Sida Evaluation 01/37

Report on the Hoanib River Catchment Study Project Evaluation

Final Report

Harmut Krugmann

Department for Africa

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[1] As presented in the six-monthly report September 1999 – February 2000.

Executive Summary

Context and evolution of the Hoanib River Catchment Study (HRCS) Project

The Hoanib River Catchment Study (HRCS) Project grew out of the Ephemeral River Project (ERP) which was carried out by the Desert Research Foundation of Namibia (DRFN) in the period 1993–1995 and resulted in a book entitled "Ephemeral Rivers and their People: Sustaining People and Development in Western Namibia". ERP was aimed at developing a better understanding of, and create awareness among national and local decision-makers about, the ecology, natural resource base, resource use patterns and development trends across Namibia's western ephemeral river basins.

Following the ERP, an in-depth investigation of one of the 12 ephemeral river catchments was proposed. The Hoanib Catchment was chosen for this proposed study, because of its diversity of land use and for other reasons. An early draft proposal (early 1996) highlighted the need to a) expand the limited knowledge base about the arid catchment environment by developing a holistic overview integrating economic, political, social and ecological aspects, and b) raise awareness among decision-makers about the environmental and sustainability consequences of planned economic development. Considerable emphasis was given to investigating socio-economic issues, including human livelihoods, land and water use, resource use options (through economic analysis), and local perceptions of resource use problems and constraints.

The departure of the two social scientist co-authors of the early proposal version made it necessary to search for another person to take on the initiative. Early in 1998, Dr Leggett, a marine biologist, was hired as project co-ordinator. He spent about a year re-focusing the thrust of the proposed work (and expanded the scale and cost of proposed activities) away from socio-economic issues and methods toward biophysical research and monitoring, while leaving the stated original objectives largely intact. After consultations with a range of institutions and individuals in Windhoek, local people and communities in the catchment area, and a newly formed steering committee (SC), a final project document was prepared (dated January 1999) and accepted for funding by Sida. The project, known as Hoanib River Catchment Study (HRCS), started in earnest around February 1999 – and is now, two years later, coming to an end.

Project evaluation – the process

Over the period January-mid March 2001, information and views about HRCS were gathered from the following sources:

- *Project documentation:* proposal documents; mid term review documents; minutes of SC meetings and community meetings; three-monthly, six-monthly and annual progress reports;
- *Project outputs:* research reports; brochures; leaflets; resource maps; databases;
- *Interviews in Windhoek:* the project team, including principal socio-economic consultant; other DRFN staff; selected members of the Steering Committee;
- *Local community meetings and interviews:* Otjokoware, Warmquelle, and Sesfontein.

Project evaluation – the results

A) Have the original project aims and objectives been realistic and feasible?

The project aims and objectives, as the whole, are very broad and ambitious. Their all-encompassing nature has made the project susceptible to different interpretations by the project team, consultants to the project, members of the executing institution (DRFN), and SC members. It has been difficult to reach a common understanding of what this project is all about. As a result, there seems to have been a lack of clarity about the essence of the project, at all levels:

- Classical 'extractive' research study or a community-oriented participatory action research, or both?
- Research-driven project or a project driven by local needs and priorities, or both?
- Problem definition from the outside or by the local communities on the ground, or both?
- Mainly biophysical research or mainly socio-economic research, or both?
- Catchment or conservancies as the 'geographical unit of analysis', or both?
- Study of a catchment or set of studies in a catchment, or both?
- National-level provision of integrated information or collaborative research with local groups, or both?

The mix of and balance between these alternative elements – and thus the real and/or perceived nature of the project – seems to have been changing, as the project unfolded and activities were carried out on the ground. 'The goal posts were constantly changing', as one SC member put it. Activities on the ground tended to take on their own dynamics, not always consistent with the original research plan, particularly on the socio-economic side. The SC, too large, divided and unwieldy, was unable to provide the necessary guidance. The researchers on the ground did what they felt were the priorities. The mid-term re-orientation of the project, while focusing the project on a set of more feasible priority activities and ensuring delivery of project outputs, represented another significant shift by emphasising the community-oriented objectives of the project.

B) Have the original project aims and objectives been achieved?

The *three broad aims* appear to have been achieved only partially:

Aim a) Most of the research has not focused on the *interaction between people and the environment in the catchment,* but on natural resources *per se* – largely inventory work and biophysical monitoring. Thus, the project has focused mainly on one dimension of what is required to develop an integrated synoptic picture of the catchment

Aim b) In order to assess the *effects on the environment and sustainability of water use and extraction in all areas of the catchment,* the HRCS:

- monitored wetlands, permanent springs and boreholes;
- determined human and animal water consumption levels in the target communities; and
- carried out a case study on the effects of upstream water development on downstream water availability in the Erwee-Palmfontein Springs area

It is difficult to see how the aim could have been achieved without systematic catchment-wide hydrological measurements and modelling, but in the absence of

costly river flow and groundwater gauges, this was not possible. However, more could have been done on understanding water demand and identifying options for water demand management, an area already flagged by ERP.

Aim c) The project team held regular consultation and information dissemination meetings with the local communities, but fell short of the aim of *facilitating local representation of resource use issues through participation in all stages of the research,* because:

- Much of the project amounted to a classical 'extractive' research approach;
- The project leadership did not see participatory community work as a high priority;
- The researchers were not trained in community-level participatory research techniques;
- The project initially not always worked through the right local institutional channels;
- The socio-economic researchers were absent or under-represented in the field; and
- The project was not able to maintain a strong and continuous enough local presence.

Interactions with the local communities improved considerably following the mid-term internal support mission in February 2000. However, in the absence of a follow-up project phase, the re-orientation may have come too late in the project cycle to integrate research in the community process and thus ensure lasting community impact.

The *seven specific objectives* have been met with variable success:

(i) *The information that has been generated in support of policies, planning and decision-making* in Namibia is not really integrated information (but mainly biophysical information) and the national-level information dissemination process has not been entirely effective to date.

(ii) The *Steering Committee* (SC) was too large, divided and unwieldy to be able fulfil its intended multiple roles – guidance to the project; facilitating integrated approach to the research by involving a wide range of institutions at national and local levels; and institutional channel for dissemination of project results. This ineffectiveness has contributed to lack of a common understanding of what the project is all about, ineffective feedback to the researchers, lack of integration of research efforts, lack of information dissemination and some duplication of effort.

(iii) *Collaborative research with the rural communities was undertaken,* to the extent that a) community researchers were involved and trained and b) consultation and information dissemination meetings were held with the communities on a regular basis. However, the choice of local interlocutor (conservancy committees) without having IRDNC on board as a strategic partner and factional differences in some of the communities hampered community collaboration. Stronger and broader community mobilisation following the mid-term review improved local working relationships.

(iv) *Rural knowledge has not been systematically integrated into research, analysis and management* planning from the outset. Initial consultations with the local target communities did take place, but no local-level in-depth surveys or participatory rural assessments were undertaken at the outset to a) identify issues and information needs and priorities from a local point of view and b) establish existing rural knowledge that could be used to inform scientific research

needs and priorities. Only after the mid-term review did the project succeed in capturing and integrating some of the rural knowledge by means of more interactive and participatory techniques.

(v) HRCS' efforts to raise awareness about natural resource issues among conservancies and communities are likely to have led to some new local-level awareness. The degree to which the *objectives to 'incorporate scientifically gathered information into management decisions by conservancies and communities'* is achieved depends on the extent to which greater awareness is being translated into better conservancy-level and community-level management decisions. This, however, is a longer-term process going beyond the time frame of the project.

(vi) A great deal of *data and information on population densities and movements of wildlife and domestic stock has been gathered,* but densities and movements of people apparently have not been investigated. This data has been organised in a computer-based database and synthesised into animal resource distribution maps, brochures for local service organisations, leaflets for the communities and research reports.

(vii) *Tourism issues (benefits and costs) in the catchment* have been addressed substantially through:
- A survey of local perceptions regarding the benefits of tourism and conservancies;
- Inputs into the Northwestern Tourism Masterplan (2000) for the Kunene-Erongo region;
- Observations on the environmental impact of local tourism;
- An information leaflet on the topic destined for the communities; and
- Inclusion of tourism impact as an environmental challenge in a pictorial resource map.

C) Combining scientific research, existing local knowledge and rural awareness raising – how realistic and feasible

Comments under objective (iv) refer. In order to be able to combine and integrate scientific research, existing local knowledge and rural awareness raising, the following conditions should obtain:
- a clear recognition among all involved that combining and integrating scientific research, local knowledge and rural awareness raising is an essential and integral part of the project;
- a two-way communication and participatory learning process – involving close and continuous interactions between the outside researchers and the local community – throughout the research cycle, starting from problem definition;
- the necessary skills, experience and interest on the part of the project team; and
- the necessary continuous local presence with the communities.

None of these requisite elements seem to have been fully in place in the case HRCP.

D) Integration of socio-economic and biophysical research – conceptually and operationally

Integration of socio-economic and biophysical research was inadequate, for a number of reasons:
- Budget and human resource allocations were lopsided in favour of biophysical research.
- Neither the research plan nor the research reports were properly integrated.
- Socio-economic research was, in fact, seen merely as a modest add-on by the project leadership.
- The socio-economic research was in limbo for the first half of the project.
- The socio-economic and biophysical researchers worked largely in parallel.

Only the mid-term review succeeded in some strengthening of the socio-economic part and in achieving a greater level of complementarity between socio-economic and biophysical. For truly integrated socio-economic and biophysical research to take place:

- the relative importance and weight (budget, human resources) should be approximately equal;
- integration at both conceptual and operational levels must be ensured; and
- project co-ordination (one multi-disciplinary team leader, or two team leaders working closely together) must be able to bring the two dimensions together.

E) Contributions to a better understanding of the environment and of interactions between human activities, fauna and flora in the Hoanib catchment – who is the main beneficiary group?

The project has made *contributions to a better understanding* of the environment mainly through:

a) detailed natural resource inventories;
   - distribution and movements of key species of wildlife and domestic stock;
   - spatial and temporal rainfall patterns;
   - water quality and availability for wetlands, permanent springs and boreholes;
   - grazing resources – using a rapid veld assessment method developed by the project;
   - Ana Tree – a key vegetation resource and source of food for animals; and

b) investigations into key natural resource interactions and relationships:
   - seasonal relationships between rainfall and vegetation;
   - interactions between animals (wildlife and domestic stock) and water;
   - investigations into key natural resource interactions and relationships
   - relationships between animals and vegetation – e.g. relative grazing pressure of wildlife and

Much less attention has been given to interactions between people and the environment and to the social and economic factors influencing human resource use and management.

There is no agreed single *main beneficiary group.* Various groups, including national-level planners and decision-makers, research scientists, local-level management units (e.g. conservancies), and/or local communities, stand to benefit, to the extent that project findings reach them.

F) Contributions to improved scientific knowledge of river catchments in general

While HRCS has produced new scientific knowledge relating to one specific river catchment – the Hoanib River Catchment , it is difficult to comment on the project's contributions to improved scientific knowledge of river catchments in general. On the one hand, the HRCS did not undertake any review of existing knowledge – and knowledge gaps – of river catchments. On the other hand, it is not clear if HRCP is a catchment-focused study or a study carried out in a catchment.

G) How have the local communities benefitted from the project results

Beyond reasonable doubt, the communities have benefited in the following ways:

- They have more information;
- They are likely to have a better sense of the broad nature of resource issues in their area, including water supply and grazing constraints, animal movement and behaviour, the pros and cons of sinking new boreholes, etc;
- They possess more research and monitoring capacity – training community researchers.

H) Information materials produced and disseminated by the project – availability, understanding and use of materials at national and local-levels

HRCP has produced a variety of information materials:

- 10 (biophysical) research reports, to be published as DRFN Occasional Papers;
- 5 socio-economic reports;
- a variety of resource maps;
- 4 A5-size brochures destined for local active service organisations, practitioners and the communities;
- 8 double-page leaflets for the communities;
- a book targeted at local NGOs, CBOs and local/regional government (in preparation).

Some of these materials have found their way to other *Windhoek-based institutions* and projects (WILD, RISE, etc), but overall dissemination of materials and project findings has been haphazard and incomplete, despite the broad-based SC. Cross-fertilisation with some closely related initiatives has not happened. This indicates some level of duplication and waste of resources.

At the local community level, all materials have been properly distributed and are accessible, in national and local languages. The question of whether the materials are understood and used is a complex issue that cannot be settled without further in-depth investigations.

I) Can the project be expected to contribute to sustainable development and livelihoods for people in the Hoanib Catchment area?

SC members and DRFN staff expressed a variety of different opinions on this question. Differences in view were due, in part, to a lack of common understanding of 'sustainability' and 'sustainable development':

- For the catchment as a unit of analysis, 'sustainability' may be seen as linked to catchment-wide processes and resources balances (water, soil, grass, wildlife etc). Since the project has not examined overall resource balances and developed a catchment-wide 'nutshell' picture, it is difficult to judge the contribution to sustainability development.
- If focused on the local people and their livelihoods, 'sustainability' may be linked with new information, keener awareness, and enhance research capacity brought about by HRCS
- Yet another perspective on sustainability concerns the longer-term returns from the substantial project investments. For greater sustainability of dividends from the project investments and results, it is necessary to see to it that:

- ❑ baseline information generated and awareness created is actually used to improve practices/decisions;
- ❑ research results and local research capacity created is integrated in community development process;
- ❑ some of the research and monitoring activities and methods are taken over and continued by appropriate local or regional management units.

J) Lesson learned

A number of general lessons can be derived from the strengths and weaknesses of HRCS.

1 Background: Context and Evolution of the Hoanib River Catchment Study (HRCS) Project

1.1 Introduction

The driest country south of the Sahara, Namibia receives very sparse and highly variable rainfall and generally lacks natural perennial water bodies. The country's only perennial rivers coincide with its northern and southern borders and are thus shared with its neighbours to the north and south (Angola and South Africa, respectively). Within Namibia's interior, all river courses are ephemeral – they carry visible surface water flow only during relatively brief and intermittent periods, following heavy rainfalls within their respective river catchment areas. The ephemeral nature of all interior river flow, one of Namibia's unique ecological features, severely limits natural land resource productivity, contributes to the fragility of life-supporting systems, and thus along with sparse and variable rainfall imposes tight restrictions on human habitation, land use and economic development.

Namibia's ephemeral river network include 12 major westward-flowing river systems whose catchment areas cover much of the country's arid to semi-arid north-west. All of these 12 ephemeral rivers flow into the Atlantic Ocean or end in the Namib Sand Sea (coastal desert). Typically, these rivers originate in commercial farm lands (located in the highlands), descend westwards through communal farming areas, and near their mouths traverse protected coastal conservation areas.[2]

In pre-colonial times, these catchments supported pastoral communities and wildlife that used the land and water by moving within this large region in response to rains.[3] Today, a growing number of people is using the limited natural resources of the region for agricultural production on a permanent basis. Past changes in land tenure and steady influx of people have led to the development of large sedentary populations, also in the drier, climatically more variable and ecologically more fragile western sections of the catchments. It is not clear how much longer the delicate local ecological life-supporting systems and the limited local natural resource base, particularly limited water resource availability, can support growing populations and expanding agro-pastoral economic production.

Concerns of this kind led to attempts to develop a better understanding of the ecology, natural resource base, natural resource use patterns and development trends in and across Namibia's western ephemeral river basins. From a point of view of the catchment as the basic ecological and management unit, water was seen as the single most critical limiting factor for expanding human land resource use in these basins and questions were raised as to whether current trends in resource use and economic development (and underlying policies and decision-making) were ecologically and socio-economically sustainable. There was a perceived need to raise awareness among local and national decision-makers about the environmental impacts within the

[2] The Namib Naukloft Park in the west and the Skeleton Coast National Park further north.

[3] The western areas of many of these catchments were used only by small nomadic populations in years of higher rainfall.

catchment areas of local land use practices and national policies, with a view to adapting and improving practices and policies to contribute to more sustainable development in these areas.

1.2 The Ephemeral River's Project (ERP)

A major systematic effort to respond to this felt need and help guide appropriate development and management of the limited-potential arid catchment areas was undertaken through the ERP carried out in the period 1993–95, with financial support from Sida. The results of ERP were published in a recent book.[4] This publication, among other things,

- provides basic information about all 12 western ephemeral rivers and their catchments and how people living in this region are currently using them (including 'Catchment Summaries' summarising basic data and presenting maps);
- discusses the effects of historical and current social and economic policies, laws, and development upon these resources and their users; and
- provides an overview of the region, with a view to contributing to the challenge of carefully co-ordinated sustainable development.

The book focuses attention on:

- Demographic trends and dynamics;
- Natural resource availability;
- Natural resource use and management – particularly water and vegetation; and
- The future outlook – sustainable development options and choices.

A number of key resource management and sustainable development issues are highlighted, including the following:

- Limited water resources as a fundamental constraint to continued population growth and rising water demand – highlighting the need for water demand management;
- The interconnected nature of water supplies in different parts of an ephemeral river catchment – specifically, the effects of upstream water development (e.g. commercial farm dams) on downstream water flow, recharge and flooding and associated potential (if not actual) negative ecological impacts (e.g deteriorating wetlands), human impacts (reduced spring or bore hold yields), and/or tourism impacts (drying up of the lower western catchment sections and related loss of scenic beauty and possibly out-migration of wildlife);
- The pros and cons of sinking new water boreholes for agricultural development;
- The need for decision-makers to think beyond their geographic management or jurisdictional boundaries and be aware of the catchment boundaries[5] when it comes to water development, since downstream users outside the management or political unit be may be affected by upstream water-related decisions;
- The significant growth potential for tourism vis-à-vis the limited potential for an expansion of agriculture (even though agro-pastoral land use remains a dominant economic activity);

[4] (Jacobsen, 1995)

[5] Catchment boundaries on the one hand and political or management boundaries on the other hand often do not coincide but intersect one way or another.

- The need for a) integrated land and water resource use planning (balancing conflicting user needs and aspirations and dealing with resource competition and conflict) and b) co-ordinated development planning more generally, towards greater environmental, economic and social sustainability in the region.

1.3 The HRCS as an outgrowth of the ERP

The ERP was designed to provide a broad synopsis of environmental and developmental aspects and issues for all western ephemeral river systems and catchment areas taken together. Financial, human and time resources spent on each individual river catchment were of necessity quite limited. Not surprisingly, therefore, the completion of ERP saw various ideas for more detailed and in-depth investigations on particular river catchments emerge. After some discussions, it was decided to focus a follow-up project on the Hoanib River Catchment. One of DRFN's associates – Dr Sian Sullivan – had been carrying out doctoral-level research in (the western section of) that catchment[6], among other areas in north-west Namibia, and hence was familiar with the area.
It was further felt that an in-depth investigation of the Hoanib River Catchment would be advantageous and/or challenging in that:

- some of the work done in the western section of this catchment area could be extended to the eastern section;
- the Hoanib Catchment exhibits a diversity of different land uses and economic activity (including protected conservation areas on the easters and western boundaries of the catchment), different historically grown ethno-political links and allegiances (as a former border area between Damaraland and Hereroland), and a rich socio-cultural mix of ethnic groups (Damara, Nama, Herero, etc);
- the Hoanib Catchment has a rich fauna and flora and constitutes a key conservation area in north-western Namibia;
- agriculture, mining and tourism developments are all scheduled to increase in the area;
- there is significant mobility of people, domestic stock and wildlife across the catchment boundary;
- the whole area is rather complex and has been neglected in the past.

One perceived drawback of choosing the Hoanib Catchment (as opposed to, say, the Uchab or Huab Catchments) was that because of the very few commercial farms (11 in total), there was little scope for examining the downstream impact of upstream water development, notably commercial farm dams.

1.4 An early HRCS draft proposal version

In late 1995 and early 1996, Dr Sian Sullivan, DRFN, in collaboration with Dr Rick Rhode, an anthropologist associated with the MRCC of UNAM who was pursuing doctoral research, also in the Kunene Region, developed a draft proposal for an 'Environmental Issues Investigation

[6] Dr Sullivan's PhD thesis work focused on the ethno-botanical aspects of the use of plants as a food source and for medicinal purposes by local Damara people in north-west Namibia (Sullivan, 1998).

Project' on the Hoanib River Catchment.[7] In essence, the proposal entailed basic socio-economic, bio-physical and policy research on environmental issues for sustainable development in the region and Namibia, in terms of examining land use practices and living conditions in the Catchment and highlighting potential alternatives to existing demands and expectations, in the context of actual or potential conflicts around escalating tourism, misinformed development expectations and priorities on the part of local people, interactions (or lack thereof) among a variety of governmental and non-governmental organisations, limited water supplies, and a fragile local resource base.

The stated motivation for the proposed research project was based on the following observations:

a) the knowledge base of this arid environment was limited and a holistic overview integrating economic, political, social and ecological aspects was lacking; and

b) decision makers on all levels were not always fully aware of the economic or other developmental consequences of decisions taken that impinge upon the environment; frequently the environmental constraints and/or consequences of planned development were not recognised, or the linkages identified.

The proposed research was to be directed at a range of different target groups comprising decision makers, environmental educators, local communities, tourists, scientists, as well as the general public. These target groups were to be sensitised and informed about the issues through appropriate specific awareness-raising information materials. Scientists were to benefit through scientific papers to be published in the peer-reviewed scholarly literature.

Some salient features of the proposal were:

- To seek to provide integrated information in support of policies, planning and decision making in Namibia, particularly the Hoanib catchment;
- To involve government organisations through a Steering Committee;
- To involve the rural population directly in all stages of the research and to integrate rural knowledge into management planning;
- To provide research methodology training (e.g. in environmental monitoring and socio-economic surveys) to local people;
- To produce a variety of awareness raising materials (posters, videos, environmental education brochures, etc) for a range of different audiences (indicated above);
- To forge, wherever possible, collaborative links with other research and development initiatives and organisations (governmental and non-governmental) in the area.

The research was proposed to cover a wide range of topics, including socio-economic, anthropological and bio-physical aspects. Considerable emphasis was placed on investigating

[7] "Environmental Issues Investigation Project: Hoanib River Catchment Profile, *revised draft proposal* submitted to Sida by DRFN, February 1996 (see Annex A on project documentation).

socio-economic and anthropological issues – perhaps not surprisingly, given that both co-authors of the proposal were social scientists. Social and economic research was to include:

- inquiry into human population dynamics;
- examining human livelihoods;
- investigating land and water use;
- looking at rangeland management practices;
- performing economic analysis of development initiatives and resource use options;
- analysing local peoples' perspectives on problems and constraints associated with the use of key resources.

This early 'Environmental Issues Investigation Project' proposal was submitted to Sida but was not pursued up to the point of funding, as its co-authors left for the U.K. It was not feasible for DRFN to secure funding and implement the proposal, while its masterminds remained based far away.

1.5 Revising the HRCS – the final Project Document

More than a year later (in the 2nd half of 1997), Dr Keith Leggett was approached to take on the initiative, given his familiarity with the Hoanib Catchment area.[8] Dr Leggett came on board in February 1998 and appears to have been given relative freedom to re-focus and re-shape the proposal according to what he felt at the time were the main information gaps and research priorities in the Hoanib Catchment area. The first year after February 1998 was devoted to re-conceptualising and revising the proposal, getting the new version approved by both the local communities and a newly formed project Steering Committee, and securing funding from Sida. In the process, the thrust of the study project was changed and project scale and cost significantly increased. The preparatory project re-orientation and development phase entailed the following activities, approximately in chronological order:

a) discussions with a variety of researchers, policy makers and practitioners around Windhoek;

b) formation of a Steering Committee (SC) for the project;

c) an visit early in 1998, together with Dr Ben Fuller of MRCC/ UNAM, to the Hoanib Catchment area to get a sense of (changing) local realities, aspirations and priorities;

d) formulation of a revised draft proposal;

e) meetings, in August 1998, with each of the six target communities – Erwee, Omuramba, Otjokaware, Khowarib, Warmquelle and Sesfontein – to present and discuss the proposal;

f) presentation of the revised proposal to the SC at a meeting later in August (following the community meetings) and approval by the SC;

g) another visit to some of the catchment communities in late August, in the presence of selected SC members

[8] Among other things, Dr Leggett had previously carried out detailed vegetation transects along the whole length of four of the north- western ephemeral rivers beds, including the Hoanib River, while under contract by Raleigh International.

h) preparation of final project document dated Jan.1999, including a research plan; and

i) securing approval and funding for the new proposal version from Sida.

These preparatory steps were completed around February 1999 at which time the Hoanib River Catchment Study (HRCS) Project started in earnest. This project development process resulted in

HRCS retained most of the original objectives, but now involved a substantially different approach and a different set of activities and research methods. In particular, much greater emphasis was given to biophysical research and monitoring, while socio-economic research was significantly toned down. This shift in project emphasis reflected, perhaps more than anything else, the intellectual imprint of the new project leader, a biological scientist whose background and interests lay squarely in the realm of biophysical research. The decision to retain the original objectives, while substantially changing the thrust and methods of the research, certainly contributed to the difficulties HRCS has had meeting the stated project objectives.

2 Purpose and Terms of Reference of the End-of-Project Evaluation

This evaluation was commissioned by the Swedish International Development Agency (Sida) who have provided the funding for the Hoanib River Catchment Project initiative. It is one of Sida's policies to have each and every of its projects (all projects receiving Sida funding) externally evaluated at the end of the project cycle.

It is probably fair to say that the nature of this evaluation is mainly one of highlighting the 'lessons learned' – taking stock of what has been done and how, what has worked and what has not worked, and whether/how original aims and expectations were met. While this evaluation does examine issues of how the results achieved by the project can best be utilised and built upon by any future related endeavours, it is not a 'forward-looking' evaluation, in the sense of feeding into an intended follow-up phase of work. The reason is that Sida has already decided not to continue to fund this initiative. Sida programme staff communicated this decision in May 2000.

2.1 Purpose of evaluation

The stated purpose of this evaluation is to assess:

a) if the original project objectives were achieved;

b) if the bio-physical and socio-economic integrated research approach is applicable for river catchment projects; and

c) how the findings and recommendations of the project will contribute to increased awareness at local and national level.

2.2 Terms of reference ('scope of work') of the evaluation

The stated terms of reference (ToR) for the evaluation are to:

i. Review the original project objectives and assess if those have been achieved.

ii. Comment upon the realism of the original project objectives and the approach to combine research and rural awareness raising.

iii. Review the interaction achieved between socio-economic and bio-physical research (studies). Did the researchers co-operate, did they benefit from the findings of each other, or did they work in parallel? If the co-operation has been less than satisfactory propose means for improvements for future projects.

iv. Review in which ways the project has contributed to better understanding of the environment in the catchment area and the interaction between human habitation, flora and fauna. Who is expected to be the main beneficiary group of the findings?

v. Review the availability within the catchment communities of information material produced and distributed by the project. Is the content of the material understood and being used?

vi. Review in which ways the bio-physical and socio-economic research have contributed to improved scientific knowledge of river catchments in general.

vii. Review in which ways the local communities have benefited from the project and its findings/recommendations . Could we expect that project to contribute to sustainable development and livelihoods for people in the Hoanib catchment area?

3 The Project Evaluation Process – what Information was Gathered and Analysed, and how

Project-relevant information and views were gathered from various sources and reviewed in the period from about mid January to mid March 2001. Information sources included:

- Project documentation and outputs;
- Other relevant literature;
- Members of the project team and staff of the implementing organisation (DRFN);
- Members of the project steering committee;
- Others institutions/individuals in Windhoek; and
- The target communities in the Hoanib catchment

3.1 Project documentation and project outputs reviewed

The following project-related documents and project outputs have been reviewed in the course of the evaluation:

a) Project documents

- Initial DRFN Hoanib River catchment project (HRCP) proposal, February 1996.
- Final DRFN HRCP proposal, including Research Plan, January 1999.
- Report on the 17–23 Jan 2000 HRCP Internal Support Mission, 21 February 2000.
- Report on HRCP Future Directions Meeting, 16 February 2000.
- Minutes of all nine (9) steering committee meetings held over the lifetime of the project.
- Minutes of all seven (7) community meetings held over the lifetime of the project.
- One (1) annual report (covering the year 1998) and three (3) six-monthly progress reports (covering the period March 1999 – September 2000).

b) Written/printed project outputs

- Eight (8) different leaflets produced for the local communities.
- Four (4) different brochures produced for service organisations and the local communities.
- A variety of different natural resource maps covering the catchment area;
- Five (5) out of a total of ten (10) draft research reports – presenting the results of the bio-physical research conducted under the project, for publication as DRFN Occasional Papers;[9]
- Reports on five (5) socio-economic research survey studies.

c) Other project outputs

- Two (2) inter-linked computerised databases containing scientific data generated by the project.

A detailed list of project documents and project outputs is found in Annex A (project documents) and Annex B (project outputs), respectively.

[9] Only 5 out of the intended 9 research reports were available in draft form; the remaining research reports are in preparation.

3.2 Other relevant literature consulted

To date, a considerable body of research studies, surveys and other information gathering exercises on, or directly relating to, the Hoanib River catchment area (in the context of the wider north-western region) has accumulated. Given the limited time availability, this body of literature and knowledge could not be reviewed in detail. But an attempt was made to take a brief look at selected key documents that have been produced by these efforts in order to get a feel for what other information exists, where are the information gaps, and how does the HRCP fit in.

At least five PhD theses focusing on (parts of) the Hoanib catchment area – and/or addressing issues in the wider north-western, including the Hoanib catchment area – have been produced in the past 10 years (since independence). Of these theses, two were readily accessible: a dissertation (1993) by Dr Ben Fuller on agropastoralists in Central Namibia, 1916 – 1988; and a PhD thesis (1998) by Dr Sian Sullivan on ethno-botanical aspects of plant and land resource use by Damara farmers in north-west Namibia.

Another important document accessed during the project evaluation is a land use plan for the Sesfontein Constituency' (July 1997) prepared by TRP Associates for MAWRD. The exact titles and other bibliographic reference information are found in the 'References' section.

3.3 Interviews with members of the project team and DRFN staff

Meetings and interviews were held with the following project team members:

- Dr Keith Leggett, project co-ordinator;
- Mr Julian Fennessy, Australian volunteer financially supported from Australian sources;
- Ms Stephanie Schneider, in charge of community mobilisation and dissemination of information;
- Dr Ben Fuller, MRCC, UNAM, consultant to the project
- Mr J.O. Reuter, shared with Save-the Rhino Trust (SRT).

A one-week visit to the catchment area, joining the project team on their final information dissemination field trip, provided an opportunity for longer in-depth discussions with Dr Leggett, Mr Fennessy and Ms Schneider. Dr Fuller was met and interviewed on two occasions, while Mr Reuter was met once for a one-off interview.

In addition, the following DRFN staff members were interviewed:

- Mr Bertus Kruger, Deputy Director, DRFN
- Dr Mary Seely, Director, DRFN

All interviews were held in an informal and open-ended fashion, using as a basis for discussion a set of questions deriving from the purpose and terms-of-reference of the evaluation (see section 2 above). Care was taken to try and keep discussions flexible so that interviewees would feel at greater ease to share perceptions, perspectives and views and pursue or clarify points which otherwise might have been lost.

3.4 Interviews with steering committee members

The following project steering committee members were interviewed:

- Mr Bernd Rothkegel, Director of Planning, MAWRD, and Chairman of Steering Committee
- Dr Chris Brown, Director, NNF
- Dr Colin Craig, DSSS, MET
- Mr Rod Davis, Director, Namibia Resource Consultants
- Mr Guido Van Langehove, DWA, MAWRD
- Mr Goran Larsson, Programme Officer, Sida
- Mr Colin Nott, IRDNC
- Dr Mary Seely, Director, DRFN

The purpose of these interviews was to explore the perspectives and views of individual steering committee members on questions relating to the purpose and terms-of-reference of the evaluation. Again, interviews were conducted in an open-ended and flexible manner so as to encourage free-flowing discussion and enhance readiness on the part of the interlocutors to share information, perceptions and opinions.

3.5 Other Windhoek-based institutions/individuals interviewed

An attempt was made to contact some of the national institutions or projects that were not directly involved in the HRCP, but whose interests and work appeared to relate closely to the objectives and activities of the project. The purpose was to investigate views about and possible synergies with HRCP, beyond the 'inner circle' of individuals and institutions associated with the project. Because of time and resource limitations, this exercise could not be conducted in any systematic way, but had to be restricted to some 'spot checks'. Therefore, interviews were held with just a few institutions/individuals:

- Ms Maxi Louis, Programme Manager, Namibia Community Based Tourism Association (NACOBTA)
- Dr S. Andrew Long, Team Leader, WILD Project, MET
- Dr Greg Stuart Hill/Mr Chris Weaver (Chief of Party), LIFE Project, WWF

3.6 Hoanib catchment community meetings and discussions with key local community members

Discussions with local community members took place during a field trip to the Hoanib catchment area in the period from 25 February to 02 March 2001, in connection with a series of final project information dissemination meetings convened by the project staff with each of the six local target communities. Because of limited time availability, the first of these community information dissemination meetings – at Erwee – could not be attended. Furthermore, heavy but temporary rains within the catchment during the period of the visit made some of the roads impassable and impeded the project team's access to two of the six target communities – Omuramba and Khowarib – for which reason the planned meetings with

these two communities could not take place.[10] These circumstances and events limited the visit to three of the six target communities in the catchment. Fortunately, the three communities met – Otjokaware in the eastern section of the catchment as well as Warmquelle and Sesfontein in the western section – straddle the divide between the two sections of the catchment. It was thus possible to gain a reasonably representative picture of the local target communities.

Attendance of the community-level dissemination meetings provided an opportunity to experience first-hand the 'ambience' of the meetings and the (effectiveness of) interactions between the communities and the project team. It also allowed interviews with key individuals to take place. These interviews had to be conducted in an ad hoc fashion before and/or after each of the community meetings and therefore had to be kept rather brief.[11] The interviews tended to be with those community members who were more educated, articulate and vociferous and who spoke some English. All local interviews were conducted in a very flexible and open-ended manner, with the aim of uncovering and capturing local views and perspectives on ways in which the local communities had benefited from the HRCP project and more specifically, on how useful the project's information materials had been. Despite the time constraints, between 4 and 8 individuals per community, including the respective community researchers hired and trained by the project, were interviewed. The names of the interviewees, organised by community meeting during which they were interviewed, are listed below:

Otjokaware community meeting, 26 February 2001

- Mr Muzuma, Junior Chief and HRCP Community Researcher
- Ms Antonia Muzuma, IRDNC-supported Community Activator, Ehi-rovipuka Conservancy
- Mr Gerson Uaroua, Chairman, Ehi-rovipuka Conservancy
- Mr David Kangombe, Chairman, Orupupa Conservancy (a neighbouring conservancy)

Warmquelle community meeting, 01 March 2001

- Mr Obed Hambo, Chairman, Sesfontein Conservancy Committee
- Mr Nicolas Rungondo, member of Water Point Committee, Warmquelle
- Mr Vella Uaongarisa Tjiumswa, HRCP Community Researcher, member of Conservancy Committee and member of Water Point Committee, Warmquelle
- Mr Penny Kasaona, Secretary of Sesfontein Conservancy and Chairman of Warmquelle Primary School

Sesfontein community meeting, 02 March 2001

- Ms Flora !Haradöes, HRCP Community Researcher
- Ms Victoria Tjitaria, IRDNC Community Activator
- Mr Jerry Gaobaeb, Chief, Sesfontein
- Mr Petrus Gunaseb, Chief, Sesfontein
- Mr Fares Karutjaiva, Owner, Para Camp Site, Sesfontein

[10] In the case of these two communities, the project team plans to utilise the next local IRDNC/conservancy meeting to make up for the lost opportunity and locally disseminate the overall project findings.

[11] While overall community attendance met or surpassed expectations, relatively few community members showed up in time for the meetings; most local people arrived after the meetings had started. In each case, the community meeting was followed by a meal for which occasion a goat had been slaughtered and prepared, paid for by the project. Most local people tended to leave soon after the meetings. These unavoidable circumstances significantly restricted the opportunity and time for individual interviews.

- Mr Willi Kasupi, farmer and freelance tour guide
- Mr Travis Southworth-Neumeyer, Peace Corps Volunteer and Secondary School Teacher
- Mr Ismael Ouseb, Agricultural Extension Officer, MAWRD, Sesfontein

4 Project Objectives and whether/how they have been achieved

This section examines project aims and objectives as presented in the final project document of January 1999 on which Sida's funding decision was based. The project document includes a research plan spelling out intended biophysical and socio-economic research activities and methods.

A year after the commencement of the project proper (January–February 2000), a mid-term internal evaluation (support mission) recommended a focusing and re-orientation of the study project. A Future Direction Meeting held 16 February 2000, immediately following the internal support mission, resulted in a set of more tightly focused operational 'objectives & activities' for the remainder of the study project, which are reproduced in Annex D. The original overall aims and objectives, however, were not amended. This external final project evaluation, therefore, is based on the original objectives, but taking into account the additional set of post-mid-term specific operational 'objectives & activities' in assessing the extent to which the project has met its overall objectives.[12]

4.1 Original aims, objectives and research plan of the project

The *aims of the study* are to:

(a) Examine the interaction between people and the environment; the limiting factors for development with respect to natural resources of existing and proposed land uses.

(b) Examine the effect that water use and extraction in all areas of the catchment are having on the environment and the possible sustainability of present and future landuse and water development projects.

(c) To facilitate local representation of resource use issues through participation in all stages of the research including information gathering and the production of project outputs.

The *objectives of the study:*

The central theme of the project will be: "what are the limiting factors for development with existing and proposed landuses in the light of available natural resources?"

In an arid and semi-arid area like the Hoanib catchment, water is the single most important natural resource. While its occurrence may not be a limiting factor, other essential natural resources like grazing and browse are limited by the amounts, spatial distribution and timing of the rains. These resources are required for survival by communities, their domestic stock and wildlife. The role of water in the Hoanib Catchment will be a major focus of the study, where it comes from, how the catchment works and who is using it.

[12] Explicit and repeated reference to the mid-term re-orientation of the project and the extent to which this re-orientation has influenced and strengthened the performance of the overall project has been made throughout this evaluation, specifically in (sub-)sections 4.2, 4.3 (aim c), 4.4 (objectives ii, iii and iv), 5 and 6.

Other objectives of the project are:

i) To provide basic, integrated information in support of policies, planning and decision-making in Namibia, particularly the Hoanib catchment.

ii) To involve government organisations, NGOs and conservancy committees, through a Steering Committee, in appropriate environmental research in support of decision-making in Namibia.

iii) To undertake collaborative research with rural communities in the catchment area.

iv) To integrate rural knowledge into research, analysis and management planning.

v) Assist conservancies and local communities to incorporate scientifically gathered information into their management decisions, so that these decisions may contribute to sustainable development and livelihood security.

vi) To gather information relating to population densities and movements of wildlife, domestic stock and people.

vii) To assess the benefits from and detrimental aspects of the tourism industry within the Hoanib Catchment.

A summary of the research plan is presented in Annex C.

4.2 How realistic and feasible were the original project aims, objectives and approach?

The project aims and objectives, as the whole, come across as very broad and ambitious. The all-encompassing nature of the aims and objectives has made them susceptible to different interpretations by the project team, consultants to the project, members of the executing institution (DRFN), and SC members. It has been difficult to reach a common understanding of what this project is all about, both within the executing institution (DRFN) and within the SC. It is thus not surprising at both levels to find a lack of clarity about the essence of the project, in a number of respects:

- Is it a classical 'extractive' research study or a community-oriented participatory action research project, or both (the latter in terms of creating a model of how scientific information and rural knowledge can be combined for sustainable development, as the mid-term review put it)?
- Is it a research-driven project or a project driven by the needs and priorities of people, communities and management structures (like the conservancies) on the ground, or both?
- Related to the previous point, where does the problem definition come from – from the outside (Windhoek-based team) or from the communities and management structures on the ground?
- Is it mainly biophysical research or mainly socio-economic research, or both?
- What is the main 'geographical unit of analysis' – catchment or conservancies, or both? [13]

[13] Or even the wider region, as far as movement of animals and people is concerned?

- Is it a study of a catchment (trying to develop a holistic integrated overview picture of the catchment, in terms of interactions between people and the environment) or is it a set of linked research studies and monitoring activities in a catchment area, or both?
- Is it an exercise to provide integrated information support to national/regional-level planners and decision-makers, or is it to undertake collaborative research with rural communities, or both?

The mix and balance of these alternative elements – and thus the nature of the study project -- seems to have changed, as the project unfolded and activities were carried out on the ground[14]. 'The goal posts were constantly changing', as one SC member put it. Activities on the ground tended to take on their own dynamics, not always consistent with the original research plan, particularly on the socio-economic side.

The problem of 'fluid' and inconsistent project implementation (execution of the research and associated activities) perhaps could have been prevented, or at least mitigated, if the research plan had been broadly consistent with the project's stated objectives and if a logical framework specifying and linking objectives, activities and indicators had been developed, adopted and adhered to. But on both counts, the research plan fell short of what was required. For instance, the workplan failed to integrate, conceptually and operationally, the biophysical and socio-economic research[15], even though the study was supposed to provide 'integrated information in support of policies, planning and decision-making in Namibia, in particular the Hoanib catchment' (1st specific objective). The workplan was not presented in a logical framework format either. Logical framework methodology was used only later during project implementation to report on work-in-progress, but with uncertain benefits (see paragraphs relating to objective (ii) under sub-section 4.4).

Nor were these apparent shortcomings in consistency, methodology and approach sufficiently flagged and remedied by the steering committee (SC) of the project. The SC, too large, divided and unwieldy, was unable to provide the necessary guidance (again see discussion in sub-section 4.4 on whether objective (ii) was achieved). The researchers on the ground did what they felt were the priorities. The mid-term re-orientation of the project, while focusing the project on a set of more feasible priority activities and helping to ensure delivery of project outputs, represented yet another shift in approach and balance, in that implementation of the community-oriented objectives was emphasised and pursued in earnest.

The following lessons may be derived:

- The aims and objectives should have been focused more tightly;
- Clearer and more consistent choices should have been made about the approach to be used;

[14] The evolution of the project up to development of a final proposal also entailed significant shifts in nature and approach, as section 1 shows.

[15] At a conceptual level, the research plan presents socio-economic and biophysical research separately without indicating any linkages explicitly. Operationally, some provisions for integration are specified, such as regular joint meetings in the field. But these provisions were insufficient to achieve full operational integration in the field, to start with, and ended up being overtaken by changing realities on the ground.

- The workplan should be consistent with the project objectives; it should lay out the proposed set of activities in an integrated fashion, at both conceptual and operational levels; and it should have been developed and presented using a logical framework format in terms of linked objectives, activities and indicators; and
- The choice of project co-ordinator and team should be consistent with the agreed aims, objectives and approach, in terms of individual and collective backgrounds, experiences and interests.

4.3 Have the original aims been achieved?

The three broad aims appear to have been achieved only partially:

Aim (a) *Examine the interaction between people and the environment; the limiting factors for development with respect to natural resources of existing and proposed land uses*.

Most of the research has focused on examining the characteristics and availability of natural resources (water, grazing, domestic stock, wildlife, etc) *per se*, rather than on human resource use patterns. Indeed, most emphasis has been given to – and most resources allocated to – biophysical investigations into particular natural resources (vegetation and animal studies, determining movements and distributions of animal, physical and biological studies of water quality in wetlands, springs and boreholes, etc) and how these natural resources interact (effects of wildlife and domestic stock on vegetation, relationships between rainfall and vegetation, etc).

It is true that the natural resource inventories and biophysical resource studies carried out under the project may constitute useful baseline information for future work and useful inputs into developing a synoptic picture of resource use patterns, pressure points and limiting factors for development, and options for resource use adaptations in the Hoanib catchment. But in focusing largely on one dimension of what is required to develop the desired synoptic picture, HRCS fell short of achieving aim (a). Perhaps the book that is being put together, with outside inputs from various resource persons, will go some way to providing the kind of holistic overview that is implied in aim (a).

To a considerable extent, the relative failure of the project to address the human side of human-environment interactions and limiting factors to development lies in the difficulty the project has had in organising the socio-economic part of the work. The socio-economic part of the research plan does seem to respond to the aim of developing an integrated catchment-wide holistic picture of resource uses, including the identification of particular pressure points and possible changes in local resource practice. However, Phase 1 of the socio-economic work never seems to have been carried out, and phase 2 much too late and in too cursory a fashion, leaving phase 3 largely in limbo. At the same time, it is quite clear that the project, as reflected in the final project document, was not intended to give socio-economic research equal weight to the bio-physical studies. More on this issue in section 7 (integration of socio-economic and bio-physical research) below.

While socio-economic work has been quite limited and did not fulfil the expectations created by the research plan, some useful socio-economic type information was generated, notably:

- average water consumption levels for people (in the six target communities), domestic stock, wildlife, irrigated agriculture, and perhaps tourists (even though more attention c/should have been given to detailed water demand analysis and water demand management options);
- a case study on water extraction and use in the Erwee-Palmfontein Borehole – Palmfontein Springs target area; and
- a survey about the perceptions among local people in the five of the six target communities – Ojtokaware, Omuramba, Khowarib, Warmquelle and Sesfontein – regarding wildlife conservation, tourism and the role and performance of conservancies.

On the first two points, see also the comments on the achievement of aim (b) below. On the third point, see also the comments on the achievement of objective (vii) in sub-section 4.4.

Aim (b) *Examine the effect that water use and extraction in all areas of the catchment are having on the environment and the possible sustainability of present and future landuse and water development projects*

It is difficult to see how the effects on the environment and sustainability of water use and extraction throughout the catchment could have been examined without some systematic catchment-wide hydrological measurements and modelling – such as is being done by DRFN and the Department of Water Affairs in the Kuiseb River Catchment. But this would have required a reasonable number of river flow gauges and groundwater gauges distributed over the catchment, while only one fully functioning river flow gauge exists at the moment – at Sesfontein[16] and with existing boreholes in the catchment not allowing proper groundwater gauging.

Early in the evolution of the HRCS, according to one SC member, there were some discussions about installing an additional river flow gauge in the upper part of the catchment. But that would have been hardly enough to allow proper hydrological modelling across the catchment. At least 2–3 additional flow gauges at a minimum would seem to be necessary to do any serious catchment-wide hydrological modelling.

Installing additional flow would have been very expensive at an estimated cost of N$200,000 per flow gauge and hence likely beyond the resources of the project. Unable to consider doing catchment-wide hydrological modelling, the researchers carried out the following water-related work:

- they monitored wetlands, permanent springs and boreholes with respect to water quality and where possible discharge volume;
- they measured or estimated average human and animal water consumption levels in the target communities; and

[16] Another existing flow gauge on the western side of Khowarib is rather useless because it stands on the riverbank and lets a lot of water flow pass without recording it. This leave the flow gauge at Sesfontein as the only proper concrete-walled automatic recorder flow gauge.

- they carried out a case study on the effects of upstream water development on downstream water availability in the Erwee-Palmfontein Springs area – the only place in the catchment where the inter-connected nature of water supplies in the catchment is clearly visible, with clear upstream-downstream benefit-cost trade-offs[17].

However, one opportunity which HRCS seems to have largely missed is that of addressing demand-side management of water. While average human water consumption levels are useful to know, this information is not enough to determine ways and means to limit human water demand in the longer term. It is also necessary analyse the different water end uses, by target community area, in an attempt to pinpoint options to limit water demand (increases), such as by using water more efficiently through changed practices or by adapting the water end use mix. Such an analysis, particularly if done comparatively across the six target community areas, could have shed important light on potential if not actual water constraints in the catchment and how to deal with them. Why are human water consumption levels so much higher in Sesfontein and Erwee than in the other target communities?

The fact that people in Erwee and Sesfontein have much better access to water through existing standpipes (Sesfontein) and a piped distribution system (Erwee), a circumstance which is flagged by HRCS, is only part of the answer. Other questions need to be explored as well. What end uses account for the much larger per-capita amounts of water consumed in these two communities, and would it be possible to meet the same water service needs with less water than is currently consumed? Analysis of local water demand patterns and identification of water demand management options, a key issue already flagged by ERP, could have, and probably should have been done by the project.

One of the broad conclusions of HRCS – already reflected as a kind of working assumption in the general objective – is that water *per se* is not (yet) a limiting factor in the catchment[18], but that availability of grazing and browse is (already). An underlying historical fact is that, large percentages of domestic stock (up to 90%) and wildlife (up to 80%) have perished in times of drought, not because of lack of water (permanent springs did not dry up) but because of lack of available fodder (grazing and browse).

Strictly speaking, this appears to be more of a plausibility argument advanced by extrapolating past experience into the future than a conclusion reached on the basis of the research and monitoring carried out. Only proper catchment-wide modelling of water supplies (beyond the control of HRCS), longer-term monitoring of wetlands, springs and boreholes (beyond the 2–3 year timeline of HRCS), and comprehensive water demand analysis (this would have been within reach of HCRS), all taken together, could have hoped to substantially advance understanding on this broad but critical question.

Summing up, HRCS has made some useful contributions to the understanding of water-related development impacts, constraints and sustainability issues in the Hoanib River Catchment. As a result of the research, there is also likely to be:

[17] This case study provides essentially a snapshot picture of the upstream-downstream water situations, extraction and use levels, and interdependencies in that area. It does not attempt to perform a proper economic analysis of the upstream-downstream benefit-cost trade-offs associated with water access and use.

[18] Except, of course, in the local Palmfontein Springs area, as addressed and illustrated by the Erwee water case study.

- a better awareness among the local people about actual or potential local water use trade-offs or competition among different water users in given local catchment areas (target communities); and

- probably to a lesser extent a better awareness among local/regional/national planners about of catchment-wide upstream-downstream water access and supply inter-dependencies and the need to go beyond jurisdictional and management boundaries and consider catchment boundaries when it comes to water development and supply planning.

However, longer-term monitoring of water supply sources, catchment-wide hydrological modelling, and in-depth water demand analysis and water demand management planning is further required to deepen the understanding and enhance awareness about water as a critical resource and limiting factor to economic development in the Hoanib Catchment. Such heightened understanding and awareness may be all the more important, as on the basis of Namibia's new Water Act, water basins (catchments) in Namibia may soon transcend their significance as ecological units to become management units in their own right, with proper multi-stakeholder water basin committees to be set up. These new water basin committees undoubtedly will require access to a sufficiently comprehensive and updated information base to be able to function properly.

Aim (c) *To facilitate local representation of resource use issues through participation in all stages of the research including information gathering and the production of project outputs*

This aim, as well, was reached only partially. The project did appoint, involve in most biophysical monitoring activities, and train in the process, local researchers – one local researcher per target community. The project also held (or participated in) regular consultations and information dissemination meetings with the local communities. Thus, there has certainly been some level and form of community interaction in some of the stages of the project cycle, notably information gathering. But the aim of full participation in all stages of the research has not been achieved, for the following reasons:

- The project was designed, conceptualised and initiated on the ground much like a classical 'extractive' research study, despite some efforts to involve the local communities.
- The project leadership did not see participatory community-based work as a project priority.
- None of the principal team members were trained in community-based participatory research techniques.
- As a result, the problems to be investigated were largely defined by the researchers themselves, even though the process of problem definition and proposal development sought and benefited from some community inputs during meetings with the local communities.
- The researchers chose to work through particular local institutional structures – conservancy committees – that turned out not to be sufficiently representative in all of the local target areas and whose functioning was hampered by factional infighting in some of these communities, particularly in Sesfontein, Warmquelle and Khowarib.[19]

[19] Strictly speaking, the researchers proposed, on the basis of suggestions made at initial community meetings, that the project work through conservancy structures; and the Steering Committee approved this proposal at their 24 August 1998 meeting.

- After initial local interest in the project, local interest and attendance in meetings with the communities dropped, until a decision was made to pursue a more interactive and participatory style of community meetings[20], following a mid-term internal project review January–February 2000.
- Throughout most of the project, with the possible exception of the last 9–12 months, the socio-economic UNAM researchers who according to project design had an important role in carrying out participatory rural appraisals, working with the community researchers and the communities, were absent or underrepresented in the field.
- The project was not able to maintain a continued strong enough local presence at the community level. The field co-ordinator was unable to fulfil his expected role and responsibilities. The three principal team members, jointly conducting the bio-physical research and handling related community contacts, were based in Windhoek throughout the project duration, even though they visited the Hoanib catchment frequently. And the Windhoek-based socio-economic researchers contributed as consultants to the project, with intermittent involvement in the project and infrequent 'ephemeral' field visits.

Following a DRFN internal mid-term support mission and a subsequent 'Future Directions' meeting in January–February 2000, project objectives and activities were recast to focus the research more tightly on key issues and variables, to attain a better balance, synergy and integration between the socio-economic and bio-physical research, and to achieve closer community interaction and participation (see objectives and activities of adjusted research priorities summarised in Annex D). Two sets of more successful interactive (model-building) community meetings were held in March 2000 and June 2000, focusing on grazing & water and on livestock, wildlife and tourism, respectively, as themes. These community meetings achieved a much greater level of community mobilisation and involvement than previously possible, with an active attempt to interactively combine and build on local as well as scientific resource use knowledge. However, in the absence of a follow-up research project phase, this upsurge in community participation may have come too late in the project cycle to integrate the research process and findings within the community development process and thus ensure lasting community impact.[21]

4.4 Have the original objectives been achieved?

The seven specific objectives have been met with variable success:

Objective (i) *To provide basic, integrated information in support of policies, planning and decision-making in Namibia, particularly the Hoanib catchment.*

While the project has generated basic information that can be used in support of policies, planning and decision-making, the information is generally not of an integrated nature (it is mostly bio-physical resource inventory type of information) and the national-level information dissemination process has not been entirely effective. The problem of lack of integration will be

[20] Changing the earlier DRFN policy position of not providing food at community meetings likely also have contributed to greater community participation and more interactive success.

[21] A final set of community meetings in February–March 2001 (limited to Erwee, Otjokaware, Warmquelle and Sesfontein, due to local rains and floods) were devoted to the dissemination of the overall project results to the target communities and saw some reasonably lively discussion. Project findings will be presented to the Omuramba and Khowarib communities during local IRDNC scheduled for April 2001.

addressed in section 6 below. The issue of information dissemination is linked closely to the role of the Steering Committee, an aspect which will be taken up under the objective (ii) below.

Objective (ii) *To involve government organisations, NGO's and conservancy committees, through a Steering Committee, in appropriate environmental research in support of decision-making*

The Steering Committee (SC) seems to have been established with multiple roles and functions in mind:

- to guide the project team in all research studies and other project activities;
- to serve as a vehicle for the involvement of government organisations, NGOs and CBO structures like the local conservancy committees, so as to build on existing experience and initiatives, avoid duplication of effort, and ensure an integrated approach to the research;
- to serve as an institutional channel for the dissemination of project results and information to all relevant players at the national level.

It is widely agreed – among project team members and SC members alike – that the SC largely failed to fulfil its intended multiple roles and responsibilities. This lack of effectiveness has contributed to lack of a common understanding of what the project is all about, less than effective feedback to the researchers, lack of integration of research efforts, lack of effective information dissemination and some duplication of effort.

In part, the ineffectiveness of the SC is seen to be related to the way the SC was designed and put together. The attempt to involve all relevant national- and local-level institutional and individual players led to a SC that was (considered to be) far too big, unwieldy and costly. The size of the SC was in the range of 20–30 members, with more than 20 individuals attending the SC meetings at peak times.

With this size, absence of some SC members was bound to happen – which introduced discontinuity and inefficiency as a result of the constant need for repeating discussion points from previous meetings for the benefit of the absentees. The size of the SC also appears to have made it a big challenge to maintain discussions focused and reach consensus among this often-divided group holding widely varying views and perspectives. Furthermore, convening such a large SC every three months in the field, at particular sites in the catchment[22], far from Windhoek was quite costly – financially to the project[23] and in terms of the opportunity cost of the time spent by a rather large number of highly experienced individuals.

In addition to size, the composition of the SC also affected the effectiveness of deliberations. In response to initial calls for greater representativeness of the SC, local representation was increased and some of the local community researchers and other key local figures (councillor, chiefs, etc) came to attend SC meetings. This gave rise to problems of people speaking different languages (literally as well as in a figurative sense) and translation becoming necessary at times.

The size and composition of the SC also militated against the SC fulfilling its expected role of providing guidance to the researchers. Aside from widely differing and difficult-to-reconcile opinions and suggestions being voiced during SC meetings, the format and timeliness of the

[22] Only the very first and the last two SC meetings were held in Windhoek – see Annex A.

[23] At an estimated average cost per SC meeting held in the field of N$10,000, the total cost of SC meetings may be close to N$100,000 – nearly 10 percent of the entire research budget.

reporting by the researchers to the SC became an issue. There were calls for more functional or 'analytical' reporting, so as to facilitate better SC feedback. These calls led to some changes in the structure and format of the progress reports submitted to the SC, in particular up-front summaries of the main points and updated workplans of work in progress using a logical framework (objectives-activities-indicators format). But there is little indication that these reporting changes actually resulted in better SC feedback to and guidance of the researchers.

For instance, after the mid-term support mission rolling workplans were presented to the SC every 3 months, as an integral part of progress reports, indicating achievements and problems encountered. But there is little evidence that these rolling workplans and the use of indicators in these plans actually contributed to more effective SC feedback and/or more focused and consistent work-in-progress on the ground. Neither were regularly occurring changes in stated activities and indicators from one progress report to the next consistently explained by the research team in terms of what led to the changes and what their implication would be, nor did the SC seem to have picked up consistently on any unexplained changes in activities and indicators. In the end, the issue of effectiveness of reporting and feedback remained largely unresolved.

Given the difficulties with the large SC, suggestions were made to reduce the size of the SC by nominating a smaller group to oversee the detailed technical aspects of the research study. This was one of the recommendations of the Internal Support Mission[24]. Apart from the subsequent February 2000 Future Direction Meeting which involved a smaller group of SC members, this recommendation does not seem to have been acted upon.

Involving a wide range of relevant national-level institutions at the SC level to achieve integration, avoid duplication of effort, and facilitate information dissemination, also did not work well. Integration was not really achieved at SC level.[25] Duplication of effort was not avoided, as similar biophysical work was done through other efforts.[26] And information dissemination to (and uptake by) the institutions represented at SC level (via the individuals attending the SC), let alone dissemination beyond these institutions, seems to have been quite limited to date.

Objective (iii) *To undertake collaborative research with rural communities in the catchment area*

The comments above on the achievement of aim (c) refer. Collaborative research was undertaken to the extent that:

- community researchers (one per target community) were involved and trained; and
- consultation and information dissemination meetings were held on a regular basis with the target communities.

The objective of community collaboration seems to have been largely aimed at creating local awareness and capacity necessary to tackle natural resource problems. The project was not designed, or had the human resources and local presence, to engage in fully interactive

[24] Report on the Hoanib River Study Internal Support Mission, 21 February 2000, p.10.

[25] It usually works better on the ground than at higher levels of institutional representation – and indeed, significant collaboration appears to have taken place at an individual level in the field among representatives of institutions who found it more difficult to agree at SC level.

[26] Duplication of effort in the biophysical work is flagged as a problem in the Internal Support Mission Report, p.7. For instance, the HRCP has run in parallel with a WWF/LIFE and NNF effort to develop a conservancy-level monitoring and evaluation (M&E) system, apparently without the necessary links and cross-fertilisation.

participatory research starting with problem definition and running through the whole research project cycle, notwithstanding the re-orientation of the project after the mid-term review toward greater emphasis on more interactive methods of community collaboration.

Interviews with the researchers and SC members indicate a lack of clarity and common understanding about the nature of the project, in particular whether it is a classical research study or participatory community-oriented research exercise. The project objectives, overall, seem to suggest both a classical research study and a participatory research exercise at the same time. The appropriate balance between outsider (researcher)-driven and insider (community)-driven research appears to have been viewed quite differently by different researchers and SC members. The balance also seems to have shifted during the course of the study project, as community interest and involvement first waned and later, as a result of the mid-term project review and re-orientation, recovered. This issue never seems to have been entirely settled Problems of lack of common understanding, inconsistency and changing balance in approach have already been flagged at a more general level in sub-section 4.2.

The choice of local partners and working relationships and factional differences in the local communities also influenced significantly the extent to which the project succeeded in undertaking collaborative research with the local communities. On the basis of initial consultations with local community people, it was decided to work through local conservancy committees. At the same time, HRCS did not work through IRDNC, an NGO with a long presence in the area rendering strategic assistance to all of the existing and emerging conservancy structures in the catchment[27]. Moreover, the local conservancy structures were asked to nominate community researchers that were to work closely with the project.[28]

The decision not to (or inability to) enter from the outset into a strategic partnership with IRDNC (who were and are still facing their own problems with certain community factions) resulted in parallel local structures being set up by the project and in the selection of not necessarily the most qualified community researchers, given the likelihood that the best and the brightest locals had already been engaged by IRDNC – and in the end, the project itself got caught in the ongoing local-level infighting around conservancy structures and was forced to seek broader-based channels for information exchange and collaboration with the local communities (through multiple local structures). It is not clear if a more comprehensive and careful initial analysis of complex local power structures, factions, and alliances, perhaps as part of an in-depth participatory rural appraisal (PRA), might have suggested more appropriate institutional channels to enter into a dialogue with the local communities.

Overall, there is little doubt that community collaboration was difficult and only partially effective. Nevertheless, some local awareness and capacity to have been created as a result of the project.

Objective (iv) *To integrate rural knowledge into research, analysis and management planning*

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[27] While IRDNC was not a strategic partner from the very beginning, reasonable working relationships with IRDNC field staff developed on the ground in the course of the project. For instance, the HRCS team regularly attended the three-monthly IRDNC meetings with the local conservancies.

[28] The researchers maintain that for reasons of a) avoiding conflict with SRT and any other NGO and b) being seen as favouring one NGO over another, they were advised by the Steering Committee not to make use of the existing IRDNC employees but to set up structures that could work in conjunction with the existing IRDNC structures on the ground. An additional motivation for HRCS/DRFN to employ their own local community researchers was that such employment creation might open doors to the local communities.

Overall, this objective appears not to have been very central to what the HRCP effort has actually done and achieved on the ground. While initial consultations with the local target communities did take place, no in-depth surveys or participatory rural assessments were undertaken with the communities to identify the critical issues and information needs from their point of view and to establish existing rural knowledge that could be used to inform the scientific research needs and priorities. Brief socio-economic surveys to identify the information needs of the target communities were carried out, but much too late (half-way into the project)[29]. The initial problem definition, in effect, appears to have come largely from the outside.

The mid-term review (internal support mission) in January–February 2000 concluded that the community-oriented work had been weak and that the community participation aspect therefore needed to receive special attention. To rectify the situation, and with the help of a new DRFN staff member versed in participatory community work[30], a series of much more interactive community meetings were organised in March 2000 and later in June 2000, using model building techniques designed to establish existing local knowledge about key resources[31], to compare and combine the local knowledge with the scientific information gathered, and to later feed the results back to the community.[32]

These more interactive community meetings seem to have been a considerable success in mobilising local interest and participation, to judge from comments made by local community members during interviews conducted for the purpose of this project evaluation during the latest round of community meetings (see section 3 above). But it is probably fair to say that these exercises while most valuable, were too little too late to turn the project around. As a result, hopes that the project could 'create a model of how scientific information and rural knowledge could be utilised for sustainable development and livelihoods in areas served by ephemeral rivers such as the Hoanib' (in the words of the mid-term support mission) have largely not been met.

Objective (v) *Assist conservancies and local communities to incorporate scientifically gathered information into their management decisions, so that these decisions may contribute to sustainable development.*

In its community-oriented work, HRCP seems to have largely focused on local awareness building through the dissemination of the results of scientific research via community researchers and during community meetings. To judge from the latest round of community meetings, it is reasonable to assume that some new awareness has been created among the local target groups – conservancies and communities. The degree to which this objective has been met depends on the extent to which greater awareness has translated into better management decisions, at the conservancy and community level. There does not seem to be much concrete

[29] They were carried out by A.W.Motsimane and M.K. Shapi of UNAM only in September 1999 and written up months later (early 2000).

[30] Mr Bertus Kruger, Deputy Director, DRFN.

[31] E.g. knowledge about the location of springs and boreholes, vegetation and grazing patterns, etc.

[32] In terms of computer-generated resource maps showing GPS-checked locations of springs and boreholes on the basis of indications given by the local people during the initial meetings.

evidence for improved practices or better management decisions so far. However, this a longer-term process going beyond the time frame of the project.[33]

Objective (vi) *To gather information relating to population densities and movements of wildlife, domestic stock and people*

A great deal of data and information on population densities and movements of wildlife and domestic stock has been gathered using vehicles transects, aerial surveys, fixed-point observation and other methods, and has been/is being fashioned into a variety of outputs (see Annex B, sections a, c, d, e and g), including:

- a Microsoft Access database;
- 10 maps on the distributions, by season, of the five major wild and domestic animals, respectively;
- 3 research reports – on domestic stock and wildlife distributions, elephants, and giraffes – to be published as DRFN Occasional Papers, and selected findings to be published as scientific papers in the refereed journals; and
- 3 leaflets and 1 brochure for the local communities.

This objective has been comprehensively met, as far as animals are concerned. The data and information generated constitute a valuable baseline for future monitoring, research and decision-making.

In comparison to animal data, the 'human' dimension of this objective – densities and movement of people – seems to have been given little attention. The researchers point out that movements of people were investigated at the interactive community meetings on 'seasonal movements of wildlife, domestic stock and people' (June 2000) and that the community members attending these meeting described the seasonal movement of themselves and their stock in and around the catchment area. But the minutes of these meetings are entitled 'community meetings on wildlife, domestic stock and tourism' and do not mention the issue of movements of people. As well, the final dissemination meetings in February 2001 (at least those attended by the author of this report) did not present data on movements of people. Nor do the project outputs listed under Annex B seem to deal with densities and movements of people, with the possible exception of the book being put together including contributions from 'outside' specialists.

Objective (vii) *To assess the benefits from and detrimental aspects of the tourism industry within the Hoanib catchment*

When the HRCP project was conceived and developed, there was an expectation that several conservancies were about to be established in the Hoanib catchment area and that wildlife-based tourism had great potential and would take off soon. Hence the specific project objective on the impacts of tourism. However, local-level politics, factional differences and other factors, taken together, seem to have slowed down conservancy development in the Hoanib catchment considerably, particularly in the western section of the catchment.

[33]Nevertheless, some impacts may have materialised already. For instance, the researchers point out that the Omuramba Community have incorporated a rotational grazing system discussed during in the January 2000 community meeting. This could not be ascertained independently by the author of this report, since the Omuramba Community could not be visited in February/March 2001 due to rain.

In this context, the HRCP has substantially contributed to a better appreciation of the role, benefits and costs of tourism in the Hoanib catchment:

- A survey undertaken for HRCP by Ben Fuller in August 2000 on perceptions regarding conservation and tourism and on the relative importance of tourism, livestock and crops as sources of income, for five of the six target communities – which revealed that:
  - principles of conservation were well establish in the minds of the local residents;
  - income from tourism was either minimal or non-existant (certainly much lower than income from crops or livestock); and
  - many local people felt that their conservancies were not functioning well.
- Inputs into the Northwestern Tourism Masterplan, 2000, for the Kunene-Erongo Region.
- Visual qualitative observations of tourism impact on the local environment and natural resource base in the Hoanib Catchment, including changing flight distances of wildlife species, other apparent behavioural changes of wild animals, impacts of off-road (e.g. river-bed) driving, etc.
- A community information leaflet on tourism which was produced for dissemination at the World Exposition 2000 in Germany (where the HRCP project was included under the SADC exhibits and made a presentation) and distributed, along with other leaflet, to the local target communities.
- Inclusion of tourism impact as one of six environmental challenges depicted and described on a pictorial map produced for the local communities.

The survey on local perception about and local income from tourism in the Hoanib catchment is a particularly useful piece of work, for decision-makers, practitioners and researchers alike. This study should be widely disseminated to institutions and projects like MET, MAWRD, WILD and LIFE. The materials (leaflet and pictorial map) produced for the communities may also be useful, even though the extent to which they are based on actual research results may be limited.

5 Combining Scientific Research, Existing Local Traditional Knowledge and Rural Awareness Raising – how Realistic and Feasible?

The comments relating to objective (iv) under sub-section 4.4 refer. In principle, it would have been feasible to combine scientific research, local knowledge and rural awareness raising. At least the following elements needed to be in place for this combination and integration to be both feasible and achievable:

- A clear recognition among all involved that combining and integrating scientific research, local knowledge and rural awareness raising is an essential and integral part of the project;
- A two-way communication and participatory learning process – involving close and continuous interactions between the outside researchers and the local community – throughout the research cycle, starting from problem definition;
- The necessary skills, experience and interest on the part of the project team; and
- The necessary continuous local presence within the communities.

None of these requisite elements seem to have been fully in place in the case of the HRCP. At the project team and SC level, not everybody has viewed participatory community work and the integrating rural knowledge as a high priority; there were different perceptions and perspectives about the importance of this aspect. Second, throughout much of the project (with the exception of the community meetings following the mid-term review), the communication process amounted to essentially one-way information dissemination from the researchers to the local people to raise awareness. Third, the research team had little, if any, experience and limited interest in engaging in the necessary interactive and participatory process with the local communities. And fourth, the local presence was insufficient, as most of the project team was based in Windhoek and the field co-ordinator[34] apparently did not have the resources and skills to manage on his own.

[34] Early in the project, the initial field co-ordinator, Chris Bakkes resigned and was replaced by Gert v/d Linde.

6 Integration of Socio-economic and Biophysical Research – Conceptually and Operationally

The integration of socio-economic and biophysical research was inadequate, for a number of reasons:

- The budget allocation was lopsided: less than 10 percent of the overall research budget was allocated to socio-economic research, more than 90 percent to biophysical research.
- The human resource allocation was out of balance: while biophysical researchers were hired full time, socio-economic inputs were to be provided through short-term consultancy assignments – the relatively minute annual allocation for socio-economic research for enough for just 30–35 days of the principal socio-economic researcher's time.
- The research plan attached to the final project document (summarised in Annex C) is not an integrated research plan. It consists of two separate parts – a socio-economic part and a biophysical part – without any explicit linkages between the two. It is not clear how the 3 phases, the 3 working assumptions and the 7 focal areas of the socio-economic research part are inter-related, let alone the conceptual and operational linkages between the socio-economic part and the biophysical part.
- Even taking into account that biophysical research tends to cost more than socio-economic research, the project was clearly not structured to give equal weight to the socio-economic and biophysical research dimensions; it is hard to avoid the impression that from the very beginning the socio-economics was seen as merely a modest add-on and that the main research interest of the project leadership was in biophysical research and monitoring.
- An underlying assumption and argument on the part of the project leadership has been that enough was known about the socio-economics of the natural resource issues and about human resource use patterns issues in the Hoanib Catchment, i.e. human side of human-environment interactions. Reference is made to a number recent socio-economic studies and surveys[35] – as well as to local-level conservancy-related information gathered by IRDNC over the years[36] – which, it is argued, made it unnecessary to do much further socio-economic work. But one of the tasks of HRCS was to review existing socio-economic information in order establish what is known and where the gaps are (Phase 1 of socio-economic part of the research plan), in order to focus the socio-economic dimension of the work. This initial review was never done.

[35] These socio-economic studies include at least five PhD theses carried out since independence, including: the two listed under the 'References' section; the 1997 Land Use Plan for the Sesfontein area developed under contract by MAWRD; a LoxTech study prior to the Land Use Plan examining the potential of agriculture in the Hoanib Catchment; and recent national-level socio-economic surveys carried out in connection with the latest National Census: a 'Levels of Living' household-level survey, a gender survey, and a demographic and health survey.

[36] It appears that at the outset IRDNC argued that they already had most of the local-level socio-economic information, but HRCS never seems to have been able to get systematic access to this knowledge base so as to be able to build on it. IRDNC's reluctance to share their local knowledge with HRCS seems to have been related to the decision of the HRCS leadership not to carry out the intended community-level work through IRDNC. The project's coalition with Save-the-Rhino (SRT) Trust – two SRT researchers were part of the HRCS team – may also have contributed to the IRDNC's misgivings and initial distancing from HRCS. It is no secret that at the corporate level, IRDNC and SRT do not always see eye to eye.

Without it, there was no solid basis on which to argue that 'enough is known' on the socio-economics – and it was also hard to know where to start on the socio-economic work. Moreover, even if an initial review of existing information had concluded that there was little need to do further socio-economic data gathering, there was still the task of integrating existing socio-economic and biophysical knowledge to 'provide integrated information in support of policies,….' (1st objective) and develop the desired holistic picture of the Hoanib Catchment.

- The socio-economic research was in limbo for most of the first year of the project, as Dr Ben Fuller (the principal socio-economic researcher) fell ill. As mentioned above, the initial review of existing literature and reports to generate a synopsis of existing information and identify gaps in knowledge (phase 1 of socio-economic research plan – see Annex C) was never carried out. Community-level research plans to be drawn up by the socio-economic researchers and the community researchers (phase 2 of socio-economic research plan) were also never developed. Instead, a junior researcher from DEA, Mr Petrus Shuuya was commissioned to prepare socio-economic reviews of key resources (vegetable gardens, cattle industry and wildlife & tourism) in the Hoanib catchment as well as an overall assessment of the Hoanib catchment. Only the socio-economic assessment of the vegetable gardens got written up (July 1999), the report being inadequate. As well, Messrs Motsimane and Shapi did a survey of community information needs for the six target communities in September 1999. This was too little too late.

- It was only during the mid-term internal support mission that the much weaker role of socio-economic investigations was fully recognised. Several focused socio-economic case studies were then proposed to make up for the lost time and opportunities, and still make a useful contribution. The proposed case studies on the downstream effects water extraction (Erwee), and on agriculture, wildlife and tourism in the other target communities have been carried out, with considerable success. Two respective reports authored by Dr Fuller (see Annex B) have made a useful contribution to the project by examining and highlighting two very important issues not addressed otherwise by the project:
  - Upstream–downstream water interactions and interdependency in the Hoanib catchment;
  - Perceptions on and benefits from tourism and conservancies in the Hoanib catchment.

- Even though some planning and strategising between Dr Leggett (project co-ordinator) and Dr Fuller (principal consultant socio-economist) went on during the times the latter was available and operational, the socio-economic and biophysical researchers largely worked in parallel.

- Research reports produced or being prepared (see Annex B) do not integrate biophysical and socio-economic work carried out. However, it is expected that the book being put together, with a range of outside contribution, will address both socio-economic and biophysical issues and present some form of more integrated overview picture of the catchment.

For truly integrated socio-economic and biophysical research to take place, the following elements should be in place:

- Approximately equal weight, in budgetary and human resources terms, must be given to socio-economic and bio-physical studies;
- Conceptual and operational integration of socio-economic and biophysical research aspects must be ensured; and
- Project co-ordination must be able to bring the two dimensions – socio-economic and biophysical – together. This can be done:
  - through a single project leader with a multi-disciplinary background (both socio-economic and biophysical sciences) and is experienced in socio-economic and biophysical research issues and approaches; or
  - through two project leaders of about equal status and influence, one social scientist (or economist) and the other a biophysical scientist, who are open to each other's perspectives and are able to closely work together.

7 Contributions to a Better Understanding of the Environment and of the Interactions between Human Activities, Fauna and Flora in the Hoanib River Catchment – Who is the main Beneficiary Group of the Findings?

7.1 Contributions to a better understanding

The project has made contributions to a better understanding of the environment in the Hoanib River Catchment, mainly through:

- Detailed natural resource inventories, generating, organising and synthesising data and information, *inter alia*, on:
  - distribution and movements of key species of wildlife and domestic stock;
  - spatial and temporal rainfall patterns;
  - water quality and availability for wetlands, permanent springs and boreholes;
  - grazing resources – using a rapid veld assessment developed by the project as a simple methodological tool to measure the quantity of grazing resource in any particular location;
  - Ana Tree – a key vegetation resource and source of food for animals;

and

- Investigations into key natural resource interactions and/or relationships, such as:
  - Seasonal relationships between rainfall and vegetation;
  - Interaction between animals (wildlife and domestic stock) and water – in terms of spatial and temporal patterns of animals accessing water sources as well as in terms of average water consumption levels;
  - Relationship between animals and vegetation – in particular, the relative impact/ pressure of wildlife and domestic stock on grazing resources;
  - (the main finding being that there is no significant difference in grazing pressure between domestic stock and wildlife, for the grazing environments found in the eastern section of the Hoanib catchment – in other words, wildlife is not necessarily environmentally more 'benign' than domestic stock, as far as grazing pressure is concerned)[37]

As already noted earlier, much less attention has been given to interactions and relationships between people and the environment/natural resources, and on the social and economic factors influencing human resource use and management. Nevertheless, some contributions have been made on these issues as well, including:

[37] This conclusion is based on comparative seasonal rapid veld assessments of predominantly wildlife grazing areas, predominantly domestic stock grazing areas, and mixed wildlife and domestic stock grazing areas.

- People and water – The downstream effects on water availability and access of upstream water development: the case of Erwee – Palmfontein Borehole – Palmfontein Springs;
- People, tourism and conservancies-- perceptions of and benefits to local people (in comparison to crops and livestock): a survey among five of six target communities;
- Determination of average human water consumption levels in the target communities.

7.2 Beneficiaries

Whose understanding of the environment and of the interactions between human activities, fauna and flora has been contributed to? Who is the main beneficiary group?

The latter question does not have a straightforward answer. The project objectives imply a range of intended beneficiary groups, at different levels, including:

- macro-level planners and decision-makers;
- research scientists; and
- local-level management units, decision-makers and people.

Arguably, all of these groups stand to benefit, to the extent that project findings reach them. Perceptions about who is the main beneficiary group vary greatly among and/or across team members, DRFN staff and SC members. This variance appears to be related to the HRCS's broad and shifting focus and problem of identity – the lack of common understanding of what the project is all about, including which target group it is supposed to mainly address (see sub-section 4.4 above).

8 Contributions to Improved Scientific Knowledge of River Catchments in general

HRCS' activities and outputs arguably have added to the existing body of scientific knowledge of one specific river catchment – the Hoanib River Catchment. However, it is difficult to comment on whether and in what ways the project might have contributed to improved scientific knowledge of river catchments in general. For one, the project did not undertake a review of the existing body of generic knowledge of river catchments in general and ephemeral river catchments in particular. Without such a review, it is difficult to know where the knowledge gaps are and how HRCS might have contributed to filling these knowledge gaps.

For another, the HRCS may not be primarily a catchment-focused or catchment-based study but rather a study carried out in a catchment area (see also sub-section 4.4 on this point). After all, the geographical unit of analysis was not only the catchment but also the conservancies and perhaps the wider region, depending on the resources being investigated[38]. Also, catchment-wide hydrological modelling could not be accomplished due to the lack of river flow and groundwater gauges. Finally, any picture of the catchment that is emerging from the study is bound to be partial in that the human factor in the people–environment equation has been given relatively little attention.

[38] Two of the main recommendations of the SC meeting of August 1998, both carried over into the research plan attached to the final project document, were that (a) the catchment area should be used as a template and the resources that are fixed (i.e. water and vegetation) be studied on a catchment basis; and (b) wildlife, domestic stock and people movement should be looked at on a conservancy or regional basis as they all move in and out of catchments periodically.

9 How have Local Communities benefited from the Project Results?

Beyond reasonable doubt, the local target communities have benefited from the HRCS project, in several ways:

- They have more information -- through information dissemination meetings and discussions, information leaflets, brochures and resource maps distributed to them -- about, and greater awareness of, the spatial and temporal distribution, quantity, quality and other characteristics of their local natural resource base;

- They are likely to have a better sense and keener awareness of the broad nature and extent of some of the main natural resource problems and opportunities in their local area, including the following:
  - Given the number and distribution of permanent springs and boreholes in the catchment, access water, for direct consumption or to maintain domestic stock and irrigated agriculture, does not appear to be a limiting factor to human livelihoods, at least not for the time being.
  - Rather than water *per se*, it is access to grazing and (amount and variability) of rainfall, on which grazing availability critically depends, which have been the limiting factors.
  - Different domestic stock (cattle, goats, sheep, donkeys, horses) have different water use patterns (in terms of amounts and frequency of water intake, maximum distances that can be traversed without water, priority water points used, etc) and they should be understood and taken into account in managing domestic animal, grazing and water resources optimally.
  - There is a need for reviewing current rotational grazing schemes, with a view to identifying options for improving them further, in terms of optimum use of available grazing and water resources.
  - There is generally little point in sinking new water boreholes in new farther-away grazing areas, in an attempt to make these areas accessible to domestic stock; sinking a new borehole is an undertaking that is expensive and risky (there may not be any water bearing strata), normally leads to the denudation of the land around the borehole to the extent the domestic stock comes to reside in there, and may reduce water discharge pressures and volumes at other boreholes and natural springs further downstream.
  - In times of drought, most of the domestic stock and wildlife will die (to judge from the past); hence in order to reduce loss of assets, it is important to try and convert domestic stock into financial assets through timely sale of domestic stock.
  - Different species of wild animals exhibit different patterns of movement and residence (indicated on animal resource maps in terms of seasonal spatial probability distributions), as a function of how water and food sources and other animals (domestic and wild) are distributed; this knowledge is useful to have for purposes of organising consumptive and non-consumptive wildlife tourism.

- They possess greater research and monitoring capacity, in that at least one person per community has been trained in basic methods of measurement and monitoring, such as measurement of temperature and rainfall, using a GPS for precise locational determination, running vegetation and animal transects, etc.

Whether, or to what extent, these resources – information and awareness concerning resources and resource problems, as well as enhanced research and monitoring capacity – will actually be used by the local people and communities, and with what impact, is another question which can only be answered in the longer term. Sections 10 and 11 below comment further on this aspect.

10 Informational Materials Produced and Disseminated by the Project – Availability, Understanding and Use of Materials specifically at the Local Community Level

The HRCS project has resulted in the production – in part still ongoing – of a number of reports and information materials:

- 10 (biophysical) research reports[39], to be published as DRFN Occasional Papers;
- 5 socio-economic reports – of which the two done written by Dr Fuller are also to be published as DRFN Occasional Papers;
- a variety of resource maps;
- 4 A5-size brochures – in the range of 8–30 pages long – destined for locally active service organisations and practitioners as well as the local communities;
- 8 double-page leaflets for the communities;
- a book targeted at local NGOs, CBOs and local/regional government (in preparation);

10.1 National-level dissemination and use

Some of the biophysical research reports, socio-economic reports, and brochures are finding their way to relevant institutions and projects in Windhoek and some of the research findings and outputs are starting to be used by these national-level institutions. For instance, the WILD project based at DEA/MET were, at the time of the interview (see section 3), in possession of at least one resource map and one socio-economic report and willing to explore opportunities to build upon these materials in advancing their own participatory community/conservancy research agenda. Similarly, the LIFE/WWF project was aware of the veld assessment developed under HRCS and said they were using the method, as an integral part of a comprehensive local conservancy-level monitoring & evaluation system which has been under development for at least a year and is now being implemented.

On balance, however, the impression is that so far few of the research findings and outputs have been properly disseminated to, taken note of and understood by other Windhoek-based organisations, in spite of the broad-based SC committee. By implication, much more can still be done to 'get the word' out. As well, the HRCS has gone on in parallel to some other ongoing closely related research and development efforts – like the development of the conservancy R&D system by LIFE – without the necessary linkages and cross-fertilisation. This has resulted in some duplication of effort and waste of resources. Section 11 below comments on the need for and opportunity of HRCS to feed into other related efforts, for greater dividends on sunk investment and enhanced ultimate impact.

[39] One of these 10 reports is on the role of community researchers and hence not strictly biophysical in nature.

10.2 Community level dissemination and use

At the community level, all of the 4 brochures (in English and Afrikaans), all of the 8 leaflets (in English, Afrikaans, Damara and Herero), as well as a complete set of the resource maps, have been distributed, except for those communities – Omuramba and Khowarib – which were inaccessible during the final round of dissemination meetings February–March 2001 due to heavy local rains and resulting floods. Here, the more recently completed materials will be distributed on the next possible occasion (IRDNC-convened conservancy meeting) within the next few months.

Attendance of the final information dissemination meetings at Otjokaware, Warmquelle and Sesfontein allowed the author of this project evaluation to try and take a first-hand look at the availability and use of the materials destined for the communities. As indicated in section 3, a number of key local individuals were briefly interviewed, before or after the community meetings.

The impression is that all brochures, leaflets and maps are available locally. A complete set of materials has been deposited in a agreed designated location in each community, such as the conservancy office in Otjokaware or the local Agricultural Extension Office (MAWRD) in Sesfontein, for common access by anybody interested. Moreover, a number of copies of the leaflets, in the 4 different languages, have been left at the designated central locations, for distribution to interested community members. Further, a copy of the pictorial map produced by the project was given to every participant of the latest information dissemination meeting.

These materials generated visible interest among the participants during the respective community meetings. The general discussion that followed the presentations by the HRCP team (Dr Leggett, Mr Fennessy, and Ms Schneider) was reasonably lively (more so in Sesfontein than in Otjokaware, with Warmquelle perhaps in between). Interventions were reasonably focused, with some exceptions.

It was bound to be rather difficult to assess the level of understanding and use of the information materials, given the relative brevity of both the community meetings (about 3 hours) and discussions (perhaps 1 hour out of the total of 3 hours) and individual interviews (typically 5–15 minutes). Most but not all interventions from local people during the community meetings were reasonably focused. Attempts were made during the brief individual interviews to use the response to particular questions, about issues discussed in previous community meetings, as an indicator for level of understanding.

For example, responses to the question: "Do you think the community needs more boreholes?" provided an indication of whether or not the respondent had understood arguments about the mixed blessing of additional boreholes discussed at the March 2000 community meetings and repeated during the February–March 2001 community meetings. Answers to this particular question, as well as to other questions about resource issues, varied considerably, indicating mixed success in sensitising the local people.

But these are not much more than consolidated first impressions. The question of 'understanding', and even more so 'use', of the materials and related knowledge is quite a complex one. Settling this question would require in-depth interactions with and observations of the local people over a longer time horizon. Perhaps a impact evaluation study could be conducted some time down the road.

11 Can the Project be Expected to Contribute to Sustainable Development and Livelihoods for People in the Hoanib Catchment Area?

On this question, a variety of different opinions were expressed by SC members and DRFN staff. Differences in opinion were due, in part, to a lack of common understanding of 'sustainability' and 'sustainable development'.

One view focused on the catchment as a unit of analysis, linking 'sustainability' to catchment-wide processes and resources balances (water, soil, grass, wildlife etc). Since the project has not examined overall resource balances and developed a catchment-wide 'nutshell' picture, it is difficult to tell according to this view, whether it has contributed to sustainable development.

Another view of sustainability focused on the local people and their livelihoods and argues that since the project provided new information, raised awareness, and enhance research capacity, it made contributions to sustainable development and livelihoods. But the research results and methods must be integrated into the community development processes on the ground – a process which transcends the relatively short three-year time horizon of the HRCS.

This raises yet another perspective on sustainability, namely the longer-term returns from the substantial project investments. Since the project will not go into another phase, as has been indicated by Sida, it is important to identify mechanisms to build on it in other ways, such as through other related project initiatives. To ensure greater sustainability of dividends from the project investments and results, it is necessary to see to it that:

- baseline information generated and awareness created is actually used to improve practices/decisions;
- research results and local research capacity created are actually used and integrated in community-level development processes;
- some of the research and monitoring activities and methods are taken over and continued by appropriate local or regional management units –
  - at the local level:
    - conservancy committees
    - water point committees
    - grazing committees
    - garden committees
    - Sesfontein Village Council (once Sesfontein is proclaimed – likely soon to happen)
    - other;
  - at the more aggregate (sub-regional) level:
    - Kunene conservancy association (already operating and meeting)
    - Hoanib Basin Committee (once established according to new Water Law – still some time off?)
    - other

- project findings and results feed into relevant ongoing initiatives, such as:
  - IRDNC work with conservancies;
  - WILD participatory action research at conservancy level;
  - LIFE/WWF/NNF conservancy-level M&E system.

Existing and potential linkages, now or in future, to relevant management units and other projects highlight the importance of continued systematic information dissemination, at local and national levels.

12 Lessons Learned

A variety of general lessons can be learned from the HRCS project. Some of the lessons have already been stated in the body of the text and are repeated here.

a) Project objectives must be stated clearly and as a whole reflect the true nature and thrust of the project.
When the HRCS initiative was re-shaped and re-focused under Dr Leggett's leadership, the project objectives should have been revised more substantively, in tandem with the rest of the project, to reflect the new perspectives and changed nature of the project.

b) The aims and objectives of HRCS should have been focused more tightly.

c) Clearer and more consistent choices should have been made about the approach to be used.

d) The workplan should be consistent with the project objectives; it should lay out the proposed set of activities in an integrated fashion, at both conceptual and operational levels; and it should have been developed and presented using a logical framework format in terms of linked objectives, activities and indicators.

e) The choice of project co-ordinator and team should be consistent, in terms of background, professional experiences and interests, with the agreed aims, objectives and approach, in terms of individual and collective backgrounds, experiences and interests.

f) It is difficult to facilitate an integrated research approach at the steering committee level. This should better be done on the ground.

g) Project steering committees should be kept as small as possible, while retaining a minimum critical mass. If a larger-size committee is unavoidable, then specific functions like supervision and guidance of research studies should be delegated to a suitable smaller sub-committees.

h) For the integration of scientific research, local knowledge and rural awareness raising to be feasible, at least the following elements need to be in place:
   - A clear recognition among all involved that combining and integrating scientific research, local knowledge and rural awareness raising is an essential and integral part of the project;
   - A two-way communication and participatory learning process – involving close and continuous interactions between the outside researchers and the local community – throughout the research cycle, starting from problem definition;
   - The necessary skills, experience and interest on the part of the project team; and
   - The necessary continuous local presence within the communities.

i) For truly integrated socio-economic and biophysical research to take place, the following conditions apply:
   - Approximately equal weight, in budgetary and human resources terms, must be given to socio-economic and bio-physical studies;
   - Conceptual and operational integration of socio-economic and biophysical research aspects must be ensured; and

- Project co-ordination must be able to bring the two dimensions – socio-economic and biophysical – together. This can be done:
  - through a single project leader with a multi-disciplinary background (both socio-economic and biophysical sciences) and is experienced in socio-economic and biophysical research issues and approaches; or
  - through two project leaders of about equal status and influence, one social scientist (or economist) and the other a biophysical scientist, who are open to each other's perspectives and are able to closely work together.

j) Whenever possible, projects should not create new parallel institutional structures or processes on the ground, but build on existing ones.

References

(**Fuller, 1993**) Bennet Bristol Fuller, Jr., "Institutional Appropriation and Social Change among Agropastoralists in Central Namibia, 1916–1988", Dissertation, Boston University Graduate School, 206pp, 1993.

(**Jacobsen, 1995**) Jacobsen, P.J., K.M.Jaconbsen and M.K.Seely (1995), "Ephemeral Rivers and Their Catchments: Sustaining People and Development in Western Namibia", Desert Research Foundation of Namibia (DRFN),160pp, 1995.

(**MAWRD, 1997**) Ministry of Agriculture Water and Rural Development (MAWRD), "Detailed Land Use Plan for the Sesfontein Constituency", Consultation Draft, prepared by TRP Associates, 172pp, July 1997– with attached Environmental Impact Assessment prepared by Environmental Evaluation Associates of Namibia, 17pp, 30 June 1997.

(**Sullivan, 1998**) Sian Sullivan, "People, Plants and Practice in Drylands: Socio-political and ecological dimensions of resource-use by Damara farmers in north-west Namibia", PhD Thesis, University College London, 448pp, 1998.

Annex A

Project-Related Documentation

a) Proposal and Mid-Term (Internal) Review Documents

- The initial proposal – "Environmental Issues Investigation Project: Hoanib River Catchment Profile, *revised draft proposal* submitted to Sida by DRFN, February 1996.
- The final proposal – "Environmental Issues Investigation Project: Hoanib River Catchment Study – Project Document, by Directorate of Planning, MWARD, implemented by DRFN, January 1999; including a 'Research Plan' as Appendix A.
- Report on the Hoanib River Study Internal Support Mission carried out 17–23 January 2000,
- by S.K.Ndegwa (RIBA), B.Kruger and A.Hussey (DRFN), 21 February 2000.
- Report on Hoanib River Catchment Study: Future Direction Meeting, 16 February 2000

b) Minutes of Steering Committee Meetings

- 24 April 1998 Boardroom, Dept. of Planning, MAWRD
- 24 August 1998 Palmwag Lodge
- 03 November 1998 Fort Sesfontein
- 02 March 1999 Hobatere Lodge
- 02 June 1999 SRT Base Camp, Palmwag
- 06 October 1999 Fort Sesfontein
- 02 February 2000 Hobatere Lodge
- 17 May 2000 SRT Base Camp, Palmwag
- 06 October 2000 Head Office, DRFN
- 29 November 2000 Head Office, DRFN

c) Progress Reports

- Annual report 1998
- Six-monthly report March – August 1999
- Six-monthly report September 1999 – February 2000
- Six-monthly report March – September 2000
- Three-monthly reports March – May 1999; March – May 2000.

d) Minutes of Community Meetings

- Community consultation field trip (all six communities) 7–12 August 1998
- Community consultation field trip (including selected steering committee members) (Khowarib, Warmquelle, and Omuramba) 25–26 August 1998
- Khowarib community consultation concerning field base 08 February 1999

• Community consultation field trip (all six communities)	28 April–01 May 1999
• Community consultation field trip (Sesfontein, Khowarib, Otjokoware, Erwee)	24–29 May 1999
• Community meetings on grazing and water (all six communities)	01–08 March 2000
• Community meetings on wildlife, domestic stock and tourism (Sesfontein, Warmquelle, Khowarib, Omuramba and Otjokoware)	26–30 June 2000

Annex B

Project Outputs

a) Research reports produced by members of the project team[40] -- summarising the findings of the bio-physical research carried out under the HRCP[41]

- "Erosion studies and sediment analysis in the Hoanib River catchment, Northwestern Namibia", draft report, December 2000.
- "Rapid veld assessment – development and implementation of a rapid veld assessment method for local resource users", draft report, December 2000.
- "Water chemistry of selected wetlands and springs of the Hoanib catchment, Northwestern Namibia", draft report, January 2001.
- "A preliminary study of the elephants of the Hoanib River catchment, Northwestern Namibia", draft report, January 2001.
- "Seasonal domestic stock and wildlife distribution in the Hoanib River catchment, Northwestern Namibia", draft report, February 2001.
- "Seasonal vegetation analysis across the Hoanib River catchment, Northwestern Namibia", to be completed.
- "Faidherbia albida – density, distribution, and wildlife influences in the Hoanib River catchment, Northwestern Namibia", to be completed.
- "A preliminary study of the Giraffe (Girafa camelopardalis) of the Hoanib River catchment, Northwestern Namibia", to be completed.
- "Rainfall, water sources and water use in the Hoanib River catchment, Northwestern Namibia", to be completed.
- "Perspective on the role of community researchers in the Hoanib River catchment, Northwestern Namibia", to be completed.

b) Reports on socio-economic research studies carried out under the HRCP

- Petrus Shuuya, DEA, "Socio-economics of vegetable gardens in Khowarib, Warmquelle and Sesfontein", prepared for DRFN, 16 July 1999.[42]

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[40] Dr Keith Leggett, Mr Julian Fennessy and Ms Stephanie Schneider.

[41] These reports are to be published as DRFN Occasional Papers. The authors expect perhaps 2-3 of these papers – those judged to be scientifically more innovative and original – to be turned into articles for publication in suitable peer-reviewed scientific journals.

[42] Mr Petrus Shuuya of DEA was contracted in April 1999 to undertake preliminary desk studies on the socio-economics of: a) the vegetable gardens in Khowarib, Warmquelle and Sesfontein; b) the cattle industry in the Otjokaware, Omuramba, Khowarib, Warmquelle and Sesfontein area; c) the current wildlife/tourism industry in the existing and emerging conservancies; and d) an overall assessment of the Hoanib catchment. Only a) appears to have been produced.

- Alfons Wabahe Mosimane, MRCC/UNAM, "Hoanib River catchment: background paper for socio-economic research and identification of information needs", January 2000 (?).[43] (reporting on field research carried out in the period of 06-20 September 1999 focusing on the three target communities in the eastern section of the catchment – Otjokaware, Omuramba and Erwee)

- Martin Kasanga Shapi, MRCC/UNAM, "Hoanib River catchment: preliminary socio-economic research and identification of information needs", January 2000 (?).[44] (reporting on field research carried out in the period of 06-20 September 1999 focusing on the three target communities in the western section of the catchment – Khowarib, Warmquelle and Sesfontein)

- Ben Fuller and Fred Koujo, SSD/MRCC, UNAM, "United by water, divided by history: impacts of water development in the Upper Hoanib catchment", April 2000. (case study of water supply/use in/around Erwee – field work carried out from 31 March to 03 April 2000)

- Ben Fuller, SSD/MRCC, UNAM, "Crops, livestock and tourists: choices and options in the Hoanib River catchment", September 2000. (case study and socio-economic survey in Otjokaware, Omuramba, Khowarib, Warmquelle and Sesfontein)

c) Natural resource maps produced by the project

A variety of different natural resource maps covering the catchment area have been produced:

- A spatial rainfall distribution map for the catchment area, also showing graphs for temporal rainfall distribution for particular sites in the catchment.

- Ten (10) different animal distribution maps showing the respective distributions (in terms of the probability of finding particular kinds of animal in any given sub-area) of the five (5) major domestic animals – cattle, goat, sheep, donkey and horse – and the five (5) major wild animals – elephant, rhino, giraffe, springbok and gemsbok – within the Hoanib catchment area.

- Three (3) maps showing spatial distributions of springs, wetlands and boreholes for different sub-areas of the catchment – specifically the Omatendeka Conservancy area (Omuramba), the Ehirovipuka Conservancy area (Otjokaware) and the Sesfontein/Warmquelle/Khowarib area.[45]

- A pictorial resource map of the catchment area, highlighting and describing six (6) major environmental challenges – overgrazing, soil erosion, water point management, waste management, wildlife, and tourism impact.

With the exception of the pictorial resource map, all maps were produced using data from the computerised GIS data base.

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[43] This report is undated – it is likely to have been completed some time in early 2000.

[44] This report is also undated – it also seems to have been completed some time in early 2000.

[45] These maps reflect a synthesis of local and scientific knowledge; they were generated by the project team on the basis of interactive model building exercises carried out with each of the six target communities during a series of six community meetings held in March 2000.

d) Brochures produced by the project for service organisations and local communities

- "Ana Trees (Faidherbia albida): Source of life in the Hoanib River catchment", 12 pp.
- "Rapid Veld Assessment (RVA)", 8pp.
- "Water is Life in the Hoanib Catchment", 19 pp.
- "Seasonal Movements of Domestic Stock and Wildlife in the Hoanib River Catchment", 31 pp.

All brochures are available – and have been distributed to local service organisations and the local communities -- in English and Afrikaans.

e) Leaflets produced by the project for the local communities

- "Grazing" (Community Information Pamphlet No.1)
- "Water" (Community Information Pamphlet No.2)
- "Tourism" (Community Information Pamphlet No.3)
- "Wildlife & Domestic Stock" (Community Information Pamphlet No.4)
- "Soil Erosion" (Community Information Pamphlet No.5)
- "People Living in the Catchment" (Community Information Pamphlet No.6)
- "Desert-dwelling Elephants of the Northwest"
- "Namibia's Black Rhino: A rare species to be proud of"

All leaflets/pamphlets are available – and have been distributed to the local communities – in English, Afrikaans, Damara and Herero.

f) Book (in preparation)

This book (up to 150 pp in length) is to include brief submissions from a variety of resource persons familiar with particular natural resource sectors or issues relating to the HRCP, in addition to the results of the HRCP. The target audience is supposed to be field-level service organisations (NGOs, CBOs, regional and local government).

g) GIS Databases developed

Two (2) inter-linked computerised GIS databases containing scientific data generated by the project have been built:

a) a Microsoft Access database consisting of three (3) inter-linked modules holding animal data[46], wetland data, and river floods/ rainfall data collected, respectively; and

b) a separate but linked Microsoft Excell database accommodating vegetation data collected.

The project team has also made an effort to integrate relevant historical raw data from the Ministry of Environment and Tourism into these project databases.

h) Community-level research capacity building – six (6) community researchers trained

One local researcher per community has been trained under the project. Lack of motivation, poor performance and other reasons caused some initial turnover among the community researchers. Nevertheless, a cadre of six (6) community researcher trained in basic bio-physical

[46]This database module does not include the rhino data which were collected and analysed under the project by the two Save-the Rhino Trust (SRT) staff – J.O.Reuter and Mike Hearns – who were hired on a part-time or shared-time basis through the project. All rhino data collected under the project have been added to SRT's own (separate) rhino database.

monitoring methods – monitoring of rainfall, temperature, wetlands, springs, boreholes, vegetation distribution, animal movements, etc – now exists and can be built upon in future.

i) Capacity building of national and foreign students through facilitation of thesis research

Two Namibian students and five foreign students[47], all at M.Sc. level, were accommodated by the project to carry out their thesis research.

[47] More specifically, two Swedish, one Norwegian, one British, and one Canadian students.

Annex C

HRCP Research Plan – Summary

The final project document includes a *Research Plan* which was developed after consultations with the Hoanib catchment target communities (in August 1998) and with the input of the project's Steering Committee (later in August 1998). The research plan is divided into two parts: (A) socio-economic studies; and (B) bio-physical studies.

A) Socio-economic research

The socio-economic research was proposed to be carried out three phases:

1) Review of existing literature and consultancy reports to generate a synopsis of relevant data and information, and pinpoint gaps in existing knowledge, for synthesis into materials that are to facilitate discussions with the communities and community researchers. Close collaboration with IRDNC. (3 months).
2) Development of research plans by community researchers working with (the socio-economic researchers of) the project, for discussions with the target communities. Close collaboration with IRDNC. (3 months)
3) Implementation of the community-level research plans, after discussion and approval by the target communities. A core research plan for the catchment as a whole was envisaged, with modifications and variations across individuals communities. (18 months)

The following three working assumptions were to guide the socio-economic research studies:

A) *The communities must gain a better understanding of their environment and natural resource base* – requiring more information about natural resources, their limitations, seasonality, resource use practices (including gender aspects) and their impact on resources.

b) *The communities must gain more knowledge about resources they are not using to their full potential* – requiring more information about the range of available natural resources and their spatial distribution, ways and means to use resources more sustainably (in the context of prevailing customs and practices), and an understanding of what practices need to be changed how and why.

c) *The communities must have (informed) ideas about changing certain basic practices* – including a better sense of long-term (environmental) costs of current use practices and of alternatives to current uses and use practices.

Area a) was broadly conceptualised to comprise (inquiry into) all possible resources and resource use options. Area b) was considered to require close collaborative work between the researchers and the community and hence to entail participatory rural appraisals (PRAs), regular two-way feedback discussions between communities and researchers using various mechanisms and fora, dissemination of research information, and identification of critical problem areas (of overused and/or underused resources). Area c) was envisaged to entail *awareness building* among the community of what *sustainability* of resource use means and of what *alternative resource uses and resource use practices* might be available.

An attached *workplan for socio-economic studies* anticipated the following specific focal areas:

i) socio-economics (tourism, lifestyles)
ii) movement of people and wildlife
iii) landrights
iv) problem animals
v) importance and potential of wildlife
vi) gender use of natural resources
vii) attitudes towards tourism and tourists towards locals
viii) movements of tourists.

It is not clear from the research plan how the 'working assumptions' a) through c) were to relate to the 'focal areas' i) through viii).

B) Bio-physical research

This was to encompass the following studies:

a) physical and biological studies of wetlands, groundwater, springs and boreholes;
b) water use by communities, domestic stock, wildlife, agriculture and tourism;
c) movement of wildlife and domestic stock in response to water and grazing availability;
d) preferential watering and grazing areas of domestic stock and wildlife;
e) disturbance effect of tourism on wildlife, in particular elephants;
f) aeolian sediment movement;
g) vegetation studies:
    - effects of different landuses and impact of stock and wildlife around water points
    - development of a veld assessment method to be used by the local communities
    - satellite imagery
    - *Faidherbia albida* studies
    - other vegetation studies;

h) animal studies:
    - aerial surveys
    - observational studies
    - transect surveys
    - additional wildlife studies.

Most of these studies were expected to be conducted by the community appointed researchers under supervision from the Project Co-ordinator and the Field Co-ordinator. In particular, each community researcher was to be given a GPS trained in using this instrument in gathering the data under the different studies. Likewise, each community researcher was to be given a thermometer and rainfall gauge to monitor daily temperature and rainfall.

Annex D

Re-orientation of Research (February 2000) – Objectives and Activities of Adjusted Research Priorities[48]

Objective 1: Biophysical research, concentrating on limiting environmental parameters, re-prioritised and addressed

Activities

1.1	Monitor wetlands, springs and boreholes
1.2	Monitor and record movement of domestic stock and wildlife in the catchment area
1.3	Investigate the effects of tourism
1.4	Investigate erosion effects within the catchment
1.5	Investigate the effects of rainfall on vegetation
1.6	Gather more data on the mega-fauna in the catchment

Objective 2: Socio-economic research re-focused on selected case studies

Activities

2.1	Conduct a case study on Erwee to look into the effects of water extraction
2.2	Conduct a case study on Sesfontein/Khowarib to look at cost-benefit of agriculture and tourism industry
2.3	Conduct a case study on the potential of consumptive and non-consumptive wildlife tourism between Sesfontein and Otjokaware/Omuramba.

Objective 3: Information from project interactively shared with the focus communities

Activities

3.1 Conduct community meetings to interactively discuss the results of the project. The themes of the proposed meetings are:

(a) grazing and water
(b) wildlife, domestic stock and tourism
(c) project summary

[48] As presented in the six-monthly report September 1999 – February 2000.

Objective 4: Identify and instigate focused follow-up studies

Activities

4.1	Collate available data and produce a preliminary final report
4.2	Identify gaps in collected data
4.3	Identify and instigate focused studies

Objective 5: Other stakeholders informed about the project and its future

Activities

5.1	Provide training for service organisations
5.2	Disseminate project results to all interested parties – NGOs; CBOs; government institutions; local-, regional- and national-level decision-makers
5.3	Publish results in scientific journals

Recent Sida Evaluations

01/23 **Sida Support County Twinning Programme in the Baltic Countries 1996–2001.** Gunnar Olesen, Peter Rekve, Henrik Permin
Department for Central and Eastern Europe

01/24 **Formative Evaluation of Uganda Land Management Project.** Jan Erikson, James Reinier Scheele, Sebina Nalwanda
Department for Natural Resources and the Environment

01/25 **Sida Support to the Social Rehabilitation Project in Bosnia and Herzegovina (SweBiH).** Nils Öström
Department for Central and Eastern Europe

01/26 **Swedish Support to the Agriculture Sector in Zambia.** A.R. James, M. Davelid, T. Breinholt, D. Chitundu, T. Lundström
Department for Natural Resources and the Environment

01/27 **Sida's Support to NUSESA – Network of Users of Scientific Equipemnt in Eastern and Southern Africa.** Eva Selin Lindgren
Department for Research Cooperation

01/28 **Cambodian Human Rights and Democracy Organisations: Towards the Future.** John L. Vijghen
Department for Democracy and Social Development

01/29 **Sida's Support to the land Reform Related Activities in Poland.** Mark Doucette, Sue Nichols, Peter Bloch
Department for Central and Eastern Europe

01/30 **Sida's Support to the land Reform Related Activities in Lithuania.** Mark Doucette, Sue Nichols, Peter Bloch
Department for Central and Eastern Europe

01/31 **Sida's Support to the Land Reform Related Activities in Latvia.** Mark Doucette, Sue Nichols, Peter Bloch
Department for Central and Eastern Europe

01/32 **Review of PAHO's project. Towards an Integrated Model of Care for Family Violence in Central America. Final Report.** Mary Ellsberg, Carme Clavel.
Department for Democracy and Social Development

01/33 **Sistematización del Proyecto de OPS. Hacia un modelo integral de atención para la violencia intrafamiliar en Centroamérica.** Mary Ellsberg, carme Clavel Arcas.
Departamento de Democracia y Condiciones Sociales.

01/34 **Of Trees and People ...: An Evaluation of the Vietnam-Sweden Forestry Cooperation Programme and the Mountain Rural Development Programme in the Northern Uplands 1991–2000.** Claes Lindahl, Kirsten Andersen, Kjell Öström, Adam Fforde, Eivind Kofod, Steffen Johnsen.
Department for Natural Resources and the Environment

01/35 **Acting in Partnership. Evaluation of FRAMA (Fund for Agricultural Rehabilitation after MITCH) Ministry of agriculrure and Forestry (MAGFOR) – Sida project NIcaragua.** Bengt Kjeller, Raquel López.
Department for Natural Resources and the Environment

01/36 **Sociedad de Cooperación. Evaluación de FRAMA (Fondo de Rehabilitación para la Agricultura despues del huracán MITCH) Ministerio de Agricultura y Forestal (MAGFOR) – Asdi en Nicaragua.** Bengt Kjeller, Raquel López.
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