange* (17.3%). Overall, however, 10.8% of communications were said to have been *unsuccessful*.

The highest responses (over one quarter) for communication with specific contacts included: *information exchange* with people on an individual basis (35.5%) and other contacts (30.0%); *understanding of issues* with local government (31.4%) and industry; and *progress* with regional state government (28.0%), the HRCCC (27.5%) and local government (31.4%).

Considering the HRCCC's role in coordination, it was encouraging that 7.5% of the unprompted responses regarding outcomes of communication with the HRCCC were classified as *coordination or collaboration*, higher than with any of the other categories of contacts.

### Overall, how satisfied were you with this communication?

1	2	3	4	5
Very satisfied	Quite	Somewhat	Slightly	Very dissatisfied

In this question, respondents were asked to rate their satisfaction on the scale shown above. The mean satisfaction for communication with each of the categories of contacts are shown in the following table. Scores were re-coded, giving a higher score to a higher rating of satisfaction (5 = *very satisfied*; 1 = *very dissatisfied*, etc).

<b>Contacts</b>	<b>Mean</b>
SG Brisbane	3.37
Regional SG	3.56
Local Govt	4.00
HRCCC	4.11
Industry	3.83
Individual	3.71
Other	3.95
OVERALL	3.79

Overall, the mean satisfaction score was 3.79, the modal response was 4 (*satisfied*) and 8.6% of communications resulted in the response *very dissatisfied*. These results indicate a fairly high degree of satisfaction with communications although an examination of the reasons for those who were very dissatisfied may be useful. High mean satisfaction scores were assigned to communications with the HRCCC (4.11) and local government (4.00).

**Do you feel that this communication changed your outlook on ...ICM OR ...environmental issues?**

1	2	3	4	5
Very much	Quite a lot	Somewhat	Very little	Not at all

For each communication, respondents were asked firstly whether it had changed their outlook on ICM or environmental issues, on the five point scale shown above, which was also recorded for the analysis. They were also asked whether they felt it had changed the contact's outlook. The mean responses to the two questions are listed in the table below.

<b>Contacts (number of contacts)</b>	<b>Change in outlook of respondents</b>	<b>Change in outlook of contacts</b>
SG Brisbane	2.02	2.13
Regional SG	2.15	2.26
Local Govt	2.42	2.57
HRCCC	2.78	2.79
Industry	2.14	2.71
Individual	2.75	2.88
Other	1.74	2.24
OVERALL	2.27	2.51

Overall, there was a tendency for respondents to feel they had changed the outlooks of others more than they believed their outlook had changed due to the communication. On average, respondents rated the most change in outlook, both for themselves and the contact, in communication on an individual basis or with the HRCCC.

**How?**

When asked how their outlook had changed, and how the outlook of the contact had changed, the frequencies of the main responses (mentioned three or more times) were as follows.

Change in outlook	Respondents	Contacts
Greater awareness	38	40
Understanding/knowledge	34	50
Share what is happening/ideas	31	
Positive impact	16	
Too early to tell	10	
Disappointed at lack of resources/commitment to ICM	9	
Issue too politicised and too big	7	
Accept/aware of ICM		13
Learned what is happening		12
Aware of environmental problems		8
Changed views		8
Hard to get acknowledgment of problems		7
Encouragement to keep going		5
Hard to explain concepts		5

The positive nature of many of these changes in outlook of both respondents and their contacts is promising for the communication occurring on ICM and environmental issues on the Herbert River Catchment. Negative changes in outlook mentioned by some respondents were: *disappointed at the lack of resources or commitment to ICM* and *politicised, very big issues*. A couple of difficulties were mentioned: *getting acknowledgment of problems by some contacts* and *explaining concepts to contacts*.

**Finally, now that we've talked about some of the different groups that you communicate with about ...ICM OR ..environmental issues, are there any suggestions that you'd like to make on how these communications could be more effective?**

The most frequent responses are shown below.

Response	Frequency
Seminars, workshops, field days	7
Media coverage to sell ICM	5
More regular meetings	3
More communication/involvement within government departments	3
Greater access to information	3
Better communication at local level with ICM	3
Improved communication to the general public	3
Coordinate/one vision	3
More funding	3

Very few suggestions were made on how communication could be improved, less than an average of one response per respondent. This perhaps indicates that respondents felt that few improvements were required or that they found it difficult to suggest improvements on the spot. For those respondents who had a very large number of contacts to report, fatigue may have been a factor in the low number of responses to this question.

## 4.0 DISCUSSION AND CONCLUSIONS

### 4.1 Involvement in ICM

For those respondents involved in ICM in the Herbert River Catchment, the major reasons indicated for their involvement were:

- *personal interest;*
- *job related; or*
- *interest in the sugar industry.*

Researchers had been involved in ICM for the longest period of time (on average 7.2 years) whereas HRCCC members had been involved on average for five years (when the group was formed). Two thirds of those not involved in ICM in the Herbert Catchment had heard of ICM, five of whom had been involved in the past.

### 4.2 Concerns about environmental management

Major concerns for those involved in ICM were:

- *the environment in general;*
- *ineffective decision making processes and communication;*
- *water quality; and*
- *flooding, drainage and their management.*

For those not involved in ICM, however, *flooding, drainage and their management* was of greatest concern. This issue may therefore need more attention by the HRCCC.

### 4.3 Overall communication

A matrix of contacts revealed that there was direct contact between most of the groups of stakeholders. The most frequent communication about ICM or environmental issues overall was with industry, particularly mentioned by respondents from other ICM groups, the HRCCC and regional state government. This reflects the close linkage that the HRCCC has with industry, in particular canegrowers.

The only complete gap was between Brisbane state government respondents in communication with others on an individual basis. Brisbane state government respondents also had a relatively low number of different contacts within local government. Local people and active local people reported the least number of different contacts within Brisbane state government than other categories of respondents. These results suggest that Brisbane state government personnel received information about ICM from others more closely involved with the local area and community. While this may be necessary for efficiency, it may prevent parties receiving accurate information.

### 4.4 Specific communication

The greatest degree of communication between specific groups was reported by researchers with the HRCCC and local government; and by Brisbane state government with Brisbane state government. While this communication, or coordination, between various organisations and agencies is very important to the success of ICM, the results suggest that communication with the general community and community involvement have been given a lower priority.

Local people reported the lowest degree of communication about ICM or environmental issues. This is not surprising as local people were chosen randomly whereas other representatives were selected due to their involvement in ICM.

## 4.5 Characteristics of communication

The predominant reasons supplied by respondents for their communication, and the primary contacts associated with those reasons, were:

- *policy/planning/decision making* with local government and Brisbane state government;
- *environmental issues* with local government;
- *research/project work* with the HRCCC; and
- *follow up on catchment/strategy issues* with the HRCCC.

Answers to the question “who made contact first?” were categorised into *outward* (the respondent initiated the communication), *mutual* (through a mutual contact, meeting or other event) and *inward* (the contact initiated communication with the respondent). Most communication was categorised as “mutual” which indicates the importance of mutual or informal ways of meeting to the functioning of ICM.

Respondents reported having initiated the communication (outward communication) more than contacts initiated the communication (inward communication). This may be true but the result may have more to do with the tendency people have to describe their own activities more positively than they describe others, in other words, ‘self-others biasing’ (Kurman & Eshel, 1998).

Outcomes from communication were generally very positive, the most frequent being:

- *progress;*
- *understanding of issues;*
- *information exchange;*
- *resolution of issues/decision;*
- *gained information;*
- *changed their outlook;*
- *specific action taken;* and
- *coordinate/collaborate.*

Two negative outcomes were also mentioned, which may need to be addressed:

- *unsuccessful;* and
- *coordination is needed.*

With the exception of local landholders, most perceived their communications in relation to ICM to be satisfactory. Satisfaction was highest, however, for communication with the HRCCC and local government which indicates a greater satisfaction when communication was with local bodies. It is a very encouraging result for the HRCCC.

There was a tendency for respondents to report that they had influenced the outlook of others more than others had influenced them. This may be due to self-others biasing (Kurman & Eshel, 1998) and others therefore were perhaps not changing their outlooks as much as perceived by respondents.

Respondents reported the most change in outlook (for themselves and the contact) in communications with the HRCCC and with people on an individual basis, which will be an important result to utilise in situations where attitude change is seen to be important.

The main ways in which respondents reported that their outlook had changed were: *gaining greater awareness; understanding or knowledge; or to share what is happening and ideas.* Difficulties mentioned were: *disappointed at the lack of resources/commitment to ICM* and *issues are too politicised and too big.* The main ways in which respondents felt the outlook of contacts had changed were:

*understanding/knowledge; greater awareness; and accept/aware of ICM.* Different difficulties were mentioned in the change of outlook of the contacts: *getting acknowledgment of problems by some contacts and explaining concepts to contacts.*

All respondents were asked for their suggestions on ways in which communication on ICM could be improved. Although there were very few responses, some of these were:

- *seminars, workshops, field days;*
- *media coverage to sell ICM;*
- *more communication with government departments;*
- *greater access to information;*
- *better communication at the local level and to the general public;*
- *coordinate – one vision; and*
- *more funding.*

#### **4.6 Conclusions**

This pilot study was conducted primarily to determine the feasibility of measuring the quantity, and various characteristics, of communication occurring on ICM and environmental issues in the Herbert Catchment. It is also possible to make some initial conclusions about communication between stakeholders of ICM.

The survey illustrated that linkages exist between almost all major groups of stakeholders and that most people feel satisfied with their communication about ICM and environmental issues. There were mainly positive outcomes of communication with others, including *greater awareness, understanding, and knowledge* for both respondents and perceived in contacts, and respondents *sharing what is happening and sharing ideas* and contacts *accepting or becoming more aware of ICM.*

The results of the survey indicate that it may be important for ICM to:

- communicate more with the general community;
- strengthen communication between state government in Brisbane and local government;
- strengthen communication between other ICM groups and regional state government;
- strengthen communication between other ICM groups and the HRCCC, if necessary;
- build on the ‘mutual’ communication occurring by creating opportunities for mutual contact allowing stakeholders to meet;
- be cautious about the perceived influence on others;
- carry out the major suggestions by respondents to improve communication in ICM: seminars, workshops, field days, and meetings;
- address the difficulty some people find in gaining acknowledgment of the problems by others and in explaining concepts to others.
- pay more attention to the issues of drainage and flooding;
- addressing the two negative outcomes of communication, generally *unsuccessful* communications and the *need for coordination.*

While it is therefore clearly possible to measure the quantity of communication occurring between stakeholders of ICM and other characteristics of that communication, there were some lessons to be learned from this pilot study.

- Respondents found it difficult to categorise their contacts correctly so in future it will be important to brief interviewers more thoroughly on the possible departments and organisations that may be mentioned.
- Interviews with those respondents who had a large number of contacts were relatively long and repetitive. One suggestion would be to allow a break in the interview to prevent fatigue and possible biasing of responses.

- Although respondents were restricted to six different contacts for each category, some people who are heavily involved in ICM may have more than six different contacts within some categories.
- The time frame used for communications may need to be shortened as some respondents found it difficult to remember communications as long as one year before the survey.
- Administration would be easier if respondents are provided a copy of the scales used in the questionnaire to refer to during the telephone interview.

## 5.0 REFERENCES

- Bellamy, J. (1998). Evaluating integrated catchment management in a wet tropical environment: A working paper. CSIRO Tropical Agriculture: St Lucia, Queensland. (Also this publication Vol. 7, Ch. 2, pp. 19-38).
- Fife-Shaw, C. (1995). Surveys and sampling issues. In Breakwell, M. Hammon, S. & Fife-Shaw, C. Research methods in psychology. Sage Publications: London.
- Herbert River Catchment Coordinating Committee (1998). Herbert River Catchment Management Strategy.
- Kurman, J. & Eshel, Y. (1998). Self-enhancement, generality of self-evaluation, and emotional adjustment. *Journal of Social Psychology*, 138(5), 549(15).
- Roberts and Reilly (1974). Measuring organisational effectiveness. *Journal of Applied Psychology*, 59, 321-326.


## **APPENDIX A:**

The Questionnaire  
(with Communications Sheet enclosed)



Good morning/afternoon. I'm \_\_\_\_\_ from the CSIRO.

We're speaking with people in the Herbert River Catchment about communications.

 **Read to respondent**

A questionnaire has been developed by the CSIRO to try to understand the characteristics of communications between the different agencies involved in Integrated Catchment Management in Queensland, and in particular, the Herbert River Catchment.

By answering the following questions, you will help us to put together a comprehensive picture of communications in this area. For example:

- ⇒ who people communicate with
- ⇒ the main reasons for these communications
- ⇒ as well as the main outcomes.

Would you like to speak with me now?

OR

Could I call back at a more convenient time?

1. Are you involved either personally or because of other reasons in Integrated Catchment Management (ICM) in the Herbert Catchment? (Circle the number).

YES .... 1

NO .... 2



Go to Question 4

If YES - Read 'ICM' in later question

If NO – Read 'Environmental issues that concern you' in later questions

2. Which of the following are reasons for your involvement?

Tick as many boxes as nominated

Live on the catchment

Member of a community group

Personal interest

Scientific research

Interest in the sugar industry

Interest in other primary production

Job related

Because I am a landholder

Other,

↳ please explain \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3. How long have you been involved with ICM? \_\_\_\_\_ years



Go to Question 5

4. Before this interview, were you aware of the ICM program in the Herbert Catchment and elsewhere in Queensland?

YES .... 1

NO .... 2



Go to Question 5

If YES, what do you know about ICM?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

5. Do you have any concerns about environmental management on the Herbert Catchment?

YES .... 1

NO .... 2



**Thank you for cooperating. (END)**

If **YES**, what are your major concerns?

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**Read to respondents.**

We are interested in who you have communicated with about **ICM/environmental issues** over the last year.

Communications may have been:

- **Formal** (e.g. a letter or e-mail) or **informal** (e.g. a conversation or meeting at a social occasion)
- For **one particular reason** or for **a number of reasons** (in which case, I'll ask you to tell me about each one)
- **Personal** (i.e. individuals representing themselves) or **official** (i.e. individuals representing their organisation)
- **“one off”** or a **group of communications** (these can be mentioned together).

\*\*\*\*\* Now, go to separate communications sheet and ask questions.

## COMMUNICATIONS SHEET

NAME: \_\_\_\_\_



A. Over the last year, how often have you communicated with anyone from **state government in Brisbane** about .... ICM OR .... environmental issues?

Circle the correct number.

1 frequently      2 occasionally      3 once or twice      4 never  
(Go to B)

Who did you communicate with – up to 6 departments? (GOLD pages)

A1 _____	A4 _____
A2 _____	A5 _____
A3 _____	A6 _____



B. Over the last year, how often have you communicated with anyone from **state government in Townsville or Northern Queensland** about .... ICM OR .... environmental issues?

1 frequently      2 occasionally      3 once or twice      4 never  
(Go to C)

Who did you communicate with – up to 6 departments? (WHITE pages)

B1 _____	B4 _____
B2 _____	B5 _____
AB _____	B6 _____



C. Over the last year, how often have you communicated with anyone from **local government** about \_\_\_\_\_ .... ICM OR .... environmental issues?

1 frequently      2 occasionally      3 once or twice      4 never  
(Go to D)

Who did you communicate with – up to 6 councils? (BLUE pages)

C1 _____	C4 _____
C2 _____	C5 _____
C3 _____	C6 _____



D. Over the last year, how often have you communicated with anyone from the **Herbert Catchment Care Coordinating Group** about .... ICM OR .... environmental issues?

$\frac{1}{\text{frequently}} \quad \frac{2}{\text{occasionally}} \quad \frac{3}{\text{once or twice}} \quad \frac{4}{\text{never}}$   
 (Go to E)

Who did you communicate with – up to 6 people? (**CREAM pages**)

D1	D4
D2	D5
D3	D6



E. Over the last year, how often have you communicated with anyone from **industry or an industry group** about .... ICM OR .... environmental issues?

$\frac{1}{\text{frequently}} \quad \frac{2}{\text{occasionally}} \quad \frac{3}{\text{once or twice}} \quad \frac{4}{\text{never}}$   
 (Go to E)

Who did you communicate with – up to 6 people? (**PINK pages**)

E1	E4
E2	E5
E3	E6



F. Next, we'd like to know if you've communicated with anyone on an **individual basis**. That is, you were communicating with this person as an individual, and not necessarily as someone representing an organisation. So, over the last year, how often have you communicated with anyone on an individual basis about .... ICM OR .... environmental issues?

$\frac{1}{\text{frequently}} \quad \frac{2}{\text{occasionally}} \quad \frac{3}{\text{once or twice}} \quad \frac{4}{\text{never}}$   
 (Go to coloured pages)

Who did you communicate with – up to 6 people? (**GREEN pages**)

F1	F4
F2	F5
F3	F6

**START**

## **APPENDIX B:**

### Specific Contacts Reported by Respondents

## Abbreviations:

CSR	Colonial Sugar Refineries
DOE	Department of Environment
DOF	Department of Fisheries
DLGP	Department of Local Government and Planning
DNR	Department of Natural Resources
DPI	Department of Primary Industries
Org	Organisation
Qld	Queensland

## Contacts reported by Researchers

<b>State Government in Brisbane</b>	<b>N</b>
DLGP	3
DNR	2
DOE	1

<b>Regional State Government</b>	<b>N</b>
DOE	2
DNR	1
DLGP	1

<b>Local Government</b>	<b>N</b>
Hinchinbrook Shire Council	3
Local City Council	1
Individual	1
Thuringowa City Council	1
Herberton Shire Council	1
Townsville City Council	1

<b>HRCCC</b>	<b>N</b>
Individuals (5)	10
Cardwell Shire Council	1

<b>Industry</b>	<b>N</b>
Canegrowers	2
CSR	1
Individual	1

<b>Individual Basis</b>	<b>N</b>
Individuals (2)	2
Hinchinbrook Shire Council	1
Canegrowers	1
CSR	1
Other	1

<b>Others</b>	<b>N</b>
Other researchers	1

**Contacts reported by  
Brisbane State Government  
Respondents**

<b>State Government in Brisbane</b>	<b>N</b>
DNR	4
DOE	2
DLGP	1

<b>Regional State Government</b>	<b>N</b>
DNR	4

<b>Local Government</b>	<b>N</b>
Hinchinbrook Shire Council	1

<b>HRCCC</b>	<b>N</b>
Individuals (3)	4
All members	1

<b>Industry</b>	<b>N</b>
Commercial Fishermens' Rep.	1
Canegrowers	1

<b>Individual Basis</b>	<b>N</b>
None	

<b>Others</b>	<b>N</b>
LWRRDC	1
Individual	1

## Contacts reported by HRCCC Respondents

<b>State Government in Brisbane</b>	<b>N</b>
DNR	5
DLGP	4
DOE	4
DPI	3
DOF	2
Queensland Rail	1
Members of coordinating groups	1
Individual	1

<b>Regional State Government</b>	<b>N</b>
DOE	8
DNR	8
DPI	5
CSIRO	2
Queensland Transport	1
DLGP	1

<b>Local Government</b>	<b>N</b>
Thuringowa City Council	6
Hinchinbrook Shire Council	3
Members of coordinating groups	3
Townsville City Council	2
Mayor	2
Council	2
Integrated Pest Management	1
Individual	1
DLGP	1

<b>HRCCC</b>	<b>N</b>
n/a	

<b>Industry</b>	<b>N</b>
Canegrowers	9
Cattleman's Union	6
Members of coordinating groups	3
CSR	3
Fruit and Vegetable Growers	2
Individuals (2)	2
Horticulture	1
Qld Commercial Fishing Org	1
Landcare	1
Local irrigation group	1
Irrigators	1
Tropical Fruit Group	1
Other	1

<b>Individual Basis</b>	<b>N</b>
Individuals (4)	4
DPI	2
Members of coordinating groups	1

<b>Others</b>	<b>N</b>
CSIRO	3
Individuals (2)	2
Landcare	1
CSR	1
ATSIC Local Group	1

## Contacts reported by Local Active People

<b>State Government in Brisbane</b>	<b>N</b>
DNR	3
Individuals (3)	3
DPI	2
DLGP	1
DOE	1

<b>Regional State Government</b>	<b>N</b>
DNR	5
Individuals (4)	4
DOE	2
Department of Mines	1

<b>Local Government</b>	<b>N</b>
Hinchinbrook Shire Council	4
Cardwell Shire Council	3
DLGP	1
Thuringowa City Council	1
Individual	1
Durrangowan	1
Members of coordinating groups	1

<b>HRCCC</b>	<b>N</b>
Individuals (4)	8
Water Infrastructure Committee	1

<b>Industry</b>	<b>N</b>
CSR	3
Canegrowers	1
Mills Supply Committee	1
Members of coordinating groups	1
Herbert River Canegrowers	1
Individual	1
Water Infrastructure Committee	1

<b>Individual Basis</b>	<b>N</b>
Canegrowers	2
Members of coordinating groups	2
DNR	1
Individuals (3)	3

<b>Others</b>	<b>N</b>
DPI	2
Landcare	2
DOE	1
Canegrowers	1
Members of coordinating groups	1
Individuals (2)	2

**Contacts reported by  
Other ICM Groups**

<b>State Government in Brisbane</b>	<b>N</b>
DNR	4
DOE	1
DPI	1

<b>Regional State Government</b>	<b>N</b>
DNR	2

<b>Local Government</b>	<b>N</b>
Maroochy	1
Mareeba	1
Cook	1
Carpentaria	1
Taroom	1
Banana	1
Cooloola	1
Johnstone	1
Eacham	1

<b>HRCCC</b>	<b>N</b>
Individual	1

<b>Industry</b>	<b>N</b>
Dairy Beef	3
Canegrowers	2
Horticulture Groups	2
United Graziers Association	1
Irrigation Cotton Farmers	1
Department of Mines	1
Cattleman's Union	1

<b>Individual Basis</b>	<b>N</b>
Herberton Shire	1
Women's Network	1
Industry representative	1

<b>Others</b>	<b>N</b>
None	

**Contacts reported by  
Regional State Government  
Respondents**

<b>State Government in Brisbane</b>	<b>N</b>
DNR	3
DLGP	2
DPI	1

<b>Regional State Government</b>	<b>N</b>
DNR	5
DOE	4
DPI	2

<b>Local Government</b>	<b>N</b>
Hinchinbrook Shire Council	4
Thuringowa City Council	2
Herberton Shire Council	2
Townsville City Council	1

<b>HRCCC</b>	<b>N</b>
Individuals (1)	4
HRCCC	2
DNR	1
Canegrowers	1
Thuringowa City Council	1

<b>Industry</b>	<b>N</b>
Canegrowers	3
CSR	3
Qld Commercial Fishing Org	1
Victoria Mill Process	1
Water Board	1
Horticulture	1
Cattleman's Union	1
Sun Fish	1
United Graziers Association	1
Townsville Enterprise Group	1

<b>Individual Basis</b>	<b>N</b>
Individual	1
Canegrowers	1
Farmer	1

<b>Others</b>	<b>N</b>
None	

**Contacts reported by  
Local People**

<b>State Government in Brisbane</b>	<b>N</b>
DPI	2
DNR	1
DOE	1

<b>Regional State Government</b>	<b>N</b>
DOE	2
DNR	1
Drainage Board	1

<b>Local Government</b>	<b>N</b>
Hinchinbrook Shire Council	1
CEO	1
Individual	1

<b>HRCCC</b>	<b>N</b>
Drainage Board	1
HRCCC	1

<b>Industry</b>	<b>N</b>
Cattleman's Union	1
CSR	1

<b>Individual Basis</b>	<b>N</b>
HRCCC	1
Individual	1
Industry/landowner	1

<b>Others</b>	<b>N</b>
Individual	1

## **APPENDIX C:**

Number of Communications with  
Categories of Contacts  
Reported by Respondents

	SG Brisbane	Regional SG	Local govt	Contacts: HRCCC	Industry	Indiv.	Others	TOTAL	Mean
<b>Respondents:</b>									
<b>Researchers</b> n = 4	6	4	8	11	4	6	1	40	10
<b>SG Brisbane</b> n = 3	7	4	1	5	2	0	2	21	7
<b>HRCCC</b> n = 16	21	25	21	n/a	32	7	8	114	7.1
<b>Active locals</b> n = 11	10	13	12	9	9	8	9	70	6.4
<b>Other ICM</b> n = 5	6	2	9	1	11	3	0	32	6.4
<b>Regional SG</b> n = 9	6	11	9	9	14	3	0	52	5.8
<b>Local people</b> n = 12	4	4	3	2	2	3	1	19	1.7
<b>TOTAL</b>	<b>60</b>	<b>63</b>	<b>63</b>	<b>37</b>	<b>74</b>	<b>30</b>	<b>21</b>	<b>348</b>	

## **APPENDIX D:**

### Direction of Communication Between Groups of Respondents and Categories of Contacts

Respondents:		Contacts:							TOTAL
		Ind	HRCCC	Industry	Local Govt	SG Townsville	SG Brisbane	Others	
Local people n = 11	Out	2	2	0	2	2	1	0	9
	Mutual	1	0	2	1	2	1	1	8
	In	0	0	0	0	0	2	0	2
HRCCC n = 16	Out	1	n/a	7	4	9	7	2	30
	Mutual	4	n/a	18	11	11	5	4	53
	In	1	n/a	5	4	5	9	1	25
Prominent people n = 11	Out	3	0	1	2	6	9	2	23
	Mutual	3	7	5	8	5	0	2	30
	In	0	1	2	0	1	0	3	7
Regional ICM n = 5	Out	2	1	5	4	1	4	0	17
	Mutual	1	0	5	5	1	1	0	13
	In	0	0	1	0	0	1	0	2
SG Townsville n = 9	Out	0	2	5	2	4	3	0	16
	Mutual	2	6	8	7	5	2	0	30
	In	1	1	1	0	1	1	0	5
SG Brisbane n = 3	Out	0	1	0	0	3	3	0	7
	Mutual	0	1	2	0	1	4	1	9
	In	0	0	0	1	0	0	1	2
Researchers n = 4	Out	1	3	1	2	0	2	0	9
	Mutual	1	7	3	1	3	1	1	17
	In	4	0	0	5	1	3	0	13
<b>TOTAL</b>		<b>27</b>	<b>32</b>	<b>71</b>	<b>59</b>	<b>61</b>	<b>59</b>	<b>18</b>	<b>327</b>

## **APPENDIX E:**

### Individual Comments

## Individual Comments

- Communication slower than expected. Lack of progress. The result is less satisfying.
- Place in crisis, so many things to do, not because of bad communication.
- The Information Centre is an informative provider. [Name withheld] has wide contact. Individuals to organisations in many cases general except as indicated.
- Because of expansion there could have been an impasse on land but council has taken on more responsibilities: a major one has been that cane land expansion has been stalled for one or two years which helps to buy time for development control.
- Senior bureaucrats have a good rapport.
- Need real laws, real ICM that's consistent in its decision making, eg they're letting cane be grown on marginal land.
- No-one is doing anything constructive, sugar industry is destroying the land and water. Must protect the environment.
- Silt is coming from cattle/mining – collapsing River Banks. Need to open up river to public and let them have it (eg silt).
- But we have formed a bit of an alliance through adversity.
- No leadership has ICM/Landcare trying to combine. Nothing personal. Don't know who is the coordinator of ICM at state level. Not much contact in last year.
- Individuals – involve them to do something, develop plan for their property, environmental outcome on farms, etc, etc.
- Groups develop projects, information, talk, extension.
- Useful, most things done changing outlook or bringing people up to speed.

As a member on Local Assignment Committee – representing local growers, I have particularly wide contact with individuals but main interaction with government departments is via this committee. Thus I contribute to Committee deliberations and they are communicated through committee members. Members include representatives from various government departments – Environment; Resources; Primary Industry; Local Government; and those involved with property management as well as the wide responsibilities and information provided through Bureau of Sugar Experiment Station. Other organisations such as Resource Information Centre and Herbert River Canegrowers Executive are reference points to which inquiries are referred. The questions as posed do not cover, in this case, the meeting communication breadth, which I see as an integral part of input.