

# W E T L A N D - U S E

A wetland management decision support system  
for South African freshwater palustrine wetlands

## **PART 2: Organizational assessment and development and a structure for planning wetland management**

KOTZE D C 2000

### **South African Wetlands Conservation Programme**

Department of Environmental Affairs and Tourism

#### **PREFACE**

Although wetlands have many benefits to society (e.g. water purification) the destruction and poor management of wetlands continues. WETLAND-USE is a tool to assist agricultural and nature conservation extension staff in working closely with local resource users and managers to promote the wise use of wetlands. It applies to fresh-water palustrine wetlands and has 2 parts. Part 1 assists in: describing the biophysical features of the wetland; predicting the likely environmental impacts of alternative land-use options; and making ongoing management decisions for particular land-use options. Part 2 assists in: describing the social and organizational context of the wetland (i.e. who uses the wetland directly and which organizations influence this use); and in establishing and maintaining a system for planning the management of the wetland and the necessary organizational structures in which the system operates.

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- Participants in the field workshops (see Part 1);
- Managers and wetland users from case-study wetlands. Of particular note are the local people from Wakkerstroom, especially At and Elna Kotze, and the Mbongolwane community from whom I have learnt a great deal, especially Sister Ntuli, Mr Nene and Mr Ntuli, a Senior Tribal Councilor, for their warmth and understanding;

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The empowerment of local people to become better organized for managing their natural resources (including wetland resources) is a key principle common to many conservation initiatives (e.g. "A Guide to Sustainable Living": Yeld, 1997) and several successful integrated catchment management initiatives. Relevant and accessible information and clear operating procedures are very useful in promoting this local participation. The WETLAND-USE system is designed to provide such information and procedures specifically for wetlands. Part 2, which deals with the organizational aspects of management, has 4 components.

- 1) SOCIAL-INFO assists in describing the social, land tenure and policy contexts of individual wetlands.
- 2) ORGANIZATIONAL-ARRANGEMENTS assists in establishing and maintaining organizational arrangements required for wetland management.
- 3) MANAGEMENT-STRUCTURE provides a structure for local wetland users and managers to plan the management of their wetland.
- 4) MANAGEMENT-LIST lists and describes the regulations, programmes, initiatives and organizations relevant to wetland use and management.

**SECTION 2, SOCIAL-INFO**


Whilst a certain level of understanding of the biophysical system is required, resource management often has more to do with the people who use the resource than with the resource itself. Thus, it is necessary for those involved in the management of a particular wetland to have a reasonable understanding of its social context. It is usually necessary to gather information in order to gain this understanding. WETLAND-USE assists by providing the following.

- Methods and general principles for gathering information.
- A set of specific leading questions for structuring the gathering of information.

- Suggestions for integrating the information into the management process.

## 2.1 Methods and general principles

The following ways of gathering information may be useful.

| Open Community workshops   | Focus group workshops   | Interviews with individuals   |
|--|---|---|
|  |  |  |

The complexity of wetland use and management will vary greatly from a situation where there is a single owner of a wetland and very few other stakeholders, to a situation where the wetland is communally owned and used, and there are many stakeholders.

In the case of a single owner, an interview with the owner may be all that is required. In situations where there are many stakeholders it is often best to start with an open community workshop, where local people are able to raise any issues relating to the wetland, and then to deal with these in more detail through focus groups. For example, the cultivation of wetlands may be raised as an important issue, in which case a focus group may be organized including people who cultivate and also those with the responsibility of regulating cultivation. Interviews with individuals, particularly elderly people can provide valuable information about the history of the area.

While guiding questions are given in the following section, these should not dictate exactly what information is collected. As far as possible, involve local people in deciding how the information is gathered, and also in the gathering and processing of information (see Box 1). If the wetland is communally used, the social context tends to be very complex and input should be obtained from workers experienced in dealing with such communities and in using participatory approaches such as Participatory Rural Appraisal (Box 1) A comprehensive and very useful review of factors, conditions and criteria for the successful management of natural resources held under a common property regime is given in Shackleton *et al.* (1998).

|  |                           |  |
|--|---------------------------|--|
|  | Facilitate, don't dictate |  |
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### Box 1 Participatory Rural Appraisal

The participation of local people<sup>1</sup> in development projects is widely advocated and documented, but there is still a wide gap between theory and field reality (Chambers, 1994). In the 1990's a practical set of approaches, termed Participatory Rural Appraisal (PRA), evolved. PRA is designed to enable local people to express, enhance, share and analyse their knowledge of life and conditions and to plan and act (Chambers, 1994).

There are fundamental differences between the information gathering of traditional research and PRA. In traditional research, the outside researcher determines the agenda, designs formal questionnaires and surveys (directed by the researcher's own personal values) obtains and takes possession of the data, removes it, organizes and analyses it, and plans and writes reports. In PRA, the outsider acts as facilitator, learner and consultant, designs materials to stimulate participation and reflection, encourages local people to determine much of the agenda, to gather, express and analyse information, and to plan. The following are some of the most important principles underlying PRA.

1. Learning is from, with, and by local people, eliciting and using their criteria, classifications and categories, and understanding and appreciating indigenous technical knowledge, viewpoints, skills and practices.
2. Learning is rapid and progressive, building through flexible, exploratory, interactive and inventive methods.
3. Materials and methods are used that empower local people to express and analyse their knowledge. Visual sharing of maps, models, diagrams or units (stones, seeds etc.) provide the means by which even illiterate people can quantify, rank or score, point to, see, discuss and manipulate physical representations. Rural people have a greater capacity to map, model, observe, quantify, estimate and compare than outsiders often suppose.
4. "Handing over the stick/pen": practitioners start the process then "step back", allowing local people to do many of the things that outsiders formerly did: making maps and models, investigating and interviewing, etc.. Because the local people are more in command of the investigation, and own and retain more of the information, they are in a strong position to identify the priorities for action, and to control that action.
5. Finding out only what needs to be known and not measuring it more accurately than is needed.
6. Triangulation: comparing information collected using different methods and sources of information, and cross checking to get closer to the truth through successive approximation (building on what has been done).
7. Remembering the importance of the practitioner's behaviour in establishing and maintaining a relaxed and open rapport throughout the process (e.g. by showing humility and respect, taking an interest in what people have to say and show, not rushing, and not interrupting).



<sup>1</sup>The term "local people" is generally used in the context of rural people with a low level of formal education but the principles and approaches discussed also have application for urban people with a higher level of formal education.

## 2.2 Leading questions

The following questions will assist you in gathering information about the social context of a wetland (an example is given in Box 2).

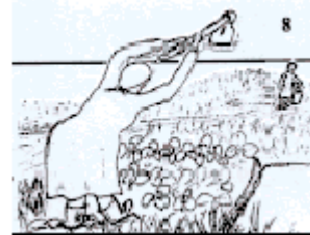
1. Which of the following broad land tenure systems is operating?
  - \* Formally conserved land
  - \* Communal, rural land
  - \* Private land with a single owner
  - \* Communal, town-lands
  - \* Private land with several owners
  - \* Company-owned land
  - \* Government owned land
2. Who is the management authority responsible for land allocation and regulation of wetland use?
3. Who makes use of the wetland and what resources are used?

4. Who influences resource use decisions?
5. Which local rules and beliefs govern resource use, and are the rules enforced (i.e. how much "illegal" use takes place)?
6. Does the wetland have a management plan with measurable objectives?
7. Are roles and responsibilities clearly defined?
8. How coherent is the local community and what is the existing level of organization and co-operation in the management of natural resources generally?
9. What is the economic status and literacy level of the wetland users (on a very general level)?
10. Do the local authority and other stakeholders have policies regarding wetlands (e.g. as part of company policy)? (If so, obtain copies)



**Box 2** A summary of the results obtained for Mbongolwane wetland based on the leading questions

1. The wetland is being used under a rural, communal tenure system.
2. The KwaNtuli Tribal Authority is the primary management authority responsible for land allocation and regulation of wetland use.
3. The wetland is used by most households in the Ntuli Tribal Ward, which is divided into 22 sub-wards, 9 of which include parts of the wetland. Wetland resources used include fibre for handcrafts and construction, land for cultivation, grazing for livestock, water for domestic use, and wild sources of medicinal plants (e.g. *Ranunculus multifidus*). The most widely harvested species harvested for fibre are the sedge *Cyperus latifolius*, (referred to by the Zulu people as ikhwane) which is commonly used for the production of woven sleeping/sitting mats, and reeds (*Phragmites australis*), commonly used for thatching. Many households are involved in weaving mats for own use or local sale and all households, both poor and wealthier, make use of mats, which have a high cultural value, being used as traditional wedding gifts. However, only the poorer households still use them as sleeping surfaces (as was traditionally the case). Similarly, greater use is made of *P. australis* thatching by poor households as the wealthier households more commonly use commercially produced roofing materials.



Most households within at least 1.5 km of the wetland cultivate within the wetland. The most common crop type is *Colocasia esculenta*, a root crop native to southeast Asia which was introduced to southern Africa several centuries ago and

is referred to by the Zulu people as amadumbe. It is tolerant of waterlogged conditions and is grown mainly in *C. latifolius* marsh, and is eaten by most households. Mixed vegetable patches (including maize, potatoes, tomatoes, cabbages, pumpkins and legumes) are found predominantly in the wet grassland areas, but several of these patches, especially those with maize and pumpkins, are also in *C. latifolius* marsh.

4. Use of the wetland is influenced primarily by the Tribal Authority (mainly through regulation) and to a lesser extent by the Department of Agriculture (primarily through the support they give to community gardens in the wetland) and the KwaZulu-Natal Conservation Services (through awareness activities).

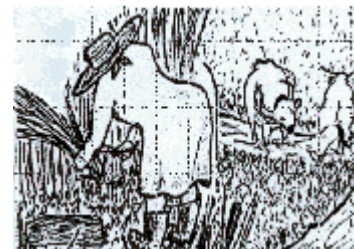
5. A local rule enforced by the Tribal Authority specifies that reeds only be harvested after April, and most people adhere to this rule. No rules apply to ikhwane and medicinal plants. Cultivation takes place within community gardens and in isolated individual patches. Permission is obtained from the Tribal Authority for all community gardens. Although in some sub-wards permission is obtained from the Tribal Authority to cultivate individual patches within the wetland, in many sub-wards no permission is obtained, and there is therefore a low level of control over this activity.

6. A management plan is being developed. An overall management vision has been adopted and issues relating to this have been identified through community workshops, and various mini-projects have been initiated to address these issues. However, there is no full management plan with measurable objectives .

7. Roles and responsibilities have been defined for certain mini-projects but for other areas of management they are still very unclear.

8. The local community is relatively co-herent. However, the existing level of organisation and co-operation in the management of natural resources varies. The level of organisation around general rural development is very low.

9. Most households are relatively poor and unemployment levels are high and the literacy levels among local adult people is low.



### 2.3 Integrating the information with management of the wetland

It is essential that those involved in the gathering of information should report back to local users and present the information gathered in a form that is easily understood. If local people (including managers and users) are actively involved in information gathering and processing (as recommended in Section 2.1) it is generally much easier to integrate the information into the management of the wetland. This information, together with relevant policy, should be used when setting the vision and objectives for the wetland as it provides guidance in determining what is desirable and feasible. It should also be used when selecting land-use options, setting operational goals and in defining specific roles.



## SECTION 3, ORGANIZATIONAL ARRANGEMENTS

Although there is no set procedure for establishing effective organizational arrangements for the management of wetlands, the suggested steps are set out below.

1. Identify stakeholders (i.e. the people or organizations that have a direct interest in a wetland).
2. Establish an appropriate organizational structure for management of the wetland.
3. Establish operating procedures and norms.
4. Clarify roles of stakeholders and have stakeholders take responsibility for their roles.



Identify stakeholders according to IEM procedures (DEAT, 1998a), where it is usually necessary to call a meeting and to use stakeholders to identify further stakeholders.

Information from SOCIAL-ASSESS is used as an important source in deciding on an appropriate organizational structure. Various options are available, ranging from a committee with a constitution, office-bearers and funds to administer to an informal network primarily involved in the exchange of information and advice. The greater the number of individuals with rights of use, the greater the variety of uses (particularly if they are competing uses), and the less developed the existing organizational arrangements, the more complex the management is likely to be and the greater will be the investment required to develop the necessary organizational arrangements.



Under communal or multiple use conditions involving many users (such as is found at the Mbongolwane wetland) formalized communication structures and working groups to deal with particular issues will be required.

At the other extreme of a single owner/user it will probably be necessary to involve only a few people in an informal network (e.g. the owner, the nature conservation extension officer and the agricultural extension officer).

Operating procedures and norms that need to be established would include mechanisms for: maintaining effective communication (e.g. meetings); conflict resolution; ensuring participation, particularly of those groups which are often marginalised; raising and administering funds; and, ultimately promoting accountability at all times.

Closely linked to establishing operating procedures for the group is clarifying the roles of individual members of the group and having organizations and individuals taking responsibility for these roles/actions. This is done both at a fairly broad level (e.g. who has the role of regulating use) and at a more specific level (e.g. who has the role of monitoring a road development during its 3 month construction phase). The specific roles will emerge out of the management process when operational goals and work plans are set (see Section 4).

The establishment of organizational arrangements is not something that takes place before and separately from the establishment of a management plan. Rather, the management process should take place within the organizational structure (i.e. they are developed together). In both cases an essential principle should be that local people play a central role in the organizational arrangements. To do this:

- Local people should be encouraged to take ownership and drive the management process. It will help to identify and foster local champions, but at the same time remaining aware of the danger that success will depend on just one or two individuals.
- Local people should gain access to relevant information and useful contacts so that they are well informed (see INFO-COLLECT in Part 1 and SOCIAL-INFO) and have an effective network from which to draw on outside expertise (see Section 5).
- Involvement of outsiders (e.g. extension workers) should be consistent, so that if an extension worker is transferred there

is effective hand-over of responsibilities.

- The trust of local people should be earned (see the principles of PRA given in Box 1) and an appropriate attitude and approach are required in working with local people. Box 3 gives several hints, based on the experience of environmental workers.



### Box 3 Hints for positively influencing farmers, farm workers and local communities

#### The right attitude

See yourself as a "facilitator" rather than an "educator" - remember communication is a two-way process and there is much to be learned from local people.

So be open minded and willing to learn.

Enter with a low conflict attitude and be prepared for conflict.

Have a sympathetic attitude - farmers and local communities often have to deal with many difficulties. Find out what it is like "to be in their shoes".

Be holistic. See where the conservation and wise use of wetlands fits in with people's broader goals for making a living and deriving satisfaction from life.

Be enthusiastic - show that you are interested in your subject matter and what local people have to contribute!

Guard against developing a negative attitude too easily and becoming despondent - be prepared for setbacks. There are always likely to be times when local interest is low.

#### The right approach

Start with what people perceive as their immediate problems or areas of interest.

Use visual aids - these may range from slides and overheads to drawings in the sand.

Where necessary provide refreshments - some people may have travelled far to a meeting.

Avoid concentrating on a single age group and gender - include males and females and young and old people.



If you have written material, go through it verbally with the people you are giving it to.

Work through and build on existing groups (e.g. woman's groups) or initiatives (e.g. a conservancy).

Make use of local events such as festivals, farmers days or flea markets.

If possible, try to speak the local language.

Avoid talking about politics or becoming involved in local politics.

Avoid visiting in a busy season or time of year (e.g. during harvesting time).

Work through influential people and local champions.

Develop incentives for farmers and local people to monitor their own natural environment.

Help give people a sense of importance and ownership (e.g. take a photo of them at the wetland).

For more information see Shackleton *et al.* (1998) and Verdoorn (1998).

## SECTION 4, MANAGEMENT STRUCTURE

### 4.1 Steps in the management process

The following are suggested steps (based on the Ramsar Convention guidelines [Ramsar Convention Bureau, 1997] and [Rogers and Bestbier, 1997]) for structuring the management process and establishing a management plan with measurable objectives.

Stakeholders jointly develop an overall vision and identify the management objectives required to achieve that vision (which provides a local policy for the wetland), taking into account the nature of the wetland, its landscape and catchment context (WETLAND-INFO in Part 1) and its social context (SOCIAL-INFO).



Stakeholders identify possible land-uses and, based on the description of the wetland and its landscape context, assess their

likely impacts using LAND USE-ASSESS (Part 1).



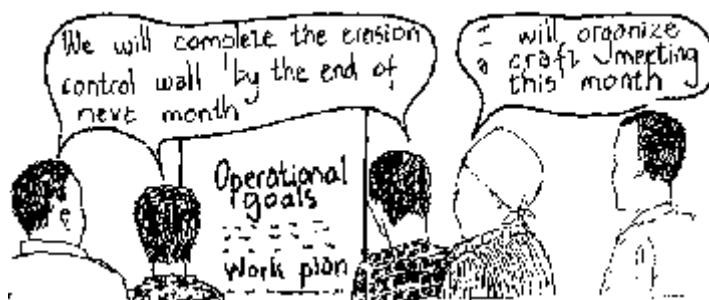
Based on the predicted impacts and social context, stakeholders select those land-use option/s that are compatible with the overall vision and objectives.



With the assistance of LAND USE-RECOMMEND (Part 1), provide explicit criteria and guidelines (e.g. stocking rate) for the selected land-use options.



Stakeholders set operational goals and supporting work plans (including designated roles and responsibilities and specific actions with time frames) and implement land-use options



Monitor achievement of operational goals (Go to Stakeholder set operational goals . . . )



Major review (audit) of vision and objectives (Go to Stakeholder jointly develop an overall vision . . . )

The Vlei Lily Award (see Section 5.8) provides a basis on which local managers commit in writing to a management plan such as that given above and receive recognition for their contribution. If more detail is required about the management process and hierarchical goal setting and monitoring achievement of goals then refer to Woodhill and Robins (1998) and Rogers and Bestbier (1998). Woodhill and Robins (1998) is a particularly useful document on participatory evaluation for LandCare and catchment groups written in an easily understood style. Rogers and Bestbier (1997) is also useful in providing information on the theoretical context of managing natural systems.

Two key questions are of particular relevance to extension workers in relation to their involvement in the management process.

1. What types of outside involvement are required to assist in achieving the overall vision and objectives for a wetland (see Section 4.2)?

2. What regulations, programmes and initiatives are relevant and available which could assist in making this involvement effective? Local managers and even extension workers are often not aware of the full range of possibilities, of which some of the most important are outlined in Section 5. Check the various possibilities to see to what extent they may be able to address the particular needs of your situation. As a general rule: build on what is available, "don't re-invent the wheel".

#### 4.2 Types of involvement by extension workers

In order that the overall vision and objectives of the wetland be achieved it is important that the right combination of types of

involvement are used. Each situation is obviously unique. However, some general guidelines have been developed based on the experiences drawn from a wide range of case studies. There are 5 different broad types of involvement.

1. Raising awareness and giving encouragement.
2. Improving organizational and management capacity and developing local policy.
3. Promoting alternative land-uses and land-use practices.
4. Regulation of use.
5. Rehabilitation (e.g. erosion control structures).

### ***Raising awareness and giving encouragement***

Wetland users are often not aware of the costs that particular land-uses and practices have on the indirect benefits provided by wetlands (i.e. the environmental costs of their activities). Extension workers are in a position, using resources such as WETLAND-USE Part 1 and Booklet 1, to alert local users to the impacts of different land-use options. Raising the awareness of local users/owners (and giving them encouragement to continue with wise wetland use) may be all the outside input that is required, particularly in the case of more affluent owners/users. It is recognized, however, that awareness of particular land-use impacts does not necessarily alter perceptions and even if perceptions are altered, users may not have the means, particularly if they are poor, to change patterns of resource use. Thus, additional inputs are usually required.



It is always important to take a positive approach and give local users encouragement by providing recognition for their contribution to the wise use of a their wetland. This is likely to increase their motivation to continue with sound management. Programmes such as the Natural Heritage Site Programme and Sites of Conservation Significance and awards such as the Vlei Lily Award or Soil Conservation Awards (see Section 5) provide possible means of giving formalized recognition.

### ***Organizational and management capacity of local people and development of local policy***

A reasonable organizational structure is required to develop a management system with an overall goal and objectives and to define roles and responsibilities of stakeholders (see Section 3). Involvement which increases the local capacity to organize and manage is particularly important in communal areas and in wetlands under multiple single ownership, where the level of co-ordination between neighbouring owners is often poor. This involvement may include: encouraging local people to take ownership and drive the management process; assisting local people in gaining access to relevant information and useful contacts (see Section 3).

Policy refers to a purposive course of action in dealing with a matter of concern based on shared values. Policy is not just developed at high organizational levels such as nationally, but as shown in Section 4.1 is also developed at a local level. Assisting in the development of local policy will help guide day-to-day actions taken at a wetland.

### ***Promoting alternative low impact land-uses***

If high impact land-uses are discouraged/disallowed in a wetland it is important that viable alternative low impact land-uses are sought that still allow users to derive benefits from the wetland. This is particularly important if the users are poor and use of the wetland represents the only, or one of a few options available for producing food or generating income.

Wetlands vary greatly with regard to the direct benefits that they are able to provide in their natural, untransformed state compared with various transformed states (see Part 1, Box 4). It cannot, for example, be assumed that all wetlands have potentially high ecotourism value. As an extension worker you can promote alternative low impact land-uses by assisting in:

- improving local organizational capacity (e.g. help facilitate the establishment of a craft group);
- establishing contact with important outside organizations (e.g. ecotourism operators or craft dealers); and
- providing useful management information.

### *Regulation of activities*

If regulation is considered necessary, it is preferable to reinforce positive internal mechanisms rather than trying to introduce external ones, particularly in wetlands in communal areas where there are often established local traditional norms and rules. Many companies have their own internal codes of practice based on international trading standards (see ISO1400, Section 5) which do more than just conform to environmental legislation. Failing the success of internal mechanisms there are several laws applicable to wetlands, which are given in Section 5.

### *Rehabilitation of damage caused by past mismanagement*

It is sometimes necessary to provide outside assistance in repairing/rehabilitating damage caused by past mismanagement. Local people would need to take responsibility for maintaining structures and the management factors causing the degradation would also need to be addressed (see Part 1, Section 4.7).

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|  | Accountability at all times |  |
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## SECTION 5, MANAGEMENT-LIST

Having identified the types of involvement required to achieve the vision and objectives for the wetland see which of the regulations, programmes and initiatives given in Table 5.1 could assist you in making these inputs. These include both regulatory and non-regulatory measures (for more information see Begg, 1990).

**Table 5.1** Regulations, programmes and initiatives relevant to wetland use and management, with contact details of organizations given in Section 5.9

| Relevant regulations, programmes & initiatives                                       | Purpose  | Outputs/deliverables   | Limitations   | Organization responsible for support   |
|--|--|--|---|--|
| National Environmental Management Act (presently a Draft Bill)                       | National environmental policy  | National Environmental Policy<br><br>Commission for sustainable use<br><br>Procedures for co-operative government<br><br>IEM (see below) | The Bill is still being developed   | Department of Environmental Affairs & Tourism (DEAT) - national & provincial |
| Integrated Environmental Management (IEM) & the Environmental Conservation Act, 1989 | Laws and procedures to ensure that the environmental consequences of development proposals are adequately considered | A nationally accepted framework and guidelines for planning development supported by legislation.  | Legislation and framework newly developed and enforcement capacity is still low | DEAT   |
| Conservation of Agricultural Resources Act   | Laws to protect agricultural resources (including wetlands) against inappropriate agricultural development           | Legislation that serves as a disincentive for unsound development  | Weak and poorly enforced legislation, currently under revision.                 | Department of Agriculture: Directorate Resource Conservation                 |
| Water Act  | Laws to ensure equitable and efficient water use   | Legislation that serves as a disincentive to the inequitable and inefficient use of water.   | Legislation and enforcement capacity is still being developed                   | Department of Water Affairs and Forestry                                     |

|   |   |  |   |  |
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| National Wetland Policy (contained within the policy on the conservation and sustainable use of South Africa's biological diversity). | Policy to ensure the conservation of South Africa's wetlands so that the ecological and socio-economic functions, products and attributes of wetlands are maintained for present and future use | <ul style="list-style-type: none"> <li>* Policy goals</li> <li>* Guiding principles to be used in the implementation of the policy</li> </ul>  | There is currently no strategy for implementing the policy  | DEAT   |
| Department of Environmental Affairs Wetland Conservation Programme  | See National Wetland Policy   | <p>Support provided for several initiatives:</p> <ul style="list-style-type: none"> <li>* Interdepartmental coordination</li> <li>* South African Ramsar Working Group</li> <li>* National inventory of wetlands</li> <li>* National policy on wetland conservation</li> <li>* Research programme</li> <li>* Wetland information dissemination</li> <li>* International actions</li> </ul> | Several of the initiatives (e.g. the National inventory of wetlands) are still in early phases of development. The programme is that of DEAT and not shared by other organizations.   | DEAT   |
| Rennies Wetlands Project  | To promote the wise use and sustainable management of wetlands  | <ul style="list-style-type: none"> <li>* Build capacity and understanding of wetland functioning and importance</li> <li>* Generate mass media publicity on wetlands</li> <li>* Initiate wetland identification and assessment and wetland management and rehabilitation programmes</li> <li>* Lobby key national and provincial decision makers</li> </ul>                                | <p>Operates in only selected priority areas of the country.</p> <p>Relies on continued interest from landowners, conservation and agricultural extension services and volunteers.</p> | <p>Rennies Wetlands Project</p> <p>(including regional working groups)</p> |
| South African Crane Action Plan   | Ensure the long term survival of South Africa's three crane species through the protection of their habitat   | <ul style="list-style-type: none"> <li>* Co-ordination and network of all crane conservation work in the country</li> <li>* Identify key crane habitat sites</li> <li>* Promote awareness and participation of landowners at the key sites</li> </ul>  | <p>Relies on continued interest from landowner/s</p> <p>In certain areas (e.g. the former Transkei) the network is not well developed</p>   | South African Crane Working Group (including regional groups)              |
| South African Natural Heritage Site Programme   | Promote conservation of significant natural features outside of formally conserved areas (sites of national conservation importance).   | Provides recognition to land-owners for maintaining significant natural features and provides an incentive for conservation through the prestige afforded to owners  | Relies on continued voluntary support from landowner/s  | <p>DEAT</p> <p>Provincial nature conservation authorities</p>              |
| Sites of Conservation Significance Programme  | See above<br>(sites of provincial or local conservation importance)   | See above.<br>Only applied in KwaZulu-Natal  | see above   | KwaZulu-Natal Nature Conservation Services                                 |
| Ramsar convention (now becoming known as the  | International cooperation for the conservation of wetland habitats ,  | * Guideline documents  | At present it has little influence on the   | Administered by DEAT and   |

|   |   |  |   |   |
|---|---|--|---|---|
| Convention on Wetlands)                         | through an intergovernmental treaty   | <ul style="list-style-type: none"> <li>* Increased co-operation among different countries</li> <li>* Access to useful international contacts</li> <li>* International pressure to ensure wise use (but presently only applies to designated sites)</li> </ul>    | management of unregistered sites in South Africa  | provincial nature conservation authorities in South Africa              |
| Convention on Biological Diversity              | The conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.                 | <ul style="list-style-type: none"> <li>* Principles</li> <li>* Protocols</li> <li>* Avenues for co-operation between different countries</li> </ul>  | Still in the process of being adopted at provincial level                                   | DEAT  |
| Agenda 21                                       | Sustainable development through the integration of economic, environmental and social components  | Sustainable development principles and programme   | Still in the process of being adopted at local level  | DEAT; provincial organizations responsible local government and housing |
| ISO 14 000                                      | An environmental management system that adequately addresses environmental concerns   | Standardized internationally recognized guidelines for implementing environmental management, including allocation of resources, assignment of responsibilities and ongoing evaluation   | Only used by some companies   | The South African Bureau of Standards                                   |
| Integrated water resources management programme | To ensure water is managed in a sustainable way and to provide an adequate supply which is fit for all current and future uses  | <p>Facilitate the establishment of:</p> <ul style="list-style-type: none"> <li>* Catchment management forums representing the full range of interests in the catchment</li> <li>* Catchment management agencies</li> <li>* Catchment management plans</li> </ul> | The overall programme is new and has only been initiated in a few isolated pilot catchments | DWAF , local water authorities and other stakeholders                   |
| Mountain Catchment Areas Act                    | To provide for the conservation, use, management and control of land situated within declared "mountain catchment areas"  | A high level of control over activities affecting catchment water quantity and quality   | Only a small proportion of South Africa falls within mountain catchment areas.              | DWAF  |
| Conservancy programme                           | Harness local interest in wildlife to combine the joint resources of landowners to achieve shared conservation objectives.  | <p>Facilitation of improved co-operation among members and enhanced security</p> <p>Procedures for running a conservancy</p> <p>Support provided through extension workers and the Conservancy Association</p>   | <p>Only in parts of the country.</p> <p>Relies on local interest which may be lacking</p>   | Provincial conservation authorities                                     |
| Working for Water Programme                     | To recover water presently being lost to invading alien plants, create jobs, empower individuals and build communities, and conserve biological diversity, ecological integrity and catchment stability | Facilitate and assist in providing resources for clearing alien plants, providing jobs and enhancing the capacity of individuals involved  | The programme is reliant on central government funds  | DWAF  |

|  |   |  |  |   |
|--|---|--|--|---|
| Protected area*                              | To secure natural areas through formal declaration as a protected area          | Securing of the natural area, which is legally binding not reliant on landowners for support | Public funds are extremely limited for the purchase of land.<br><br>Only effective if the catchment is in reasonable condition | Provincial or national conservation authorities |
| Leasehold agreements with interested groups* | To promote conservation of natural features outside of formally conserved areas | Land secured without relying on State funds for purchase                                     | Reliant on there being an interested group willing to pay  | Various   |

\*These are not formal programmes as such but are directly relevant to wetland use and management

## 5.1 South African law applicable to wetlands

Laws protecting wetlands in South Africa are fragmented and are represented in various acts which are enforced by a diversity of authorities, including the Department of Agriculture, Department of Water Affairs and Forestry and provincial Environmental Affairs departments.

### *Integrated Environmental Management (IEM) and the Environmental Conservation Act*

In South Africa, as in so many other countries, much destruction of the environment has taken place because of poorly planned development. An Integrated Environmental Management (IEM) procedure has been developed for South Africa to promote better planned development. IEM is designed to ensure that the environmental consequences of development proposals are understood and adequately considered in planning and implementation. The following are some of the underlying principles of IEM.

- Development is sustainable and equitable.
- Decision making is informed, accountable, and open, involving the relevant authorities and stakeholders (including the public).
- Alternative options are considered.
- The environment is considered in its broadest sense, including physical, biological, social, cultural and economic factors.
- All of the above are done from the beginning of the process and not just when the proposal has been completed.

IEM procedures exist for: land-use zoning plans and schemes, new activities, and existing activities. The IEM procedure for new activities includes several steps.

1. Development of the proposal, which is directed by the underlying principles given above. Early consultation with stakeholders and authorities will help to identify the alternatives and issues that should be considered.
2. Authority review to determine potential conflict and areas of potential environmental stress for inclusion as issues in the scoping process.
3. Scoping, which must be conducted by an independent consultant, to identify significant issues of concern that must be addressed, the development of alternatives to the proposed activity, and the development of a schedule for the planning and approval cycle.
4. Review of the scoping report by the relevant authority and the interested and affected parties. If there is sufficient information in the report it may either be refused or accepted. Should there be insufficient information or if the potential environmental impacts identified in the scoping report are significant, an environmental impact assessment will be requested.
5. Environmental Impact Assessment (EIA), which must be done by an independent consultant and based on the issues identified in the scoping report, and may sometimes include a benefit-cost analysis. The EIA report will be subject to review. Permission for the activity may be refused or approved subject to certain conditions, or the proposed activity may be referred

back to the proposal or scoping stage (e.g. if substantial issues were omitted from the original scoping report).

6. Condition agreement, which sets the conditions by which the activity is allowed to take place if it is approved.

7. Environmental Management Programme (EMP) which is a detailed programme for implementation of the conditions agreement.

8. Review to determine whether the EMP conforms to the conditions agreement and approval when the authority is satisfied that it does conform.

IEM, which is nested within the Environmental Management Initiative, is supported by the Environmental Conservation Act 73, 1989. In terms of this act, certain activities, such as the reclaiming of wetlands (e.g. through drainage or infilling), dam building, river diversion and changes in land-use require some form of environmental investigation. IEM provides a very useful and nationally accepted framework for planning development, and WETLAND-USE has specifically been designed to fit easily within this framework.

***For more information see:*** WETLAND-USE Part 1, Section 3; and DEAT (1998a and b) listed in the References Section.

### ***Conservation of Agricultural Resources Act, No. 43 of 1983***

Land users are forbidden (without successfully obtaining the necessary permission) to drain or cultivate any vlei, marsh or water sponge or portion thereof on their land or to cultivate any land within the flood area of a water course. Although there are weaknesses in this legislation (e.g. the terms vlei, marsh and water sponge are not defined) it is one of the most important Acts protecting wetlands.

### ***The Water Act***

Water law is one of the most complicated fields of law. A comprehensive revision of the South Africa's water law has recently been undertaken. The new legislation is based on several principles which attempt to meet the requirements of our new constitution (to which all law in the country must be subject); what makes most sense in terms of our present understanding of the environment around us on which we all depend; and how we should manage a scarce resource for development and prosperity. Some of the key principles of particular relevance to wetlands are given below.

- *In a relatively arid country such as South Africa, it is necessary to recognise the unity of the water cycle and the interdependence of its elements, where evaporation, clouds and rainfall are linked to underground water, rivers, lakes, wetlands estuaries and the sea.*
- *The variable, uneven and unpredictable distribution of water in the water cycle should be acknowledged.*
- *All water, wherever it occurs in the water cycle, is a resource common to all, the use of which should be subject to national control.*
- *There shall be no ownership of water but only a right to its use.*
- *The quantity, quality and reliability of water required to maintain the ecological functions on which humans depend should be reserved so that the human use of water does not individually or cumulatively compromise the long term sustainability of aquatic and associated ecosystems (including wetlands).*

### ***Mountain Catchment Areas Act***

This Act provides for the conservation, use, management and control of land situated in declared "mountain catchment areas". Particular emphasis is placed on the prevention of soil erosion and the protection of natural vegetation through the control of fire. Any wetlands within mountain catchment areas are protected under provisions of the act.

### ***Forest Act, No. 122 of 1984***

This act, which is administered by the Department of Water Affairs and Forestry, provides for the prohibition of tree planting

or reafforestation within any areas necessary for the protection of any natural source of water. The act is reliant upon the judgement of the forest officer to assess whether an area is a wetland and to judge the distance from the wetland to which afforestation could be allowed. Afforestation is currently being controlled through Forestry Review Panels. The White Paper on Sustainable Forest Development in South Africa identifies the necessity to replace the present Forest Act, and a new Forest Act is currently being developed (DWAF, 1997). *For more information see:* DWAF (1997, Chapter 24, Providing law for the sustainable development of the forest sector).

## **5.2 The national policy on wetlands (as contained in DEAT, 1997)**

The degradation of South African wetlands, and their vulnerability to human-induced changes in catchments and in the sea, is a concern recognised by Government as requiring urgent action and cooperation between a diversity of sectors and institutions. Wetlands represent some of our most threatened ecosystems, and as such their conservation and sustainable use is a crucial component of this policy. Government acknowledges that insufficient attention has been given in the past to secure the effective management of the country's wetlands, and it undertakes to ensure that the future management of such areas will take place in an integrated manner, in accordance with the objective of conserving and using biological resources sustainably, and minimising adverse impacts on aquatic biodiversity. This approach will recognise and accommodate conflicting needs and values.

Several measures already govern the conservation and use of South Africa's wetlands, and many new initiatives are under way, as a result of the revision of the country's water law. Wherever possible and appropriate, Government will bolster such initiatives and, in collaboration with interested and affected parties, will:

1. Support the principle that basic domestic needs and environmental needs will enjoy priority use of water, the latter through reserving the quantity, quality and reliability of water required to maintain natural flow regimes and habitat complexity for aquatic and riparian ecosystems (see the last Water Law Principle given in Section 5.1).
2. Facilitate the development of appropriate legislation to secure the conservation of South Africa's wetlands, and to maintain their ecological and socio-economic function.
3. Promote the establishment of a National System of Protected Wetlands as part of the protected area system (see Objective 1.3).
4. Prevent inappropriate activities and development around wetlands, and that of linear development in particular. Ensure that adequate buffer strips are retained around wetlands, taking due cognisance of the 1:50 year floodline.
5. Introduce policy measures to ensure that the price of water reflects the full social, economic and environmental costs and benefits of water provision, taking into consideration the need to maintain life-line tariffs to ensure a basic level of health and quality of life.
6. Through establishing appropriate mechanisms and procedures, recognise the functions and values of wetlands in resource planning, management and decision-making.
7. Ensure that considerations relating to the biodiversity of aquatic areas and wetlands are adequately incorporated into the national policy on integrated pollution control and waste management.
8. Determine the impact of commercial, recreational and subsistence fishery practices on fisheries, fish, and their habitats, and develop guidelines for managing such fisheries on an ecologically sustainable basis.
9. Determine the impact of aquaculture species and management practices on biodiversity, and develop appropriate guidelines for aquaculture developments.
10. Strongly promote the development of catchment-specific partnerships and joint management plans between the range of institutions, organisations and individuals engaged in managing and using wetlands, catchments and associated marine and

coastal areas.

11. Provide leadership in international wetland conservation efforts, through the effective and coordinated management of transboundary water and biological resources in southern Africa.

### 5.3 Integrated Catchment Management

The term Integrated Catchment Management (ICM) represents a systems approach to the management of natural resources, in particular water resources, within the bounds of a geographical unit which is based on the catchment area of a single river system, which is divided further into sub-catchments. ICM recognizes the need to integrate all environmental, economic and social issues within a river basin into an overall management philosophy, process and plan (a product). This is ultimately aimed at deriving the maximum the optimum possible mix of sustainable benefits for future generations and for the communities in the area of concern, whilst protecting the area's natural resources. The implementation of ICM is usually assessed through the establishment of a catchment management forum, the composition and nature of which will depend on the particular situation. The new Water Act is supportive of ICM and encourages the establishment of such fora.

***For more information contact:*** the Director Catchment Management, DWAF , (012) 3388670 or Keith Cooper, Wildlife and Environment Society (031) 210909.

### 5.4 The Ramsar Convention (now becoming known as the Convention on Wetlands)

#### ***What is the Ramsar Convention?***

The health of wetlands depends on their supply of water, and factors impacting this supply may be considerable distances away, in many cases beyond national borders. Furthermore, many wetland dependent species, particularly birds, are migratory or nomadic, and cross national borders as they move between wetlands. Thus, cooperation among different countries may be necessary for effective wetland conservation.

The Convention on Wetlands of International Importance especially as Waterfowl Habitat, known as the Ramsar Convention from its place of adoption in Iran in 1971, is an intergovernmental treaty which provides the framework for international cooperation for the conservation of wetland habitats.

One of the misconceptions about the Ramsar Convention is that it exists only for wetlands that support large numbers of waterfowl. It is much broader than this. The objectives of the Ramsar Convention are to stem the loss of wetlands and to ensure their conservation and wise use. To achieve these objectives the countries which become contracting Parties to the Convention accept four main obligations.

1. Designate at least one wetland for inclusion in the List of Wetlands of International Importance, and to ensure the maintenance of their ecological character. Selection is to be based on their international significance in terms of ecology, botany, zoology, limnology or hydrology.
2. Formulate and implement their planning so as to promote, as far as possible, the wise use of wetlands in their territory. 'Wise use' involves recognition of the functions and values of wetlands for the benefit of people who live in and around wetlands and depend on them for their livelihood and survival.
3. Establish nature reserves on wetlands and promote training in the fields of wetland research and protected area management.
4. Promote international cooperation by consulting with other countries about implementing their obligations, especially as regards transfrontier wetlands and water systems, shared species and development aid for wetland projects.

The Ramsar Convention has contracting Parties from all regions of the world. The United Nations Educational, Scientific and

Cultural Organization (UNESCO) serves as the depository for the Convention. The Secretariat, or Bureau, shares headquarters with the IUCN - The World Conservation Union in Gland Switzerland.

### ***The implementation of the Convention in South Africa***

South Africa took a leading role in the development of the Convention, becoming the fifth contracting Party in 1975. The Department of Environmental Affairs and Tourism is the administrative authority responsible at the national level for implementation of the Convention. As at of June 1998 South Africa had designated 16 sites. The Convention has been used as a rallying point for several of these wetlands when they have come under threat, including the St Lucia System, Langebaan, Blesbokspruit and the Orange River Mouth.

***For more information, contact:*** The Ramsar Convention Bureau, Rue Mauverney 28, CH-1196 Gland, Switzerland. (e-mail: [ramsar@hq.iucn.org](mailto:ramsar@hq.iucn.org), Web: <http://iucn.org/themes/ramsar/>) or see Davis (1994).

### **5.5 Agenda 21**

Agenda 21 of the United Nations Conference on Environment and Development (1992) held in Rio de Janeiro, has the following principles:

- \* The environment and development should be put at the centre of economic and political decisions.
- \* Development should be economically efficient, socially equitable and environmentally sound.
- \* Establishment of consultation mechanisms that bring together all interested stakeholders in the development process.
- \* Provision of relevant information to the public thus ensuring accountability for environmental implications.

The DEAT, Directorate: Sustainable Development, is responsible for promoting Agenda 21 at a national level. Linked to Agenda 21 is Local Agenda 21 (LA21) which addresses the implementation of sustainable development at the level of local authorities. Many of the major towns in South Africa are busy developing their own LA21 programmes.

*For more information see:* DEAT (1998c).

### **5.6 ISO 14000**

The ISO 14000 series, which was designed primarily for commerce and industry, provides internationally recognized guidelines for implementing an Environmental Management System. It provides order and consistency for an organization to address environmental concerns through allocation of resources, assignment of responsibilities and an ongoing evaluation of practices and procedures. Specific performance standards for implementing ISO 14 000 and given in ISO 14001.

Central to ISO 14 001 is setting of an environmental policy, which is the statement by the organization describing its intentions and principles in relation to its overall environmental performance. Requirements of an environmental policy include:

- \* Commitment to continual improvement and prevention of pollution
- \* Commitment to comply with relevant environmental legislation and go beyond regulations and requirements
- \* It should be documented, implemented, maintained and communicated to all employees
- \* It should be available to the public

\* It should not contain statements or targets which the organization cannot hope to achieve.

In South Africa, ISO 14001 is administered by the South African Bureau of Standards and a specially convened national committee. National guidelines have been published to aid with the implementation of the standards. *See: SABS (1996).*

### 5.7 The South African Natural Heritage Programme (SANHP)

The SANHP aims to encourage the conservation of important natural sites, large or small, in private and public land outside of formally conserved areas. The SANHP gives particular recognition to the work done by the owner of such a site. When a site is registered, the owner receives a certificate signed by the State President as well as a bronze plaque. One of the primary benefits received by the owner is the satisfaction gained by voluntarily participating in a national conservation programme. The criteria for registration of a site are one of the following:

- \* stands of special plant communities
- \* good examples of aquatic habitats
- \* sensitive catchment areas
- \* habitats of threatened species
- \* outstanding natural features

Natural sites which do not meet these criteria but are nonetheless important from a conservation point of view at a provincial, catchment or local level may be declared as Sites of Conservation Significance. By informing the landowner of the conservation importance of their site, registration as a Natural Heritage Site or Site of Conservation Significance reduces the chance that the area may unknowingly be damaged. The owner maintains full rights over the property and is able to withdraw from the programme.

*For more information see: Cohen (undated) and Cohen (1989)*

### 5.8 The Vlei Lily Award

The Vlei Lily Award is given to management authorities, including private landowners and communal land authorities, for commitment to the sustainable use of their wetland. It includes written commitment by the management authority to a management plan that they have developed with the assistance of an extension worker. Although this is not legally binding it encourages the management authority to set and monitor management goals, thereby promoting greater accountability. The award takes the form of a plaque, a certificate, and a brief management policy and plan. It is administered provincially by the provincial nature conservation department and endorsed nationally by the Department of Environmental Affairs and the Department of Water Affairs. The award has been very recently developed and is currently being put into place within the KwaZulu-Natal Midlands as a pilot area.

### 5.9 Organizations and key contacts

**Table 5.2** Some of the main organizations and key contacts involved with wetland management in South Africa (A comprehensive list of researchers involved with wetlands has also been compiled by the Department of Environmental Affairs and Tourism (DEAT, 1997).

| Organization          | Key contacts and Address   | Area of operation | Land-uses of concern | Types of involvement |
|-----------------------|--|-------------------|----------------------|----------------------|
| Avian Demography Unit | James Harrison, University of Cape Town, P.O. Rondebosch, 7700, Tel: (021) 650 2423 Fax: (021) | National          | General              | Research             |

|  |   |            |                          |  |
|--|---|------------|--------------------------|--|
|  | 6503726   |            |                          |  |
| C.S.I.R.   | Allan Batchelor, P O Box 395, Pretoria, 0001, Tel: (012) 8413461<br><br>P.O. Box 17001, Congella, 4013, (031) 815851<br><br>P.O. Box 320, Stellenbosch, 7600, (021) 8875101   | National   | General                  | Research, wetland creation                           |
| Department of Agriculture: Directorate Resource Conservation | P.Bag X250, Pretoria, 0001, (012) 3196000   | National   | Agricultural development | Regulation, awareness                                |
| Department of Environmental Affairs & Tourism (national)     | Geoff Cowan, John Dini, Retha van de Walt, P.Bag X447, Pretoria, 0001, (012) 3103695  | National   | General                  | Co-ordination, awareness, regulation                 |
| Department of Environmental Affairs (provincial)             | Eastern Cape, Tel: (041) 3338891<br><br>Free State, Tel:(051) 4033773<br><br>Gauteng, Tel: (011) 3551937<br><br>KwaZulu-Natal: Nhlanhla Nsele, Tel: (0354) 74433; or (0331) 471820<br><br>Mpumalanga, Tel: (013) 7594043<br><br>Northern Cape, Tel: (0531) 811121<br><br>Northern Province, Tel: (015) 2959300<br><br>North West, Tel: (0140) 895126<br><br>Western Cape, Tel (021) 4833925   | Provinces  | General                  | Regulation, awareness                                |
| Department of Mineral and Energy Affairs                     | P.Bag X59, Pretoria, 0001, (012) 3179000  | National   | Mining                   | Regulation, awareness                                |
| Department of Transport                                      | P.Bag X193, Pretoria, 0001, (012) 3283084   | National   | Roads                    | Road development                                     |
| Department of Water Affairs                                  | Heather MacKay, P.Bag X313, Pretoria, 0001, (012) 2999111   | National   | Water resources          | Regulation, co-ordination, awareness, rehabilitation |
| Field workers active in wetland conservation                 | Eastern Cape: Eric Qonya, (0433) 21001<br><br>Eastern Cape, Krom River: Vincent Eagen, (0423) 51155<br><br>Eastern Cape, Ugie-McClear: Andre Marais, (0453) 331042<br><br>Free State, Nacel Collins (05862) 23520<br><br>KwaZulu-Natal North: Stoffel de Jager, (0381) 812492<br><br>& Duncan McKenzie (0381) 812910<br><br>KwaZulu-Natal Midlands: Gavin Shaw (0332) 307097<br><br>& Damion Walters (0332) 301731<br><br>KwaZulu-Natal South: Div de Villiers, (037) | Provincial | General                  | Awareness, co-ordination, rehabilitation, regulation |

|   |  |  |                            |  |
|---|--|--|----------------------------|--|
|   | 7274322<br><br>Mpumalanga, Lydenberg: Anton Linström, see Mpumalanga Parks Board<br><br>Mpumalanga, Piet Retief: Frans Maritz, 0828002165<br><br>Western Cape, George, Alister Mac Donald, (04487) 42160 |  |                            |  |
| Eskom/EWT Partnership                               | Chris van Rooyen, P.Bag X11, Parkview, 2122, Tel: (011) 4861102 Fax: (011) 4861506 E-mail: chriswt@global.co.za  | National   | Powerlines                 | Co-ordination, research, awareness           |
| Free State Nature and Environmental Conservation    | Koen Erasmus, P.O. Box 517, Bloemfontein, 9300, (051) 4054974<br><br>Nacel Collins, Harrismith (05862) 23520   | Free State   | General                    | Awareness, co-ordination, rehabilitation     |
| Highlands Crane Group                               | Lindy Rodwell, P.Bag X11, Parkview, 2122, Tel: (011) 48961102 Fax: (011) 4861506 E-mail: ewtsa@global.co.za<br><br>Kerryn Morrison, Tel: (013) 2540191   | Mpumalanga   | General (affecting cranes) | Awareness                                    |
| Hlatikulu Crane and Wetland Sanctuary               | Helena Wilkins, P.O. Box 905, Mooi River, 3300<br><br>Tel: (0333) 37248 Fax: (0333) 37248  | KwaZulu-Natal  | General (affecting cranes) | Awareness, captive breeding of cranes        |
| Institute of Natural Resources                      | Charles Breen, Don Kotze, Jenny Mander, Neville Quinn, P.Bag X01, Scottsville, 3209, (0331) 460796   | South Africa   | General                    | Research, awareness, co-ordination           |
| KwaZulu-Natal Nature Conservation Services          | Mike Coke, Peter Goodman, Dave Johnson, P.O. Box 662, Pietermaritzburg, 3200, (0331) 471961  | KwaZulu-Natal  | General                    | Awareness, co-ordination, research           |
| KwaZulu-Natal Town and Regional Planning Commission | P.Bag X9038, Pietermaritzburg, 3200, (0331) 952036   | KwaZulu-Natal  | General                    | Research funding                             |
| KwaZulu-Natal Wildlife Conservancy Association      | 29 Oakleigh Drive Howick, 3290, (0332) 304843  | KwaZulu-Natal  | General                    | Awareness                                    |
| Mpumalanga Parks Board                              | Anton Linström, P O Box 4442, Lydenberg, 1120, Tel: (013) 2352395/7, Fax: (013) 2351674, E-mail mlinst@lantic.co.za  | Mpumalanga   | General                    | Awareness, coordination                      |
| Overberg Crane Group                                | Wicus Leeuwner, P.O. Box 541, Calendon, 7230, Tel: (0281) 48905 Fax: (0281) 48916  | Western Cape   | General                    | Awareness                                    |
| Plant Protection Research Institute                 | Cedara Weeds Laboratory, P.Bag X9059 Pietermaritzburg, 3200, (0331) 3559100; P.Bag X134, Pretoria, 0001, (012) 8080364   | National   | General                    | Expertise for clearing alien plants          |
| Poison Working Group                                | Gerhard Verdoorn, P.O. Box 72334, Parkview, 2122, Tel: (011) 4681157 Fax: (011) 6464631 E-mail: nesh@global.co.za  | National   | General                    | Awareness and lobbying about poisons         |
| Rand Water  | Mark de Fontaine, P.O. Box 1127, Johannesburg, 2000, Tel:(011) 682 0911  | Vaal catchment   | Water resources            | Awareness, rehabilitation                    |
| Rennies Wetlands Project                            | David Lindley (co-ordinator), P O Box 44189, Linden, 2104, Tel: (011) 4860938/9 or 0832287949, Fax: (011) 4863369<br><br><i>Working groups: see "Field workers active in wetland conservation"</i>       | National, but concentrating on selected priority areas | General                    | Awareness, co-ordination, training, lobbying |
| Share-Net   | Jim Taylor, P.O. Box 394, Howick, 3290, Tel: (0332) 303931   | National   | General                    | Awareness                                    |
| South African Crane Fondation                       | Charles Byron, Secretary, P.O. Box 905, Mooi River, 3300,  | KwaZulu-Natal  | Cranes                     | Awareness                                    |

|  |  |                   |                 |                          |
|--|--|-------------------|-----------------|--------------------------|
|  | Tel: (0333) 37248 Fax: (0333) 37248  |                   |                 |                          |
| South African Crane Working Group                | Kevin McCann Tel: (0333) 32750, 0834470657   | National          | Cranes          | Awareness, co-ordination |
| WWF, South African                               | P.O. Box 456, Stellenbosch, 7600, Tel:(021) 8872801  | National          | Biodiversity    | Awareness, co-ordination |
| South African Sugar Association                  | P.Bag X02, Mount Edgecombe, 4300, Tel:(031) 593205   | National          |                 |                          |
| Umgeni Water                                     | P.O. Box 9, Pietermaritzburg, 3200, Tel:(0331) 3411111   | KwaZulu-Natal     | Water resources | Awareness                |
| Wakkerstroom Natural Heritage Association        | Warwick Tarboton, P.O. Box 327, Nylstroom, 0510,<br><br>Tel: (014) 7431438 Fax: (014) 7431442  | Wakkerstroom area | General         | Awareness                |
| Water Research Commission                        | P.O. Box 824, Pretoria. 0001, Tel: (012) 3300340   | National          | General         | Research                 |
| Wildlife and Environment Society of South Africa | KwaZulu-Natal: Kieth Cooper 100 Brand Road, Durban, 4001, (031) 213126<br><br>Drakensberg Wetlands Project, Mooi River (0333) 32441<br><br>Gauteng: P.O. Box 44344, Linden 2104, (011) 4863295<br><br>Western Cape: P.O. Box 30145, Tokai, 7966, (021) 7011397 | National          | General         | Awareness, co-ordination |

## SECTION 6, ASSUMPTIONS OF WETLAND-USE PART 2

WETLAND-USE does not require that a formal survey of stakeholders' perceptions be undertaken. Instead it is assumed that perceptions are expressed as preferences for particular goods and services and would also shape the vision and objectives jointly developed by stakeholders.

WETLAND-USE advocates the use of a structured management system on the assumption that this will lead to more sustainable use than if decisions are taken on an *ad hoc* basis. Although empirical evidence of this at particular wetlands is lacking, the usefulness of a structured approach has generally been well demonstrated in natural resource management and in the business sector (see Ramsar Convention Bureau, 1997; Rogers and Bestbier, 1997).

In WETLAND-USE it is assumed that if users are better informed they will take greater consideration of the indirect benefits of wetlands. However, this is obviously within the constraints of their socio-economic situation. While science is viewed as having a potentially positive contribution to sustainable use, WETLAND-USE does not have a strong positivist logic which, as described by Quinlin (1997), presumes an unfolding of solutions on the basis of scientific observation. WETLAND-USE ascribes to a participative approach, as advocated by Chambers (1994) and Taylor (1997), where the fieldworker acts as facilitator.

The recommendations of WETLAND-USE Part 2 are not based on a mechanistic investigation of human behaviour but rather on an empirical approach of observing what has been shown to be successful for a range of socio-economic contexts. These observations have been drawn from the following sources.

1. Descriptions of the management of six wetlands in South Africa under a diversity of social contexts (Kotze, 1999).
2. Surveys and workshops undertaken with extension workers in South Africa (Kotze, 1999).

3. Successful natural resource management case studies in southern Africa reported by Turner (1995).
4. An assessment of several community wildlife management initiatives in southern Africa (Mander and Steytler, 1997).
5. Ramsar wetland site management case studies (Davis, 1993).
6. Observations made of the role of institutions in natural resource management (Murphree, 1993).
7. Comments and suggestions from fieldworkers involved with wetlands, including:
  - i. N Collins, K Erasmus, Free State
  - ii E Qonya,, Eastern Cape
  - iii. S Roberts, S de Jager, J Wyatt, N Nsele, KwaZulu-Natal
  - iv. A Linstrom, Mupalanga
  - v. D Lindley, national

The assumption of WETLAND-USE that land tenure generally has a profound influence over natural resource use is widely accepted (Uphoff, 1986; Turner, 1995). WETLAND-USE assumes further that sustainable natural resource use is possible under communal tenure. Although it is argued by Hardin (1968) that communal use leads to unsustainable practices, this has been countered by Uphoff, (1986) and Turner (1995), who present empirical evidence to demonstrate the sustainability of communal use regimes. They point out that it is open access regimes which are, in fact, inherently unsustainable.

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