

## **Living Lands and Grounded activities in the Kouga, Krom and Baviaanskloof catchments**

The following provides a brief summary of the activities and research of Living Lands and Grounded (formally Four Returns) in the Kouga, Krom and Baviaanskloof catchments, as requested in the Algoa Reconciliation Strategy ATSG Meeting No. 14. Further information available on request.

### **Baviaanskloof**

Living Lands had been active in the Baviaanskloof for seven years, building strong trust-based relationships with the community. Through student research, Living Lands have built up a large knowledge-base and developed an in-depth understanding of the challenges and opportunities of restoring the land.

Living Lands has been working with Grounded to find an economic model to support the transition from goat farming to more sustainable and profitable agricultural options that would also support restoration in the area. The business model developed by Grounded with the farmers introduced essential oils as an alternative source of income. Currently, organic lavender and rosemary have been planted, as they need very little water and require 100 times less space than goats. Working with the farmers, the “Baviaanskloof Development Company” has been established and have almost finished the establishment of 100 hectares of rosemary and lavender. The processing facility is recently completed, and the first crop has been harvested.

Supporting this work, farmers have already made land available for restoration. Through funds from the Coca Cola Africa Foundation and GEF, Living Lands have been able to attract funding to restore 2500 hectares of degraded land, including 5 alluvial fans.

### **Kouga**

Living Lands has been involved in the Kouga Catchment since 2011. Projects in the area included Mobilizing of Civil Society in the Kouga Catchment, Switch Africa Green and Participatory Hydrological Modelling. The Switch Africa Green project focusses on developing a Green Economy in the area through sustainable agriculture, environmental restoration, value-adding businesses and landscape-level organisations. One of the outcomes of the project will be to develop demonstration sites where various methods of alien clearing, agroforestry, riverbank restoration and wetland restoration will be investigated. Potentially, holistic restoration plans could be implemented on these sites, leading to job creation, restoration and finally sustainable agriculture. These practical demonstration sites could serve as experimental plots where different methods of restoration could be investigated, and successful approaches could then be implemented on a bigger scale in other areas of the catchment. We will be supporting this work through the development of sustainable agricultural businesses, and supporting investment through the area.

Work in the area is supported by student research in alien invasive vegetation, honeybush and agroforestry, social networks and landscape collaboration, including water security.

### **Krom**

Living Lands has facilitated several research projects in the Krom River catchment. These projects explored many topics including the characteristics of the native and non-native vegetation, the properties of soil and water, the evaluation of restoration and land rehabilitation opportunities as well as the existing social networks and the nature of collaboration between these social networks.

Some of the results indicated that 40% of the Nelson Mandela Bay Municipality's total water demand is supplied by the Krom River (Gull, 2012), but due to the invasion of alien plant species (such as *Acacia mearnsii*) and the loss of sensitive ecosystems (such as palmiet wetlands) in the past 50 years, the catchment is heavily degraded (Gull, 2012; Rebelo, 2012). This degradation includes a reduced baseflow in the wetlands as well as an increased vulnerability to extreme rainfall (Rebelo, 2012). To restore this area, alien invasive clearing of 26.9 km<sup>2</sup> (65.1%) and restoration of 5.2 km<sup>2</sup> (34.2%) of the wetlands will be needed to increase riverflow and baseflow and also to reduce flood vulnerability and improve water quality. Restoration of the Kromme River can obtain economic returns of up to R1.2 million in agricultural benefits and R8.5 million in hydrological benefits (Rebelo, 2012).

Although the communities along the Krom River are fragmented, collective action between the different social groups (farmers, residents in towns, consultants, governmental institutions, etc) can play an important role in reducing water scarcity and improving water management practices (De Jong, 2012). A learning network and communication platform can assist to improve collaboration between stakeholders to restore, conserve and create a living landscape (Hesters, 2012). A social network analysis investigated the relationships between farmers, as well as the extent to which information is exchanged between social groups in terms of farming practices, alien invasion and wetlands. A general willingness and interest in conservation and sustainable land use was observed, as long as the landowners will not lose any production as a result or will be compensated (Nooij, 2012). One of the biggest constraints of social learning and collaboration on sustainable land use practices in the Krom River catchment is a lack of communication (Nooij, 2012).

## Cross-catchment work

### **WRC-funded Participatory Hydrological Modelling for Collective Exploration of Water Resource Protection, Restoration and Water Use Management Options in the Western Algoa Water Management Area (2016-2019).**

Living Lands in collaboration with partners, and through the support of the Water Research Commission (WRC), are working towards developing a hydrological model for each of the Baviaanskloof, Kouga and Krom River catchment areas through a participatory process. This hydrological model will help understand and estimate how different land and water management activities can affect river and groundwater resources. Such a model can predict changes in the pattern of stream flow over long-term patterns of droughts and wet periods; and could be used to help inform government policies that impact on your water security. One of the challenges we want to address is how to balance water allocations while ensuring water security and ecological integrity including healthy rivers, wetlands and estuary ecosystems.

This project is running over 2 years (April 2016 – March 2018) and the main aim of this participatory model building is to foster social learning and group decision-making in catchment management. The focus is not only on the accuracy and applicability of the models themselves, but also the process of model building as a learning tool for the stakeholder group.

The stakeholder engagements both to gather hydrological information and to determine stakeholder goals and needs for the modelling exercise in terms of outputs, accuracy and scenarios to be considered will occur together and start early on in the project (i.e. well before the calibration or scenario modelling is being done). There will be an iterative process of gathering ideas, refining, and coming to agreements on the next step.

#### Four Returns in the Port Elizabeth catchment

In 2014, a partnership between private and public sector entities (Santam, GIZ, Department of Water & Sanitation, Commonland and Grounded) to improve water security through land restoration, the development of sustainable agriculture businesses and improved catchment management. The partnership seeks to promote corporate engagement and to encourage the flow of funds from downstream users into upstream catchment management.

