

**PROJECT PROPOSAL:
BASIN MANAGEMENT IN THE CUVELAI BASIN**



Submitted to



Ministry of Agriculture, Water and Rural Development and the GTZ



Submitted by

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1. Introduction and Background to Proposal

Integrated Water Resource Management (IWRM) is a concept that was brought to the forefront during the United Nations Environment and Development Conference held in Rio de Janeiro in 1992. It is based on the Dublin-Rio principles, which are four distinct principles highlighting: the value of water as an essential resource which sustains life, development and environment; water development and management based on a participatory approach involving in all stakeholders (users, planners and policy-makers) at all levels; women playing a central role in the water management and provision; and recognition of the economic value of water with all its competing uses and as an economic good.

The concept of integration refers to the natural system and the human system. The natural system in this case refers to integration between land and water use; surface water and ground water; water quantity and quality; upstream and downstream and freshwater systems and the coastal waters. The human system refers to mainstreaming water in the national economy; ensuring coordination between sectors; ensuring partnership between public and private sector management, i.e involving everyone in the water sector.

Based on these principles and elements of IWRM, the definition refers to "*meaningful participation of all stakeholders in the development and management of water resources, institutions and mechanisms are put in place, and legislation enacted within the context of local, regional, national and international policies*". This constitutes the enabling environment that sets the procedures and approaches to water resources management and participation by stakeholders at all levels.

For this reason, the IWRM concept has slowly but surely surfaced in Namibia and has been incorporated in the Water Policy and the draft Water Resources Management Bill. In support of this, the setting up of Basin Management Committees to manage water at the lowest appropriate level has been introduced complementing the government initiative of implementing Community Based Management. The idea of River Basin Management should be seen as tool of implementing IWRM that includes all elements be it physical (eg. soils, geology, water and vegetation), social (human, livestock) or economical (eg. developments, infrastructure). River Basin is a broad term, which includes surface water and groundwater. Other factors such as movement or sharing of water between areas should also be considered when defining a basin.

Many of the challenges that exist in river basins are due to the fact that there are multiple users of resources in a single basin. This is normally on the scale of different economic activities by people or even the environment. In this regard the need for forming institutions to manage the water resources within a basin is deemed necessary (draft Water Resources Management Bill). To pilot this approach, the Kuiseb Basin Management Committee (KBMC) was established and launched officially in 2004. This initiative was facilitated by the Desert Research Foundation of Namibia through the Interactive Environmental Learning and Action in the Kuiseb (ELAK) project, funded by

the European Union. The project focused on a new approach that would facilitate communication, cooperative learning and action amongst all decision-makers within and dependent upon the Kuiseb River Basin. The KBMC lessons learnt and experiences should be shared with other basins in Namibia.

This project focuses on establishment of a Basin Management Committee in a selected sub-basin of the Cuvelai system. The four components will include: demarcation of and general information on the Cuvelai Basin and other basins; transfers of experience from the Kuiseb Basin Management; establishment of institutional modalities for basin management; capacity building for the Cuvelai Basin Management Committee and subbasin committees. The Cuvelai Basin is viewed as the most sensitive area in Namibia, since it is home to more than half of the population, making a living from primarily subsistence farming, with very limited natural resources. A government initiative started and was directed towards establishing a committee in this basin. However, due to the complexity of the issues to be dealt with in this process, external help is sought, thus this call for proposals.

The Desert Research Foundation of Namibia (DRFN) is submitting this project proposal, based on their experience and knowledge gained from dealing with the various concepts (water and land management) involved as well as facilitating the formation of the first basin management committee, the Kuiseb Basin Management Committee. The DRFN is known for working together with all stakeholders, including government institutions, and thus the strength of this proposal is build around the plan for government officials and other relevant partners to be involved in this process from the initial phase. Currently, the DRFN is undertaking the Oshikoto Livestock Development Project in the eastern part of the Cuvelai basin and has undertaken various projects within the Cuvelai basin ranging from planning of rural water supply developments (with Lund Consulting Engineers) and environmental impact assessments of various water developments (Ogongo-Oshakati Canal and various smaller schemes) to student projects on trees, natural resource economics and the impact of water provision in the Etaka Canal. Their planned (2004/2005) Summer Desertification Project, in collaboration with the Hydrology Division of the Department of Water Affairs, will focus on establishing a resource monitoring system in the Cuvelai basin. The extensive experience of the DRFN, with basin management and other natural resource management initiatives in the Cuvelai basin and elsewhere, makes them uniquely suitable for undertaking this project.

The best way of introducing new ideas, like basin management in this case, is to build on existing knowledge and lessons learnt from previous experiences. Since the Kuiseb is the first activity in Namibia in this regard, it make sense to use the best practices from it and as far as possible test and adapt them to suit the unique circumstances in the Cuvelai basis. The DRFN has first-hand experience in testing this approach in the Kuiseb basin and thus makes them an ideal facilitator for sharing their experiences in the Cuvelai basin.

which is one of the most complex basins in Namibia with a large number of stakeholders exerting a high pressure on its resources, it is believed that more useful results can be obtained, results that will become guidelines for future initiatives to delimitate other basins in Namibia.

Activity 4 should not be a unique activity but forms part of activities 1 and 2 as the proposed applicability and ranking of all criteria for discussion would be the output of activity 1, see sub-activity 1.2 in the Plan of Operation below. The required maps and digital data sets that will be collected based on the selected criteria can be an extension of activity 2, which as it is presented in the tender document only is the collection of information about what data sets exist, and no actual collection of these data sets. We therefore propose that activity 2 is adjusted to include the collection of data sets identified as required by the selected criteria in activity 1 above.

Component 2: Transfers of Experience with Kuiseb Basin Management

The activities as highlighted under this component are clearly understood and supported. Additional sub-activities have been added under each activity in the Plan of Operation below. Transfer of experience may be partially limited to approaches rather than direct experiences because of the distinct differences between the two basins. It is recommended that that part of the Cuvelai Basin under communal land tenure be the focus of these transfers.

Component 3: Basin Management: Institutional Aspects

The activities as highlighted under this component are clearly understood and supported. Additional sub-activities have been added under each activity in the Plan of Operation below.

Component 4: Basin Management: Capacity Building

The activities as highlighted under this component are clearly understood and supported. Additional sub-activities have been added under each activity in the Plan of Operation below. Capacity building experiences derived from the OLDeP and the Sardep and Napcod projects implemented in central northern Namibia will be directly incorporated into this component.

Activity 7 under this component will also be used to gather or share information based on/derived from the other components.

3. Organization and Methodology

The main methodology approach that will be taken will involve a desk study/literature review, combined with broad consultation of all stakeholders, especially the resource users at household level. Furthermore, research will be integrated with on-going studies or activities such as the OLDeP and the envisaged Summer Desertification Programme 13. Detailed activities are highlighted under each activity in the Plan of Operation.

An interactive participatory team approach will be employed where the DRFN will be playing a facilitative role. All stakeholders ranging from governmental, non-governmental, community based and private organizations and individuals will be involved. The Hydrology Division in the Department of Water Affairs will also be closely involved. Women will specifically be involved and targeted in this project in recognition of the central role that water play in the daily lives of households. Staff that will be

involved will have adequate skills and competencies to perform the work, but ongoing emphasis will be put on further enhancing their capacities to deal with this kind of work in future.

It is suggested that the entire consultancy be done in three phases. Phase 1 (P1) should be completed by end October and involve all participatory work. A progress

Activity	Phase 1 (P1)	Phase 2 (P2)	Phase 3 (P3)	Consultants involved
Report will be submitted by the end of October. Phase 2 (P2) will be completed from November until mid December and again a follow-up P2 January 2005 and a final report will be submitted by the end of February 2005. The following draft work plan provides more details	X			PK, AvL, NC
1.3 Collect and critically analyse the delimitations already carried out at national and basin level	X			PK, AvL, NC
1.4 Make a proposal regarding the applicability and ranking of all criteria for discussion	X			PK, AvL, NC
1.5 Make proposals regarding the process of demarcation (adjustments) of basins within Namibia with specific recommendations for the Cuvelai;	X			PK, AvL, NC
1.6 Finalize digital mapping using ArcView GIS format for the approved demarcation ¹ , 1:250,000 [or better] at Cuvelai level, and 1:50,000 for the agreed Cuvelai sub basin). These maps should contain GIS overlays for all available data and relevant criteria;	X			PK, AvL, NC
1.7 Identify specific activities to be carried out for a detailed profile of the selected sub basin in the Cuvelai (link with the summer desertification programme);		X		PK, AvL, NC & SDP13
1.8 Make proposals for the selection of 5 basins for completion of basin profiles;		X		PK, AvL, NC
1.9 Prepare one final report with all above information			X	PK

¹ It was suggested that the national component of activity 6 is removed (see 1.6).

2.1	Produce a guidebook on the establishment of basin management committees on the basis of the Kuiseb experience;		X		MS, AM
2.2	Conduct a comparative analysis of conditions in kuiseb and cuvelai and the possible effect on basin management approaches;		X		MS, AM
2.3	Make a proposal for a twinning agreement between kuiseb and cuvelai, comprising policies and operational procedures for exchange of information;		X		MS, AM
2.4	Prepare a comprehensive monitoring plan for basin management in the cuvelai, including specific indicators		X		MS, AM & SDP13
2.5	Collect information on existing approaches for integrated land and water management at basin level and make a critical analysis of their usefulness.		X		MS, AM
3.1	Identify the required interaction of bmc's, especially the cuvelai bmc, with other regional and national institutions;		X		MS, AM & SDP13
3.2	identify and make proposals for interaction of sub-bmcs with the bmc in the cuvelai;		X		MS, AM
3.3	Make a proposal for institutional modalities to assure that all these interactions are performed in an efficient manner		X		MS, AM
3.4	Investigate various alternatives for financing bmc's and sub-bmcs (such as licensing fees, abstraction levies, financing by government and any other relevant);	X			MS, AM
3.5	Prepare one final report with all above information			X	MS, AM
4.1	Identify the training requirement for BMC facilitators	X			MS, AM
4.2	Prepare and offer training for BMC facilitators		X		MS, AM
4.3	Identify the required training and capacity building needs for key stakeholders and translate those into a comprehensive training plan and training manuals		X		MS, AM & SDP13

4.4	Organise and conduct training for key stakeholders in the Cuvelai and compile training evaluation reports;		X	X	
4.5	Identify information gaps and assess the requirements for public awareness raising and education for basin management and ILWM;		X		MS, AM & SDP13
4.6	Prepare a comprehensive public awareness plan, including detailed cost calculation for the Cuvelai and Kuiseb			X	MS, AM
4.7	Conduct two start-up public awareness meetings together with the trained BMC facilitators.		X		MS, AM & SDP13

Legend:

AM Anna Matros
AvL Alex Verlinden
MS Mary Seely
NC Nyambe Christopher
PK Patrik Klintonberg
SDP13 Students of the SDP13 programme

Logical Framework

	Intervention Logic	Objectively verifiable indicators	Sources of verification	Assumption
Overall Goal	Livelihoods of Namibians dependent upon natural resources within the ephemeral basins of Namibia are enhanced	<ul style="list-style-type: none"> - Level of satisfaction of decision makers is improved - Decision makers perceptions and understanding modified - Level of cooperation, awareness and commitment enhanced - Institutional changes occur - Access of residents in the Cuvelai Basin to asset base improved 	Consultancy report	
Project Purpose	Decision makers at all levels managing natural resources in the Cuvelai Basin have enhanced capacity to understand and manage natural resources in a more sustainable manner	<ul style="list-style-type: none"> - A majority of decision-making groups in the Cuvelai Basin have a strategic plan reflecting the common vision for sustainable natural resource management and are implementing work plans based on the common vision - A majority of decision-making groups in the 	<p>Ongoing analysis of decision maker response to climate variability</p> <p>Records of decision makers</p>	MAWRD remains interested in this approach

		Cuvelai Basin are participating in evaluating and disseminating results of their initiatives		
Results	1- <u>Basin demarcation at national level</u> is finalized and more detailed data on the demarcated Cuvelai sub-basins are collected to improve the knowledge base of the Namibian basins	- Basin map with data finalized and published	- Maps - Demarcated criteria - Reports on map development process	
	2- Results of the <u>Kuiseb Basin Management process</u> are compiled and shared	- 50% of relevant service providers in the Cuvelai Basin know about the Kuiseb Basin process		
	3 – Institutional modalities for the operation of the Cuvelai BMC and Sub-BMCs, with links to the national and regional level, and the financial support mechanism for sustaining the functioning of the Cuvelai BMC and Sub-BMCs are developed	- BMC and Sub-BMC established and operational	- Minutes, members lists etc	
	4- Training and capacity building for the Cuvelai BMC and Sub-BMCs including public awareness measures for educating and informing the public on the merits of basin management and ILWM, are planned and conducted	- 50% of relevant decision making and service providing groups have participated in training activities	- Training plan. Course and workshop materials	

Plan of Operation

Project Component (based on recommended revisions under review of the ToR)	P1	P2	P3	Resp	Supp by	Resources	Ref #	Milestone
Result 1: Basin demarcation at national level is reviewed and more detailed data on the demarcated Cuvelai sub-basins are collected to improve the knowledge base of the Namibian basins								
<i>1.1 Analyse criteria considered for delimitation of basins and sub-basins applicable to Namibia</i>				DRFN	MAWRD	N\$ 12 500	1.1	Report on analysis of criteria developed
1.1.1 Collect and analyse potential criteria of establishing basins and sub-basins ²	1d			DRFN	MAWRD	N\$ 2 500		
1.1.2 Organise workshop to discuss the criteria with stakeholders at national level	1d			DRFN	MAWRD	N\$ 2 500		List of criteria developed
1.1.3 Conduct interviews and field surveys to investigate/analyse criteria in selected sub-basin		3d		DRFN	MAWRD	N\$ 7 500		Could be done with SDP
<i>1.2 Provide an overview of hard copy maps and digital (GIS) mapping relevant to the criteria above;</i>				DRFN	MAWRD	N\$ 10 000	1.2	Overview provided
1.2.1 Collection of information on available maps	1d					N\$ 2 500		
1.2.2 Develop and store data in database ³	2d			DRFN	MAWRD	N\$ 5 000		Meta data base developed (incl hard copy maps and GIS maps)
1.2.3 Compile overview that presents the different material of relevance to the project	1d			DRFN	MAWRD	N\$ 2 500		Report on materials

² It is understood that a large number of criteria already have been defined in the process of establishing the national draft basin demarcations, the basin management committee in the Kuiseb basin and various other initiatives. Therefore it is important that all these 'potential' criteria are (collected and analysed by the consultant at the beginning of the study.

³This activity will result in a meta database that will describe what hard copy map material and what GIS material exists, which are relevant to the criteria defined in activity 1, and where these materials can be obtained.

1.3 <i>Collect and critically analyse the delimitations already carried out at national and basin level;</i>				DRFN	MAWRD		1.3	Analysis report on delimitations
1.3.1 Collection of existing delimitations of the Cuvelai basin ²				DRFN	MAWRD			With 1.2.1 & 1.2.2
1.3.2 Assessment of the delimitation of the Cuvelai basin and sub-basins using the criteria defined under activity 1 above. (review for sub-basin with SDP)				DRFN	MAWRD			With 1.1.3
1.4 <i>Make a proposal regarding the applicability and ranking of all criteria for discussion. For the approved criteria, sets of all relevant maps and digital mapping should be acquired;</i>				DRFN	MAWRD	N\$ 2 500	1.4	Proposal report
1.4.1 Acquire sets of relevant maps and digital mapping according to the approved criteria				DRFN	MAWRD			Set of maps
1.4.2 Identify data gaps and evaluate the quality of accessible data ⁴	1d			DRFN	MAWRD			Report
1.5 <i>Make proposals regarding the process of demarcation (adjustments) of basins within Namibia with specific recommendations for the Cuvelai;</i>				DRFN	MAWRD	N\$ 2 500	1.5	Proposal report
1.5.1 Develop a process of how to best delimitate basins and sub-basins, based on the criteria defined under activity 1 and experiences from the Kuiseb catchment and the Cuvelai catchment	1d			DRFN	MAWRD	N\$ 2 500		Process document
1.6 <i>Finalize digital mapping using ArcView GIS format for the approved demarcation⁵, 1:250,000 [or better] at Cuvelai level, and 1:50,000 for the agreed Cuvelai sub basin). These maps should contain GIS overlays for all available data and relevant criteria;</i>				DRFN	MAWRD	N\$ 7 500	1.6	Maps available

⁴ No new data can be generated during the span of this consultancy. This can have repercussions on activity 1.6 as data required for finalising the mapping might not exist.

⁵ It was suggested that the national component of activity 6 is removed (see 1.6).

1.6.1 Collect all accessible GIS overlays within the approved demarcations of the Cuvelai basin and the agreed Cuvelai sub-basin based on the criteria defined in activity 1 above.	1d			DRFN	MAWRD	N\$ 2 500		Overlay collection
1.6.2 Conduct digital mapping of the Cuvelai basin allowing print outs in scale 1:250 000 or better and digital mapping of the agreed Cuvelai sub-basin allowing print outs in scale 1:50 000.	2d			DRFN	MAWRD	N\$ 5 000		Maps
<i>1.7 Identify specific activities to be carried out for a detailed profile of the selected sub basin in the Cuvelai (link with the summer desertification programme);</i>				DRFN	MAWRD	N\$ 27 500	1.7	Activity report for Cuvelai basin available
1.7.1 Conduct joint planning with the organisers of the Summer Desertification Programme in order to identify relevant activities that will assist in the assessment of the criteria suggested for demarcation of sub-basins.	1d			DRFN	MAWRD	N\$ 2 500		Meeting minutes
1.7.2 Assist the SDP team during their preparation and while in the field in order to ensure that activities are carried out and documented appropriately		10d		DRFN	MAWRD	N\$ 25 000		SDP field and analysis reports
<i>1.8 Make proposals for the selection of 5 basins for completion of basin profiles;</i>				DRFN	MAWRD	N\$ 2 500	1.8	Proposal report available
1.8.1 Conduct workshop where the various possibilities are discussed in a wider forum ⁶	1d			DRFN		N\$ 2 500		Proceedings of workshop
<i>1.9 Prepare one final report with all above information.</i>			3d	DRFN	MAWRD	N\$ 7 500	1.9	Final report available
Sub-Total Result 1	29					N\$72 500		

⁶ Only to be held if the consultant hasn't received enough information to be able to make the suggestion. If the consultant thinks that the information collected during the workshop held under activity 1 together with the assessments of accessible maps and other data sources is sufficient to propose the five basins that should be considered for completion of basin profiles, then this activity can be transferred to activity 1.9, i.e. the final report.

Result 2: Results of the Kuiseb basin management process compiled and transferred.								
<i>2.1. Produce a guidebook on the establishment of basin management committees on the basis of the Kuiseb experience;</i>						N\$ 2 500		
2.1.1. Review external evaluation of the basin management process used in the Kuiseb to determine steps, strengths, lessons learnt and recommendations	0.5d			DRFN	MAWRD	N\$ 1 250		Review report of Kuiseb basin management process compiled
2.1.2 Review the survey of Kuiseb stakeholders and KBMC to provide information on process and undertake spot-checks for clarification if necessary	0.5d			DRFN	Kuiseb stakeholders, MAWRD	N\$ 1 250		Review of stakeholder survey indicating thoughts and suggestions on basin management approach documented
2.1.3 Compile information on process of establishment of BMCs into a document to be used as a guidebook				DRFN	MAWRD			Guidebook on basin management committee establishment process based on Kuiseb experiences
<i>2.2. Conduct a comparative analysis of conditions in kuiseb and cuvelai and the possible effect on basin management approaches;</i>						N\$ 8 750		
2.2.1 Use output of 2.1.3 to create a matrix listing key components and activities to take place in basin management approach	0.5			DRFN	MAWRD	N\$ 1 250		Basin management approach matrix developed

2.2.2 Based on conditions in the Kuiseb and Cuvelai basins, analyse potential for the basin management approach using the matrix as initiated in 2.2.1	2d		+	DRFN	MAWRD	N\$ 5 000		Analysis undertaken and results matrix developed
2.2.3 Based on Kuiseb experience and comparative matrix develop scenarios for basin management approach in the Cuvelai context	1d			DRFN	MAWRD	N\$ 2 500		Scenariodocument available
<i>2.3 Make a proposal for a twinning agreement between kuiseb and cuvelai, comprising policies and operational procedures for exchange of information;</i>						<i>N\$ 20 000</i>		
2.3.1 Conduct a study of existing and proposed linkages and frameworks for two basins and BMCs in general	1d			DRFN	MAWRD	N\$ 2 500		Evaluation document of existing linkages and frameworks compiled and available
2.3.2 Investigate relationship needs and roles between basins and document	1d			DRFN	MAWRD, KBMC, Cuvelai basin stakeholders	N\$ 2 500		Documentation of relationship needs and roles between basins completed
2.3.3 Produce policy document on relationships between basins using Kuiseb-Cuvelai as test case	2d			DRFN	MAWRD	N\$ 5 000		Policy developed
2.3.4 Design operational procedures for information exchange detailing key institutions, roles and including diagram of suggested modalities and pathways	2d			DRFN	KBMC, MAWRD	N\$ 5 000		Operational procedures developed and documented
2.3.5 Compile all of above into proposal	2d			DRFN	MAWRD, KBMC	N\$ 5 000		Proposal developed and written
<i>2.4.prepare a comprehensive monitoring plan for basin management in the cuvelai, including specific indicators;</i>						<i>N\$ 21 250</i>		

2.4.1 Undertake a review of existing monitoring systems within the Cuvelai basin	2d			DRFN	MAWRD,	N\$ 5 000		Review document of current monitoring systems completed
2.4.2 Identify monitoring needs of the Cuvelai basin during SDP course		3d		DRFN	MAWRD,	N\$ 7 500		List of monitoring needs for Cuvelai produced
2.4.3 Review process of setting up monitoring system in Kuiseb basin	0.5d			DRFN	MAWRD, KBMC	N\$ 1 250		Lessons learn from Kuiseb basin monitoring system documented
2.4.4 Develop a model for basin monitoring system of the Cuvelai basin including indicators (output of SDP course)		3d		DRFN	MAWRD,	N\$ 7 500		A comprehensive monitoring plan for basin management in the Cuvelai, including specific indicators developed
<i>2.5. collect information on existing approaches for integrated land and water management at basin level and make a critical analysis of their usefulness.</i>						N\$ 10 000		
2.5.1 Undertake intensive search on information related to integrated land and water management approaches in basins using libraries, networks, internet, Universities, agencies and other sources	2d			DRFN	MAWRD	N\$ 5 000		Intensive search completed and materials located and the process documented
2.5.2 Compile a list of found materials, their format, access and if possible actual materials.				DRFN				List of available materials on the subject developed. Materials made available
2.5.3 Develop set of criteria for evaluating existing information based on usefulness, applicability, availability and access and value of information to the process.	0.5d			DRFN	MAWRD, GTZ	N\$ 1 250		Evaluating criteria developed

2.5.4 Create reference table on available materials and information and evaluate these based on developed set of criteria.	0.5d			DRFN		N\$ 1 250		Table of available materials evaluated using criteria produced and available
2.5.5 Compile full report on the above activities and their results including evaluating criteria, evaluation table, and list of reference materials, websites, places to access information etc	1d		+	DRFN	MAWRD, GTZ	N\$ 2 500		Full assessment report compiled and available
Sub-total Result 2	25					N\$ 62 500		
Result 3: Institutional modalities for the operation of the Cuvelai BMC and Sub-BMCs with links to the national and regional level, and financial support mechanism for sustaining the functioning of the Cuvelai BMC and Sub-BMCs are worked out.								
<i>3.1. Identify the required interaction of bmc's, especially the cuvelai bmc, with other regional and national institutions;</i>						<i>N\$ 10 000</i>		
3.1.1 Evaluate the role and function of BMCs and their framework, linkages and support needs to be successful in small workshop with DRFN & MAWRD	1d			DRFN	MAWRD	N\$ 2 500		BMC role, function, and framework needs assessment document prepared and available
3.1.2 Evaluate plans for BMC inclusion into Regional and National frameworks	1d			DRFN	MAWRD	N\$ 2 500		Evaluation report of previous plans completed
3.1.3 Using information from above activities investigate possible scenarios for BMC interaction with regional and national frameworks and evaluate such options	1d			DRFN	MAWRD	N\$ 2 500		Scenarios developed and evaluated and document available
3.1.4 Design a plan for operation of BMCs within regional and national frameworks using the most appropriate options	1d			DRFN	MAWRD	N\$ 2 500		BMC framework and linkages plan developed and available

<i>3.2 identify and make proposals for interaction of sub-bmcs with the bmc in the cuvelai;</i>						N\$ 5 000		
3.2.1 Compile information needs of the Cuvelai bmc and sub-BMCs		1d		DRFN	MAWRD	N\$ 2 500		Sub-BMC needs assessment document completed
3.2.2 Develop plan for interaction between sub-BMCs and BMC	1d			DRFN	MAWRD	N\$ 2 500		Interaction plan produced and available
<i>3.3 make a proposal for institutional modalities to assure that all these interactions are performed in an efficient manner</i>	1d		+			N\$ 2 500		<i>Proposal completed and available</i>
<i>3.4 identify and quantify the financial requirements for the operational activities of the bmc and sub-bmcs in the cuvelai;</i>				DRFN	MAWRD	N\$ 5 000		
3.4.1 Compile list of operational activities of BMC and sub-BMCs	1d		+	DRFN	MAWRD	N\$ 2 500		BMC and sub-BMC operational activity plan
3.4.2 Cost each of these activities (next activity)	1d		+	DRFN	MAWRD	N\$ 2 500		BMC and sub-BMC costing and budgets are developed
<i>3.5 investigate various alternatives for financing bmc's and sub-bmcs (such as licensing fees, abstraction levies, financing by government and any other relevant);</i>						N\$ 5 000		
3.5.1 Identify and evaluate options for financing of BMCs and sub-BMCs	1d			DRFN	MAWRD	N\$ 2 500		Document containing identification and evaluation of funding options completed

3.5.2 Compile document highlighting the results of the above two activities	1d			DRFN	MAWRD	N\$ 2 500		Report on 3.4 and 3.5 synthesised Isn't this more than they ask for?
3.6 prepare one final report with all above information.		2d		Drfn	Mawrd	N\$ 5 000		Final report compiled and available
Sub-Total Result 3	13					N\$ 32 500		
Result 4: Training and capacity building for the Cuvelai BMC and Sub-BMCs including public awareness measures for educating and informing the public on the merits of basin management and ILWM are planned and conducted.								
4.1 identify the training requirement for BMC facilitators;						N\$ 7 500		
4.1.1 Document the role and function of a BMC facilitator	1d			DRFN	MAWRD	N\$ 2 500		BMC facilitator role and function assessment document produced
4.1.2 List the relevant skills and capacity required to carry out such roles and functions	1d			DRFN	MAWRD	N\$ 2 500		Checklist of requirements for BC facilitator developed
4.1.3 Identify the types of training activities required to provide capacity and skills to persons to fulfill the BMC facilitator roles and functions	1d			DRFN	MAWRD	N\$ 2 500		List of training activities required compiled
4.2 Prepare and offer training for BMC facilitators;						N\$ 7 500		
4.2.1 Design a training course for BMC facilitators	1d			DRFN	MAWRD	N\$ 2 500		Training course designed and documented
4.2.2 Design and produce training manual for BMC facilitators	1d			DRFN	MAWRD	N\$ 2 500		Training manual produced

4.2.3 Conduct training workshop in BMC facilitating		1d		DRFN	MAWRD	N\$ 2 500		Training workshop report compiled and available
<i>4.3 Identify the required training and capacity building needs for key stakeholders and translate those into a comprehensive training plan and training manuals;</i>						<i>N\$ 12 500</i>		
4.3.1 Evaluate the training undertaken in the Kuiseb basin process and its successes and lessons learnt	0.5d			DRFN	MAWRD	N\$ 1 250		Kuiseb basin training process documentation and evaluation document completed
4.3.2 List key skills and capacity required for successful basin management by stakeholders	0.5d			DRFN	MAWRD	N\$ 1 250		List of stakeholder capacity requirements developed
4.3.3 Evaluate capacity of key stakeholders in the Cuvelai and identify training needs and gaps for Cuvelai stakeholders		2d		DRFN	MAWRD	N\$ 5 000		Assessment report compiled and available
4.3.4 Prepare comprehensive training plan and manual		2d		DRFN	MAWRD	N\$ 5 000		Training plan and manual produced and available
<i>4.4 Organise and conduct training for key stakeholders in the Cuvelai and compile training evaluation reports;</i>						<i>N\$ 10 000</i>		
4.4.1 Organise training workshops for Cuvelai stakeholders		1d		DRFN	MAWRD	N\$ 2 500		Preparations completed and in order
4.4.2 Conduct training based on plan and manual and involve BMC facilitator trainees in workshop		1d		DRFN	MAWRD	N\$ 2 500		Training reports available
4.4.3 Undertake planned excursions as part of training programme		1d		DRFN	MAWRD	N\$ 2 500		Excursion reports compiled and available
4.4.4 Evaluate the training provided		1d		DRFN	MAWRD	N\$ 2 500		Training evaluation document produced and used

4.4.5 Compile reports on training and activities looking at impacts and evaluating success of training				DRFN	MAWRD			Training reports available
<i>4.5 Identify information gaps and assess the requirements for public awareness raising and education for basin management and ILWM;</i>						N\$ 7 500		
4.5.1 Undertake information requirements and availability survey amongst stakeholders	1d	1d		DRFN	MAWRD, Cuvelai stakeholders	N\$ 5 000		Survey results documented and available
4.5.2 Conduct assessment of awareness and education needs	1d			DRFN	MAWRD	N\$ 2 500		Awareness and education needs assessment report compiled and available
<i>4.6 Prepare a comprehensive public awareness plan, including detailed cost calculation for the Cuvelai and Kuiseb;</i>						N\$ 12 500		
4.6.1 Conduct a small survey on or Review methods of public awareness, previous, ongoing and future campaigns in this area and evaluate availability, costs and successes of different methods (especially look at awareness methods used in the Kuiseb)	1d			DRFN	MAWRD	N\$ 2 500		Public awareness method assessment document produced
4.6.2 Identify type of information to be presented, target groups, awareness methods to be used for different target groups	1d	1d		DRFN	MAWRD	N\$ 5 000		Analysis document of what awareness needs to be carried out undertaken and documented
4.6.3 Prepare awareness plans for Kuiseb and Cuvelai basins		1d	2d	DRFN	MAWRD	N\$ 5 000		Awareness plans developed and available
<i>4.7 Conduct two start-up public awareness meetings together with the trained BMC facilitators.</i>						N\$ 15 000		

4.7.1 Identify all relevant stakeholders of the basin		0.5d		DRFN	MAWRD	N\$ 2 500		Stakeholder list developed and available
4.7.2 Identify appropriate dates and locations for awareness workshops		0.5d		DRFN	MAWRD	N\$ 2 500		Workshop timetable and plan completed
4.7.3 Prepare introductory information, invitations, and workshop outlines to send to participants		1d		DRFN	MAWRD	N\$ 2 500		Workshop materials produced and ready
4.7.4 Prepare awareness information display and handouts for participants for workshops (i.e. posters, brochures, presentations, models etc)		1d		DRFN	MAWRD	N\$ 2 500		Preliminary awareness materials produced and displayed/distributed at workshops
4.7.5 Conduct workshops using awareness plans and BMC facilitators		1d		DRFN	MAWRD	N\$ 2 500		Workshop reports
4.7.6 Evaluate stakeholder awareness before and after workshop, reaction to materials, and suggestions for ongoing awareness program		1d		DRFN	MAWRD	N\$ 2 500		Awareness evaluations completed
Sub-Total Result 4	29					N\$ 72 500		
Total All Results	96					N\$ 240 000		

4. Draft Budget

The budget had been drafted for each component or result. The plan of operation provides more details at activity and sub-activity level. It also includes reimbursable cost, that should be considered for the relevant activities (eg. workshops).

Component/Item	Units	# of Units	Price/Unit	Total
A: Professional Fees				
Result 1	days	29	2 500	72 500
Result 2	days	25	2 500	62 500
Result 3	days	13	2 500	32 500
Result 4	days	29	2 500	72 500
Total Prof Fees		96	2 500	240 000
Reimbursable Costs				
Workshops	lumpsum	4	25000	100 000
Transport	km	20000	5.8	116 000
Stationery (reports)	lumpsum	1	10000	10 000
Production of Maps	lumpsum	1	15000	15 000
Printing guidebooks	lumpsum	1	50000	50 000
Total Reimbursable Costs				291 000
Overheads (10% of total)				53 100
Total Project Cost				584 100

Annexures:

Annex 1: The consultant team

The Team consists of the following people:

Dr. Mary Seely (Team Leader)
Anna Matros (Co-Team Leader and Basin Management Specialist)
Dr. Alex Verlinden (Soils & Vegetation Specialist)
Patrik Klintenberg (Gis Specialist)
Christopher Nyambe (Gis and Field Specialist)

Their CVs are as follows:

CURRICULUM VITAE OF MARY SEELY

M. K. Seely
Executive Director
Desert Research Foundation of Namibia
P O Box 20232, Windhoek, Namibia
and
Director
Environmental Evaluation Associates of Namibia (Pty) Ltd
P O Box 20232, Windhoek, Namibia

Education: Ph.D. University of California, Davis

Recent professional positions, from 1990:

1994 - 1997 Honorary Professor, University of Namibia - research and research training
1994 Adjunct Professor, University of New Mexico, USA - research
1991 - *present* Director: Environmental Evaluation Associates of Namibia (Pty) Ltd -
environmental and environmental educational consulting, impact assessments
1990 - *present* Executive Director: Desert Research Foundation of Namibia -
administration, training and research
1990 - *present* Honorary Research Professorial Fellow: Departments of Animals, Plants
and Environmental Science, University of the Witwatersrand - lecturing and
research

Recent DRFN grants, coordinated by MKS:

1991 - 2004 Grants for Environmental Education from, *inter alia*, Sida, Norad, Goldfields
Namibia, Rotary Club Windhoek; Research grants from, *inter alia*, SAREC, EU;
Project grants from, *inter alia*, Sida, BMZ/GTZ, Norad, EU, AGRP Japan, Danced &
Danida, Heinrich Böll Stiftung, Netherlands government.

Individual grants and awards:

1997 Gold Medal, Zoological Society of Southern Africa
1994 DSc Honoris causa, University of Natal

Referee for, *inter alia*:

Cimbebasia, Namibia; Journal of African Zoology, Belgium; Journal of Arid Environments,
England; Madoqua, Namibia; National Geographic Society, U.S.A.; South African Journal
of Science; South African Journal of Zoology.

Major recent professional activities:

During 34 years of research and training in ecology and environmental science, co-
supervised over 50 MSc and PhD degrees in arid zone ecology and environmental topics.
Organised and contributed to training programmes for University of Namibia, Polytechnic of
Namibia, four Colleges of Education of Namibia and varied international educational
groups.

Since 1990, overall programme coordination for over 50 projects of the Desert Research
Foundation of Namibia. Overall professional coordination for environmental assessments
for Environmental Evaluation Associates of Namibia (Pty) Ltd.

Dr Seely has published over 160 papers and organised and/or contributed to over 20 books. She has written or contributed to over 100 environmental assessments on various enterprises in Namibia.

2001 – present: Member of President's Vision 2030 Core Team, Namibia

2000 – 2003 Organiser: International conference process – Alternative ways to combat desertification

1999 – 2002: Deputy Chairman of Task Force for Namibian Water Resource Management Review

1998 – present: Member, Board of Trustees, Gobabeb Training and Research Centre

1996-2003 Member of Steering Committee for: Enviroteach project (Ministry of Basic Education and Culture); Legal and Environmental Awareness Project (with Legal Assistance Centre); Regional Water Books for seven water regions in Namibia (Department of Water Affairs); Department of Water Affairs publications committee (DWA); Desertification programme Phases 1,2&3 (Ministry of Environment and Tourism), Namibia's Global Climate Change report (Ministry of Environment and Tourism); Hoanib River Catchment project (Ministry of Agriculture, Water and Rural Development); NetWise project (Southern African Development Conference (SADC)); Biomass energy conservation Project (Ministry of Mines and Energy); Environmental Learning and Action in the Kuiseb; SADC-DRFN Desertification Interact.

1996 Member: Namibian Drought Task Force

1996 Organiser Workshop: Desertification Day for western SADC, Waterberg

1995-1997 Member: National Planning Commission, Namibia

1994 Organiser Workshop: Desertification in Namibia, Windhoek

1992/93 to present: Organiser: Summer Research Training Programme for tertiary students from University of Namibia, Polytechnic of Namibia and colleges of agriculture.

1992 Advisory Board, Encyclopedia of Environmental Biology, Academic Press.

1990 Co-organiser Workshop: Episodic Events, Windhoek

1990 Co-organiser workshop and Field Excursion: Environmental Impacts of Prospecting and Mining in the Namib, Geological Society of Namibia, Windhoek

PEER-REVIEWED RECENT PUBLICATIONS

- Shanyengana, ES, Seely MK, Sanderson RD. 2004. Major-ion chemistry and ground-water salinisation in ephemeral floodplains in some arid regions of Namibia. *Journal of Arid Environments* 5(2): 211-223.
- Botes, A, Henderson J, Nakale T, Nantanga K, Schachtschneider K, Seely, M. 2003. Ephemeral rivers and their development: testing an approach to basin management committees on the Kuiseb River, Namibia. *Physics and Chemistry of the Earth* 28: 853-858.
- Seely MK, Henderson J, Heyns P, Jacobson P, Nakale T, Nantanga K, Schachtschneider K. 2003. Ephemeral and endoreic river systems: Relevance and management challenges. Pp 187-212. *In: Turton A, Ashton P, Cloete E (eds). Transboundary rivers, sovereignty and development: Hydropolitical drivers in the Okavango River basin. African Water Issues Research Unit (AWIRU) and Green Cross International (GCI). 369 pp.*
- Seely MK, Henschel J.R. 2003. Best Practices in the World's Oldest Desert. Pp119-128. *In: Lemons, J., R. Victor, D. Schaffer. 2003. Conserving Biodiversity in Arid Regions. Kluwer Academic Publishers, Boston, MA. 497 pages.*
- Seely MK, Zeidler J, Henschel JR, Barnard P. 2003. Creative problem solving in support of biodiversity conservation. *Journal of Arid Environments* 54(1): 155-164.
- Shanyengana ES, Sanderson RD, Seely MK, Schemenauer RS. 2003. Testing greenhouse shade nets in collection of fog for water supply. Operational paper. *Journal of Water Supply: Research and Technology–Aqua*. 52.3: 237-241.
- Botes A, Henderson J, Nakale T, Nantanga K, Schachtschneider K, Seely M. 2002. Environmental Learning and Action in the Kuiseb. Proceedings 3rd WaterNet/Warfsa Symposium: Water Demand Management for Sustainable Development, 30-31 October 2002. p 630-638.
- Seely M and Zeidler, J. 2002. Land distribution and sustainable development, pp 75-84. *In: Winterfeldt, V, Fox, T and Mufune, P (eds.) Namibia, Society, Sociology. University of Namibia Press, Windhoek, Namibia. 397 pp.*
- Shanyengana ES, Henschel RJ, Seely MK, Sanderson RD 2002. Exploring fog as a supplementary water source in Namibia. *Atmospheric Research* 64: 251-259.
- Henschel JR, Robertson MB & Seely MK. 2001. Animal ecophysiology in the Namib Desert: coping with little water, scarce food and elevated temperatures. *In: Ecology of desert environments (a Festschrift for Prof. J.L. Cloudsley-Thompson on his 80th birthday). Prakash I (ed). Scientific Publications (India) Jodhpur: 423-457.*
- Seely M 2001. Environment: harsh constraints, political flexibility, pp 35-51. *In: I Diener and O Graefe (eds), Contemporary Namibia: the first land marks of a post-apartheid society. Gamsberg Macmillan Publishers/IFRA, Windhoek, Namibia, 397 pp.*
- Henschel JR, Benno M. Eller BM, Seely MK, von Willert DJ. 2000. Bibliography *Welwitschia mirabilis* J.D.Hooker. *Plant Ecology* 150: 19-26
- Henschel JR, Seely MK. 2000. Long-term growth patterns of *Welwitschia mirabilis*, a long-lived plant of the Namib Desert. *Plant Ecology* 150: 7-18.
- Henschel JR, Seely MK, Zeidler J. 2000. Long-term ecological research at Gobabeb: gaining and applying knowledge about a highly variable environment. *Journal of*

the Namibia Scientific Society 48: 89-115.

Seely MK, Henschel JR, Zeidler J, Shanyengana ESC. 2000. Namib research: its development at Gobabeb and implications for Namibia. *Journal of the Namibia Scientific Society* 48: 62-88.

PUBLICATIONS EDITED

Akawa, M.N., Andreas, K.J., Endjala, T.N., Halundonga, A.-L., Hamukoshi, E., Iiyambo, D., Mbango, T., Mulonga, S., Muteyauli, P., Nghikembua, M.-L., Nkandi, D., Steenkamp, B., Uazukuani, U. 2002. Water use and environmental conditions along the Etaka Canal in north-central Namibia. (WJ Hamilton, M Seely eds) DRFN, Windhoek, Namibia. Summer Desertification Programme No. 10.

Angula, H., Goreseb, J. Haimbodi, N., Iiputa, G., Katshuna, M., Matros, A., Muduva, T., Muvi-Tjikalapo, M., Nakale, T., Nakthingo, H., Nampila, J., Nantanga, K., Nashipili, N., Shigweda, L., Thomas, T. 2001. Influence of farm dams on water balance in an ephemeral river system: the Kuiseb basin/catchment. (WJ Hamilton, M Seely, G van Langenhove eds.) DRFN: Summer Desertification Programme No. 9.

Amoomo H, Elago P, Gaseb N, Hoveka V, Khairabes M, Mbangula E, Maharukua V, Mukuya S, Ndjeula G, Noongo E, Shinedima R, Zaaruka B. 2000. Determining the water reserve for the Kuiseb River. (WJ Hamilton, P Klintenberg, S Montgomery, M Seely eds.) DRFN: Summer Desertification Programme No. 8. Occasional Paper No 11, 61 pp.

ABSTRACTS, POPULAR ARTICLES, SHORT REPORTS AND CONFERENCE PROCEEDINGS

Hamilton WJIII, Henschel JR, Seely MK. 2003. Fog collection by Namib Desert beetles. Correspondence. *South African Journal of Science* **99**: 181.

Christiansson C, Klintenberg P, Schlyter P, Seely M. 2002. Desert Research Foundation of Namibia and Department of Physical Geography and Quaternary Geology, Stockholm University: Training and research cooperation. *In: Alternative ways to combat desertification: Connecting community action with science and common sense. International Symposium, 8-10 April 2002, Cape Town, South Africa: abstract, p7.*

Seely MK, Hamilton III WJ, Klintenberg P. 2002. Promoting best practices for conservation of biodiversity of global significance & sustainable use of resources in arid and semi-arid zones. *In: Symposium, Third World Network of Science Organisations, Oman, April 2002.*

Seely MK, Henschel JR. 2002. Best practises in the world's oldest desert. *In: Symposium, Third World Network of Science Organisations, Oman, April 2002.*

Seely M, Klintenberg P, Nantanga K, Nakale T. 2002. Summer Desertification Programme – student summer course evaluates major environmental issues. *In: Alternative ways to combat desertification: Connecting community action with science and common sense. International Symposium, 8-10 April 2002, Cape Town, South Africa: abstract, p4*

- Seely, M and Moser, P. 2002. Degraded land in southern Africa - combining community action with science and common sense: alternative ways to combat desertification. *Haramata* No. 41: 7-8.
- Seely M, Wohl H. 2002. The role of research in combating desertification. *In: Alternative ways to combat desertification: Connecting community action with science and common sense. International Symposium, 8-10 April 2002, Cape Town, South Africa: abstract, p49.*
- Seely M. 2001. Developing tools to interpret the environment. *Conservation Travel News*. Windhoek. Special Edition: 24-25.
- Seely MK, Henschel JR. 2001. Developing fog harvesting in Namibia. *Newsletter Namibia Scientific Society* 41: 30-42.
- Seely, M, Wöhl, H. 2001. Research competence in combating desertification. *Entwicklung und Ländlicher Raum*, 35(3): 15-19.
- Shanyengana ES, Henschel JR, Mtuleni VS, Mwenya E, Seely MK. 2001. Exploring fog as a supplementary water source in Namibia. *In: 2nd International Conference on Fog and Fog Collection, 16-20 July 2001, St. John's, Canada: 273-276.*
- Henschel JR, Seely MK. 2000. Developing Fog Harvesting in Namibia. 4th Biennial Congress of the African Division of the International Association of Hydraulic Research, Windhoek, Namibia, 7-9 June 2000.
- Henschel JR, Seely MK, Zeidler J. 2000. Long-Term Ecological Research at Gobabeb in the Namib Desert: gaining and applying knowledge about a highly variable environment. *Poster presentation, LTER All Scientists Meeting, Snowbird, Utah, USA, 2-4 August 2000.*
- Parenzee L, Zeidler J, Seely M. 2000. Testing biodiversity indicators for community use – a case study from Namibia. *Abstracts of the 13th Congress of the German Society for Tropical Ecology, March 2000, Würzburg, Germany: 37 (abstract).*
- Seely MK. 2000. Is environmental education firmly on schools' agenda. *In: Education in Perspective – Namibia's first decade.* Taylor E (ed). Ministry of Higher Education, Vocational Training, Science & Technology. 3 pp in 124 pp.
- Seely MK, Henschel JR. 2000. Developing Fog Harvesting in Namibia. 4th Biennial Congress of the African Division of the International Association of Hydraulic Research, Windhoek, Namibia, 7-9 June 2000.
- Seely MK, Henschel JR, Zeidler J, Shanyengana ES. 2000. Namib Research: Its Development at Gobabeb and Implications for Namibia. *75th Anniversary of the Namibia Scientific Society, Windhoek, 2-3 June 2000.*
- Seely MK, Zeidler J, Henschel JR, Barnard P. 2000. Creative problem solving in support of biodiversity conservation. *International Conference on Conservation of Biodiversity in Arid Regions, Kuwait, 27-29 March 2000.*
- Seely MK, Zeidler J, Henschel JR, Barnard P. 2000. Creative problem solving in support of biodiversity conservation. *Poster presentation, LTER All Scientists Meeting, Snowbird, Utah, USA, 2-4 August 2000.*
- Seely MK, Zeidler J, Parenzee L. 2000. Connecting science and community action. *Abstracts of the 13th Congress of the German Society for Tropical Ecology, March 2000, Würzburg, Germany: 45 (abstract).*
- Zeidler J, Seely M, Parenzee L. 2000. Environmental indicators for community management. *Abstracts of the 13th Congress of the German Society for Tropical Ecology, March 2000, Würzburg, Germany: 53 (abstract).*

CURRICULUM VITAE of Anna Matros

ANNA K.F. MATROS

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Fax: +264 61 230172

PERSONAL INFORMATION

Nationality: Namibian

Birth date: 1979-11-14

Sex: Female

Languages: English, Afrikaans and Nama/Damara

EXPERIENCE

February 2004- present

Desert Research Foundation of Namibia

Acting Waterdesk Coordinator

- Coordinate all waterdesk activities and projects
- Ensure that all projects are implemented according to plan and time schedules
- Draft, coordinate and implement project proposals
- Conduct consultancies on behalf of DRFN with regard to environmental management (for example National Self-Assessment Capacity Project for Global environmental management on behalf of Ministry of Environment and Tourism)
- Draft Policies on consultancy basis on behalf of DRFN for its clients (for example City of Windhoek Environmental Structure Plan)
- Coordinate and plan workshops, meetings and Symposiums
- Draft reports and articles with regard to water/environmental issues.
- Liase and network with relevant stakeholders
- Organise and Facilitate workshops

October 2003- present

Desert Research Foundation of Namibia

Project Manager

- Coordinate all activities (project related and administrative) with regard to the Floodwater Recharge in Alluvial Aquifers in Dryland Environment Project.
- Draft funding proposals, compiling reports and write articles dealing with natural resource management.
- Conduct research and implement project activities.

- Implement on a consultant basis proposals of DRFN to their clients
- Conduct Project evaluation processes
- Organise and conduct workshops

June 2001– September 2002 Desert Research Foundation of Namibia

National Coordinator of the World Summit on Sustainable Development

- Coordinate the preparation process towards the summit.
- Elected as Regional (SADC) focal point coordinator.
- Represented DRFN and Namibia at National, Regional and International meetings.
- Networked with relevant partners
- Organised workshops and awareness raising campaigns
- Drafted funding proposals, compiling progress reports, evaluation reports and articles for newspapers and magazines

February 2001–June 2001 Desert Research Foundation of Namibia

Trainer in Training

- Conducted research and analyses to assist in establishing a well-organised Training Unit within the DRFN.
- Conducted research and write articles on topics pertaining to a Project of DRFN: Desertification 2002.

EDUCATION

2002-2003 Linkoping University Sweden

Master of Science in Water Resources and Livelihood Security.

- Master thesis title: Linking Policies with People (*Passed with Distinction*)
- Courses include: Management option and Directives; Water and Land use-implications on Quantity and Quality and Environmental and Social Impact Analyses.

1998-2000 University of Namibia Namibia

Bachelor of Science in Natural Resources

- Specialisation: Fisheries and Marine Sciences
- Final year research project title: The influence of environmental factors on the Cape rock lobster (*Jasus lalandii*)
- Best Final Year student-Department of Natural Resources

SKILLS

Facilitation of workshops and meetings, Good presentation skills, Project planning, development and implementation, Drafting funding proposals.

Computer: Microsoft word, Power Point, Excel, Network Explorer, Statistica and GIS.

REFERENCES

- Dr M. Seely, Executive Director of Desert Research Foundation of Namibia, Tel: +264 61 229855, Fax: +264 61 230172, Email: mseely@drfn.org.na
- Prof J. Lundqvist, Head of Masters Programme: Water resources and livelihood security, Linkoping university, Sweden, Tel: +46 13 282 272
- Prof J. Msangi, Head of Natural Resources Department, University of Namibia, Tel: +264 61 206 3383

CURRICULUM VITAE of Patrik Klintenberg

Name: Patrik, Conny, Mauritz Klintenberg

Birth date: 1966-10-23

Gender: Male

Citizenship: Swedish,

Place of birth: Lund, Sweden

Residential address

12 Conrad Rust st.

PO. box 202 32 Windhoek

Namibia

E-mail: patrikk@drfn.org.na

EDUCATION

Exams

Completed

Ph.Lic. Physical Geography
(Filosofie Licentiat)

2004-02-21

M.Sc. Physical Geography

1995-11-27

Technical Engineering

1986-06-08

(Teknisk gymnasieutbildning)

Present position

I am since 1st of July 2002 a PhD candidate at the Department of Physical Geography and Quaternary Geology, Stockholm University. My over-all supervisor is Professor Carl Christiansson, and assistant supervisors are Associate Professor Wolter Arnberg and Dr. Peter Schlyter, all at the Department of Physical Geography and Quaternary Geology, Stockholm University. My local supervisor in Namibia is Professor Mary Seely (DRFN).

I am also the research coordinator of the Desert Research Foundation of Namibia, mainly responsible of coordinating the supervision of visiting students.

Previous employment

Research co-ordinator for Namibia's Programme to Combat Desertification (NAPCOD)

2000-11-15 – 2004-06-30

Activities

- Co-ordinating all research activities of Napcod phase III, carried out by the DRFN. The DRFN is responsible for three of the components of the national programme, i.e. the development of a national level monitoring system, and a local level monitoring system, and to strengthen service organisations and community based organisations in Namibia.
- Supervise junior researchers within the Napcod programme
- Supervise MSc students from Namibia and elsewhere.
- Development of a national level land degradation monitoring system
- Lead the development and training within the field of GIS and remote sensing
- Provide training and supervision to students participating in the Summer Desertification Programme (SDP). The SDP is a ten-week course given annually by the DRFN, aimed at Namibian tertiary students.

Co-ordinator of IT development and management

Activities

- Leading the planning and developing of Information technology (IT) within the DRFN.
- Permanent chairperson for the DRFN IT-committee.
- Administrating and maintaining the computer systems at DRFN's Windhoek office and at the Gobabeb Training and Research Centre (GTRC), including two Unix servers operating as domain controllers, file servers, web- and collaboration servers, one e-mail server and a Citrix terminal server.
- Web design

Short term projects

- GIS expert and trainer during a pre-feasibility study for a tree planting project in the southern grasslands of north central Namibia. A study done for Ministry of Agriculture, Water and Rural Development by the DRFN (Seely et al., 2001)
- Supervisor for the Summer Desertification Programme. 2000/01, 2001/02
- Local co-ordinator for the Stockholm University Geography Excursion (SUGE) 2001. A field course given in Namibia by the Department of Physical Geography, Stockholm University. 2001
- GIS expert for the development of the State of the Environment Report – Waste Management and Pollution control

Bilateral Assistant Expert (Sida) at the Desert Research Foundation of Namibia

Duration: 1997-11-15 – 2000-11-14

Main activities

- Capacity building of staff within the fields of IT and GIS/RS
- Development of IT structures towards an international standard
- Teaching and supervision to Namibian and international tertiary students within the field of Physical Geography
- Leading the development of a national level land degradation monitoring system within the Napcod programme

Short term projects (1997-2000)

- GIS expert for the development of the Northwest tourism master plan, Kunene and Erongo regions, Namibia (1999)
- Co-ordinator for the Summer Desertification Programme 1998/99 and 1999/2000
- Supervisor for the Summer Desertification Programme 1997/98
- Given various environmental courses for University of Namibia (UNAM) and Polytechnic students at GTRC and in Windhoek. 1999- 2000
- GIS expert for the State of the Environment Report – Socio-Economics

Department of Physical Geography, Lund University, Sweden Assistant teacher, duration: 1993 – 1996

Activities

- 278 Lecturing hours in geomorphology, climatology, GIS and remote sensing
- Tutor for undergraduate students
- Excursion leader – Southern Sweden
- Field supervisor for M.Sc. students at Kapp Linn'e, Svalbard

Amanuensis, duration: 1995-09-01 – 1995-12-31

Activities

- Administrating Windows NT server and network at the Department of Physical Geography

Sydvästra Skånes Kommunalförbund (SSK), Malmö, Sweden GIS Expert, Duration: 1994-09-01 – 1995-08-31

Activities

- Development and maintenance of Geographic Information System
- Map making

Selected publications

Klintenberg, P. 1995. The Vegetation Distribution in the Karkevagge valley. M.Sc. Thesis 32, Department of Physical Geography, Lund University, Sweden

Zeidler J, Robertson M, Klintenberg P. 1999. Measurement and monitoring of environmental change through indicators of biodiversity and ecosystem function. *Resource paper and consultative workshops in support of developing the National Biodiversity Strategy*. National Biodiversity Programme, Department of Environmental Affairs (DEA), Ministry of Environment and Tourism (MET), Windhoek.

Klintenberg, P., Seely, M.K., Hamukwaya, T. 1999. Using Geographic Information Systems in rural communities - an example from the development of the Northwest tourism master plan Abstract presented as poster at The Third Biennial International Conference of the Society of South African Geographers, Windhoek, Namibia

Klintenberg, P., Seely, M., Kuckling, F., Lund, K., Rea, Q., Stoldt, R., Truebody, M., 1999. Paper GIS: a useful tool for community based planning. Abstract presented as poster at The Third Biennial International Conference of the Society of South African Geographers, Windhoek, Namibia

Klintenberg P, Noongo E, Langanke T, Mbangula E, Zeidler J. 2000. *National level monitoring of desertification, Napcod, DRFN*. Oral presentation, Annual Agricultural Research Conference, Swakopmund, Namibia, 25-27 July 2000: 11 pp.

Klintenberg P. 2001. Analysis of the development of indicators in State of the Environment (SoE) reports in Namibia compiled between 1998-2000. In: *Environmental Monitoring and Indicators Network (EMIN) for Namibia's State of Environment reporting: Proceedings of the Environmental Monitoring and Indicators Network (EMIN) workshop, Midgard, 11-22 June 2001*. Nakanuku L, Iinana E, Zeidler J, Katjua M (eds). Ministry of Environment and Tourism, Windhoek, Namibia, Appendix 1, 30 pp.

Klintenberg, P., 2002. Technical aspects of the development of the national level monitoring system and present status. (submitted). Namibian Programme to Combat Desertification, DRFN, Windhoek: 18 pp.

Christiansson, C., Klintenberg, P., Schlyter, P., Seely, M.K. 2002. Desert Research Foundation of Namibia and Department of Physical Geography and Quaternary Geology, Stockholm University: Training and Research Co-operation. Poster presentation at Desertification 2002 Alternative Ways to Combat Desertification: Connecting Community Action with Science and Common Sense, Cape Town, South Africa 8 – 10 April 2002

Klintenberg, P. 2002 The importance of networking: an example from the establishment of a national level desertification monitoring system in Namibia. Oral presentation

- at Desertification 2002 Alternative Ways to Combat Desertification: Connecting Community Action with Science and Common Sense, Cape Town, South Africa 8 – 10 April 2002
- Klintonberg, P., //Gaseb, N., Kruger, B. 2002. Namibia's Programme to Combat Desertification - Napcod Phase III poster presentation at Desertification 2002 Alternative Ways to Combat Desertification: Connecting Community Action with Science and Common Sense, Cape Town, South Africa 8 – 10 April 2002
- Seely, M. Klintonberg, P., Nantanga, K., Nakale, T. 2002. Summer Desertification Programme - Student summer course evaluates major environmental issues. Poser presentation at Desertification 2002 Alternative Ways to Combat Desertification: Connecting Community Action with Science and Common Sense, Cape Town, South Africa 8 – 10 April 2002
- Klintonberg, P., Gustad, G., 2002. Monitoring Desertification in Namibia, in EMIN 2 proceedings, Environmental Monitoring and Indicator Network. Eds. Noongo, N. and Reinikainen, T. Ministry of Environment and Toursim, Directorate of Environmental Affairs, Windhoek, Namibia. 13-14 June 2002, p 133-148.
- Klintonberg, P. and Seely, M.K., 2004. Land degradation monitoring in Namibia: A first approximation. *Environmental Monitoring and Assessment*. In press
- Klintonberg, P., Seely, M.K. and Christiansson, C. 2004. Local and national perceptions of land degradation in the Ombuga grasslands, northern Namibia. *Journal of Arid Environments*. In prep
- Klintonberg, P., 2004: Environmental monitoring in Namibia. Licentiate thesis. Stockholm University, Stockholm: 95 pp.

CURRICULUM VITAE of Alex Verlinden

1. Surname: Verlinden
2. Name: Alex
3. Date and place of birth: 21/3/1957, Merksem (Antwerp)
4. Nationality: Belgian
5. Civil Status: Married

Old Work Address (phone/fax/e-mail): Institute of Nature Conservation, Kliniekstraat 25, B1070 Brussels, Belgium (currently on indefinite leave of absence, on international missions as approved by the Minister of Environment and Agriculture, Flemish government).

Current work address:
 Dr. Alex Verlinden
 Desert Research Foundation of Namibia
 7 Rossini Street
 Windhoek
 Tel 081 2965447

Education:

<i>Institutions:</i>	<i>University of Ghent</i>
<i>Date:</i>	<i>1985</i>
<i>From (months/year)</i>	<i>October 1981</i>
<i>To (months/year)</i>	<i>October 1984</i>
<i>Degree</i>	<i>Doctor in Agricultural sciences</i>

<i>Institutions:</i>	<i>University of Ghent</i>
<i>Date:</i>	<i>1981</i>
<i>From (months/year)</i>	<i>October 1977</i>
<i>To (months/year)</i>	<i>July 1981</i>
<i>Degree:</i>	<i>Masters in Agricultural sciences</i>

7. Language skills (Mark 1 to 5 for competence, where 5 is the highest):

<i>Language</i>	<i>Level</i>	<i>Passive</i>	<i>Spoken</i>	<i>Written</i>
Dutch	<i>Mother Tongue</i>	5	5	5
English	<i>Second language</i>	5	5	5
French	<i>Third language</i>	5	4	4
German		4	3	3
Spanish		1		

8. Other skills (e.g. computer literacy, etc.): Very good skills in all common Windows based computer software (Word, excel, Access etc.) and advanced knowledge of various GIS and Remote Sensing software, spatial statistics and all software for ecology-related scientific work: ARCVIEW, ER-MAPPER, IDRISI, MAPINFO,

GEOMEDIA, ERDAS, SPSS, STATISTICA, CANOCO, SURFER.

Experience in land use planning, wildlife management and community forest management planning for improved local governance and poverty reduction

Experience in capacity building, training and lecturing at various levels, from local and regional to national government level and including university in Africa and Europe

Experience in community based natural resource management (Wildlife, Forestry, Agriculture, Water)

Experience in project cycle management, including short term experience as team leader

Good knowledge of the flora, ecology, soils and peoples of southern and Southeast Africa

Experience in participatory processes including indigenous knowledge for development, improved local governance and poverty reduction

Experience in writing project reports, consultancy reports and scientific papers

10. Present Position: Research Associate Desert Research Foundation of Namibia

Years of professional experience: 23, 13 in non-industrialised countries

Key qualifications: Ecologist, agricultural scientist, with experience in various fields including Forestry, Wildlife management, community based natural resource management, project management, land use planning at various levels including local government, scientific research on resource management including GIS and RS. Technical advisor for projects in three countries in Africa (Botswana, Namibia, Malawi) and Europe, including aerial game census for quota setting, vegetation mapping for change detection, fire scar detection, woody resources monitoring, park planning (Kalahari Transfrontier Park), support to CBNRM projects, mapping and planning for forestry and rural development using Indigenous Technical Knowledge (ITK). Capacity building (in service training, on the job training, coaching) of professional and technical staff in various institutions and local governments. Short-term experience in managing a large development project (NFFP) as acting Team Leader.

EXPERIENCE IN NAMIBIA

- Development, training in and management of a comprehensive GIS based database incorporating socio-economic data with environmental data used for participatory land use planning, resource mapping, resource assessments and monitoring at regional and national level, with emphasis on North Central Namibia

- Fire scar mapping and woody resource (cover, volumes) monitoring using Landsat TM imagery
- Database management
- Training on GPS use, mapping, RS and GIS, Database management for staff in various governmental institutions and development projects
- Method development and implementation using RS for integrating indigenous knowledge on land units of resources (water, soils, vegetation, agriculture, forestry, wildlife) in a GIS to improve local participatory planning and development
- PRA and resource surveys with communities and farmers in various environments
- Resource management and development planning on wildlife (planning aerial surveys in Etosha National Park), range management, community forestry, fishery, farming systems research
- Advising and assisting various development projects with setting up integrated resource management applications, particularly community-based forest management projects and Farming systems Research and extension .
- Fund raising for projects for the National Remote Sensing Center

RS/GIS experience:

Nine years (7 full-time) of working with various RS and GIS software packages on different platforms (DOS, Windows, Unix). Published GIS research work is oriented towards spatial analysis and GIS used as an interface between imagery, databases and statistical analysis, including multivariate analysis and geostatistics. More recent method development is oriented towards integrating local knowledge on landscapes and resources with land information systems.

In northern Namibia communal areas work was directed to set up a large GIS with emphasis on natural resources, socio-economics and indigenous knowledge. This included setting up databases on water resources, vegetation, soils, population statistics, homestead and farm locations, livestock numbers, infrastructure. Remote sensing work included georeferencing aerial photographs to produce orthophotos, aerial photography interpretation and digitising, land use analysis using field work and Landsat TM imagery processing, monitoring vegetation condition, fire and flooding with NOAA -AVHRR products.

Main GIS software used: PC based software: ARCVIEW, IDRISI, ER-MAPPER, MAPINFO, GEOMEDIA. Basic knowledge of Genamap, Arcinfo. Five international publications have resulted from this experience so far.

13. Specific experience in non-industrialised countries (13 years):

<i>Country</i>	<i>Date: from (month/year) to (month/year)</i>	<i>Name and brief description of the project</i>
Botswana	January 1991- March 1993	Wildlife Biologist, Department of Wildlife and National Parks. Capacity building and research on wildlife-people related matters. Employed by the Government of Botswana

		and VVOB.
Botswana	March 1993 – March 1996	Senior Wildlife Biologist, Department of Wildlife and National Parks. Aerial census, range monitoring techniques. Employed by the Government of Botswana and VVOB.
Namibia	February 1997- June 2001	Technical advisor, Northern Namibia Environmental Project, (DfID – UK). Using GIS and RS for rural development work. Linking ITK with science. Employed by EDG – Oxford.
Namibia	August 2001 – April 2003	Technical advisor, Namibia Finland Forestry Program (DCIC-FINLAND). Capacity building, project management, fund raising, advanced RS and GIS techniques for forestry. Employed by Stora-Enso and Indufor.
Malawi	1 February 2003 - 2 March 2003	Local land use classifications using indigenous knowledge consultancy for the Sustainable Forest Management Programme (DCIC Finland). Employed by FTP International.
Namibia	1 May 2003 – September 2003	Research associate with the Desert Research Foundation of Namibia. Writing scientific papers on fire scar mapping, using remote sensing for forest biomass estimation, comparing indigenous environmental knowledge with conventional science
Malawi	27 September 2003 – 30 June 2004	Sustainable Forest Management Programme. Capacity building of Forestry staff and communities in Participatory Forest Management

11. Professional experience:

<i>Date: from (month/year) to (month/year)</i>	27 September 2003 – 30 June 2004
Location	Mzuzu, Malawi
Company / Organisation	Helsinki Consulting, Finland for DCIC
Position	Community Based Forest Management Specialist
Job Description	Capacity building of Forestry Staff and CBOs in Community Based Forest Management
<i>Date: from (month/year) to (month/year)</i>	February 2003
Location	Mzuzu, Malawi
Company / Organisation	FTP for DCIC (Finland)
Position	Technical Advisor Sustainable Forestry Management Program
Job Description	Capacity building for the forestry staff in participatory resource assessment for local level management including a GIS and Remote Sensing component,
<i>Date: from (month/year) to (month/year)</i>	August 2001 – April 2003
Location	Windhoek, Namibia
Company / Organisation	Stora Enso, Metsahallitus, Indufor for DCIC (Finland)
Position	Technical Advisor Namibia Finland Forestry Program
Job Description	Capacity building for the National Remote Sensing Center, GIS and Remote Sensing work, acquiring projects and fund raising, research and development
<i>Date: from (month/year) to (month/year)</i>	Jan 1997 – July 2001
Location	Ongwediva, Namibia
Company / Organisation	EDG for DfID (UK)
Position	Technical Advisor Northern Namibia Environmental Project
Job Description	Developing comprehensive information systems for local governance, development planning, natural resource management and CBNRM
<i>Date: from (month/year) to (month/year)</i>	March 1993 – March 1996
Location	Gaborone, Botswana
Company / Organisation	Government of Botswana and VVOB, Brussels
Position	Senior Wildlife Biologist
Job Description	Wildlife research, monitoring of wildlife populations and range condition, park planning
<i>Date: from (month/year) to (month/year)</i>	January 1991 – March 1993
Location	Tsabong, Botswana
Company / Organisation	Government of Botswana and VVOB, Brussels
Position	Wildlife Biologist

Job Description	District land use planning, Wildlife research, monitoring of wildlife populations and range condition, park planning
<i>Date: from (month/year) to (month/year)</i>	March 1986 – present
Location	Brussels, Belgium
Company / Organisation	Ministry of the Flemish Community,
Position	Senior Researcher Institute of Nature Conservation
Job Description	Responsible for research in ecohydrology and development of methods to assess changes in the environment. On international missions since 1991.
<i>Date: from (month/year) to (month/year)</i>	October 1984 – March 1986
Location	Ghent, Belgium
Company / Organisation	University of Ghent
Position	Post doctoral researcher Laboratory of Forestry
Job Description	Forest inventory of old beech stands in Zonien, Brussels
<i>Date: from (month/year) to (month/year)</i>	October 1981 – October 1984
Location	Ghent, Belgium
Company / Organisation	University of Ghent
Position	doctoral researcher Laboratory of Wood Technology and Ecology
Job Description	PhD research on vegetation dynamics, lecturing courses on vegetation ecology

15. Others:

CERTIFICATES ON DEVELOPMENT

Brussels, 1984. Ministry of Foreign Affairs. Global Development Training Course.

London, 1996. DFID: Project Cycle Management.

15a. Publications and Seminars:

INTERNATIONAL PEER-REVIEWED PUBLICATIONS

Verlinden, A. (1997). Human settlements and wildlife distribution in the southern Kalahari of Botswana. *Biological Conservation* **82**: 129-136

Verlinden, A. (1998). Seasonal movement patterns of some ungulates in the Kalahari ecosystem of Botswana between 1990 and 1995. *African Journal of Ecology* **36**: 105-116.

Verlinden, A. & Masogo, R. (1997). Satellite remote sensing of habitat suitability for ungulates and ostrich in the Kalahari. *Journal of Arid Environments* **35**: 563-574.

Verlinden, A. & Gavor, I.K.N. (1998). Satellite tracking of elephants in northern Botswana. *African Journal of Ecology* **36**: 117-128.

Verlinden, A., Perkins, J.S., Murray, M. & Masunga, G. (1998). How are people affecting the distribution of less migratory wildlife in the southern Kalahari of Botswana? A spatial analysis. *Journal of Arid Environments* **38**: 129-141.

Dumortier, M., Verlinden, A., Beeckman, H. & Van der Mijnsbrugge, K. (1996). Effects of harvesting dates and frequencies on above and below-ground dynamics in Belgian wet grasslands. *Ecoscience* **3**, 190-198.

LOCAL PUBLICATIONS (peer-reviewed)

Verlinden, A., Dumortier, M & Van Den Brande, M (1989). Inundation in grasslands and nature management. *De Levende Natuur*, **91**,100-106 (in Dutch).

Verlinden, A., Dumortier, M & Maelfait, J-P. (1989). Grasslands. In: Hermy, M. (ed). *Nature Management*. Van De Wiele, Brugge p. 87-103 (in Dutch).

Verlinden, A. (1985). *Vegetation dynamics in response to changes in hydrology and management in grasslands*. PhD thesis. University of Ghent, Ghent. (in Dutch).

Verlinden, A. (1980). The vegetation of the artificially elevated area Luithagen, *Dumortiera*, Journal of the National Botanical Garden, **14-15**, 39-46 (in Dutch).

Verlinden, A. (1980). Floristical and ecological observations on an artificially elevated area near Antwerp. *Dumortiera*, Journal of the National Botanical Garden **14-15**, 36-38 (in Dutch).

Verlinden, A., Leys, G. & Slembrouck, J. (1979). Locations and vegetation types with *Ophioglossum vulgatum* and *Ophrys apifera* near Antwerp. *Dumortiera*, Journal of the National Botanical Garden **12**,1-8 (in Dutch).

Main Proceedings

Namibia

Verlinden, A., & Laamanen, R. (2001). The role of remote sensing in monitoring woody resources in northern Namibia. In Lusepani-Kamwi, E & Chikasa, P. (eds). Proceedings of the first national forestry research workshop 12-13 March, Windhoek, Namibia p. 15-28

Verlinden, A. & Dayot, B. (2000). Working with local knowledge systems in a GIS for natural resource assessment, planning and management in North Central Namibia. In : Caron, P, Swanepoel, F. & Stroebele, A. (2000).Ed. Proceedings of the "Regional Workshop on Spatial approaches for land use and local governance", Pretoria 24-26 November 1999, SACCAR and the University of Pretoria, post-graduate school of Agriculture and development..

Verlinden, A. & Dayot, B. (1999). Indigenous knowledge systems on integrated resource use: local land classification and resource management in North Central Division. Republic of Namibia, Ministry of Agriculture, Water and Rural Development. Proceedings of the Annual Conference on Agricultural Research, Swakopmund, Namibia 6-10 September 1999.

Botswana

Verlinden, A. (1998). Land requirements for wildlife in Botswana. *Conservation and management of wildlife in Botswana: strategies for the 21st century*. Symposium, Kalahari Conservation Society, Gaborone.

Verlinden, A. (1995). The importance of the wetland resource to wildlife management in Botswana. in KCS (ed) *Integrated management of Botswana's wetlands*, Kalahari Conservation Society, Gaborone.

Europe

Verlinden, A., De Becker, P. & Dumortier, M. (1989). Some long term management experiments in three wet and moist grasslands in Flanders. In: Ministère de la région Wallonne (ed.) *Gérer la Nature? Résumés des Ateliers*. Bruxelles, p.473-482.

Maelfait, J-P., Baert, L., Desender, K., Pollet, M., Verlinden, A., De Raeve, F (1989). Arthropod communities and dune grassland management. Proc. EUDC coastal dune management congress. Sevilla, Spain.

Main resource management plans:

2002. A local operational tool for fire monitoring and management for the Kavango and Caprivi Regions, Report for Lux-Development

1997. A plan for wildlife re-introduction, tourism and craft development in the communal areas north of Etosha National Park.

1995. Management plan of the Kalahari Transfrontier National Park.

1994. An Action plan for the management of the Kalahari wildebeest

Reports on Malawi

A.Verlinden, J.K.K. Munyenyembe, P. Jambo & I.H. Patel. (2003). We still need the trees. Consultancy on Land-Use Classification Methodology Based on Existing Indigenous Knowledge. THE SUSTAINABLE FOREST MANAGEMENT PROGRAMME, Mzuzu, MALAWI, 70pp.

15b. References

Piet De Becker, Institute of Nature Conservation, Kliniekstraat 25, 1000 Brussels, Belgium
piet.de.becker@instnat.be

John Hazam, CBNRM adviser, USAID, Ministry of Environment and Tourism, Namibia
brandyz@iafrica.com.na

Risto Laamanen, Metsähallitus, Technical Advisor, Namibia Finland forestry Program.
Laamanen@africaonline.com.na

CURRICULUM VITAE of Christofer Nyambe

Nyambe Christopher Simataa

35 Sauer Street, Windhoek North
P.O. Box 50483
Bachbrecht, Windhoek
Tel: **061 241430**
E-mail: mwinachirao@yahoo.com

Personal Details:

Date of Birth : November 13, 1977
Nationality : Namibian
I.D. No. : 7711113 0003 3
Marital status : Single
Gender : Male

Languages

English (Good)
Silozi (Fluent)

Education:

- 2004 Pursuing **Bachelor of Science (Geology/Geography)***
University of Namibia, Windhoek, Namibia
An interdisciplinary course covering the following disciplines:
Application of GIS in spatial analysis, environment and planning
(Geography): (using **ArcView GIS™** and **IDRISI™**). The study of
the earth's mineral resources, their occurrence, exploration, mining
and resource management (Geology).
- 2000 **Certificate of Training in Isotope Hydrology**
Co-presented by the Geological Survey of Namibia and The Ministry
of Agriculture, Water and Rural Development. Windhoek
- 1995 **High School Certificate (Grade 12 – Natural Sciences)**
Caprivi Senior Secondary School, Katima Mulilo, Namibia
-

Professional Experience:

- 2003 **Teacher (on Contract)**
Ministry of Basic Education and Culture
Tsumkwe Junior Secondary School (Windhoek Region, Namibia)
Duties involved preparation and teaching of subject material, setting
and marking of tests and examinations in subjects of Mathematics
(Grade 8 - 10), Physical Science (Grade 9 & 10), Natural Science

and Arts and Culture (Grade 5). Supervision of learners during extra-curricula sessions and sports events.

* *In Final Year*

- 2002 **Teacher (on Contract)**
Ministry of Basic Education and Culture
Khomas High School (Windhoek Region, Namibia)
Duties involved preparation and teaching of subject material, setting and marking of tests and examinations in subjects of Mathematics and Agriculture facilitating Life Skills sessions (Grade 8), Agriculture and Life Science (Grade 9). Supervision of learners during extra-curricula sessions.
- 1998 **Teacher (on Contract)**
Ministry of Basic Education and Culture.
Lusese Combined School (Katima Mulilo Region, Namibia)
Duties involved preparation and teaching of subject material, setting and marking of tests and examinations in subjects of Mathematics (Grade 8 - 10), Physical Science (Grade 8 & 10). Supervision of learners during extra-curricula sessions. Organising and chairing subject meetings with other colleagues as Science subject head.
- 1996 **Teacher (on Contract)**
Ministry of Basic Education and Culture
Muzii Combined School (Katima Mulilo Region, Namibia)
Duties involved preparation and teaching of subject material, setting and marking of tests and examinations in subjects of Mathematics (Grade 8 - 10), Physical Science (Grade 9 & 10). Organising and chairing subject meetings with other colleagues as Science subject head.

Other Experience:

- 2002 **Laboratory Student Assistant**
University of Namibia, Department of Geology, Windhoek
Duties involved: Setting up equipment for practical in the laboratory, assisting junior students during lab sessions and marking of laboratory reports. Making thin section slides and polished sections for the microscope laboratory.
- 2000 **Field Attachment: Vacation Student**
Navachab Gold Mine, Karibib, Namibia
Duties performed included: taking magnetic susceptibility readings and identification of mineralised quartz veins and skarns and their depths of occurrence from exploration borehole cores, collection of sample from drill boreholes in the field for analysis at the laboratory. Recording and analysis of the data obtained.

Research Experience

2004 Carried out a research project on alien invasive plant species in the Kuiseb River. Gained knowledge in research skills, data collection, data analysis and scientific report writing.

Leadership position Held:

1996 **Subject Head** (*Mathematics and Science*)
Muzii Combined School (Katima Mulilo Region), Namibia

2003 **Subject Head** (*Mathematics and Science*)
Tsumkwe Junior Secondary School (Windhoek Region), Namibia

Personal Interests and activities:

Reading
Playing soccer
Exploring Computer related issues

Referees:

Dr. Fred Kamona
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E-mail: fkamona@unam.na

Mrs. Linta Chipango
Principal: Tsumkwe J.S.
P/Bag 2091, Grootfontein
Tel: 067 244003 (W) / 067
Fax: 067 244132

Mr. Pierre Smit
Lecturer: Department of Geography
Geography
University of Namibia
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Mr F.C Persendt
Lecturer: Department of
University of Namibia
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Annex 2: DRFN/EEAN profile

The Desert Research Foundation of Namibia (DRFN) has a Consultancy Arm called the Environmental Evaluation Associates of Namibia (EEAN) that is a registered Company conducting consultancies on behalf of the DRFN and all proceeds go the DRFN. A short profile of EEAN is presented:

Dr. Mary Seely is Director, Environmental Evaluation Associates of Namibia, Windhoek, Namibia

During 34 years of research and training in ecology and environmental science, co-supervised over 50 MSc and PhD degrees in arid zone ecology and environmental topics. Since 1990, overall programme coordination for over 50 projects of the Desert Research Foundation of Namibia. Overall professional coordination for Environmental Evaluation Associates of Namibia (Pty) Ltd. Dr Seely was instrumental in establishment of the Environmental Learning and Action in the Kuiseb project, with EU funding in collaboration with the Ministry of Agriculture, Water and Rural Development in alignment with Namibia's draft Water Resources Management Act promoting establishment of Basin Management Committees.

Dr Seely has published over 160 papers and organised and/or contributed to over 20 books.

2001 – present: Member of President's Vision 2030 Core Team, Namibia

1999 – present: Deputy Chair of Task Force for Namibian Water Resource Management Review

1996 Member: Namibian Drought Task Force

1995-1997 Commissioner: National Planning Commission, Namibia

1992/93 to present: Organiser: Summer Research Training Programme for Tertiary Students in Namibia.

Recent peer-reviewed publications include the following:

Botes A, Henderson J, Nakale T, Nantanga K, Schachtschneider K, Seely M. 2002. Environmental Learning and Action in the Kuiseb. Proceedings 3rd WaterNet/Warfsa Symposium: Water Demand Management for Sustainable Development, 30-31 October 2002. p 630-638.

Henschel JR, Robertson MB & Seely MK. 2001. Animal ecophysiology in the Namib Desert: coping with little water, scarce food and elevated temperatures. In: *Ecology of desert environments (a Festschrift for Prof. J.L. Cloudsley-Thompson)*. Prakash I (ed). Scientific Publications (India) Jodhpur: 423-457.

Seely M 2001. Environment: harsh constraints, political flexibility, pp 35-51. In: I Diener and O Graefe (eds), *Contemporary Namibia: the first land marks of a post-apartheid society*. Gamsberg Macmillan Publishers/IFRA, Windhoek, Namibia, 397 pp.

Seely MK, Henderson J, Heyns P, Jacobson P, Nakale T, Hantanga K, Schachtschneider K. 2003. Ephemeral and endoreic river systems: Relevance and management challenges. Pp 187-212. In: Turton A, Ashton P, Cloete E (eds). *Transboundary rivers, sovereignty and development: Hydropolitical drivers in the Okavango River basin*. African Water Issues Research Unit (AWIRU) and Green Cross International (GCI). 369 pp.

Seely MK, Henschel J.R. 2003. Best Practices in the World's Oldest Desert. In: Lemons, J., R. Victor, D. Schaffer. 2003. *Conserving Biodiversity in Arid Regions*. Kluwer Academic Publishers, Boston, MA. 497 pages.

Seely M and Zeidler, J. 2002. Land distribution and sustainable development, pp 75-84. In: Winterfeldt, V, Fox, T and Mufune, P (eds.) *Namibia, Society, Sociology*. University of Namibia Press, Windhoek, Namibia. 397pp

Seely MK, Zeidler J, Henschel JR, Barnard P. 2003. Creative problem solving in support of biodiversity conservation. *Journal of Arid Enviroments* 54(1): 155-164.

Shanyengana ES, Henschel RJ, Seely MK, Sanderson RD 2002. Exploring fog as a supplementary water source in Namibia. *Atmospheric Research* 64: 251-259.

Shanyengana ES, Sanderson RD, Seely MK, Schemenauer RS. 2003. Testing greenhouse shade nets in collection of fog for water supply. Operational paper. *Journal of Water Supply: Research and Technology–Aqua*. 52.3: 237-241.

Environmental Evaluation Associates of Namibia (Pty) Ltd (EEAN) (Reg. No. 91/496) was established in 1991 to undertake environmental assessments and evaluation, as well as project design, planning and evaluation and public consultation and facilitation, in support of the sustainable development of Namibia. Three recent projects in which Dr Seely paid a leading role are listed below.

Date: **Project description:**
Responsibility

1999	Kavango Region rural water supply development plan - with Lund Consulting Engineers for MAWRD	Project leader of environmental component
1999	Oshivelo-Omutsegwonime-Okankolo water supply feasibility study - with Lund consulting engineers for MAWRD	Project leader of environmental component
1999	State of the Environment Report on water - with Interconsult and WCE for MET	Co-leader of project