

Photos: Japie Buckle

Water for Food and Ecosystems in the

Baviaanskloof Mega Reserve

Financed by the Government of The Netherlands

Narrative Report:

Achievements of the last three years and the activities and deliverables of 2011

Part of:

PRESENCE in the Baviaanskloof: An Integrated Catchment Restoration Programme

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1. This report

This narrative report details the activities carried out in 2011 for the Water for Food and Ecosystems (WFE) project and is based on the activities and deliverables of the 2011 work plan. The financial report has been submitted separately.

The project started in 2009; the activities of 2009 and 2010 are described in the narrative reports of 2009 and 2010, respectively. Since this narrative report is also the final report for three years of the WFE in the Baviaanskloof project, a summary overview has been given for the entire project executed from 2009-2011. On a number of occasions, the funding received from the Netherlands worked out successfully as a catalyst for further activities executed by South African partners with their own funding. This approach seemed to be very effective and is also illustrated in this narrative report.

The Royal Netherlands Embassy in Pretoria is the client for this project, and the funders include the Netherlands' Ministry of Agriculture, Nature and Food Security¹ and the Netherlands' Ministry of Foreign Affairs (LNV/OS).

¹ Currently the Ministry of Economic Affairs, Agriculture and Innovation (EL&I)

2. Introduction

2.1. Project area

The project area is the Baviaanskloof Mega Reserve (BMR) in the Eastern Cape in South Africa. The BMR is a unique World Heritage Site because of its outstanding natural beauty and globally important biodiversity. The envisaged Mega Reserve is about 500,000 ha and will comprise of a cluster of state-owned protected lands (the Baviaanskloof Nature Reserve managed by the Eastern Cape Parks and Tourism Agency (ECPTA)) within a network of private and communal land. The Baviaanskloof River and the Kouga River merge into the Kouga Dam. The Gamtoos River downstream of the dam flows into the Indian Ocean. The rivers and their tributaries are vital for biodiversity, functioning ecosystems, tourism, and for the growing downstream agricultural and commercial/domestic water demands in the Gamtoos Valley and Port Elizabeth, respectively.

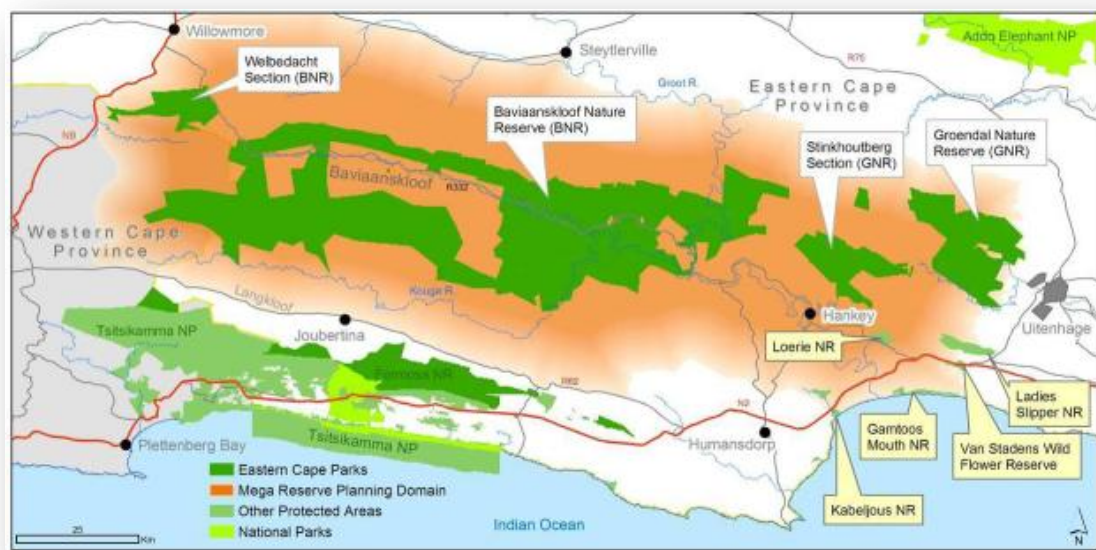


Figure 1. Baviaanskloof Mega Reserve.

2.2. Project rationale

South Africa is classified as a water-stressed country. In the catchment area, the total water demand already meets the total water resources. Water management interventions in the 80's, such as flow diversion and drainage, have resulted in the lowering of the groundwater table and increased stream bank erosion with detrimental effects for both biodiversity conservation and agriculture. Moreover, misguided land-use management in the past has resulted in the deterioration of the original vegetation cover, with reduced Spekboom and thicket vegetation covering on the slopes. Due to this, water retention has been reduced and the area has become extremely vulnerable to drought periods. This is not only a local problem, but also has negative impacts downstream with a decrease in base flow, water yield, and water security.

2.3. Project aims

As described in the proposal of the WFE project in 2009, the main goal is to “implement water retention measures in the Baviaanskloof in order to enhance biodiversity and reduce erosion, and to possibly increase water availability for (downstream) water use for agriculture and drinking water supply. Furthermore, the

aim is to assist the process of conversion to ecotourism and ecosystem services for farmers and landowners and support the management of the Nature Reserve by Eastern Cape Parks.”

Living Lands managed the WFE project. The project is part of “PRESENCE in the Baviaanskloof”: a learning network for an integrated catchment restoration programme for which WFE has been the core foundation and catalyst.

2.4. Living Lands

Living Lands sees itself as a toolbox on the landscape, used to create ‘living landscapes’. Living Lands is a South African Non-Profit Organisation (NPO) with the vision of reversing degradation and guiding the restoration of living landscapes. Living landscapes exhibit a variety of healthy ecosystems and land uses and are home to ecological, agricultural and social systems which are managed in such a way that they function sustainably. This ensures that natural and cultural resources are available for future generations. To be able to create living landscapes, Living Lands believes it is crucial to develop and create locally driven learning networks which facilitate experience and knowledge exchange, trust building, mutual understanding, collaboration and compassion. At the moment, Living Lands’ main focus area is the Baviaanskloof Mega Reserve. One of the primary activities of Living Lands is to set up and facilitate the PRESENCE learning network.



Figure 2. Living Lands: a toolbox on the landscape.

2.5. PRESENCE

PRESENCE (Participatory Restoration of Ecosystem SERVICES & Natural Capital in the Eastern Cape) is a collaborative learning network aimed at guiding regional ecosystem management and the restoration of ‘living landscapes’. Collaborating organisations are forming mutually beneficial partnerships and building synergies to enable socio-ecological restoration in key areas of the Eastern Cape. The network currently consists of national and international governmental departments and ministries; universities

and research institutes; implementation agencies; and non-governmental, private and community-based organisations. The WFE project plays a central role in *PRESENCE in the Baviaanskloof*.



Figure 3. PRESENCE network with all the partners.

The PRESENCE-approach is a transdisciplinary initiative and is being piloted across the Baviaanskloof Mega Reserve with the support of multiple partners. “PRESENCE in the Baviaanskloof” has been applying and refining an integrated ecosystem (services) approach (see Figure 4: Transdisciplinary Assessment and Implementation Framework). The process has involved area identification (e.g. hydro/ecological processes, stakeholder willingness, institutional capacity) and understanding the perceptions and values of ecosystem/landscape services. PRESENCE in the Baviaanskloof is now in an implementation phase which includes analysis of opportunities/constraints and strategy development.

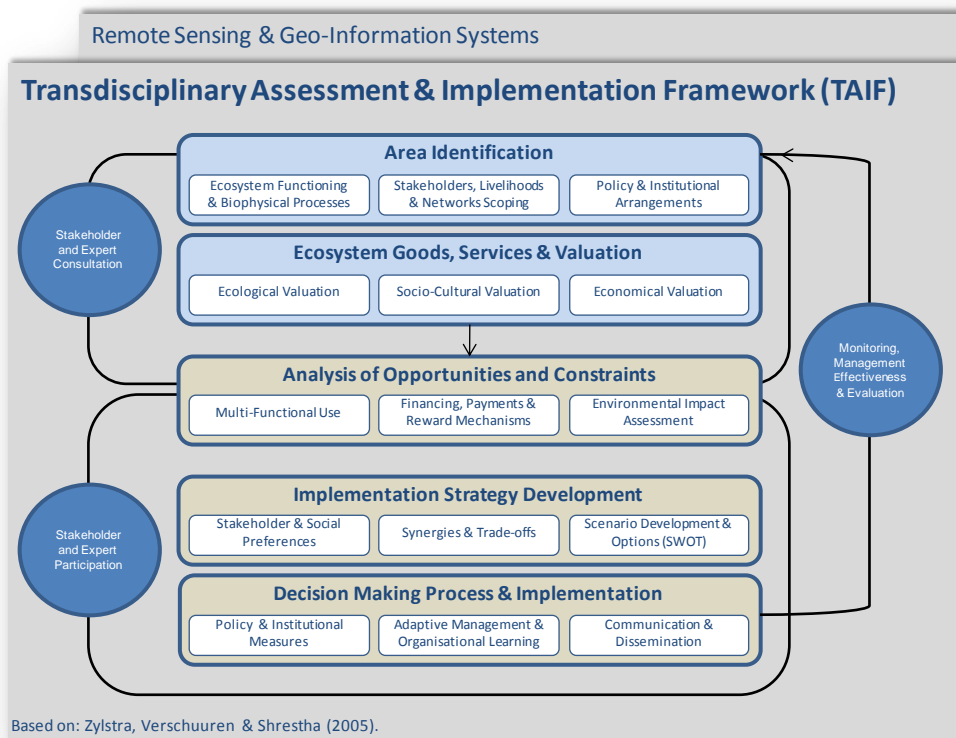


Figure 4. Framework guiding the PRESENCE strategy towards living landscapes.



Restoration activities include reforestation with native vegetation (CO₂ capture); water retention measures and recreating wetlands (increase base flow); erosion mitigation; and creating effective communication and education strategies for implementing an incentives scheme (e.g. payment for ecosystem services, PES) for ecosystem management. Collectively, such actions should continue to build socio-ecological resilience to anticipate climate changes.

3. An Overview: Water for Food and Ecosystems 2009-2011

The work done in the Baviaanskloof over the last years has resulted in a momentum to acquire mainstreamed land-use change, restoration, and nature conservation. This led to the possible development of the Green Economy (e.g. PES) in the Baviaanskloof. During the participatory process in 2010, Living Lands, together with the land-owners, developed a framework for the western Baviaanskloof. The framework shows Green Economy opportunities for sustainable land use (see Figure 5). In this chapter we will describe the framework and explain the process that has occurred in the western Baviaanskloof over the last three years.

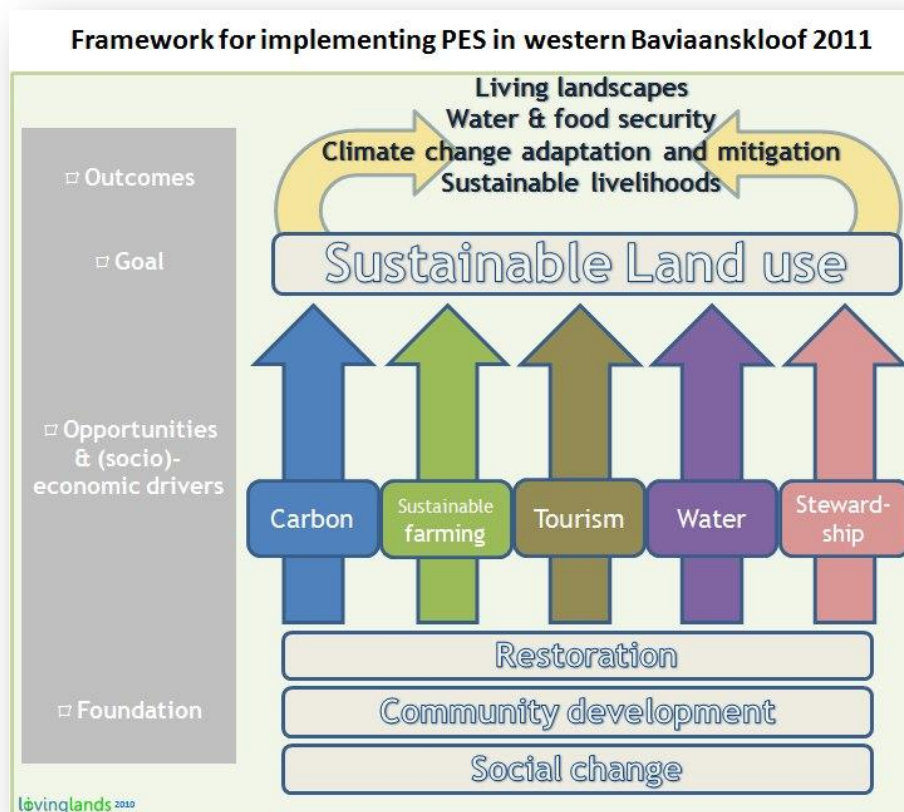


Figure 5. Framework for implementing PES in the western Baviaanskloof 2011.

Through research and the participation of landowners and communities, different opportunities were identified as socio-economic drivers to create sustainable land use:

1. Carbon: There are economic benefits obtained from selling credits on the carbon market through Spekboom replanting in the thicket ecosystem. This is created by means of the extraordinary potential of Spekboom to sequester unusually high amounts of carbon.
2. Sustainable farming: current unsustainable activities can be converted into more diversely sustainable ones, requiring fewer resources and providing longer-term windows of opportunity consisting of less-impacting practices (such as game farming, honey bee keeping, leopard-friendly farming, and small scale farming).
3. Tourism: The area is declared a world heritage site and hosts three biodiversity hotspots, qualifying it as a great tourist destination, yet it is still being underutilized. This change in land use (from farming activities to tourist activities) and financial income stream takes the pressure off the use of natural resources in the area and enables it to be conserved and restored.

4. **Water:** Although the area has several streams, natural fountains, and wells that provide clean and abundant water, a serious decrease in water availability and base flow has occurred since the unsustainable management of the catchment. This trend is happening both on-site and downstream, in particular during droughts. Better land management and restoration will increase the base flow, water availability, and water security in the area. This will not only have benefits for the area, but also for the downstream water users of the Gamtoos valley (important agricultural area) and Port Elizabeth. Through Payment for Watershed Services, money can be generated to finance the restoration and management.
5. **Stewardship:** This will bring economic opportunities to the landowners by means of tax incentives and management support. Stewardship programmes were launched in the Eastern Cape by ECPTA and will enhance economic opportunities via tourism and will improve the securing of biodiversity.

A great emphasis is placed on the inclusion of the communities in benefitting from the opportunities in the area. Not only will these opportunities provide the communities with jobs (such as trail guiding, employment in accommodation services, local crafts production, restoration activities, etc.), but attention will also be directed towards the development of green entrepreneurs.

The last three years have been spent on the foundation to make the above five (socio-) economic drivers feasible; the foundation consists of:

1. *Social change*
2. *Community development*
3. *Restoration*

If the foundation is prepared, and the five drivers are operating, this will finally lead to the goal of sustainable land use which will create a 'Living Landscape'. Water and food security as well as climate change adaptation were identified as main goals to support sustainable livelihoods.

3.1. *Foundation: Social change*



Photo: Jeffrey Barbee

Social change is described as building community-based responses that address underlying social problems on an individual, institutional, community, national and/or international level. Social change is focussed on the change of attitudes, behaviours and institutions to better reflect the values of inclusion, fairness, diversity and opportunity. At the core of social change is the creation of collective action of individuals who are closest to the social problems to develop solutions that address social issues.

From the onset, social change was identified by Living Lands as part of the crucial foundation of a successful WFE project and long-term sustainable interventions. The change of attitudes and behaviours is seen as a prerequisite to obtaining a long-term sustainable future as well as living landscapes. Over the last four years Living Lands has been applying an integration of transdisciplinary research and awareness-based technology to creating a collective awareness, understanding intelligences, and action on the landscape. With co-funding from Wageningen University via the Speerpunt for Landscape and Ecosystem Service programme, Living Lands together with research partners has been testing and refining this 'living landscape co-learning approach' to be able to replicate this in other areas of South Africa and the Netherlands by way of continuous evaluation and reflection of the process, and comparison to the Dutch experience of participatory processes.

The approach is based on a co-learning and co-creation of living landscapes. This was done with an open attitude without pre-laid landscape plans and objectives based on expert planning. The initial stage of the process was focussed on building trust with and within the landowners' communities. Research and investigation was conducted on the community's challenges, problems and dependence on the natural

resources. During this first phase of the process, the focus was on people’s dreams, aspirations and opportunities. This was done by visiting current farmers’ meetings, informal gatherings and individual landowners. In the first year especially, focus was placed on and main investment made in building personal relations with all the landowners and communities in order to foster trust.

At the same time a great deal of effort was made by PRESENCE partners, including Dutch universities, to create a better collective understanding of the ecological functioning, the condition and socio-economic dimensions of the catchment (e.g. hydro/ecological processes, stakeholder willingness, institutional capacity), the impacts of restoration, the best restoration interventions, tourism potential and sustainable land use. The research conducted was also an important factor in leading to social change. The research was conducted with a transdisciplinary and participatory approach (see Figure 4), the objective being to include local and practitioners’ knowledge in increasing the academic knowledge and, moreover, the collective understanding of the area. This was facilitated by students’ field research with landowners on their land and adjacent nature conservation areas which created regular interaction between experts and local stakeholders. Various workshops and meetings were organised to enable continuous, open feedback and learning.

Besides research, the implementation of learning projects (pilots) for water retention was undertaken (such as Spekboom planting and alluvial fan restoration), to improve the understanding and buy-in of the landowners.

By means of this continuous stakeholder consultation, and ensuring participation and engagement through numerous interviews, field trips, meetings, workshops and learning exchanges, a mindset change occurred in the western section of the Baviaanskloof. Landowners in the area, who were previously adverse, are now interested, willing, and open to exploring the different concepts of restoration, conservation and sustainable land use. A collective awareness, as well as greater understanding and knowledge, has been developed – not only amongst landowners in the area but also amongst other crucial stakeholders from and involved in the area.

3.2. Foundation: Restoration



A large part of the privately-owned area has been subject to decades of agricultural mismanagement, misguided farming practices and other questionable human interferences such as overgrazing and the diverting of alluvial fans and rivers. As a result, the land in this area has become severely (ecologically) degraded and has placed livelihoods at risk. The area is facing steadily declining biodiversity and agricultural productivity, and increased economic hardship. These trends are now being starkly brought into view with current and impending climatic changes. Erratic and declining rainfall is further undermining the resilience of the socio-ecological

systems in the Baviaanskloof, where the total water demand already meets the total water resources.

These are the challenges being faced and through research are better understood. Together with the farmers, restoration of ecosystems and natural capital was identified as one of the necessary fundamentals in creating a sustainable future. There is a realisation that the land (catchment) has lost its natural functioning and is not able to provide a number of ecosystem services and thus there is need for an investment in restoration.

To combat these challenges and bring about a positive change, different restoration measures were identified. An integrated approach was developed to combine the efforts of all implementers in the Baviaanskloof.

The restoration of the Baviaanskloof consists of:

1. restoration of alluvial fans, i.e. the rehabilitation of tributary streams,
2. restoration of the main river bed,
3. restoration of the slopes by planting Spekboom.



The alluvial fans



The slopes



The main river bed

The implementation of restoration activities has been a great drive of the project and a large part of the financial resources of the programme were allocated and spent on restoration measures. Those sites gave Living Lands the opportunity to further understand and monitor the effect of restoration, and also catalysed additional funding from South African governmental agencies such as Working for Water and Working for Wetlands.

The project acted as a catalyst for new restoration projects; there are currently, and have been in the past, numerous restoration projects occurring in the area. A few of the activities which are currently taking place (through funding from the South African and Dutch governments) as result of previous years' activities of the project include:

1. The planting of more than 1 000 ha of indigenous Spekboom on degraded farmland to reduce erosion, enhance water infiltration, improve soil health, and capture CO₂ from the atmosphere through carbon sequestration in an effort to mitigate climate change. The revegetation of degraded hill slopes by the South African Government programme Working for Woodlands, has not only created countless jobs for local communities but also created an opportunity for land users to benefit from carbon credits/carbon trading. Currently, the Department of Environmental Affairs (DEA) in South Africa has put aside resources to do the carbon baselines in the area in order to develop this opportunity further.
2. The restoration of ten alluvial fans and river sites (through funding from the Government of the Netherlands), to their natural functioning. The rehabilitation of tributary streams involves the closure of the channels which were constructed in the past to divert the water directly into the main river, and the removal of keerwalle (berms). This reopens the natural waterways and allows water to flow over the floodplain once again, feeding the present dried-out state of the land and returning the deposition of silt to the floodplains.
3. The restoration of the once existing wetland system in the Baviaanskloof by the South African Working for Wetlands programme. This once again increases base flow and water retention and attempts to restore the system to its natural state.

All of the restoration measures are well informed by scientific research and local knowledge. The planning and design has been done in a participatory manner which includes field trips, workshops, and the development of environmental impact assessments (EIA) and spatial plans, such as:

- The spatial plan for the restoration of alluvial fans and floodplains in the western Baviaanskloof. Rhodes University has developed a spatial restoration plan for the alluvial fans in the western Baviaanskloof section. All alluvial fans in the section between the Western ECPTA border until Nuwe

Kloof were mapped out (84 alluvial fans) with the sizes of the catchment. The maps and GIS data were used and seen as very valuable for the restoration planning.

- The spatial plan for the restoration of hill slopes in the western Baviaanskloof.

The general idea is to rehabilitate the hill slopes with indigenous species by planting Spekboom on these slopes which should create a better ‘atmosphere’ for other indigenous plants to grow on the hill slopes. A spatial plan was created to provide a structure for the planning of the planting projects for restoration in the Western Baviaanskloof by the Rhodes Research Restoration Group. This plan has been supported by the mapping of Spekboom abundant vegetation types and its degradation states (see Figure 6) by Dr Jan Vlok and Mr Mike Powel (Rhodes Restoration Research Group).



Figure 6. Spatial plan restoration: “Vlok degradation map”.

The restoration of degraded land has resulted in the area slowly regaining its former functioning as a ‘sponge’ – water can once again infiltrate into the area and slowly be released into the river. Farmers in the area themselves benefit from more secured availability of water, as well as the downstream users – this is significant as the Gamtoos Valley is a very important agricultural area.

A Memorandum of Understanding (MoU) with Working for Wetlands was signed to secure the continuation of restoration works in the rivers and tributaries. The DEA has already indicated their interest in continuing the restoration of the hill slopes and wetlands via the Working for Water and Working for Wetlands programmes, respectively. A close collaboration for erosion control has also been set up with the Department of Agriculture (DA) in South Africa.

3.3. Foundation: Community development



Photo: Jeffrey Barbee

During the first phase of the programme a study was carried out on the communities’ needs, perceptions, challenges and aspirations. This study indicated that poverty and unemployment were their main challenges, and that in the past, the communities were in dissolution with conservation and development projects. The communities indicated that over the last 10 years promises were made to them, but not rewarded.

Therefore, the Living Lands and PRESENCE partners decided to take a precautionary strategy. Presentations and engagement with the community was done in the beginning of the project with the objective to create trust and awareness. There was a conscious attempt not to create any expectations. Over the last three years an integration of different groups (land users and community's farm workers) was initiated in building a bigger Kloof community. An increase in the involvement of the different landowners in the development of the communities was realised and in the last year more focus has been placed on engagement with the communities.

Several presentations were given to the Sewefontein farm community committee members (community leaders) on PRESENCE and the restoration activities occurring in the Baviaanskloof. There were also one-on-one conversations with the various community leaders. This resulted in opportunities for Spekboom planting occurring on the farm as well as other restoration activities, such as the restoration of the large gullies on the farm. A pilot study is being conducted by PRESENCE into the use of bioengineering for the restoration of such gullies.

Additional funding was attracted to further develop capacity in the communities. Through funding from WWF-TMF, micro grants were awarded to social and environmental entrepreneurs. This varied from projects based on local tourism development to waste management.

From the start of the project, Noel Isaac, a local community member, was identified as a new young leader of Sewefontein. Living Lands has employed and trained him over the years in restoration and conservation. He has assisted by managing the Learning Village, assisting with research and data collection, and has been the voice of the project in the communities.

The recent developments of economic opportunities, such as the carbon market and sustainable agriculture and tourism, have created an environment for the communities to develop, create jobs and relieve poverty. The biggest achievement is the involvement and interest of all of the Kloof communities to improve the livelihoods of the previously disadvantaged communities and workers.

3.4. Opportunities: Carbon



Photo: Andrew Zylstra

The thicket ecosystem provides economic benefits through Spekboom planting, due to the potential of Spekboom to sequester unusual amounts of carbon. One hectare of restored Spekboom field can restore up to 4.2 tons of carbon in 30 years. This has been studied extensively, and the amounts of carbon have been quantified for various instances (Mills et al 2005; Mills and Cowling, 2006, Powell, 2009). The willingness of the landowners in restoring degraded lands with financial returns via the carbon market endorses it as a great opportunity in the area (Noirtin, 2008). The alternative carbon market for selling

credits has over the last three years been further developed. A study has indicated that for this project it is better to follow the volunteer carbon market certification. Efforts have been made to examine the possibilities in setting up a South African based carbon certification.

Within the framework of the project, a concept for the Elemental Equity fund has been developed. The main aim of Elemental Equity is to receive donations as 'natural capital' to help secure cultural and environmental heritage by investing in nature. The concept adopts an 'elements' approach, with the investment themes of 'Air', 'Water', 'Earth' and 'Fire' to provide a unified way to support improvements in climate (CO₂ capture), water, biodiversity (flora and fauna), and renewable energy alternatives.

The main focus was on further development of the carbon market (air) because this seemed to be the most obvious and viable option as it is already a well-known market. A website was launched in 2010 and over 20 000 Euro has been donated so far. This enabled almost 20 hectares of Spekboom to be

planted, with the prospective of 50 000 Spekboom trees sequestering 1200 tons of carbon from the air in the next 30 years. It has created more than 2 000 labour days. Even ‘Orange’, the Netherlands soccer team, donated funding to offset their world cup trip to South Africa.

Knowledge has been created to support the development of a business case, which included a better understanding of the cost, employment, time frame, and how to implement it. Individual local stakeholders were also provided with the business prospects for their land with regards to the carbon market.

During 2011 we focussed on the two main challenges which were identified by different PRESENCE partners. One challenge was the economy of scale: it would only be possible to develop the market when all farmers would engage in the market. The other challenge was the capital investment to develop the project development document (PDD) of the certification and undertaking of the baselines. Through several meetings and workshops with the South African Government and local stakeholders, an intention has been given by the local stakeholders to all participate in the market, and the South African Government has put funding aside to undertake the development of the PDD and baseline studies. This is a great step ahead in developing the market. Several private parties and companies have shown their interest either in buying the credits or in helping put them on the market.

3.5. Opportunities: Sustainable farming



Sustainable farming is an important aspect in the development of living landscapes. As environmental sustainability is essential for social and economic sustainability, it is in everyone’s interest to undertake less impacting practices. During the process there was an understanding that most of the local landowners wanted to be able to keep on farming in the area. Through research and stakeholder engagement, farmers realized the need to manage their land more sustainably, especially through diversification of land use and activities. Some activities arising in the area include: game farming, honeybee keeping, leopard-friendly farming, and small-scale farming. Nevertheless, there

are plenty of favourable circumstances in which current unsustainable activities can be converted into more sustainable ones, requiring fewer resources and providing longer-term windows of opportunity.

Restoration of the landscape should go hand-in-hand with sustainable farm management. It would be a poor investment when the land is restored for there to be no change in land use practices. In 2011 Living Lands built up a partnership with Rhodes University and Green Choice to further explore the opportunities surrounding sustainable farming. The first step was made by investigating different kinds of crops and farming potential in the area. A great achievement of the programme is that farmers are now taking ownership of the problems concerning their unsustainable land-use management. Living Lands and PRESENCE partners are guiding them with the knowledge and expertise that are needed.

3.6. Opportunities: Tourism



Photo: Andrew Zylstra

The area is declared a world heritage site and hosts three biodiversity hotspots, qualifying it as a great tourist destination, and moreover, the landscape is of extraordinary beauty. Awareness has been created within the local communities for the possibilities of tourism and understanding of tourism business gaps. Over the last few years most of the landowners have converted some of the old farmhouses into various forms of accommodation. Currently, tourism represents over 60% of farmers’ gross annual income, although it is still being underutilized and there is plenty of

room for expansion (De la Flor Tejero, 2008). Considering that tourism is sustainable when well-practiced, it can become part of the Green Economy in the area. At the moment tourism is giving an economic boost to the area and is creating new opportunities for the communities through job creation (such as trail guiding, employment in accommodation, local crafts production, etc.). Within the project, landowners provided help in developing the marketing of the area and several studies were conducted on the tourism potential of the area.

Over the coming years, ECPTA and the local landowners are committed to further develop tourism. Collaboration has been built with Wageningen University to further support the farmers with developing a tourism spatial development plan.

3.7. Opportunities: Water



Water has traditionally been a major global issue, not excluding the Baviaanskloof Mega Reserve. The Baviaanskloof is an important catchment area for the downstream Gamtoos Valley and the Nelson Mandela Metropole (Port Elizabeth). The valley is a major agricultural food production area.

Although the area has several streams, natural fountains, and wells that provide clean and abundant water, irrigation, human and livestock consumption have not been managed in a sustainable way causing a serious decrease in water availability both on-site and downstream. An integrated catchment restoration strategy has been conducted by the WFE programme. The benefits of revegetation, alluvial fan and river restoration, and sustainable land use on reducing erosion and increasing the base flow, have been quantified through a long-term monitoring programme. This will contribute to the establishment of Payment for Watershed Services (de Paoli, 2009). Through various studies a better understanding has been created on the challenges, opportunities and solution surrounding the establishment of payment systems for ecosystem services. This varied from the economic value of water, drop per crop, institutional capacity and agreements, and a feasibility study.

The momentum exists for the Green Economy and PES in different levels of the society. Port Elizabeth municipality has already indicated that they are interested in the concept of PES and in contributing to finances for better land-use management and restoration of their catchments. Additional funding has been found, through Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), to further develop and build capacity on various levels in order to implement PES.

3.8. Opportunities: Biodiversity Stewardship

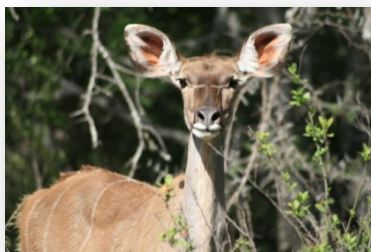


Photo: Andrew Zylstra

Biodiversity Stewardship programmes have been recognized in South Africa as an effective way to secure biodiversity and support sustainable land use. In 2010, ECPTA launched the Eastern Cape biodiversity programme. This has provided a great opportunity to secure biodiversity and restore landscapes in the Baviaanskloof. Stewardship brings economic opportunities to the landowners by means of tax incentives and management support. ECPTA has indicated to focus and place priority on the western sector to develop a protected environment; this will give ECPTA the opportunity to explore the possibilities of taking down the reserves' fences between

the protected land and private area under stewardship. This will conciliate great economic opportunity (tourism) with benefits to ecosystems and local inhabitants. Support was provided through the programme to develop the protected environment. This varied from research, awareness creation and capacity building.

The main achievements of the Stewardship programmes were building trust between ECPTA and land users, and willingness to engage. This was established through stakeholder engagement and finally via a knowledge exchange with landowners at Agulhas Plain. This knowledge exchange was co-funded by C.A.P.E. (Cape Action for People and the Environment). The land users in the Agulhas Plain were in the same situation as the land users in the Baviaanskloof a few years ago in terms of the understanding of stewardship; the interaction between the two groups of land users created better understanding of the benefits and challenges of stewardship. More important for the land users was to see the opportunities resulting from developmental changes to a more environmentally as well as economically sustainable landscape. There is intent created within the community of land users to further develop a protected environment in the area. Because of the under capacity of ECPTA, Living Lands conducted all the site assessments for stewardship in the western section of the Baviaanskloof as part of the WFE project.

An MoU has been signed in 2010 between ECPTA and Living Lands to further create awareness and willingness for stewardship in the broader BMR.



Figure 7. The group of farmers and Living Lands members during the Knowledge Exchange at the Agulhas Plain

3.9. Other activities

Over the years a large amount of research has taken place in the area and has been coordinated and facilitated by Living Lands. The outcomes of some of the preliminary research has contributed to gaining a better understanding of the underlying dynamics behind various biophysical and social processes in relation to restoration in the Baviaanskloof; developing ways to improve local livelihoods; exploring possibilities for implementing and institutionalizing PES; and, most importantly, creating awareness amongst partners and primary stakeholders, such as farmers and other kinds of landowners. The research conducted thus far has laid the basis for further development of sustainable restoration in the face of climate change in the Baviaanskloof.



Over 50 South African and Dutch bachelors, masters and PhD students have conducted their research and internships in the area over the years, providing the knowledge and creating the awareness for

developing a living landscape in the Baviaanskloof. Students learned and exchanged knowledge in the Learning Village. So far 11 scientific journal articles have been written from the research conducted within the network. Another example of results from all the research conducted in the area includes the development of a special restoration plan and landscape scenario plan, both contributing to further restoration in the area.

An operational monitoring system has been set up with the aims of assessing the (cost-) effectiveness of measures; adapting measures if unwanted impacts are reported; generating information for up-scaling of proposed restoration measures; evaluating impacts on biodiversity and the resilience of ecosystem services; monitoring the effects of climate change; and generating information for the application of restoration measures in other catchment areas where similar problems occur.



To ensure continuous integration of the various researches being conducted as well as communication, the PRESENCE Online Portal was incorporated into the South African Environmental Observation Network (SAEON) national database and will serve as a platform for enabling the exchange of ideas, information, news, activities, discussions, feedback and opportunities in a more efficient and broader scale.



Photo: Andrew Zylstra

The establishment of the PRESENCE Learning Village is a critical core component of the PRESENCE network (in the Baviaanskloof). The establishment of physical facilities in the valley brings researchers, implementers, managers and local communities closer together, creating a dynamic transdisciplinary environment. The ultimate intention of the Learning Village is to create and support national and international universities and research centres to collaborate in research teams; build South-North collaboration to

increase knowledge, expertise and technology; transfer the acquired knowledge and experience to managers and implementers of restoration and conservation programmes; build local capacity that employs and implements the acquired knowledge, expertise and technology; offer community-based education and awareness activities linked to nature restoration; and, finally, monitor and evaluate the success of the initiative. A cultural botanical garden has been planned and is in the development phase; its intention is to educate and showcase regional biodiversity. The Learning Village is run and maintained by Living Lands and the GIB. It is the base of operations, with their offices and housing being located in the Learning Village.

The project attracted a large amount of media attention (Dutch, Belgian, and South African), received recognition at various conferences, and appeared in a film that was screened at the United Nations convention to combat desertification (UNCCD).

3.10. Spin-off of the Water for Food and Ecosystems project

After four years of engaging, listening, and talking to stakeholders, the tipping point (not in an ecological sense, but rather social) was reached. The land users, including the local communities in the Baviaanskloof, unanimously decided to begin walking a more sustainable path and signed a letter of intent and a scenario map. This scenario map was developed by Living Lands and Wageningen

University in participation with the land users. The land users also developed their renewed objective for the future. This includes examining PES, carbon credits, eco-tourism, restoration, stewardship and sustainable food production. This can be seen as a great step for biodiversity, sustainability and society in the Baviaanskloof. This has now attracted and catalysed more interest from other organisations, such as WWF-SA, WWF-NL, the International Union for the Conservation of Nature (IUCN-NL), Conservation International (CI), and the DA to further invest in the area and develop the above-mentioned opportunities. This has mainly been catalysed through the WFE funding.

In different parts of the world experts seek to find the solutions for more sustainable land uses and/or nature conservation possibilities on private land. Regulations and incentives seem not to be the only answers and alternative solutions are sought after to have land users commit and create local ownership. There's a great need for alternative and innovative solutions. The approach in the Baviaanskloof has been very successful. Many experts acknowledge this innovative, successful approach. Although the area is relatively small with a relatively small number of land users, some key success factors in the approach can be deduced and can be successfully applied in other areas. A few of these factors are: 1) a philosophy of living landscapes without a predefined plan that is based on expert planning; 2) an open approach that consists of keeping an open mind to build trust; 3) research in the area itself (also conducted by students) combined with expert knowledge to build awareness and commitment in a learning network.

3.11. Spin-off of the project in other areas

Two new projects, similar to the Baviaanskloof, have started in the adjacent catchment areas: the Kouga catchment and the Kromme catchment. Furthermore, the approach of the Baviaanskloof attracted the attention of many other experts in South Africa and the Netherlands. In South Africa, for example, the initiative 'Earth Stewardship in the Garden Route, everyone a stakeholder', expressed their interest in incorporating the Baviaanskloof approach in the Garden Route. This will begin, for example, with a data inventory on land use and investigation into more sustainable possibilities conducted by local and international students; a research programme will also be set up. The Berg River catchment north of Cape Town is facing the same problems concerning water quantity and quality, aliens, and unsustainable agricultural land use and development, and have also expressed their interest in the Baviaanskloof approach. In the Netherlands, a new project is about to set sails supported by the Water Governance Centre, and will evaluate the approach for solving water conflicts in other parts of the world.

4. Activities and deliverables 2011

The activities of the project over the last three years have been effective, and provided vital insight into further achieving the set objectives. In 2011, the activities were continued and extended.

This section will report back on the activities as described in the Water for Food and Ecosystems 2011 work plan, on the following items:

1. Restoration plan
2. Implementation of measures
3. Monitoring
4. Research
5. Stakeholder engagement
6. Project coordination

An overview of the activities can be found on Attachment I.

4.1. Restoration plan

2011 Activities and deliverables - Restoration plan:

- Landscape plan

4.1.1 Landscape plan

PRESENCE in the Baviaanskloof's restoration efforts in the western Baviaanskloof consist of the restoration of alluvial fans, main river bed and the restoration of the slopes by planting Spekboom. In 2010, spatial restoration plans were developed. To get the people on the landscape more involved and to attain a better idea of what these plans can represent for the area, a landscape plan was developed in 2011. The landscape plan was developed in a participatory manner, with all the land users in the Baviaanskloof. All the landowners have been visited several times to provide their input on the plan and their wishes for the area.

The finalized landscape plan was presented to the various Baviaanskloof stakeholders in a workshop held in November 2011. The workshop presented the different landscape scenarios that were developed, and provided the stakeholders with the opportunity to choose a scenario which they saw as best for the future landscape planning in the Baviaanskloof. The chosen landscape scenario map, "Scenario Living with Nature" (Attachment II), was signed by all the stakeholders present together with a letter of intent (Attachment III), developed by the stakeholders themselves, to restore their degraded land and examine the way of sustainable landscape use. Lastly, a letter stating land owners' willingness to plant spekboom has been signed (Attachment VI).



Figure 7. An example of a landscape plan, seen from an alluvial fan under restoration; the current situation on the left and an impression of the fan with restored riparian vegetation and water streaming on the right.

4.2. Implementation of measures

2011 Activities and deliverables - Implementation of measures:

- Secure implementation activities;
- Create buy-in for continuation of activities;
- Link between implementers.

The restoration activities over the last three years have led to a mindset change and a bigger interest of many stakeholders in restoration, which has in turn eventually also led to attaining permission from stakeholders to implement restoration measures on their land. More than 1 000 ha have been restored on private land by planting Spekboom through the Working for Water programme. This process started in 2009 with the planting of 28 ha on two farms funded by WFE. Through WFE, four alluvial fans have been restored in 2011 and artificial berms removed from the riverbed to let the water run its natural course. Working for Wetlands has taken over the ownership of the restoration and signed an MoU with Living Lands to conduct restoration efforts on alluvial fans and the main riverbed for the next three years.

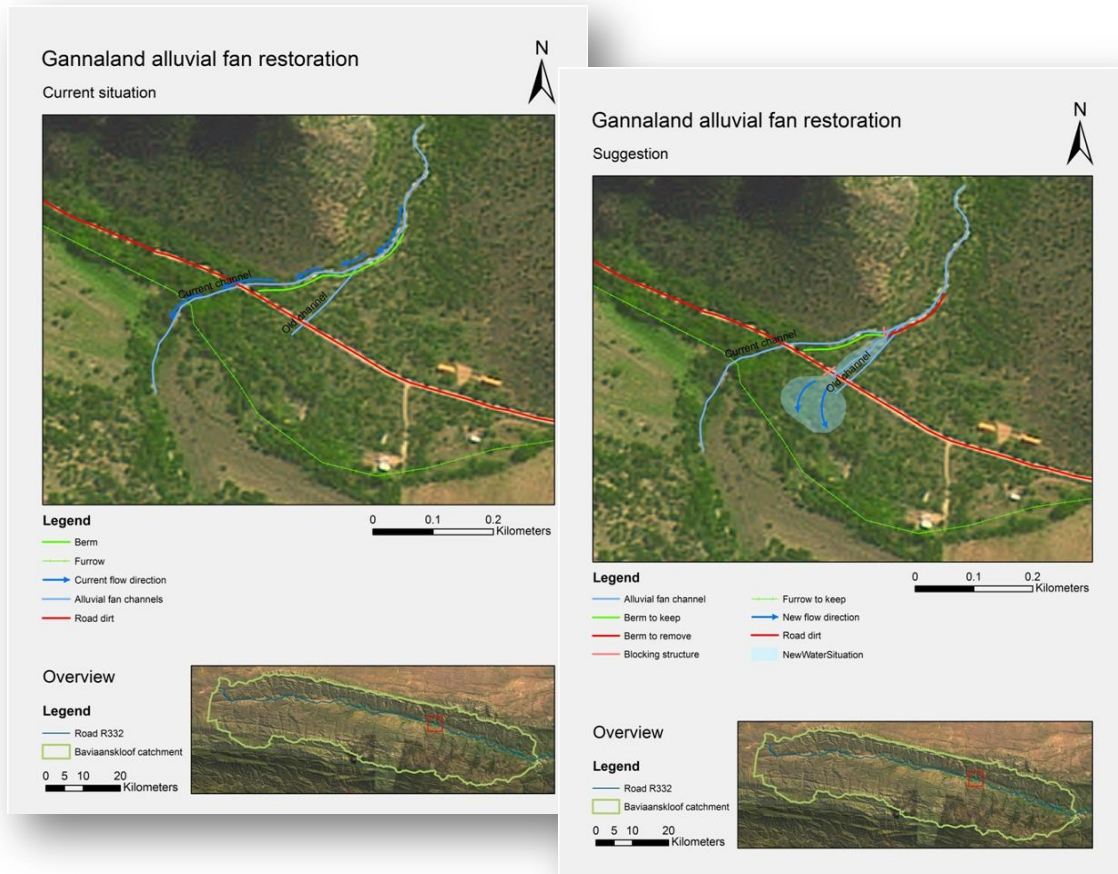


Figure 8. An example of a restoration work on the alluvial fans.

4.2.1. Securing implementation activities

Living Lands has worked closely together with ECPTA and their Stewardship programme, resulting in two farmers in the Baviaanskloof area showing interest in the programme and the possibilities of signing an agreement. This results in restoration activities on the properties being secured for a longer period of time.

Through various stakeholder engagements and implementation activities carried out throughout the year (2011), Living Lands has been able to secure the intention of the stakeholders in the Baviaanskloof to working towards sustainable land use practices and seeing the benefits of restoration activities. Proof of these intentions can be seen in the form of the letter of intent, drawn up and signed by the various stakeholders in the western Baviaanskloof, for working towards sustainable land use practices and restoration, as well as in the MoU between Living Lands and the landowners on the restoration sites.

4.2.2. Creating a buy-in for activity continuation

Together with the South African Government (DEA), the carbon baselines for the western Baviaanskloof are being performed to secure the future possibilities of carbon credit trading in the carbon market, a form of PES.

An MoU has been signed between Living Lands and Working for Wetlands/SANBI, with funding from WFE. Working for Wetlands will invest R 3 million in the Baviaanskloof on river and alluvial fan restoration, over and above the R 800 000 for the implementation plans of Living Lands for the alluvial fans.

A partnership has been established between Living Lands and Ecological Restoration Capital (ERC). ERC is an environmental and social venture that aims to restore degraded lands throughout South Africa, while serving rural areas of high unemployment through business development. Together, Living Lands and ERC are looking to acquire funding from the Development Bank of Southern Africa (DBSA) and Working for Water (DEA) to help cover the transaction costs which are involved when trading on the carbon market, as these costs are considerably high and additional funding is needed in order for it to be sustainable.

4.2.3. The link between implementers

The designed landscape plan has created momentum for various implementers, such as GIB and the Working for Water/Woodland programmes, in the western Baviaanskloof area, and new opportunities for restoration in the Baviaanskloof. It has also ensured the continued employment of more than 70 people planting Spekboom and restoring the area, all by acting as the link between the landowners and the Working for Water team and GIB. There has been a strong connection made with the Department of Agriculture, who is willing to invest in erosion prevention in the Baviaanskloof.

4.3. Operational monitoring system

2011 Activities and deliverables - Operational monitoring system:

- Equipment;
- Maintenance and depreciation;
- Training and salary for local field assistant.

The main objective of the monitoring is to analyse the effects of the restoration on ecosystem services. The data will be used to quantify the benefits of restoration on ecosystem services which is a long-term process. Main ecosystem services are: water retention, carbon sequestration, rising water table, increased base flow, and soil retention. The monitoring comprises the entire collaborative restoration interventions by all PRESENCE partners; consisting of hill slope restoration (Spekboom planting), and alluvial fans and main river bed restoration. The monitoring data will ultimately generate information which can be used to quantify the benefits of restoration, and ultimately be used as motivation for compensation/financial schemes, such as PES.

An important link has been made between SAEON (South African Environmental Observation Network) and PRESENCE, for collecting and contributing monitoring data for the Baviaanskloof on their national database.

4.3.1. Equipment

New equipment (moisture probes) have been bought and installed for the monitoring of the restoration measures of the alluvial fans and gabion in the main river in the Baviaanskloof.

4.3.2. Training of and salary for the local field assistant



A local field assistant from the community has been employed to help in the maintenance and monitoring of the plot on a regular basis.

Continued communication with stakeholders, such as the community farmers, has seen an increase in the participation in the monitoring of restoration efforts and equipment, and a sense of responsibility for this monitoring being fostered and embraced by the stakeholders.

4.4. Research

2011 Activities and deliverables - Research:

- Research capacity building of SA students
- Local supervision of SA students
- Local supervision of WUR and other students
- Supervision of WUR students
- Agreement between WUR and PRESENCE
- Research integration workshops
- PRESENCE portal
- Research on the impact of land use on the provisioning of ecosystem services in the thicket area
- Research strategy PRESENCE
- Strategy and funding document PRESENCE

The year of 2011 was an exhausting, but very exciting year for research in the Baviaanskloof. As evidential progress to the four years invested in constant engagement, continuous research and implementation, research in 2011 has taken 'a step further'. Most of the research in the years prior was broadly focused on understanding social dynamics, screening biophysical characteristics, quantifying ecosystem services and beginning to explore alternative options for sustainable land use.

This research was guided by the Trans-disciplinary Assessment and Implementation Framework (see Figure 4). As we began to understand the socio-ecological system of the area, a need to develop options or 'solutions' to move towards desirable land uses arose; a framework specific to opportunities was developed in 2011. The research was also a strategy surrounding this framework.

4.4.1. Research capacity building of South African students

To enhance research capacity in South Africa, a small fund was set up to support South African master students doing their research in the Baviaanskloof. This has led to the signing of an MoU with one student from Rhodes University and the signing of two MoU's by two South African universities: Stellenbosch University will be involved in carrying out a social assessment of the Kouga River catchment and Rhodes University will be carrying out a geographical assessment of the Kouga River catchment.

4.4.2. Local supervision of South African, WUR, and other students

Various activities have been taking place, such as the Student Workshops of February and September 2011, to coordinate the South African students' research with the Dutch and other foreign students' research in the area.

Wageningen University and Research Centre (WUR) students were academically supervised and guided by WUR. Living Lands took the responsibility of guiding and supervising the WUR students in South Africa, including integrating their work with the overall vision and placing them in connection with South African students (and researchers) for knowledge and experience exchange and providing local support. An overview of all the students of 2011 can be found in Attachment V.

4.4.3. Agreements between WUR and PRESENCE

A meeting took place in July 2011 between Living Lands and several stakeholders from WUR to establish a sustainable relationship. The proposed MoU was not signed due to WUR's recent policy of not signing MoU's with new organisations. However, the linkages between Living Lands, PRESENCE, and WUR will remain strong and connected on a more informal level.

It was decided by WUR and Living Lands, that due to not signing an MoU as well as the amount of time and energy put into the MoU by Living Lands, that WUR will not be paid out the amount budgeted for the MoU, and this instead will be used by Living Lands to strengthen the formed relationship between WUR and Living Lands.



Figure 9. Rhodes students on a PRESENCE fieldtrip in the Baviaanskloof.

4.4.4. Research integration workshop

In 2011, several PhD and masters students conducted research under the PRESENCE network. Two student workshops (held in February and September 2011) were successfully held which has led to the further integration of the different research and development of collaborations between the different students. This process has facilitated data and literature sharing and has encouraged joint publications.

4.4.5. PRESENCE portal

To ensure continuous integration and communication of the various research and communication, the PRESENCE Online Portal was integrated into the SAEON national database and will serve as a platform for enabling the exchange of ideas, information, news, activities, discussions, feedback and opportunities on a more efficient and broader scale.

4.4.6. Research on the impact of land use on the provisioning of ecosystem services in the thicket area

In 2011, there was more research focused on the effort of using PES as a catalyst for sustainable land-use change in the western Baviaanskloof. Therefore, Living Lands has included Foundation of Sustainable Development (FSD) in the project (<http://www.fsd.nl/>). Research has been conducted by FSD to provide input on the landscape plan that has been developed. The research investigated the impact of various land uses in providing ecosystem services in the thicket area, answering questions like 'What types of ecosystem services are currently available and which types of ecosystem services may be available in the future, in the Baviaanskloof?'

4.4.7. Strategy and funding document of PRESENCE

Dienst Landelijk Gebied (DLG) has been searching for additional funding and the creation of new linkages for PRESENCE through various Dutch institutes. As a marketing tool, to create support for the activities of Living Lands and to showcase the work done in the Baviaanskloof, an information booklet

has been created by Josefien Oude Munnink from DLG and Japer de Vries, a WUR/ PRESENCE PhD student.

4.5. Capacity building and awareness

2010 Activities and deliverables - Capacity building and awareness:

- Stakeholder engagement in the Baviaanskloof
- Stakeholder engagement by up-scaling to the Kouga catchment and Stinkhoutberg (BMR)
- Stakeholder engagement with emerging farmers/communities
- Sustainable farm management /feasibility study
- Learning Village
- PRESENCE workshop

Stakeholder engagement and empowerment is an intensive and ongoing process in order to create an environment conducive to learning, mutual understanding, trust, and compassion between all the partners. The WFE project has been a catalyst in the area. The project partners of the PRESENCE network have seen the opportunities and have been keen to invest in the area. This is a very positive flow-on effect of the project.

4.5.1. Stakeholder engagement in the Baviaanskloof

The participation in various farmers' meetings and one-on-one stakeholder visits and interviews as well as the arranging of a landowners learning exchange, has led to the mobilization of the communities in the Baviaanskloof, encouraging sustainable land use. A study conducted on trust between Living Lands and stakeholders in the area revealed the immense importance that building trust and a relationship with stakeholders has, and the progress that has been made over the years in building that trust. The end result of these activities is the buy-in of the Baviaanskloof stakeholders into restoration and sustainable land management, through the development and signing of a letter of intent and the signing of the landscape scenario map (chosen by them), from the landscape management plan.



4.5.2. Stakeholder engagement by up-scaling to the Kouga and Stinkhoutberg catchment (BMR)

The expansion into the Kouga catchment has been met with positive results thus far. In 2011 the focus was on engaging in the social and biophysical aspects of the catchment. A study has been conducted on the engagement with various farmers. Strong linkages have been made with the Agricultural Extension Officer from the area. Farmers in the area were very positive and pleased to have someone listening to their concerns and ideas regarding sustainable land use. In the Stinkhoutberg area, research has been conducted focusing on the social interaction with the landowners, and a workshop was held in September 2011 to bring the landowners in the area together to discuss sustainable land use. Currently, various funding opportunities are being explored for the continuation of the engagement in the areas for the next three years.

4.5.3. Stakeholder engagement with emerging farmers

Several presentations were given to the Sewefontein farm community committee members (community leaders) on PRESENCE and the restoration activities occurring in the Baviaanskloof; each



contained one-on-one conversation with the various community leaders. This has resulted in opportunities for Spekboom planting to occur on the farm as well as other restoration activities, such as the restoration of the large gullies on the farm. A pilot study is being conducted by a PRESENCE student into the use of bioengineering for the restoration of such gullies. Noel Isaac, a local community member and a new young leader of Sewefontein, is a part time worker employed of Living Lands to empower the community towards restoration and sustainable land use.

4.5.4. Sustainable farm management/feasibility study

A study has been conducted investigating different sustainable farming practices which may be available to farmers; a feasibility study has also been conducted examining the viability of alternative sustainable farming practices and land usages. Three separate meetings were held with the farmers and the South African Agriculture Research Counsel (ARC), to explore new farming activities and new management opportunities. One of the management outcomes being investigated is to farm herds of goats together with a shepherd in the field; another method is to stop grazing on the hill slopes with the possibilities of restoring them through Spekboom planting.

4.5.5. The Learning Village

The Learning Village, situated at the Kouga Dam in Patensie, hosts various activities and people in supporting restoration and conservation projects in the Eastern Cape. The Learning Village has played host to various workshops, such as two PRESENCE Student Workshops and has held several environmental educational workshops for children from the local school in the area. The Learning Lapa has been upgraded with the purchase of a digital projector as well as the construction of two compost toilet facilities.

4.5.6. PRESENCE workshop

The PRESENCE Workshop was successfully held in May 2011. Three international key note speakers attended the workshop, along with all of the regional Working for Water managers and other important stakeholders. New plans for the future of PRESENCE were drawn. Members from the GIZ expressed interest in assisting the development of PES in the Baviaanskloof.



4.6. *Project coordination and project management*

2010 Deliverables - Project coordination and project management:

- Coordination of programme
- Visits and media

The coordination of the project is adapted according to the prevailing concept of a ‘Learning Organization’, i.e. high participation of the network members. An important coordination activity comprises the relevance of research and activities within the PRESENCE network. Living Lands managed the project as the contract holder, and maintained the overall responsibility of the project.

In 2011, two small documentaries were made containing the work done in the Baviaanskloof. The famous environmental documentary film maker, John D. Liu, made an overview of the project during his visit to the PRESENCE workshop in May. The project in the Baviaanskloof had another visit from documentary film maker, Jeffrey Barbee; launching his film “Creating a Climate for Change” during the COP 17 in Durban, presenting the Baviaanskloof as one of the four projects that create hope in these times of climate change (Figure 10).



Figure 10. John D. Liu (left) and Jeffreys Barbee (right).