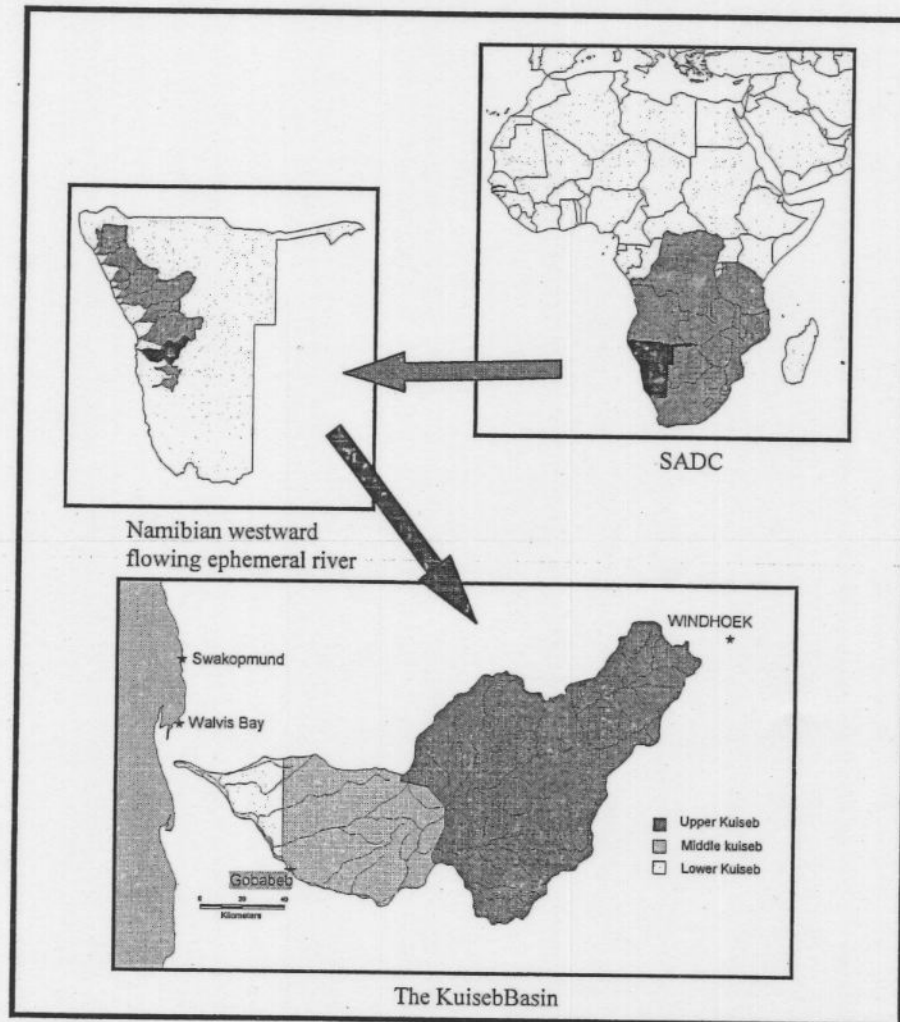


*Proceedings of*  
**Kuiseb Basin Management  
Workshop**



*Held at: Gobabeb Centre*

*Held on: February 20<sup>th</sup> – 22<sup>nd</sup> 2003*

*Held and facilitated by:*

**Integrated Environmental Learning  
and Action in the Kuiseb (ELAK)**



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## List of Abbreviations

BMC	Basin Management Committee
CBNRM	Community Based Natural Resource Management
CETN	Coastal Environment Trust of Namibia
DEES	Directorate of Extension and Engineering Services
DRFN	Desert Research Foundation of Namibia
DWA	Department of Water Affairs
DRWS	Directorate of Rural Water Supply
ELAK	Interactive Environmental Learning and Action in the Kuiseb
EON(N)	Environmental Observatories Network (of Namibia)
ERC	Erongo regional Council
FIRM	Forum for Integrated Resource Management
GRN	Government
GTRC	Gobabeb Training and Research Centre
KBMC	Kuiseb Basin Management Committee
KB	Kuiseb Basin
MAWRD	Ministry of Agriculture, Water and Rural Development
MET	Ministry of Environment and Tourism
MoU	memorandum of Understanding
NC	Nature Conservation
NCCI	Nambia Chamber of Commerce and Industry
NWRMR	Namibia Water Resources Management Review
SHs	Stakeholders
TCF	Topnaar Community Foundation
ToR	Terms of Reference
WPC	Water Point Committee

ELAK  
**Kuiseb Basin Management Workshop**  
Workshop Programme

**Wednesday 19<sup>th</sup> February 2003**

Welcome and registration of early arrival guests.

20:00H *Dinner* (for early arrival guests)

**Thursday 20<sup>th</sup> February 2003**

10:00 Welcoming remarks – Andre Botes

10:30H ELAK activities

11:00H Water Balance in an Ephemeral River system: The Kuiseb

11:30H *Tea break*

12:00H *Presentations continued*

- Summary of hydrological information on Kuiseb
- Monitoring of hydrological data

13:00H *Lunch*

14:30H Group Discussion

*Theme: Is this enough information to determine indicators*

15:30H *Tea break*

16:00H Presentation on Socio-economic study in the middle and lower Kuiseb

16:30H Group Discussion

19:00H *Sundowner*

20:30H *Dinner*

**Friday 21<sup>st</sup> February 2003**

7:00- 8:30H *Breakfast*

9:00 Draft Kuiseb Profile presentation

9:30H Feedback from Topnaar Community and discussion of how other stakeholders can help

10:30H *Tea break*

11:00H Groupwork and discussion

*Theme: Monitoring of the Basin: Needs assessment and develop indicators*

13:00H *Lunch*

15:00H Excursion: Visit to a Topnaar settlement and !Nara field

20:00H *Dinner*

**Saturday 22<sup>nd</sup> February 2003**

7:00-8:30H *Breakfast*

9:00H Kuiseb Basin Management Issues Review

-a look at the issues determined at the last workshop

10:00H Kuiseb Basin Management Committee session:

ToR, MoU, Structure

12:00H The Way Forward

13:00H LUNCH

All meals are catered for by ELAK and will be served in the Amabilis Hall.

## List of participants

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## Day 1- Thursday 20<sup>th</sup> February 2003

### Introduction

Mr. Andre Botes, project manager of the Integrated Environmental Learning and Action in the Kuiseb project (ELAK) opened the meeting by welcoming all of the participants of the workshop. He welcomed all visitors to Gobabeb and informed them of the 'Gobabeb household' rules. Since Gobabeb is situated within a national park off road driving is not allowed and he also emphasized the need for using water wisely in this very dry area of the Namib Desert. He also informed them about the possibility of nature walks and requested that if anyone was interested in these or station tours they should ask himself or one of the Gobabeb staff members to arrange these.

Mr. Botes went on to give an overview of the program. He highlighted the need for all stakeholders to actively participate in all the activities of the workshop. He introduced the Kuiseb Basin profile, the brochures, memorandum of understanding that had been included in the packet that everyone was presented with for the workshop and asked the stakeholders to give their input in all of the above in the course of the workshop.

### Presentations

Summaries of the presentations are provided in this section while copies of the original presentations are available in the appendices.

#### The objectives of the ELAK project - Andre Botes

Andre Botes presented on the ELAK project, giving the project goal, results and the mission statement that was developed in the previous workshop held in Swakopmund November 2002. The mission statement is a draft and he called for the stakeholders to contribute towards its finalisation. The main theme of his presentation was the objectives that had been developed for the project and how ELAK has been working towards and achieving these objectives.

He posed two questions to the house which could be discussed at a later stage which were:

1. How integrated is management of natural resources in the Kuiseb Basin?
2. What do we as stakeholders do regarding water demand measures in the Kuiseb Basin?  
Examples of such being with respect to pressure management, user decision, elimination of automatic flushing urinals, dual flushing toilets .

#### **Issues arising from this presentation**

The Kuiseb and Cuvelai Basin will be used as pilot sites to test the implementation of Basin Management Committees. Lessons learned from these two will be implemented to the other identified basins in Namibia. Though the Okavango Basin is perennial, it is hoped that lessons will be shared between all types of basins in the country.

### Hydrological data collection for the Kuseb - Imogen Van Rooi

Ms Van Rooi presented what the Hydrology division with the Department of Water Affairs does and the type of data they have for the Kuseb Basin. The aim of the Hydrology division is to study and measure hydrological parameters in river systems for construction of reservoirs.

In the Kuseb basin they have 5 hydrological stations where they measure river flow rates and capacity. They have a few rain gauges but mainly coordinate with people (farmers) in the basin for rainfall data. Lost and inaccurate data have been noted to be a concern for the division.

### The Hydrology of the Kuseb: characteristics - Titus Endjala

#### **Issues arising from the presentation**

There was a concern on the effects of reduced runoff and siltation especially in the lower Kuseb. The need to measure the effects of siltation is seen to be necessary.

The diversion wall at Walvis Bay is believed to reduce the flow that recharges Dorop North, B area and Dorop South aquifers. The reduction in recharge has a negative effect on the growth of nara plants which are essential to the Topnaar community. The Walvis Bay municipality is involved in a discussion forum where they would want to allow little water to flow through if needed.

### The Hydrology of the Kuseb: the water balance model of the Kuseb Basin- Andreas Shilomboleni

#### **Issues arising from presentation**

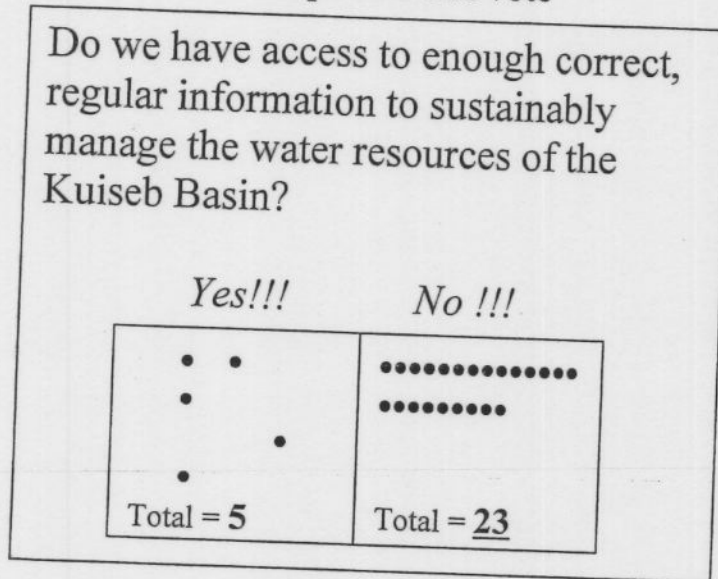
The actual effects of dams in low and high rainfall years have not been determined. There is a need for further research through an expansion of the SDP 9 study that looked at the effects of farm dams in the Kuseb. There is a feeling that dams are no longer constructed due to the removal of subsidies but this needs to be confirmed.



### Group work

Before the participants were divided into groups, each participant was asked to indicate if enough information was available for sustainable management of water resources in the Kuseb River Basin.

#### **One person-one vote**



The majority of the participants indicated that not enough information is available to sustainably manage the water resources in the Kuseb. However, some people felt that the information is available but the sharing of information is poor (the various stakeholders hold to their information).

The participants were then divided into groups; each group was inquired to identify information needs for effective management of water in the Kuseb.

### **What are the water related information needs in the Kuseb River Basin?**

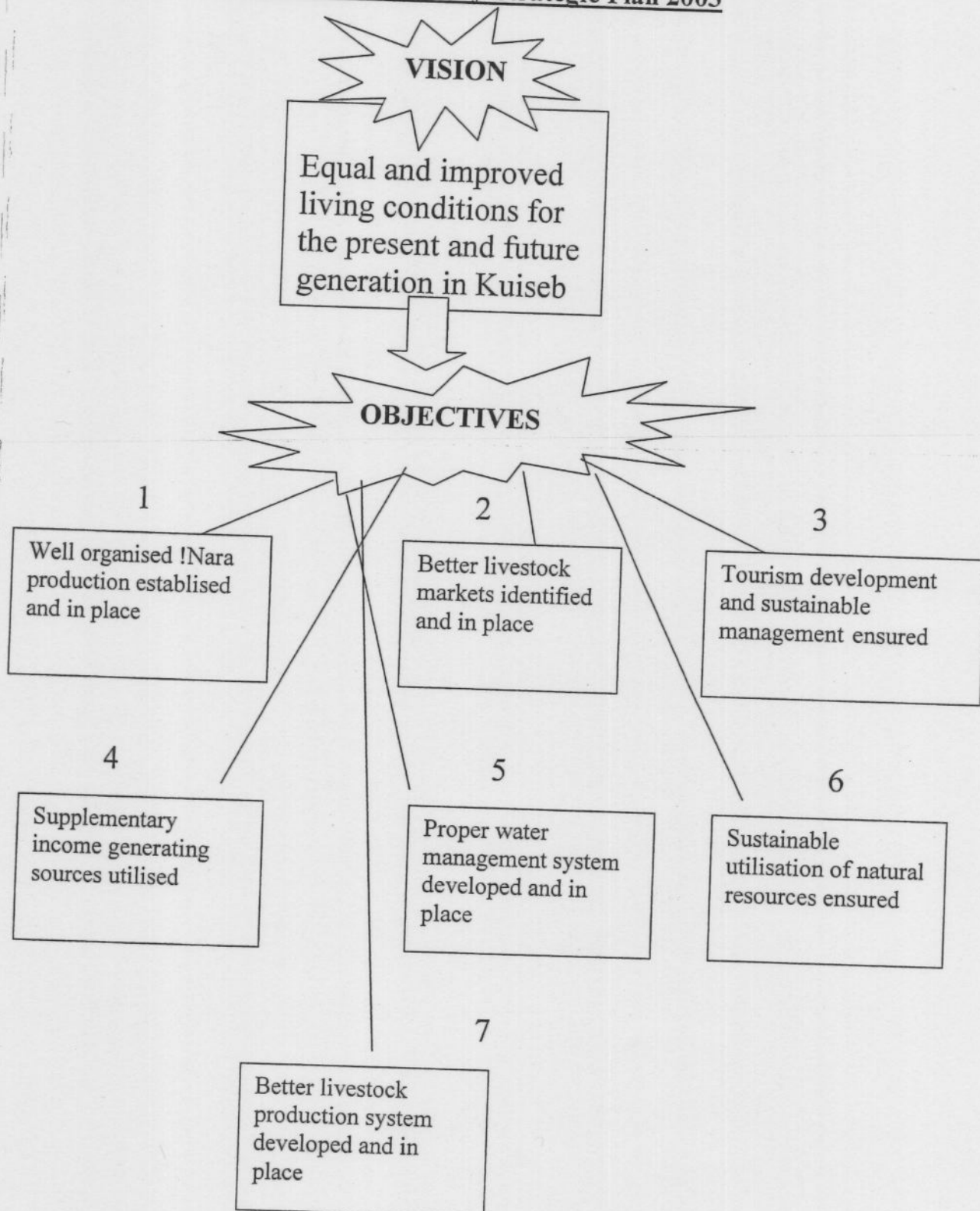
On what do we need to have regular information?

The outcome from the group discussions is presented in the table 1 below:

<u>Information Needs</u>	<u>By Whom?</u>	<u>How often?</u>	<u>Additional Resources needed</u>	<u>Current knowledge levels?</u>
Water Resources (Current and Future)	-Resource management, DWA -NamWater	-Quarterly  -Monthly		Upstream aquifer information is low
Human Impact	-MET -TCF -Gobabeb -Local regional gov't -Municipality -MAWRD	3- 4 yearly	Staff	Not enough
Water Demand (Human and Ecological)	-Namwater -Municipality -Commercial farmers -Resource management, DWA Reg Council	-Annually -Weekly -Monthly	-Staff DWA (?) -Research	-Human demand good -Ecosystem demand- ??
Inflow Outflow Hydrology	-Topnaar -MET services -DWA: Hydrology and Resource management -Namwater -Commercial Farmers	Ongoing	-Training -Info integration	-Information through communication between areas is low -Info from DWA enough
Water Quality	-Namwater (lower Kuibeb) -MET -Municipality -DWA-Water-enviro. -MHSS	-Monthly -DWA not known	Capacity (?)	-Not enough -Fairly enough
Alternative Sources	-Namwater -Gobabeb -Municipality -DWA resource management	Ongoing	Fog research	
System dynamics	-DWA -Namwater -Surveyor General -Gobabeb -Educational institutions: Unam and Polytech	Ongoing	-Outsource -Research	Much less

also mentioned that they were implementing what they had learnt in a training workshop into this activity in order to create a vision, objectives, and plan to meet these. The following plan was presented on the pin boards.

### Topnaar Community Strategic Plan 2003



## Major Activities

### Objective 1

- Establishment of a co-op for all !Nara harvesters
- Research to identify the cause of deteriorating !Nara plants in the delta
- Training in harvesting and processing of !Nara for the younger generation
- Value adding to the !Nara

### Objective 2

- Investigate possible local markets for livestock
- Organise livestock farmers into groups to discuss marketing opportunities
- Organise trial auction for livestock

### Objective 3 and 4

- Attend trainings in community based tourism
- Prepare proposals for the upgrading of the †Aonin camp
- Develop Homeb campsite for more facilities
- Identify and develop walking trails, 4x4 routes
- Develop hand made crafts
- Identify story tellers
- Identify and develop small income generating projects
- Exposure trip to North and NorthWest to learn more about community based tourism/ FIRM approach

### Objective 5

- Attend training courses in water management, maintenance of pumps and water infrastructure
- Prepare proposals for Fund to fence off water points
- Revised training in mobilisation and water-point administration ( users)

### Objective 6

- Fit in activities of Objective 5 and 1

### Objective 7

- Remove kraals from original place to new sites
- Implement animal health programs
- Do regular selections to keep on track with quality of livestock
- Follow-up training in herd management and animal health
- Replace old rams with new ones
- Organise fund raising events to buy vaccines and drugs

### Objective 8

- Leadership trainings (attend)
- Skills development (attend)
- Conduct exposure trips

After his presentation JJ showed the following table and asked stakeholder participants to please help the Topnaars to work towards achieving their goals. At this point Mr. Kruger allowed the workshop to go on break so as to allow the stakeholders time to fill in the table provided.

### Main Identified Activities – 2003

Obj No.	Objective	Activities	Willing stakeholder to support	How?	When?
7	Better livestock production system developed and in place	Training in improved livestock quality and support with breeding material	-Commercial farmers -Agricultural extension		
2	Better livestock markets identified and in place	Livestock marketing related trainings and exposure	-Commercial farmers -Agricultural extension		
	Proper water management and maintenance system developed and in place	Water conservation awareness raising and training	-Spitzkoppe Camp site, development committee -MAWRD, DWA planning -MAWRD- Div.: Water env. -WBM, WWE	Training continue	
		Water infrastructure maintenance training			
		Exposure trip-Spitzkoppe			
	Supplementary income generating sources identified and utilised	Identify small income generating projects	-WBM -CED		
		Skills training and material support			
	Potential leadership developed and maintained	Basic computer skill training	Gobabeb- Olavi		
		Financial management training			
		Project proposal writing training	ELAK: Boois/Andre/ Bertus	Training session facilitation	June

There were a lot of blank spaces left in the table. If you still would like to fill in a space with the name of your organisation or yourself as an individual you can do so by contacting persons in the ELAK project.

## Kuiseb Profile Presentation – Nadia Manning

The DRFN/ELAK (Mary and Nadia) is putting up a profile on the Kuiseb Basin. Ms. Manning presented the work that has been done thus far, why a profile is needed, information needs in the profile and **urged all stakeholders to contribute towards the profile.**

### **Why a Kuiseb Basin profile?**

- ◆ Summary of information
- ◆ For those who want to learn about the basin
- ◆ For those who have some knowledge to gain more
- ◆ To see the basin as a whole
- ◆ A compilation of contributions of stakeholders

### **What we need?**

- ◆ Information
- ◆ Data
- ◆ Photographs
- ◆ Figures and illustrations
- ◆ Ideas, suggestions
- ◆ Contribution of all stakeholders

### **Contact details:**

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**DRFN- ELAK Project**  
**Gobabeb Centre**  
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### **Suggestions for the profile**

Comments and suggestions for the profile were gathered onto a pin board. The results are illustrated below. Further comments can be forwarded to Nadia Manning even after the workshop.

- ◆ Collaboration with mapping people of DEA's Environmental Information Unit (Alice Jarvis, John Mendelsohn, Tony Robertson)
- ◆ New Namibia Atlas?
- ◆ Research on trends, availability, future use of water etc
- ◆ Towards the future!!!!

# Kuiseb Basin Profile

## Kuiseb River Functions and Services

I van Rooi  
G. van Langenhove  
(Hydrology)

Hydrology and Geo-hydrology  
(Historic abstract data)

## Vegetation

Connie Berry

Celia Mendelsohn

Barbara Curtis  
(Tree Atlas)

Bessie Bester  
MAWRD  
Ben Strobach  
NBRI

NBRI  
Pat Craven

## Maps

National Archive  
Maps

Guido

Surveyor  
General

## Photos, Figures etc

Frank

Keith Wearne

National Archives Photos

## Natural World

John Ward  
Roddy Ward  
Roger Swart

## People of the Kuiseb Basin

Rudolf Dausab

TCF and  
Topnaars

## Economic Activities

Water abstraction,  
consumption by  
economic activity  
( R. Miller DWA  
planning)

Commercial farmers  
-Christo Loubser  
-MAWRD: Frank W

Lower area- W/Bay  
Municipality

Contribution of unit of water  
to GDP and employment for  
different economic sectors  
(though only for Namibia in  
general)  
(R. Miller DWA planning)

## Climate

Dr. Du Pisane  
MAWRD

## Wildlife

Hu Berry

Dave Boyer

Keith Wearne

Pete Bridgeford  
Achim Lensen

## Activities and Development

Topnaar:  
Training  
reports and  
projects info  
Rudolf

## Relationships in the Basin

## General

Keith

Hydrology-  
new section

Gert van Eeden  
(Namwater)

History  
Background

Frank  
and  
MET

## Day 3 – Saturday 22<sup>nd</sup> February 2003

Before starting the program for the day Mr. Botes extended a warm welcome to Alastair MacDermott, the British High Commissioner to Namibia. It was explained that he was visiting Gobabeb for the weekend and would be sitting in on the day's proceedings out of interest in the project and its process. Mr. Botes wished Mr. MacDermott an enjoyable time. Mr. Botes also welcomed Sandra Mueller from Rossing Mine and expressed that he was pleased that someone from Rossing was able to join even if only for the last day.

### Kuiseb Basin Issues Review

#### Issues arising from previous meeting in Swakopmund

##### FRAMEWORK

- Source of water/rainfall
- Water Demand (human and ecological)
- Infrastructure (offices, vehicles, computers)
- Funding
- Sustainability

##### Integrated Water Resource Management (IWRM)

- Economic goods
- Quantify how much water is used
- Exchange visits/ideas between communal and commercial farmers
- Allocation (equitable sharing)
- Management plans
- System dynamics

##### New Issues

Additions to issues identified in Swakopmund (to be considered in BMC establishment)

- Infrastructure- office equipment, vehicles, computer systems
- Increasing users at Gobabeb e.g during workshops
- Information sharing and exchange- exchange visits, meetings, experience
- Information generated by stakeholders
- Equitable distribution of water- allocation to who, why?
- BMC plans- need to develop these
- System dynamics- integrated resource management
- Sustain- affordability

**Q [Bertus Kruger- DRFN]:** Should we wait for the Water Bill to become an Act before we continue with the establishment of BMC or Go ahead before the bill has been approved?

**A [Louise from Namibia Water Review]:** Yes go ahead, it is a pilot and will provide a good example of how to do things like this in future and within other basins. NWRMR does not think it will take too long before this happens and so suggest that we continue with the regulations in the meantime and be ready to implement once the Water Act is out.



- Where is the freshwater that flows to the Sandwich harbour coming from? This part of the Paleo-channels. Namwater has looked into these but it is not cost effective to consider using this water at this point in time. Shirley Bethune brought up the point that the water is not lost but rather the water is used in ecological terms. Niko Kisting supported this point stating that humans are not the only species to be considered within the basin and it is necessary to set precedence for the inclusion of the environment as a user in this pilot study. Guido wanted to officially state that Sandwhich is a part of the basin.
- Dr. Joh Henschel continued with this line of thought regarding the needs of the environment . He noted that many species within the basin rely on water all along the course of the river as well as on the water in the underground channels in the basin. There must, therefore, be sustainability in water use. In order to achieve this we must strike a balance between human use and the needs of plants and animals.
- Basin demarcation-( geographical) Guido is working on it. Pilot- BMC in 13 basins in Namibia- need to have representatives from boundary basins e.g Swakop, in forum to learn from process as well as be able to discuss issues. Demarcation of Basins: Mr. Van Langenhove is still busy with the maps, they will have to be presented to the minister for approval. The maps will be available at the next meeting as well as the criteria used in the demarcation.

AGENDA POINT : Presentation and discussion of demarcation of basin.

### Memorandum of Understanding (MoU)

In this session of the workshop the objective was to discuss the memorandum of understanding. The need for an MoU was discussed as well as how it should be implemented. The previously drafted MoU (See Appendices for a copy of the old MoU) had been provided in the folders for all participants and was presented in a power point format and projected on the screen. The stakeholders were encouraged to review the MoU and suggest any problems or corrections and highlight particular areas that needed to be clarified, expanded upon or modified. The stakeholders actively participated in this review and adjustment of the MoU providing suggestions which were discussed by the forum as a whole. Once this discussion had finished it was agreed that the MoU would be ammended and sent out to all stakeholders to be signed by particular member of the suggested organizations. Some of the ammendments suggested were as follows:

- Alphabetise the institutions/ organisations /groups
- Include additional organizations: CETN, Gobabeb Centre, Swakopmund Municipality
- Separate Regional Councils into Erongo and Khomas
- Specify within Ministries which departments, directorates or divisions will be involved
- Commercial farmers have different unions and they will have to decide who will represent the rest of the commercial farmers as a whole.

## KBMC Activities

Certain ideas were discussed for activities for the basin management committee to address and implement.

- Investigation of the difference between water demand and management of water demand.
- Investigation of availability of ecological resources
- Setup monitoring of water quality
- Setup monitoring system dynamics

When it was necessary to close this particular session Mr. Kruger reminded all of the stakeholders that they would always be able to add to this list in the future as this is neither a limited nor an exhaustive list.

## Criteria/ToR for KBMC

The criteria and terms of reference of the Kuiseb basin management committee that had been discussed and documented during the workshop in November were presented to the stakeholders and the floor opened up for discussion of these. The stakeholders at large were happy with criteria that had been developed and no major changes were made to the list. The stakeholders were urged to consider what would be needed to make the Basin Management Committee a functional body and what regulations would be needed to ensure this.

A question was directed to the representatives from the Water Review as to whether the new water bill had anything written into it that prescribed specific people to be part of the Basin Management Committee. Louise Shixwameni commented that in her understanding of the bill it would be necessary to include representation from the Regional Council. She further commented that the present criteria were consistent with the water bill. Dr. Woehl pointed out that this is a test case and since the bill is general and has no specific details until it becomes regulation, the work done in the Kuiseb Basin Management process may be able to feed into the results of how the water bill becomes regulation.

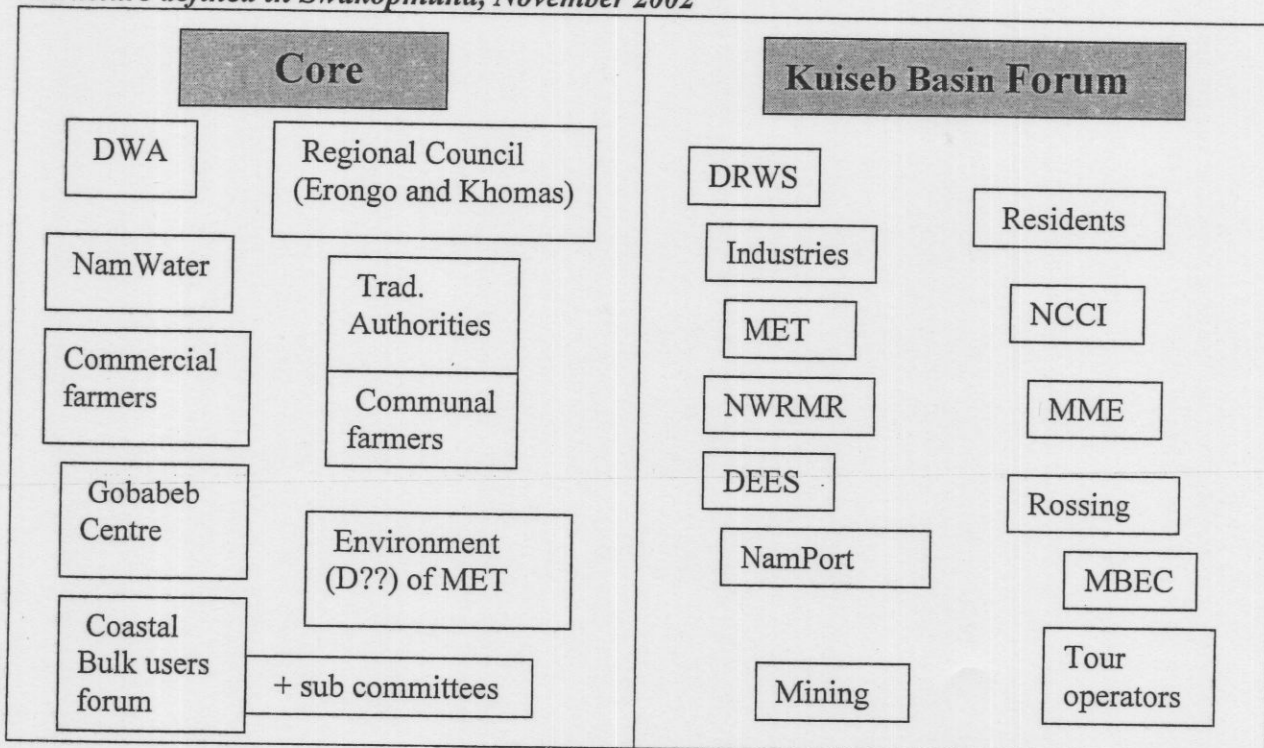
### **Criteria of members of KBMC**

1. Local representation (Equitable)
2. Recognised individuals with secundi
3. Persons who are interested and committed in water and water related issues
4. Gender balance
5. Component of knowledgeable people/ could be co-opted.
6. Diversity of sectors represented
7. Core stakeholders

## Structure

The structure of the core of the basin management committee as well as the basin forum which were defined at the previous KBMC workshop in Swakopmund in November 2002 were reviewed in this session of this workshop. See the two diagrams showing the latest structure and the old structure.

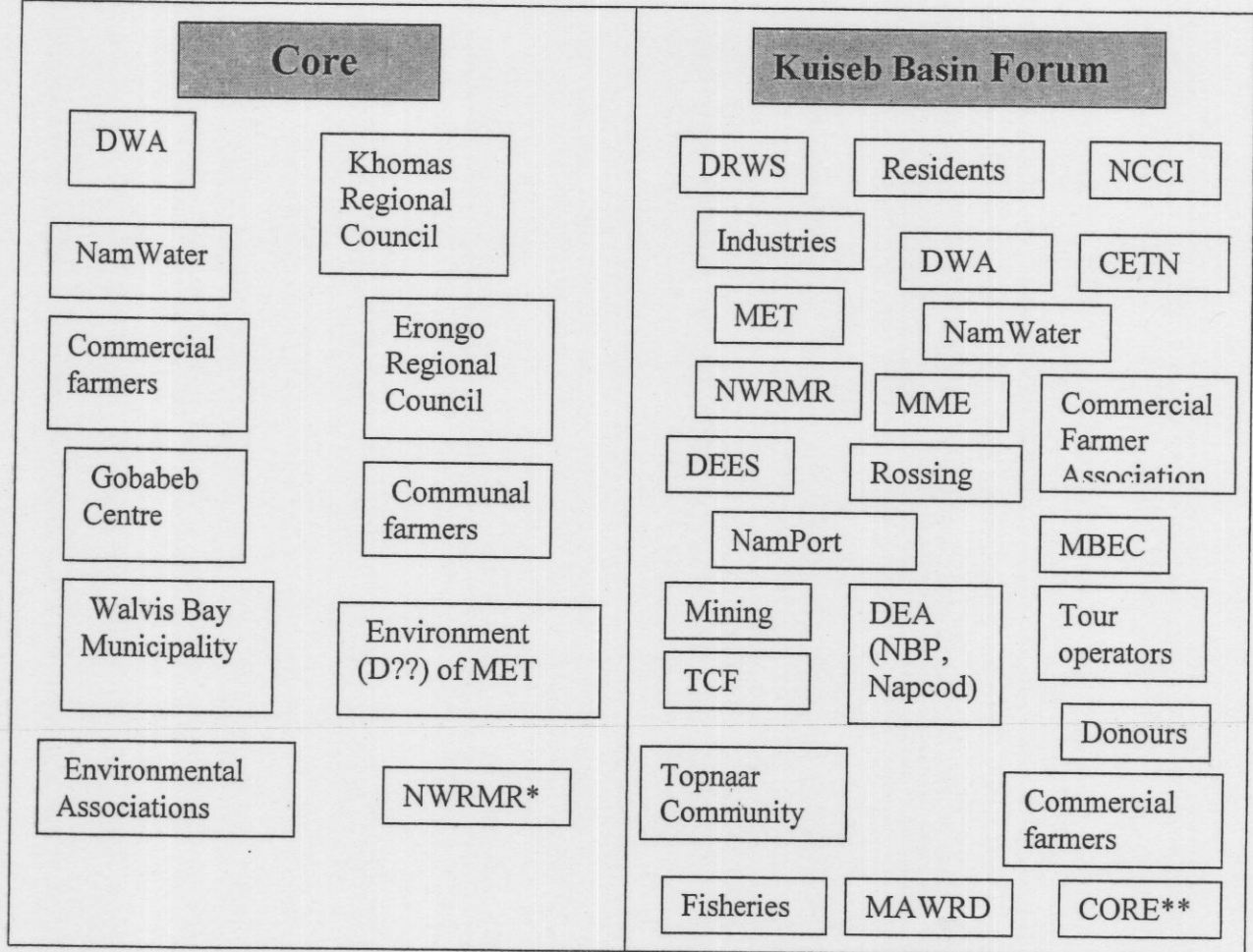
### Structure defined in Swakopmund, November 2002



### Additions to be made

- Environmental associations  
These should be included as they look out for the environment, they are not as limited in their activities or tied down as certain government ministries or directorates. All of these will be represented by one person or group on the committee.
- Coastal Bulk is replaced by Walvis bay Municipality
- MME  
The question whether the Ministry of Mines and Energy should be included in the Basin Committee once again was brought to the floor. Most stakeholders felt that while their input was important that it was not necessary to have them on the committee. It was also felt that since they have not be represented or played a part in the process to date it should be an initial aim to get them to become active players in the forum first.

*New Structure*



\* The NWRMR will be part of the core body of the Basin Management Committee, however, will only have an advisory role and will not be recognized as a voting member.

\*\* The members of the Core Basin Management Committee will also be part of the Stakeholder Forum for Basin Management.

Discussion of Structure

**Forum**

These meetings for the stakeholders forum will continue even when the basin management committee has been formed. The committee must use the forum to gain information, discuss issues and give feedback on work done and decisions made by the committee.

**Basin Management Committee**

The Chairperson and secretary can be temporarily appointed and do not need to be identified at present. An invitation letter to all core institutions in the BMC to be part of the first meeting will be drafted and sent out to the relevant institutions and bodies.

It was proposed that ELAK be the secretariat for the initial stages of the committee. It was asked if this would be acceptable and the stakeholders agreed that it would be. It was also decided that the chairperson would be decided at the first meeting.

It is desirable that the forum continue past the period of the ELAK project as there should always be these two different groups that are involved in basin management for a particular basin such as the Kuiseb. The forum would act as the basin management council while the core would be the basin management committee and would be accountable to the larger body of the council as it will be representing the whole basin. Any plans to be put in place must be adopted by the larger group before they can be presented to the Minister.

First meeting of Basin Management committee: AGENDA POINT- decide on chairperson

### Requirements for a Successful BMC

A general discussion was held amongst the stakeholders present as to what they thought were necessary requirements for the basin management to make it operational, functional and successful. A long list of requirements was formed and can be seen below:

1. Knowledge of the area
2. Know what you want to manage
3. Access to updated information
4. Communication
5. Technical and professional support
6. All key, relevant role players involved
7. Money
8. Clear orientation
9. Support of stakeholders
10. Ownership of stakeholders
11. Responsibility and authority
12. Sufficient infrastructure e.g offices, computers etc
13. Well equipped and functional secretariat
14. Commitment of members of BMC
15. Political support
16. Co-operation with key stakeholders
17. Small enough to be functional
18. Sub-committees decided by main BMC
19. Annual General Meeting
20. Should have direct access to Minister ( MAWRD)
21. Know its mandate- clarification of role and authority
22. Should not be sectoral oriented
23. Develop constitution- operating details and regulations

## The Way Forward

1. MoU to be ammended and sent to stakeholders.
2. Invitation to core BMC to be drafted and sent out to those stakeholder sectors decided on for the BMC structure In this letter also important to include:
  - expectations of role and participation in Basin management committee clearly layed out
  - necessity for active members in process and that secundi be identified
3. Working groups are considered and established
  - to provide support to BMC
  - to work towards information gathering and sharing
  - to conduct work necessary for the committee and basin as a whole
4. Bring issues together
5. Provision of support to Topnaar community as promised during their request for help  
Topnaar community continue to make requests for support.

## Next Meeting

Location: Upper Catchment

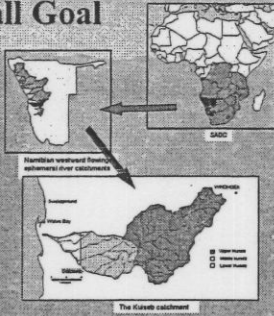
Date: First week of June: Thursday – Friday

## Appendices

- Objectives of ELAK presentation
- Hydrological Data Collection presentation
- Hydrology of Kuiseb Catchment presentation
- Water balances of Upper Kuiseb Catchment presentation
- Socio-economic study presentation
- Revised Memorandum of Understanding

### Overall Goal

To contribute to the enhancement of livelihoods of Namibians dependent upon natural resources, particularly water, within the ephemeral Kuiseb river catchment



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### RESULTS

1. A common vision for the Kuiseb River Basin elaborated and agreed upon by decision makers.

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2. Mechanisms for iterative, consultative planning established and functional at relevant levels.

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*Interactive Environmental Learning and Action in the Kuiseb*  
ELAK

3. Decision makers have an improved understanding and experience of social, economic and biophysical environments and their management to prevent desertification.

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4. Development options and their consequences are identified and tested.

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*Interactive Environmental Learning and Action in the Kuiseb*  
ELAK

5. Participatory monitoring and evaluation and adjustment mechanisms applied to development options, involving all stakeholders, developed and functional.

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### RELATED MEASUREMENTS

- RAINFALL
- EVAPORATION
- WATER QUALITY

### ASSISTANCE OF OBSERVERS

- FARMERS (RAINFALL)
- GOBABEB RESEARCH STATION (GP)

### FOR MORE INFORMATION

MINISTRY OF AGRICULTURE, WATER  
AND RURAL DEVELOPMENT

DEPT WATER AFFAIRS

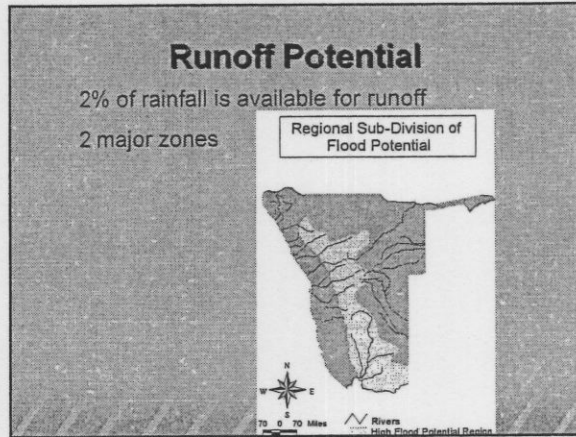
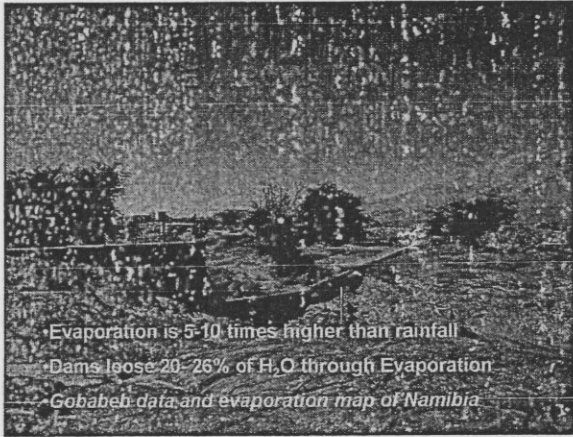
DIVISION HYDROLOGY

MS I VAN ROOI – TEL: 2087254

MS A EGGERS – TEL: 2087233

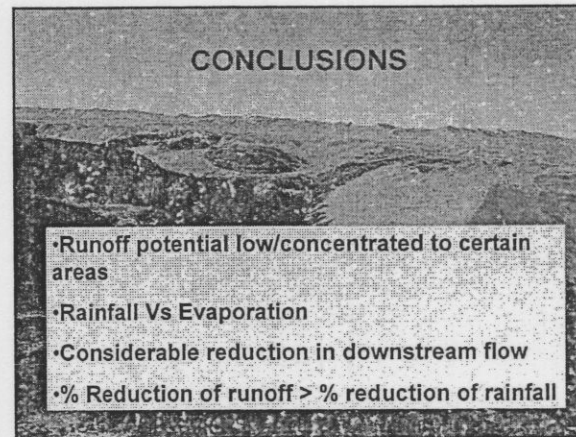
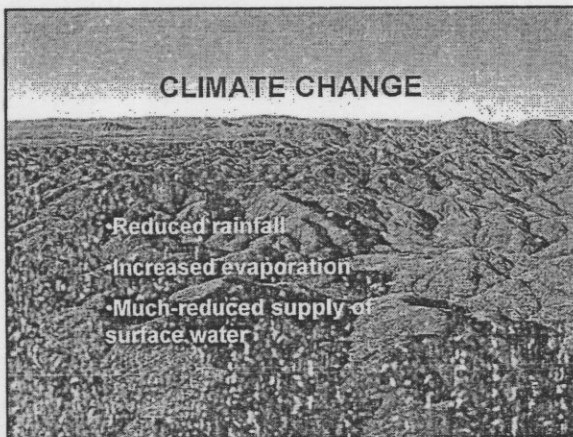
MR G VAN LANGENHOVE – TEL: 2087257



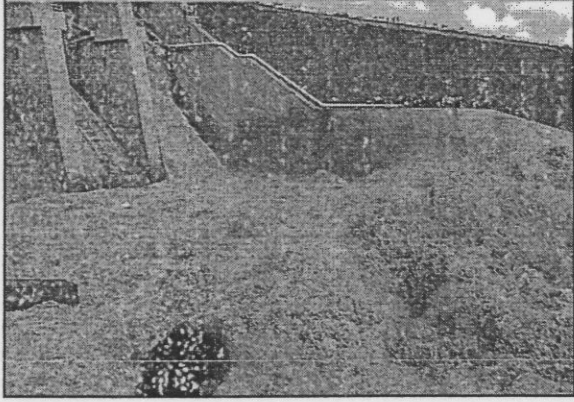


Characteristic of floods on the Kuisie river

Recording station	Ave. month of first flood	Ave. number of floods/year	Average runoff m <sup>3</sup>	Distance from Delta km
Us	Dec.	5	6 000 000	360
Schleisien	Jan.	3	16 000 000	250
Gobabeb	Jan.	2	4500 000	85
Swartbank	Feb.	1	1750 000	50
Rooibank	Feb.	1	570 000	18



**Water is a Limited Resource !!!!**



## Water Balance of Upper Kuiseb Catchment

By: A Shilomboleni  
DWA

## Table of contents

- Background
- Research goal
- Study sites
- Methodology of dam surveying
- Dam features
- Hydrological components
- Major findings of SDP9
- Water balance (flow) model
- The Namibian constitution
- The New Water Bill
- Conclusion

## Background

- The research was carried out in 2000 via the Summer Desertification Program (SDP) 9
- Organisers: DWA and DRFN
- Survey period of dams: Two weeks
- Research team: 15 students from Polytechnic and the UNAM, plus officials from DWA and DRFN

## Overall goal

- Enhance the capacity of future decision makers to ensure sustainable use of Namibia's resources
  - Purpose of the survey:
    - To obtain dam basin characteristics
    - To develop the water flow model of the entire Kuiseb Catchment

## Study sites

- The research was conducted in two sub-catchment in the Upper Kuiseb, namely: Westende (high rainfall area) and Tweespruit (low rainfall area)
- Position: Westende sub-catchment is at about 35km west of Windhoek. This area receives 375 mm of rainfall p/a  
Tweespruit sub-catchment is at about 80km west of Windhoek. It receives 200 mm of rainfall p/a

## Methodology of dam surveying

### Procedures:

- Identification of dams
- Instrumentation
- Measurement
- Changing instrument position
- Documentation
- Questionnaires
- Data analysis

### Dam features

- Contours of the dams were plotted
- From these plots the depths, areas and volume as dam features were calculated
- These features together with the hydrological components were used to develop the water balance (flow) model.

### Hydrological components

- monthly runoff data
- monthly rainfall (mm)
- initial storage (m)
- measured catchment flow
- calculated catchment flow
- inflow
- storage after inflow
- dam spill
- demand
- abstraction volume
- storage after abstraction
- evaporation depth
- evaporation volume
- final storage

### The Namibian constitution states:

- *Chapter 11, Article 95:* The State shall actively promote and maintain the welfare of the people by adopting policies aimed at the following: (1) maintenance of ecosystems, essential ecological processes and biological diversity
- *Chapter 11, Article 100:* Land, water and natural resources below and above the surface of the land and in the continental shelf and within the territorial waters and the exclusive economic zone of Namibia shall belong to the State if they are not otherwise lawfully owned

### The New Water Bill

- Give rise to the Basin Management Committee (BMC)
- Need for an integrated water resources management
- Call for equitable access to and sustainable utilisation of water with due respect to the environment

### Conclusion

- Despite insufficient data records, the model reveals that farm dams reduces the downstream flow by 46% during low rainfall years
- Limitations to the model: infiltration and evaporation were not considered
- One dam out of 4 dams is over 20 000 m<sup>3</sup>
- 8 out of 11 farmers supported the BMC approach
- Water development and mngnt should be based on participatory approach, involving users, planners and policy-makers at all levels to ensure sustainability



## Socio-economic study

Presentation of the preliminary results of the socio-economic study conducted amongst Topnaar community members, January 2003

## Households

Approximately 350 to 380 people are living permanently in 14 settlements along the Kuseib and about 500 Topnaar people live in Walvis Bay

13 households were interviewed from Armstraat to Homeb  
Of these 6 were headed by females and 7 by men

- The average age of heads of households is approximately 65 years (female heads of household were slightly older on average)
- Only 3 out of 13 heads of household had any education (Grade 3)
- Most heads of household had been farming along the Kuseib for more than 20 years
- With the exception of 2 heads of households all were borne along the Kuseib
- All heads of households except one were Topnaars>Nama, i.e. households interviewed are ethnically homogenous

## Land

All households interviewed think that the land they use along the Kuseib belongs to the Topnaar people.

Jurisdiction over the land is divided:

- The Topnaar Chief and his councillors administer customary tenure
- Most of the Topnaar land falls within the Namib Naukluft Park over which the central government has jurisdiction
- Many of the Inara fields lower down the river fall within the Townlands of Walvis Bay and are thus under the jurisdiction of the Local Authority of Walvis Bay
- Although land is communally held, grazing areas of settlements have loose boundaries between them
- Access to grazing and pods in another settlement is obtained through negotiation with the community in that settlement
- Offspring of Topnaar families are entitled to live and farm in the area
- Outsiders need to obtain permission from the Chief and his Council to settle, after the community where the person wants to settle has agreed to the newcomer

## Subsistence

Subsistence along the Kuseib is based on agriculture

For most households, goats and gardens continue to be the most important sources of income

In July 2002, 47 livestock owners owned a total of 2,466 goats in the Kuseib. This is more or less the same number of goats as 10 years ago (1992: 2,231; 1993: 2,374)

- The average goat herd consisted of 52 goats (ewes, lambs and rams included) 50 goats is regarded as sufficient to subsist
- The distribution of goats is uneven: some people have over 250 animals, while others have less than 20 and a few no goats at all
- Eight of the households interviewed sold goats regularly
- Some households sell up to 20 goats per year
- Main reason for selling: need cash to buy food and other items and pay school fees

Most goats are sold to people from Walvis Bay who come to the settlements. Livestock is only seldom taken to the market in Walvis Bay – lack of transport

- Average prices: range between N\$ 250 and N\$ 600, depending on age and condition
- In general, people were not experiencing problems selling goats
- Prices paid for goats are also acceptable

## Gardens

Half of the households interviewed have a small garden

- Main produce grown: pumpkins, tomatoes, beetroot, carrots, cabbages water melon, spanspek
- Most of the produce is for home consumption: many households have some or other vegetable throughout the year
- No fertilizers are used in gardens
- No pesticides are used, only ash
- Reason: people are not sure what pesticide to get for what and how to use it
- Up to the end of 2002 MAWRD did not provide extension support for gardening

**Impact of payment for water on size and numbers of gardens not clear.**

- Some maintain that payments for water resulted in smaller and fewer gardens being cultivated
- Others stated that piped / borehole water allowed some people to make bigger gardens than when they used *gorras* because water was more accessible

Work in the garden is mostly done by men, who also take decisions about what to grow and how.

## Water

The dominant perception is that the water resources in the Kuiseb belong to the Topnaar

Traditionally, *gorras* were used to obtain water for livestock and people

The state has taken ownership of water now: large scale abstraction – pipeline – boreholes

Ownership of water will be transferred back to communities by the state by 2007

Settlements from Rooibank to Utuseb obtain water from a pipeline which is owned and maintained by NAMWATER

From Swartbank to Homeb settlements each have a borehole equipped with solar pump – this falls under the Directorate of Rural Water Supply in MAWRD

Water obtained from the pipeline is supplied by NAMWATER and has to be paid for on a communal basis (every household pays an equal share of the total water bill regardless of number of livestock, household size etc.)

Unable or unwilling to pay: a large amount of money is owed to NAMWATER

The impact of water payments on livelihoods is not clear:

- Some households stated that they were becoming poorer as a result (had to sell more goats in order to pay for water, size of gardens was decreasing due to costs)
- Others saw a regular water supply as a positive development, even though it came at a cost (could make bigger gardens e.g.)

Large scale abstraction has killed ana trees in the Kuiseb, which in turn has decreased the number of pods available for goats. Some people maintained that goat herds have become smaller as a result.

There is a common perception that people along the pipeline are poorer (own fewer livestock) than those further east who are obtaining water from boreholes

Water Point Committees exist along the Kuiseb: mostly concerned with the collection of contributions for water

- Not all office bearers received training
- During the last 20 years people did not experience water shortages (except when engines broke down)

## Incomes and expenditures

Agriculture on its own is not enough, however, to support households. Other sources of income or food are also important:

- Pensions support many households
- Family members employed in Walvis Bay and other towns support households with food and/or money

Most important expenditure items are basic foodstuffs consisting of maize meal, bread flour, sugar, tea and coffee.

All households depend on food items which they buy in shops.

Milk and meat is not consumed everyday by all households

!Nara is seasonal and more accessible to households closer to !nara fields.

In a few cases people are not selling any goats in order to build up herds by living entirely off remittances from town

## !Nara

!Nara continue to be an important source of food and cash, particularly for those with no livestock or employment but is seasonal

Many people from Walvis Bay – including non-Topnaars – are harvesting !nara in the !nara fields of the Kuiseb Delta in order to sell the nuts

Previously families had rights to !nara fields

Coming under pressure: access is increasingly characterised by open access with little control over who can and cannot harvest !nara, particularly closer to Walvis Bay

Most !nara fields fall within the area of jurisdiction of Walvis Bay Local Authority: requests to have the !nara fields fenced have been unsuccessful

Lack of skills and experience by many harvesters with no traditional linkages to the !nara is causing substantial damage to !nara plants (unripe fruit are harvested; bushes are trampled causing them to die)

There is a ready market for !nara seeds in Walvis Bay: price ranges between N\$5 and N\$ 7 per kg

During the !nara season households can live off the cash generated by !nara sales and save pensions and other income.

## Institutional characteristics

- The Topnaars have a Traditional Authority and a Chief who administer primarily customary matters but also general developmental issues
- The Regional Councillor for the Constituency is responsible for political and developmental matters and comes regularly (most people know him)
- Through representation on the Council of Traditional Leaders the Topnaar have access to the highest political office in the country
- The Topnaar community owns a 10% share in !Aonin Fishing Company
- The Topnaar Community Foundation was established to receive dividends and other income from !Aonin and use these monies for socio-economic development of the Topnaar
- The Chairman of the TCF has assisted people financially to cover funeral costs e.g. But none of the households are aware of any development projects that have been implemented with money coming from !Aonin

The perception is that the leadership of the Topnaar is not united and that this is hampering the development of the community

A Community Trust Funds has been set up in 2002 in terms of the provisions of the Traditional Authorities Act, 1995

Transparency by leaders seems to be a problem: no annual reports for TCF or !Aonin could be traced and households spoken to did not receive regularly feedbacks – encourages distrust

## Access to Services

Most households felt that access to and quality of educational and health services has improved since Independence (clinic and hostel at Utuseb e.g.)

Since 2002 a Topnaar extension worker has been appointed by MAWRD in Walvis Bay and visits the settlements along the Kuiseb regularly: people are very satisfied with his presence

Roads: from Walvis Bay to Utuseb the quality is good (maintained regularly) while they remain poor in the Namib Naukluft Park

Most people continue to rely on lifts with others to Walvis Bay - only some have donkey carts

None of the settlements is connected to Walvis Bay by phone

## Conclusion

Most households regarded their farming along the Kuiseb as successful as it provided in their subsistence needs

All saw themselves farming here in ten years time

At the same time, most identified training in livestock husbandry, gardening and financial management as important to improve their agricultural practices

**Memorandum of Understanding  
Between**

Desert Research Foundation of Namibia (DRFN) as implementing organisation of the  
Environmental Learning and Action in the Kuiseb (ELAK) project,

**And**

Coastal Environment Trust of Namibia,  
Commercial Farmers,  
Gobabeb Training and Research Centre  
Ministry of Agriculture Water and Rural Development (DWA + DEES),  
Ministry of Environment and Tourism,(DEA, Parks, CBNRM)  
Ministry of Lands, Resettlement and Rehabilitation,  
Ministry of Local Government and Housing  
Municipality of Walvis Bay  
Namibia Water Resources Management Review,  
Nam Water,  
Regional Councils: Erongo and Khomas,  
Rossing Uranium Limited  
Swakopmund Municipality,  
Topnaar Community,  
Water Point Committee chairpersons

**Purpose**

The purpose of the Memorandum of Understanding (MoU) is to set out terms of participation and understanding between DRFN as implementing organisation of ELAK and stakeholders towards the implementation of the Kuiseb Basin Management Project.

**General**

According to the Water Resources Management Bill, "the ownership of water resources of Namibia shall vest in the State, and the State shall manage, develop and protect the water resources" (Chpt 2). Within a determined water management area, the Basin Management Committee shall be appointed by stakeholders within the basin.

Chapter Four of the Water Resources Management Bill refers to Basin Management Committees and states that Basin Management Committees are to promote stakeholder participation in the protection, use, development, conservation, management and control of water and related resources, including groundwater in its water management area through education and other appropriate activities.

The Interactive Environmental Learning and Action in the Kuiseb project (ELAK), is funded by the European Union and implemented by the Desert Research Foundation of Namibia (DRFN). The objectives of this project are:

- 1) to increase focus on an innovative approach towards the facilitation of communication, co-operative learning and action among all decision-makers within and dependent on the Kuiseb Basin,

- 2) to ensure that a common vision across the sectors or stakeholders is developed, well understood, shared and maintained on an interactive basis,
- 3) to ensure that decision-makers at all levels manage natural resources in the Kuiseb River catchment, have enhanced capacity to understand and manage freshwater and other natural resources in a more sustainable manner.

The process of interactive learning and action will be applied towards the management of water and other natural resources.

### **Implementation of MOU**

DRFN as implementing organization of the ELAK project agrees and sees its role as facilitator by:

- Networking between all relevant stakeholders for consultative planning and implementation of the project.
- Co-ordinating feedback of stakeholders' planning and activities related to ELAK and the Kuiseb Basin as a whole in the process of effective implementation of ELAK.
- Creating a platform for information sharing, exchange and access.
- Supporting and reporting of all matters concerning the ELAK project to ensure the common vision.
- Undertaking all activities as implementing organization according to the agreed-upon plan of operation of the donors.

The stakeholders undertake/agree to:

- Actively communicate with each other concerning matters related to the basin as a whole.
- Make accessible and share information concerning the Kuiseb Basin.
- Commit themselves to participate in Kuiseb Basin related activities, actively work on Kuiseb Basin related issues and deliver agreed upon tasks.
- Actively contribute to the effective implementation of the project.
- Actively communicate relevant information towards ensuring a common vision related to basin issues and the establishment of a Basin Management committee.

In the spirit of this MoU, all stakeholders are encouraged to initiate activities relating to the Kuiseb Basin and participate fully in a coordinated approach.

### **Effective Date:**

This MoU is effective upon signature of both parties.

### **Amendments**

This MoU may be modified or amended by written agreement only between the parties.

### **Termination**

This MoU may be terminated by mutual agreement of stakeholders upon 30 days written notice to the other.

**New Members**

Persons wishing to become members of the Kuiseb Basin forum must be willing to commit to the terms of understanding and participation laid out in the MoU and as such must display effective signature of the MoU before joining.

Binding signatures:

\_\_\_\_\_  
DRFN  
Senior Manager: Support Services

\_\_\_\_\_  
Stakeholder representative  
Designation:  
\_\_\_\_\_

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date