Rural Development and the Governability of Water-Linked Ecosystems in Transitioning Economies: The Market Value Chains of Baleni Salt in Limpopo

Report to the
Water Research Commission

by

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EXECUTIVE SUMMARY

Rationale

Goods and services from water-linked ecosystems have been used in subsistence economy settings since time immemorial. However, as people began to specialise in limited economic activity, these ecosystem goods and services *inter alia* became increasingly merchandisable. Undeniably, markets are a useful instrument for transferring products to people who are willing to pay more for them. In the context of natural resources, this may provide options to enhance rural livelihoods using fewer quantities and generate funds for protecting threatened ecosystems.

Given the universal challenges of unemployment, poverty and inequality which confront mainly rural and peri-urban people, they should consider participating in formal markets for their produce as that could earn them higher incomes because of the demand for value addition further along the value chain and the existence of actors who place greater market values on their products. Market value chains (MVCs) incorporating rural people, may contain unique value components on account of the indigenous knowledge they embody, something for which urban and global consumers are usually willing to pay huge premiums.

Both rural men and women can potentially participate in MVCs even though there are usually gendered-constraints for doing so. Value chains including rural actors are likely to exhibit greater gender segmentation as there tends to be a predominant division of labour which forces women into low-valued functions. Where their functions can potentially be high-valued they often lack the capital (financial, human, physical, etc.) to partake. As gender segmentation is usually to the detriment of young and old women, gender-based economic upgrading needs to be engineered to help them catch up with conditions of their male counterparts and protect them from future system-wide discrimination. The analysis of gender in MVCs is imperative if efforts towards enhancing social inclusion are to be ramped up.

Rural communities that depend on indigenous natural resources have increasingly become integrated into globalised MVCs mostly through bio-prospecting contracts with nutraceutical, pharmaceutical and cosmeceutical firms. Arguments have been put forward that rural people's use of ecosystem services can yield greater economic benefits if indigenous knowledge is properly merged with 'scientific' innovative systems. Arguments have also been put forward that the integration of rural producers into MVCs involving natural resources commercialization should be gender-sensitive, giving particular attention to the empowerment of women and vulnerable men.

Counter-arguments have decried the exploitative tendencies or 'bio-piracy' of partnership arrangements that bring together powerful Big Business and resource-poor rural women and men. Criticism has also alluded to the possible loss of intellectual property to breeders and possibility of poorly resourced farmers [and fishers] being replaced by the well-to-do farmers in the commercialization drive. Also questioned has been the disempowering role of 'middlemen', 'brokers' and 'agents', who link producers with markets and workers with commercialised production enterprises. Importantly, there are concerns that the increasing demand for goods to trade in markets, coupled with rural population growth, poverty and unemployment, could severely threaten the resilience of ecosystems.

While arguments for and against the commercialization of natural resources and agriculture in traditional rural communities need to be tested, the debates attest to observations made elsewhere that clear policy directions are required to effectively guide the transition from subsistence economies to commercially-oriented and highly specialised forms of resource exploitation and marketing.

Rural communities are often uninformed about the comparative advantage they possibly possess in harnessing indigenous knowledge to produce high-valued commodities for extended value chains. Research needs to locate the place of Indigenous Knowledge Systems (IKS) in MVCs and conscientise rural communities about ways through which they can capitalise on it to engender sustainable extraction of ecosystem goods and services.

Ignorance about harnessing IKS to achieve better, sustainable economic outcomes from exploiting ecosystems and the existence of gendered-constraints in welfare enhancing MVCs find themselves at play in South African rural areas. Accordingly, the overall aim of the report is to develop clear understandings about current trends in the commercialization of natural resources and agriculture in traditional rural community contexts. This is operationalised by pursuing four specific research objectives, namely:

- To conduct an extensive review on the commercialization of natural resource products to reduce rural poverty, unemployment and vulnerability within water-linked ecosystems
- To develop understandings on indigenous knowledge systems and practices regarding the use, management and governance of ecosystem goods and services in selected traditional community contexts
- To delineate and map the Value Chain of existing practices in the marketing of ecosystem goods and services and their use by local communities
- Develop and test a Gender-Sensitive Value Chain Framework to guide efforts to enhance the effectiveness of contributions by Ecosystem Goods and Services to Rural Resilience

The stated objectives were achieved through an in-depth review of literature of related cases and an empirical investigation of traditional salt mining by rural communities. In the latter case, a gender-sensitive and IKS-cognizant methodology is used to map and analyze existing value chains for Baleni salt mining by rural communities, which are transitioning from informal subsistence to formal commercialised water-linked economies, under the Mahumani Traditional Authority in the Greater Giyani Local Municipality in Limpopo province, South Africa. This is used to explore efforts to enhance the contribution by ecosystem goods and services to rural resilience.

There is a general awareness of the importance and value of natural resources products in the livelihoods of poor communities across the world. The commercialization of natural resources products associated with poor rural communities is seen as an effective tool for tackling Sustainable Development Goal targets for poverty, extreme hunger and starvation and environmental sustainability. A synopsis of literature on current trends in the commercialization of natural products and agriculture shows that there has recently been an upsurge of interest in integrating a broad range of medicinal plants, handcrafts, organic foods, bio-fuels and other products, which are traditionally produced in informal economies, into

formal economies. Effectively, there have been shifts away from local informal markets to broader-ranging, multi-stakeholder and multi-scale formal markets and MVCs.

The broader review of literature identified several constraints to fostering women's empowerment. The most difficult constraints to resolve are the gender-based, social-cultural barriers to women's access to bases of social power and productive wealth. Thus, women in rural areas are more involved in utilizing aquatic resources, and associated goods and services. However, in many cultures, women have very little or no say in decision-making regarding management of land and water resources they so depend upon.

Long-standing subsistence practices around natural resources are increasingly pressurised by demands for incomes by growing populations of marginalized rural women and men, who continue to live in traditional rural economies that are undergoing transition from informal subsistence practices to more formal and highly commercialised productive enterprises. There are concerns about what an unmanaged transition might mean for ecosystem resilience in such contexts, particularly in view of drivers such as climatic change.

Amid such concerns, attention has been brought to bear on the role of IKS and practices in ensuring ecosystem resilience, particularly for vulnerable gender groups, economies, ecological sub-systems and productive sectors. It is worth noting that rural people do not live in insular communities, and the possibility is strong that there are on-going changes in the way local people value, appropriate and conserve natural resources. The pervasive poverty, unemployment and changing aspirations and consumption patterns all combine to increase demands for goods to sell in commercialised markets, including the emerging MVCs.

Without sound governance and support for the transition to greater commercialization of natural resources products, a possible danger could be an unmanaged erosion of subsistence levels of resource harvesting and, thereby, the vulnerability of ecological systems. Whatever remnants of IKS are still available in rural South Africa today will need to be combined with other 'knowledges' and thereby strengthen the resilience of water-linked ecosystems. Arguments have been put forward that benefits of indigenous knowledge and practices can yield more value if such knowledge can be properly merged with scientific innovative systems, such as through processing natural resources and/or agricultural produce in partnership with business.

There is merit in keeping the strong local institutions that have been in existence for hundreds of years even as greater participation in MVCs is encouraged.

Commercialised production of natural resources is commonly integrated with other income generating activities but for successful commercialization of natural resources products, investments might be required elsewhere. Therefore the commercialization of natural resources products need to be considered in an integrated framework involving other activities such as agriculture, etc.

The key issues around MVCs, the existence of gendered-constraints in welfare enhancing MVCs and lack of knowledge about the role of IKS picked from the literature review will be interrogated in an empirical study of Baleni salt mining by rural communities under the Mahumani Traditional Authority.

Methodology

The methodology used by this study to examine MVCs in traditional rural communities is derived and adapted from the MVC analysis developed by the Greater Access to Trade Expansion (GATE) project. The GATE project integrates a gender and pro-poor analysis that aims to uncover the economic, organizational, and asymmetric relationships among actors throughout the chain and recognises that power differentials among actors may influence outcomes along the chain. Gendered value chain analysis allows for the consideration of groups and individual men and women's access to productive activities, differential opportunities for upgrading within the chain, gender-based division of activities and how gender power relations impact economic rents among actors throughout the chain. The distributional analysis explores the value added generated along the chain and examines the returns to the different actors participating in the chain. Above all, this study adds an IKS angle in the analysis to take care of a commonly occurring feature in traditional rural communities of South Africa. The deployed methodology uses mixed-methods, which rely on primary data collection through surveys, secondary analysis of household survey and national accounts data, and qualitative analysis using key informant interviews and focus groups.

A case study approach was used. Site selection criteria used included the traditional rural community context, existence of formal and/or informal market value chain, transition into highly commercialised value chain, utilization of IKS by value chain, and active involvement of rural women and/or men in the value chain. On this basis, the study selected Baleni salt mining in Mahumani Traditional Authority where a hot spring with water high in sodium chloride issues into a shallow depression that eventually drains into the nearby Klein Letaba River.

Baleni is a sacred site and was declared a Natural Heritage Site by President Nelson Mandela in 1999. It is the only active salt production site in South Africa where indigenous people harvest salt according to IKS. Thirty female salt miners live a few kilometers from the spring where they harvest salt using ancient ways during the winter months. Only women can access the place and all of their movements are governed by a secret language, indecipherable to most. The local women have been repeating the ritual the same way for about 1700 years before present (yBP).

The finished salt has a high mineral content and is greatly appreciated for its flavor and "healing" properties. The Baleni salt sample sent by Transfrontier Parks Destination to the Council for Scientific and Industrial Research for testing in 2013 returned good results including the presence of trace elements such as calcium, potassium and magnesium.

Results and Discussion

Mapping Baleni salt MVC

The study maps the Baleni salt value chain which is composed of eight functions: extraction, processing, local transportation, warehousing, wholesaling, distributive marketing, retailing and consumption. The first four functions are located within the traditional community while the rest predominantly take place elsewhere. There are four general groups of actors: input suppliers (for scrappers, plates, buckets, *xinjhava*, firewood, salt pans, sacks and transport); salt miners (for extracting, processing and warehousing); marketing and distributive agents (vendors, healers, external bulk buyer, salt distribution company, restaurants and European

buyers), and consumers (village, Baleni tourists, Greater Giyani, national and international). For a detailed explanation and diagram of the mapping of the value chain of Baleni salt, please refer to section 4.1 of this report.

On average, the women harvested between “50 kg” and “80 kg” per person per harvesting period, which is at most two weeks long and mostly during the winter months of June and July. They sold a “500 g” plastic bag of salt for R10 on the local market, their dominant outlet. This can be translated into R1000 per “50 kg” bag harvest, per woman. The smaller proportion of salt taken up by externals is sold for an average of R1800 per “50 kg” bag.

The Transfrontier Parks Destinations (TFPD) Foundation has made great attempts to help the women introduce their product in niche markets in the Western Cape Province and abroad. Through the TFPD Foundation’s facilitation, Baleni salt is now used by select Michelin chefs for specialty foods, and sold in attractive packaging by a specialty salt shop in Amsterdam. In addition, due to the product’s improved profile, it was included in the Slow Food’s Ark Taste and profiled at the Terra Madre shows in Turin. For more details about external Baleni salt markets, please refer to section 4.1 of this report.

Analyzing Baleni salt MVC

Governance and power: The concept of governance in MVCs refers to the ability of lead organization units to organise the activities along a chain and their ability to control the distribution of factors of production within it. Baleni salt is a unique product born out of a uniquely IKS-laden technology and, as a consequence, potentially yields a supplier-driven value chain. However, a lack of awareness of what Baleni salt embodies and how it relates to and differs from other natural salts has made easy competition for it. Thus, the women are not leaders in the value chain. At best, with respect to the major share of their output, the miners seem to operate in a classic market type of value chain governance where the degrees of explicit coordination and power asymmetry are low. To a limited extent, with respect to that produce going through bulk buyers, the miners operate in a modular value chain governance: Suppliers in modular value chains tend to take full responsibility for process technology. Linkages (or relationships) are more substantial than in simple markets because of the high volume of information flowing across the inter-firm link.

As lead roles in MVCs can be advantageous, there are three things the women can do to improve their relative power in the Baleni salt MVC.

- *Efficient use of inputs:* Several differences were observed in salt samples obtained from the miners. These were mainly evident along the lines of salt colour and mass. This suggests differential deployment of resources with wastage occurring somewhere. A more efficient use of inputs across the board therefore presents one way in which women can generate more revenue from their produce.
- *Monopoly power:* The uniqueness of Baleni salt is not well known in the nearby town and beyond. The women ought to create monopoly power over their product, possibly with increased marketing initially coming from the TFPD Foundation. The best form of marketing collaboration among the women could come through the establishment of a marketing cooperative which targets niche markets. However, they would first need to deal with the problem of mistrust among themselves becoming the misconception that external buyers favour some over others.

- *Price fixing:* The women have not had much pricing power against both local and external buyers. In particular, external buyers get significant bargaining power by bringing lump sum payments which individual women cannot resist. This helps explain why the salt miners are not leaders in the value chain. The women need to engage in price fixing.

Gender segmentation: There is a very high gender segmentation of roles owing to the critical roles associated with Baleni salt mining being the preserve for women as per Tsonga culture. As a consequence, many disadvantaged men and youth will not consider venturing into the salt business, at least under the current environment. Though favoring women, the high gender segmentation observed also poses a challenge in another dimension. There is a risk of women being locked in salt mining and thereby failing to move to other high valued activities. Looking ahead, there are conceivable future threats as highly valued Baleni salt will attract stakeholders who have not previously been involved in salt mining. For example, if men and young women were to enter the value chain in response to lucrative prices without proper initiation then they could temper with an ecological and spiritual system which has worked in harmony for about 1700 yBP and possibly degrade the natural resource.

The functions undertaken by women in the value chain are more labour intensive while those undertaken by men are capital intensive. As with other occupations elsewhere, women miners are more insecure and vulnerable as a result of upstream gender segmentation. Downstream gender segmentation potentially enhances benefits for the salt miners as some women in developed countries have to pay a premium to support women in the developing world. Therefore, the marketing strategy for Baleni salt needs to be explicit about women's involvement in the production process.

Distribution analysis: The analysis of value added is designed to depict the distribution of returns throughout the value chain. Section 6.2 shows the value added calculations for selected actors across two different routes through which Baleni salt can go. The value added needs to cover for the factors of production used to produce it. In the case of the salt miners, the major cost which needs to be accounted for is human capital (labour, IKS and entrepreneurship). Imputed financial data suggests that women's labour (inclusive of part of IKS) cost for producing a kilogram of Baleni salt is R52, which should be compared to the valued added of only R9 realised from the market system. Why do women continue operating "loss-making" salt mines? IKS could itself be an unaccounted for value; as women continue with salt mining activities, they get contentment (i.e. unaccounted for value) from the sustenance of IKS for the benefit of the community.

The value added of Baleni salt realised from the market system should be enhanced to help defray (non-financial but relevant economic) costs associated with the women's disproportionate contribution to the common good. If consumers of Baleni salt could appreciate the human capital (including IKS) that the product embodies they could be willing to pay more. Adding labels which make IKS content more explicit could encourage consumers to pay a premium for it in the same way consumers generally agree that organic products are costlier to produce. Besides marketing the current Baleni salt and the IKS content, one strategy for capturing a greater proportion of the final price and increasing value added realised from the market system is to diversify the types of processed Baleni salt by increasing the "presentations" available. Using examples of salt presentations available elsewhere this would involve creating upgraded products such as Baleni garlic salt, Baleni onion salt, etc.

However, the Baleni brand would need something which quickly signifies its IKS content and possibly uses ethnic infusions, e.g. marula but bearing in mind that food markets require authentic salt. Diversifying product presentation would involve some limited upgrading, training of workers and the installation of new machinery.

It can be concluded that the linkages of this value chain with the national economy are currently very dense because the majority of inputs such as plates, buckets, etc. are made locally, a fact that magnifies the size of the multipliers. However, the analysis also demonstrates that the actors with the greatest backward linkages in the value chain (salt miners) are also those that generally capture a smaller percentage of the total value added. The opportunities to maximise national content in the value chain lie in the more effective and more attractive packaging for Baleni salt destined for the export market, e.g. production and use of traditional beaded packaging.

Enhancing the value of Baleni salt will require a new modus operandi. Baleni salt mining essentially involves sand mining from the Klein Letaba riverbed. The regulatory system governing sand mining in South Africa is three-pronged: mineral regulation, environmental regulation and land use planning regulation. Firstly, sand is a mineral resource and the extraction of which is subject to mineral regulation. Secondly, sand mining has the potential to cause environmental impact and is therefore subject to environmental regulation. Thirdly, sand mining uses land and is therefore subject to land use planning regulation.

In terms of section 22 of the Mineral and Petroleum Resources Development Act, a mining permit will be required. This Act binds the holder of a mining permit to the requirements of the National Water Act. As the salt miner would be deemed to be either taking water from a water resource or impeding/diverting the flow of water in a watercourse or altering the bed, banks, course or characteristics of a watercourse, a 'Water Use License' will be required. Therefore, as things stand, Baleni salt mining operations do not follow the three key pieces of relevant legislation which includes the National Environmental Management Act. However, the salt miners think of themselves as promoting IKS and cultural heritage in a Natural Heritage Site rather than mining; in that case, there need to be some other type of government oversight with only the essential aspects of the mining and mineral resources legislation having to be made applicable to the product.

Conclusion and Recommendations

New knowledge relevant for policy was generated along several dimensions by this study: A group of 30 Tsonga women salt miners produce about 2 metric tons of salt each year from the Baleni wetland system using traditions passed down since about 1700 yBP. The value chain analysis conducted in this study shows that about a third of the salt produced finds its way to the affluent market where the women fetch about double price (R36/kg) compared to local sales (R20/kg). However, at R135/kg, the affluent market is paying 3.75 times more than the women's receipts to salt distributors. The study uncovers IKS as being behind the huge premium on Baleni salt and yet women are not fully compensated for preserving and utilizing it. The study demonstrates that salt mining is an important activity which could help bring the rural women of Mahumani out of poverty. However, salt mining ought to take place in the context of integrated community livelihoods to avoid overexploitation of the resource or tempering with the sustainability of other ecosystem goods and services in the water-linked ecosystem. The results of this study are important as an input to a process which uses other

types of evidence to make holistic decisions about sound natural resource exploitation in the area.

The issue around thresholds of the salt deposits comes to the fore when sustainability issues are discussed. All the women miners seemed to suggest that the more they mine the salt the more it appears on the land surfaces. This thinking is in contrast with the outside world which believes that the salt deposits have a threshold and as such must be responsibly and gainfully exploited. During the 1940s the hot spring wetland was prospected and it was ascertained that salt deposits around 2300 metric tons were available for exploitation. This is a clear indication that the salt deposits have a threshold even though the capacity of production needs to be researched once again. There has to be greater certainty about the potential yield and the vulnerability of the miners/entrepreneurs at the helm of the project.

It must be appreciated that most natural salts of the world have derived their great values from the mere fact that they have thresholds and must be treated as such. Marketers in the salt industry have indicated that salts of this nature are rare and very important and are not for everyday use and therefore that's where they derive their great value especially for the affluent market of the world. Clarifying the role of IKS is likely to provide the differentiation the salt needs to target niche markets and hopefully curtail excessive exploitation as mandatory livelihoods can be met using fewer resources.

Mahumani has other challenges which are naturally linked to the salt mining enterprise. The challenges confronting the Mahumani community inspired the Mahumani Tribal Council to formulate the Mahumani Integrated and Sustainable Development Initiative, of which salt mining is a part. In dealing with all these challenges, laws and regulations will need to be followed and some of them might impose constraints. A major issue highlighted by the Department of Rural Development and Land Reform with respect to legislation was that tribal authority land allocation Proclamation gazette no. 64 of 1990 did not specify the exact boundary extent of Mahumani Tribal Authority even though it specified the villages under the tribal authority. For rural resilience through use of ecosystems good and services, it is important to ensure that a property rights regime has clearly defined boundaries of the appropriators, i.e. individuals or households with rights to withdraw units from the common pool resource, and clearly defined boundaries of the resource to be managed. If either of the two boundaries remain uncertain then no-one knows what they are managing or for whom. Boundary congruency would serve to bring the area of decision-making in line with areas of ecological interaction lest decisions taken by the appropriators have only a partial effect on the ecological system or be in conflict with decisions made elsewhere about the remaining parts of the ecological system. It is in the context of bringing harmony between these boundaries that the rights of women salt miners should be preserved by giving them appropriate authority for managing and sustainably using the Baleni ecosystem. This could be done in the context of establishment of a marketing cooperative (or a Small-, Micro- or Medium Enterprise) with a tested bankable business plan.

Recommendations for further research

Many value chains analyze segmentation in ownership, asset control and employment. In this study, the only meaningful type of analysis would be segmentation in employment where a flexible interpretation of employment is required given the informal nature of operations in Baleni salt mining. There are downstream organizational units such as retailing for which the

study did not have the means to get the employment figures. The study left those functions out and proceeded with a segmentation analysis for the rest of the value chain. Future effort will need to expand the fieldwork and collect data from all organizational units in the Baleni salt chain.

An analysis of multipliers and spillovers provides an estimate of the role that a sector plays in stimulating other economic activities. This analysis is important to understand the actual and potential contribution of the value chain to things such as poverty reduction or stimulating economic growth. However, such analyses are data intensive and this study did not have the means to generate the necessary data. Future effort could need to distill macro level data to the appropriate scale for joint analysis with the typical micro data from gathered at the level of the organizational unit.

The study revolved around Baleni salt a natural resource product from the Baleni hot spring and the surrounding environment which is purported to have healing powers for different ailments to include lowering blood pressure, healing diabetes mellitus and embodying soothing powers. This forms part of the belief system of the Tsonga people and have for a very long time spanning since about 1700 yBP used Baleni salt to that effect. Questions arising include dosage of salt for healing particular ailments, the medicinal properties in the salt itself and the handling of the salt itself during processing which require further research using known Eurocentric means before the salt product can be rolled out into the market.

One major realization is that the Baleni salt extraction and processing relies on the indigenous knowledge base and technologies belonging to the Tsonga people. There are fears that with increasing interest of the Baleni salt and the related technologies by the outside world the Tsonga people may not benefit fully and may even lose out on their knowledge. One sure way of protecting the Tsonga people and their indigenous knowledge and increase their beneficiation is by packaging the salt extraction and processing technology and knowledge registering it as their *intellectual property* through the proper institutions. Therefore, further studies as to registering Baleni salt as the Intellectual property of the Tsonga people is critical.

Of paramount importance is the knowledge attained from the study that rivers in Limpopo are known to be of poor quality for human consumption and Baleni salt being scraped from Klein Letaba river bed may contain impurities and toxic substances in concentrated form and therefore further studies on quality are critical and possibly how this quality can be guaranteed for human consumption of the salt product. It is important to have special quality control measures introduced upstream to prevent the local salt from being affected.

It is also evidently clear that indigenous knowledge like other forms of knowledge are not static but also dynamically changing and as such there is room for continual improvement and on this token ways in which the indigenous knowledge and technologies can be improved need to be devised.

Political power relations are also at play in water governance and their role and impact on the Baleni salt market value chain needs further enquiry. The role of TFPD and that of government in relation to these two centers of power also need unpacking. Frameworks that are cognizant of these power relations and their cleavages need to be put in place for poor communities in traditional rural settings in South Africa to benefit more from their water linked ecosystems.

At a practical level, there is merit in the Water Research Commission (WRC) commissioning participatory action research whereby they work with the TFPD Foundation which has made great attempts to help the women introduce their product in niche markets in the Western Cape Province and abroad. The well-known salt distribution company called Oryx Desert Salt, which has helped distribute the salt to a couple of top restaurants with renowned chefs mostly in the Western Cape, should also be roped in. TFPD and Oryx Desert Salt have constraints in maturing the niche Baleni salt markets as their current Baleni salt operations are mainly geared towards financially assisting local communities and spreading the Baleni salt story in the hope that it might generate tourism and associated benefits to the area. A future WRC project would need to work towards maturing the niche Baleni salt markets; enhancing greater synergies between the marketing of Baleni salt and the Baleni tourism story; experiment with achieving consistent moisture levels and anti-caking properties for Baleni salt; investigate the chemical/health/medicinal properties of Baleni salt on large samples across time and space; investigate the mechanisms for Baleni salt compliance with environmental, mining and land use planning regulations; assist in capacitating local level institutions in mitigating ecological decay in Baleni; and assist in ensuring an appropriate role for Baleni in Mahumani's integrated development strategy. There may be other government sectors who are more proficient at dealing with some of the matters so WRC should consult broadly on the issue.

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GLOSSARY

Bio-prospecting is defined as the systematic search for and development of new sources of chemical compounds, genes and micro-organisms to generate medicinal or commercial value.

Downstream refers to the actors and operators toward the consumption end of the value chain product, i.e. the final market or consumer.

'Gender', according to the Gender and Water Alliance (GWA, 2011), can be defined as the culturally specific set of characteristics that identifies the social behaviour of women and men and the relationship between them. Gender, therefore, refers not simply to women or men, but to the relationship between them and the way it is socially constructed. Because Gender is a relational term, Gender must include women **and** men. Like the concepts of class, race and ethnicity, gender is an analytical tool for understanding social processes.

Gender Analysis is a systematic way of looking at the different roles of women and men in development and at the different impacts of development on women and men. Essentially, gender analysis asks the 'who' question: who does what, has access to and control over what, benefits from what, for both sexes in different age groups, classes, religions, ethnic groups, races and castes? Gender analysis also means that in every major demographic, socioeconomic and cultural group, data are separated by sex and analysed separately by sex. A gender focus – that is looking at males and females separately, is needed in every stage of the development process.

Gender Equality means that women and men enjoy the same status, have equal conditions for realising their full human rights and potential to contribute to national, political, economic, social and cultural development, and to benefit from the results.

Gender Mainstreaming is the process of accessing the implications for women and men of any planned action, including legislation, policies and programmes in all areas and at all levels. It is a strategy for making women's as well as men's concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres, so that women and men benefit equally and inequality is not perpetuated. The ultimate goal is to achieve gender equality [by transforming the mainstream] (ECOSOC, 1997, emphasis added).

Green economy is one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. It is low carbon, resource efficient, and socially inclusive (UNEP, 2011).

Indigenous knowledge is knowledge that is developed by black African women and men and adapted continuously to gradually changing environments, exposed and receptive to other forms of knowledge, passed down from generation to generation and closely interwoven with people's cultural values.

Indigenous people is used in reference to the languages and legal customs of the majority black African population as opposed to the other races.

Key stakeholders: 'Key stakeholders' are those who can significantly influence, or who interests, capacities or needs are of priority to the success of a project. This definition includes both winners and losers, as well as those involved or excluded from decision making processes.

Natural resources refer to a wide range of the fauna, flora and habitats, which make up the biophysical environment upon which human livelihoods and economies are based.

Stakeholder: A 'stakeholder' can be defined as an interested individual, group or institution that may or may not be affected by decisions or actions pertaining to a specific issue or resource, and may or may not be part of decision-making about the issue/resource.

Total Economic Value comprises both use values (including direct use such as resource use, recreation, and indirect use from regulating services) and non-use values, e.g. the value people place on protecting nature for future use (option values) or for ethical reasons (bequest and existence values).

Upstream refers to the actors and operators in early stages of the production of a value chain product, i.e. the origin of the value chain.

Value is "the contribution of an action or object to user-specified goals, objectives, or conditions", the measurement of which could include any kind of metric from the various scientific disciplines, e.g. ecology, sociology, economics (MA, 2005; TEEB, 2010).

Value chain describes the full sequence of activities (functions) which are required to bring a product or service from conception, through the intermediary of production, transformation, marketing, delivery to final consumers. A value chain can also include the final disposal after use.

Value chain actor summarises all individuals, enterprises and public agencies related to a value chain, in particular the value chain operators, providers of operational services and the providers of support services.

Value chain operator refers to the enterprises performing the basic functions of the value chain are the value chain operators.

LIST OF ABBREVIATIONS AND ACRONYMS

AgriBEE	Broad-Based Black Economic Empowerment Framework for Agriculture
AIR	African Ivory Route
BABS	Bioprospecting, Access and Benefit Sharing
BRICS	Brazil, Russia, India, China and South Africa
CARA	Conservation of Agricultural Resources Act
CASP	Comprehensive Agricultural Support Programme
CBA	Cost-benefit analysis
CBNRM	Community-Based Natural Resource Management
CITES	Convention on the International Trade in Endangered Species
COA	Comprehensive Options Analysis
CPA	Communal Property Association
CRDP	Comprehensive Rural Development Programme
CSIR	Council for Scientific and Industrial Research
D	Duncan Index of Dissimilarity
DACST	Department of Arts, Culture, Science and Technology
DAFF	Department of Agriculture, Forestry and Fisheries
DEAT	Department of Environmental Affairs and Tourism
DFID	Department for International Development
DRDLR	Department of Rural Development and Land Reform
DST	Department of Science and Technology
DTI	Department of Trade and Industry
FAO	Food and Agriculture Organization
GATE	Greater Access to Trade Expansion project
GPA	Global Programme of Action for the Protection of the Marine Environment from Land-based Activity
GWA	Gender and Water Alliance
HSRC	Human Sciences Research Council
IA	Implementing Agent
IDP	Integrated Development Plan
IFAD	International Fund for Agricultural Development
IKS	Indigenous Knowledge Systems
ILO	International Labour Organization
IMT	Irrigation Management Transfer
INR	Institute of Natural Resources
IPS	Intellectual Property Systems
IUCN	International Union for Conservation of Nature
LED	Local Economic Development
MA	Millennium Ecosystem Assessment
MDG	Millennium Development Goals
MISDI	Mahumani Integrated and Sustainable Development Initiative
MTA	Mahumani Tribal Authority
MTC	Mahumani Tribal Council
MVC	Market Value Chain
MWP	Mondi Wetlands Programme
NaCl	Sodium Chloride

NDA	National Department of Agriculture
NEMBA	National Environmental Management Biodiversity Act
NEPAD	New Partnership for Africa's Development
NGO	Non-governmental Organization
NIKSO	National Indigenous Knowledge Systems Office
NTFPs	Non-timber forest products
PAR	Participatory Action Research
RESIS	Revitalisation of Smallholder Irrigation Schemes
SADC	Southern African Development Council
SANParks	South African National Parks
SDG	Sustainable Development Goals
SLF	Sustainable Livelihoods Framework
SMME	Small, Micro and Medium Enterprises
TEEB	The Economics of Ecosystems and Biodiversity
TFPD	Transfrontier Parks Destination
TIP	Traditional Intellectual Property
UKZN	University of KwaZulu-Natal
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNHE	United Nations Convention on Human Environments
UNWGIP	United Nations Working Group on Indigenous Populations
WAR	Water Allocation Reform
WIPO	World Intellectual Property Organization
WRC	Water Research Commission
WTO	World Trade Organization
yBP	Years Before Present
ZCC	Zion Christian Church

CHAPTER 1: INTRODUCTION AND OBJECTIVES

1.1 RATIONALE OF THE PROJECT

Rural men and women have long benefited from water-linked ecosystems. The benefits have been derived from direct products such as water, fish, wild fruit, wild vegetables, salt, reeds, grazing, crop agriculture, and recreation (Harries, 1984; Neiland et al., 2005; Shackleton et al., 2002). Traditionally, the goods and services from water-linked ecosystems have been used in subsistence economy settings. However, as people began to specialise in limited economic activity, these ecosystem goods and services *inter alia* became increasingly commercialised.

Commercialization has gained sophistication in three respects. First, as economies have increasingly monetised the volume of monetary transactions has swelled and replaced barter trade. Second, the distance between the location of producer and consumer of a product has been amplified. Thus, there has been changes over time to the way rural communities interact with and/or think of water-linked ecosystems consistent with the transition away from own consumption to sale of (surplus) produce.

In one way or another, markets for goods and services from water-linked ecosystems have emerged in rural areas as well. Markets are a useful instrument for transferring the product from people who attach a lower market value to it to those who attach a higher market value to it.[1] Typically, a product moves through several stages from conception, through the intermediary of production, delivery to final consumers, and final disposal (Hellin and Meijer, 2006; Kaplinsky, 2000). The product will embody specific values at each stage.[2] The concept which is used to describe the full range of activities which are required to bring a product or service from the first stage to the last stage is “value chain” (Gammage et al., 2009; Gereffi et al., 2001). Where exchange is involved the concept becomes “market value chain” (MVC).

Rural producers ought to participate in MVCs because an extended chain could yield greater product value since there is greater value addition along the chain and/or there is a market participant who places greater market value on the product. MVCs which include urban and/or global players are likely to be the kind of extended chains which bring greater market value to rural men and women. Therefore, linking rural inhabitants into such MVCs could provide a means for them to overcome challenges of unemployment, poverty and inequality. There is a need to integrate rural producers into mainstream agro-food systems and other

[1] When we deal with water-linked ecosystems, the concept of value becomes more elaborate than in the context of manufactured goods. The Millennium Ecosystem Assessment (MA, 2005) recognised four categories of ecosystem services, all of which potentially bear values, whether sold on markets or not. The Millennium Ecosystem Assessment defined value as “the contribution of an action or object to user-specified goals, objectives, or conditions”, the measurement of which could include any kind of metric from the various scientific disciplines, e.g. ecology, sociology, economics (MA, 2005; TEEB, 2010).

[2] Value is often thought to denote financial value in these contexts. However, this does not have to be so especially outside manufactured goods and services. In these broader contexts, value should generally be thought of as “the contribution of an action or object to user-specified goals, objectives, or conditions”, the measurement of which could include any kind of metric from the various scientific disciplines, e.g. ecology, sociology, economics (MA, 2005; TEEB, 2010).

coordinated commodity chains to help them pull their weight in tackling own challenges. However it should be noted that participation alone in these more organised MVCs does not always lead to improvements and full beneficiation unless deliberate efforts are put in place to uplift the vulnerable and poor. In many cases participation of the poor on these MVCs has perpetuated and facilitated their further exploitation. Irrespective of whether or not involvement in MVCs results in inclusion, exclusion and/or differentiation, there is a plausible need for research to develop instruments that contribute towards the strengthening of resilience for women and men living in affected socio-ecological systems.

Commodity chains originating from rural areas may contain unique value components on account of the indigenous knowledge they embody. For example, many rural value chains easily produce environmentally or ecologically friendly commodities which environmentally-conscious consumers in urban and global markets are willing to pay huge premiums for. Rural communities are often uninformed about the comparative advantage they possibly possess in harnessing indigenous knowledge to produce high-valued commodities for extended value chains. Research needs to locate the place of Indigenous Knowledge Systems (IKS) in MVCs and conscietise rural communities about ways through which they can capitalise on it to engender sustainable extraction of ecosystem goods and services.

Both rural men and women can potentially participate in MVCs even though there are usually gendered-constraints for doing so. There tends to be a predominant division of labour in developing countries which force women into low-valued functions. Where their functions can potentially be high-valued they often lack the capital (financial, human, physical, etc.) to partake. As gender segmentation is usually to the detriment of young and old women, gender-based economic upgrading needs to be engineered to help them catch up with conditions of their male counterparts and protect them from future system-wide discrimination. The analysis of gender in MVCs is imperative if efforts towards enhancing social inclusion are to be ramped up.

Ignorance about harnessing IKS to achieve better, sustainable economic outcomes from exploiting ecosystems and the existence of gendered-constraints in welfare enhancing MVCs find themselves at play in South African rural areas. In particular, agrarian transformation taking place within South Africa's rural spaces raises a number of policy questions. Grounded upon national aspirations to effectively address unemployment, poverty and inequality, the key policy questions relate to issues of gender equity, power and governance, ecological resilience, and the role of IKS. Accordingly, this project maps and analyzes MVCs associated with South African rural communities, which are transitioning from informal subsistence to formal commercialised water-linked economies, while taking full cognizance of their linkages with gender and IKS to guide efforts to enhance the contribution by ecosystem goods and services to rural resilience. This is explored by an in-depth review of literature of related cases and in the context of traditional salt mining by rural communities under the Mahumani Traditional Authority in Greater Giyani Local Municipality in Limpopo province, South Africa.

1.2 PURPOSE, SCOPE AND CONTEXT OF THE PROJECT

The purpose of this report is to highlight key issues for research, policy and practice regarding the commercialization of natural resources and agriculture associated with 'traditional rural communities' in South Africa. An overarching question is about what the unfolding wave of agrarian transformation means for ecosystem resilience, amid the onslaught of drivers of

change, such as climatic change, population growth and economic trajectories. At the core of concerns herein is the need to foreground the interests of rural women and vulnerable men in traditional rural communities experiencing and/or envisaging commercialization of natural resources and agriculture at various scales (i.e. local, national, regional and/or global scales) in integrated ways. The report builds upon commendable efforts by earlier research (e.g. works by Charlie and Sheona Shackleton, Sharon Pollard & Tessa Cousins, Wayne Twine, Nokwanda Makunga, Penny Barnard and many others) and engages with the more recent findings on unfolding trends in the commercialization of natural resources and agriculture within traditional rural community contexts. The report therefore seeks to contribute to a growing body of knowledge in the water sector regarding ecosystem resilience, from a green economy perspective.

Analysis of MVCs is used widely today as an instrument of development by major donor agencies. Two main reasons explain its popularity since the end of the 1990s: (i) the sustained evidence of a link between private sector driven economic growth and poverty reduction; and (ii) the fact that the integration of trade and production at the global level through value chains transmit the pressures of global competition to domestic markets in developing countries thereby stifling local firms (Gereffi, 2013).

Donors have typically used the value chains framework to guide interventions. There has been mainly four different objectives of interventions: strengthening the weakest link to address potential bottlenecks in a value chain; improving flows of knowledge and resources to make all firms in the value chain more productive; working on specific links between firms to improve efficiency of the value chain; and creating new or alternate links in the value chain to promote diversified outcomes (Gereffi, 2013).[3]

In light of the foregoing, there is a need for clear understandings of MVCs and the attendant gender and IKS issues associated with traditional rural communities of South Africa. The possibility of improving the welfare of communities through sustainable resource use will be investigated through the upgrading concept in MVCs. This concept focuses on the strategies used by stakeholders to maintain or improve their positions in the MVC (Gereffi, 2013). Thus, the challenge of economic upgrading in a MVC is to identify the conditions under which communities can climb the value chain from basic assembly activities using low-cost and unskilled labour to more advanced forms of full package supply and integrated manufacturing (Gereffi, 2013).[4]

Within the MVC framework, four types of upgrading have been identified (Gereffi, 2013):

1. Moving into more sophisticated product lines;
2. Transforming inputs into outputs more efficiently by reorganizing the production system or introducing superior technology;
3. Acquiring new functions (or abandoning existing functions) to increase the overall skill content of the activities; and
4. Movement of firms into new but related industries.

[3] In fact, donors use MVC analysis alongside other tools to address broad development goals including poverty reduction, economic growth, employment creation and income generation, enterprise development, and environmental stability and cleaner production (Gereffi, 2013).

[4] Economic upgrading is generally defined as the process by which economic actors – firms and workers – move from low-value to relatively high-value activities in MVCs (Gereffi, 2013).

Accordingly, this research will interrogate the conditions under which participation in MVCs can contribute to both economic and social upgrading in the study area.

1.3 AIMS OF THE PROJECT

The major aim of the report is to develop clear understandings about current trends in the commercialization of natural resources and agriculture in traditional rural community contexts. Hence the goal of this report revolves around value chains that tackle issues of welfare, gender and IKS for rural communities in South Africa. Specifically, we have:

Aim 1	To conduct an extensive review on the commercialization of natural resource products to reduce rural poverty, unemployment and vulnerability within water-linked ecosystems
Aim 2	To develop understandings on indigenous knowledge systems and practices regarding the use, management and governance of ecosystem goods and services in selected traditional community contexts
Aim 3	To delineate and map the value chain of existing practices in the marketing of ecosystem goods and services and their use by local communities
Aim 4	Develop and test a gender-sensitive value chain framework to guide efforts to enhance the effectiveness of contributions by ecosystem goods and services to rural resilience

This is explored by an in-depth review of literature of related cases and in the context of traditional salt mining by rural communities. In the latter case, a gender-sensitive and IKS-cognizant methodology is used to map and analyze existing value chains for Baleni salt mining by rural communities under the Mahumani Traditional Authority in the Greater Giyani Local Municipality in Limpopo province, South Africa. This is used to explore efforts to enhance the contribution by ecosystem goods and services to rural resilience. In that respect, the following specific research objectives are integral to the core aims of the project:

- Enhancing the understanding of the embedded socio-ecological contexts of MVCs in Baleni salt mining by rural communities under the Mahumani Traditional Authority;
- Mapping the MVCs of Baleni salt;
- Analyzing the MVCs of Baleni salt, so as to clarify, at various levels of the value chain as well as within associated community contexts:
  - Power relations and their governance;
  - Gender issues and segmentation; and the
  - Distribution of costs and returns, value added, and multipliers and spill-overs;
- Mapping the resilience and/or vulnerability of socio-ecological systems affected by the involvement of men and women under the Mahumani Traditional Authority and/or use of IKS in MVCs.

Methodological questions relate to finding a value chain analysis approach that sufficiently takes into account the (1) macro-economic policy level concerns, (2) multi-level/multi-actor value chain issues and (3) the micro-level issues pertaining to community, household, group and individual.

1.4 STRUCTURE OF THE PROJECT

This report is organised as follows. Chapter 2 is a literature review and discussion of current trends in the commercialization of natural resources and associated agricultural production. Chapter 2 also addresses policy and legislation institutional arrangements and reviews of evidence-based case studies. The report then outlines in Chapter 3 the conceptual framework and methodology on gendered value chain used by the study to develop clear understandings about trade in natural and agricultural products and its contribution to reducing rural poverty, unemployment and vulnerability within water-linked ecosystems. Chapter 4 provides a mapping of the value chain, power relations and governance issues, while chapter 5 presents gender segmentation analysis. Chapter 6 presents the distributional analysis of the gendered value chain, while chapter 7 takes a closer look at land governance in Mahumani, the capacity building role and policy implications of the study. The conclusion (Chapter 8) highlights key issues for policy, practice and research, as well as presents suggestions for further research.

CHAPTER 2: REVIEW OF LITERATURE

2.1 INTRODUCTION

Literature review was a critical component of the study with all the four deliverables submitted in year 1 (2014/2015) of the project primarily being based on literature reviews. The literature reviews constituted the bulk of the work in addressing fully aims 1 and 2 and exploring aim 3 of the study. The purposes of the literature reviews were initially to develop understandings of the conceptual/theoretical and substantive background of the study. As the review progressed, this initial orientation was adjusted towards using emerging knowledge to develop a Methodological Framework to guide this study's value chain analysis.

Concepts of 'Gender', 'Indigenous Knowledge Systems' (IKS) and 'Market Value Chains' (MVCs) were central to the review. Other key concepts that emerged included 'pro-poor value chains' (as opposed to 'global value chains'), 'resilience' and 'vulnerability', 'power' and 'governance', 'public transcripts' and 'hidden transcripts', and 'traditional rural communities' (which is problematic and contested). The reviews culminated in this study's coining of the term "gender-sensitive and IKS-cognizant pro-poor value chains", to describe the possible type of MVC that this study explores.

Oral history shows that since pre-colonial times, rural women and men have utilised a variety of natural resources for livelihoods and subsistence. They have generally derived limited or no market value from their arable and pastoral farming knowledge and practices in and around wetlands, springs, rivers, lakes, floodplain pans and catchments. They have also harvested 'natural resources', such as water, fish, reeds, wild fruit and vegetables, thatching grass, timber, fuel wood, edible insects, medicines, salt, honey and gum, often without exchanging these in monetised markets and/or MVCs.

Despite oral evidence that the use of natural resources both for subsistence and market purposes is part of longstanding and strongly gendered social practices among South African traditional rural communities, there is a paucity of studies that document this heritage. Apart from a few studies by scholars such as Van Warmelo (1932), Van Warmelo & Phophi (1948), Bulpin (1954), Harries (1984), Bruton (1976) and Heeg & Breen (1982), among others, colonial and apartheid scholarship has largely not documented rural black people's utilization, management and conservation of natural resources (e.g. Marks & Rathborne, 1982; Bozolli, 1991 in Klopper, 2001). Among other factors, the problem can be ascribed to a focus by most scientific studies on purely ecological and hydrological facets of ecosystem management, to the exclusion of social, economic and political factors associated with rural communities (Rogers, 2008). The dearth of written historical records, however, does not negate the fact that many indigenous rural women and men have historically derived wealth and economic benefits from ecosystem services.

For example, Bulpin (1954) documents the lucrative ivory trade between indigenous Tsonga and Venda communities and white colonial hunters and poachers, such as Cecil Rutgard 'Bvekenya' Barnard, who operated in the Pafuri area between 1903 and 1929. This trade, which dominated the rural space economy within the Limpopo River basin north of the Soutpansberg mountain range, was superimposed upon a long-standing pre-colonial ivory trade route between indigenous black community's inland and mercantile trading posts along the east African coast (Van Warmelo, 1932; Van Warmelo & Phophi, 1948; Bulpin, 1954, 1971).

Another example relates to the about 1700 yBP old gender-exclusive use of Baleni hot springs for traditional salt mining and trade by successive generations of local black women (Bernard, 2001 in Pollard & Cousins, 2008; Tapela, 2014c). In fact, archaeologists believe they have been making salt here since the Iron Age. This is because salt production at Baleni results in a distinct deposit of mounds of leached-out earth, which, continued over numerous years have resulted in a landscape, pockmarked by hundreds of mounds around the pan. These mounds provide physical evidence of prehistoric salt production.[5]

Besides examples such as these, however, much of the indigenous trade in natural resources has tended to be muted and dominated by subsistence-oriented rural economies.

Makunga et al. (2008) states that the majority (75%) of the South African population currently depends on herbal medicines for their primary health care, as recorded by the World Health Organization (WHO)[6]. Although trade in natural resources products significantly contributes to informal economies and formal natural resources products industry (Ibid.), not much literature has attempted to quantify the monetary contribution of these products to rural economies in traditional communities (Shackleton, 2002).

Recent studies suggest that there is currently increased participation in the market economy by poor rural resource harvesters, who have a rich asset base of indigenous knowledge (e.g. Shackleton, 1996; Shackleton et al., 2002; Shackleton, 2004; Twine et al., 2003; Godoy et al., 2005; Shackleton et al., 2007; Makunga et al., 2008; Tapela, 2012a,b; Tapela, 2014a). Rural communities that depend on indigenous natural resources, such as buchu tea (Williams, 2005), hoodia (Kamau & Winter, 2013; Laird et al., 2012; Robinson, 2010; Wynberg et al., 2009; Makunga et al., 2008), baobab[7], devil's claw[8] and marula[9] (PhytoTrade Africa, 2014), have increasingly become integrated into globalised MVCs. This has been achieved mostly through bio-prospecting contracts with nutraceutical, pharmaceutical and cosmeceutical firms (e.g. Makunga et al., 2008). Similarly, contractual joint ventures and strategic partnerships have increasingly linked small-scale producers in traditional rural communities to MVCs. Examples include smallholders associated with the Revitalisation of Smallholder Irrigation Schemes (RESIS) Programme (e.g. Tapela, 2005, 2008, 2012; Dennison & Manona, 2007; Averbeke et al., 2011) and the Land Reform Programme (e.g. Aliber & Maluleke, 2010; Lahiff et al., 2012).

Plans are also underway to expand existing commercialization initiatives into other natural resources and farm produce sectors in various traditional community contexts across South Africa. A few examples include the Mbongolwane wetlands in KwaZulu-Natal Province

[5] In many parts of the world salt has been shown to be a revered item of trade. On the African continent, in historic and prehistoric times, exploitation of salt by different communities has created avenues for interaction between individuals, societies and within societies. Salt was mined from places such as Taghaza in the desert region of northern Mali and formed an important part of the long distance trans-Saharan trade. The Makgadikgadi Pans have been known to produce salt since at least the 9th century. In the various transactions that were conducted, the value of salt is highlighted by the fact that it was in some cases even traded for precious goods (Matshetshe, 1998). The collapse of Great Zimbabwe could partly be attributed to lack of salt as resources were directed to the then rising Mwene Mutapa Kingdom in the 15th century (Matshetshe, 1998).

[6] Horack (2005) estimates the dependency on traditional medicines to be approximately 70%.

[7] Umkhomo (Zulu/Ndebele); Muvhuyu (Venda); Mowana (Tswana); Seboi (Sotho); Shimuwu (Tsonga) *Adansonia digitata* (botanical name); Tartaric acid tree (common English name); Kremetart (common Afrikaans name).

[8] Sengaparile (Tswana); *Harpagophytum* (botanical name, which means "hook plant" in Greek).

[9] Umganu/amaganu (Zulu/Ndebele); Morula (Northern Sotho/Tswana); Mufula (Venda); ukanyi (Tsonga); *Sclerocarya birrea* (botanical name).

(Lewis et al., 2011; Stewart, 2014), Baleni hot springs in Limpopo Province (Tapela, 2014), Jozini/Pongola Dam fisheries and Phongola floodplain pans in northern KwaZulu-Natal (Tapela, 2014b) and Umzimvubu[10] and other rangelands in catchment areas within the Eastern Cape (Hall & Cousins, 2013; Phiri, 2009; Madolo, 2008). A critical aspect of the drive towards commercialization is the adoption of 'contracts' as institutional mechanisms to govern linkages between small-scale producers[11] and agri-business firms or promote small-scale producers' entry into mainstream commercial agriculture (Glover & Kusterer, 1990:1; Kirsten & Sartorius, 2002a) and South Africa (Kirsten & Sartorius, 2002b).

In as much as the exploitation and trade in natural resources in traditional rural communities is not new, contracts have long been used to reduce uncertainties in commercial production systems. What is new about the emerging contractual relationships is the unprecedented level of complexity in the globalization and integration of agri-food systems, and the large number of actors and institutions that producers have to interact and transact with. Such development is associated with the emergence since the 1980s of "new agricultures" that are geared towards high value crops (Little & Watts, 1994), natural plant products and organic agro-foods to cater for a growing health and wellness conscious market (Makunga et al., 2008), increased involvement of small-scale producers in commercialised enterprises and reduced state roles inverse to increased private sector roles in agro-food systems (Da Silva, 2005:4). The net effect has been a strengthening and expansion of market penetration into rural areas that have hitherto been characterised mainly by subsistence forms of production (Tapela, 2012b). This development in the post-apartheid era has had mixed results, however, thus eliciting debates about the benefits and dis-benefits of linking traditional rural communities to MVCs, and the prospects for achieving 'green economy', sustainable development and South Africa macro-economy objectives in traditional rural community contexts.

Arguments have been put forward that rural people's use of ecosystem services can yield greater economic benefits if indigenous knowledge is properly merged with 'scientific' innovative systems (e.g. Makunga et al., 2008; Nel, 2000; Welch et al., 2009). Arguments have also been put forward that the integration of rural producers into MVCs involving natural resources commercialization should be gender-sensitive, giving particular attention to the empowerment of women and vulnerable men (Shackleton, 2011; Tapela, 2012, 2014; Peach Brown & Lassoie, 2010). For resource-poor women and men living in rural communities that rely on particular natural resources for sustenance, suggested ways of improving incomes have included the certification of products, establishment and operationalization of joint ventures and making producer associations as functional as possible (Cunningham et al., 2009).

Proponents of agricultural commercialization, for example, argue that this approach contributes, through multiplier effects, to economic growth (Kirsten et al., 2005; Kirsten & Sartorius, 2002; Eaton & Shepherd, 2001) and rural development (Glover & Kusterer, 1990). Furthermore, agricultural commercialization is said to have a considerable potential to enhance rural development, reduce poverty and increase productivity, employment and

[10] http://www.grasslands.org.za/news/entry/momentus-moment-for-the-eastern-capes umzimvubucatchment-1;
http://www.cap.org.za/oid%5Cdownloads%5C1%5C177_1_4_13_46_AM_Umzimvubu%20Catchment%20Fact%20Sheet.pdf

[11] Small-scale producers in this report include farmers, fishers and natural resource harvesters.

incomes of small-scale farmers (Norton, 2004). There is a need is to develop clear policy direction to help govern the increasing commercialization of natural resources and agricultural produce within traditional rural communities.

Counter-arguments have decried the exploitative tendencies or 'bio-piracy' of partnership arrangements that bring together powerful Big Business and resource-poor rural women and men (e.g. Robinson, 2010). Criticism has also alluded to the possible loss of intellectual property to breeders (Wynberg et al., 2002) and possibility of poorly resourced farmers [and fishers] being replaced by the well-to-do farmers in the commercialization drive (Wynberg et al., 2002; Tapela, 2012, 2014c). Also questioned has been the disempowering role of 'middlemen' (Tapela, 2012; De Veldte et al., 2006), 'brokers' (De Veldte et al., 2006) and 'agents' (Ahmed et al., 2010), who link producers with markets and workers with commercialised production enterprises. Dangers highlighted also include the possible shunning by producers of local markets in favour of external ones (Shackleton et al., 2007) and shifts [owing to neo-liberal pressures] from local constructions of 'nature' by communities to externalised definitions of what the environment should mean for communities in terms of commodified resources and growing capitalist markets (Buscher & Dressler, 2010; Tapela et al., 2007).

Importantly, there are concerns that the increasing demand for goods to trade in markets, coupled with rural population growth, poverty and unemployment, could severely threaten the resilience of ecosystems (e.g. Tapela, 2014; Buscher & Dressler, 2010; Belcher & Schreckenberg, 2007; Vadez et al., 2004; Luoga, 2000). While arguments for and against the commercialization of natural resources and agriculture in traditional rural communities need to be tested, the debates attest to observations made elsewhere (e.g. Kgathi et al., 2005; De Veldte et al., 2006) that clear policy directions are required to effectively guide the transition from subsistence economies to commercially-oriented and highly specialised forms of resource exploitation and marketing.

The above debates are embedded within a background of uncertainties due to drivers of change, such as climatic change, population growth, economic shifts and environmental degradation, among others. These uncertainties have spawned the on-going global, national and local agrarian transformations, as well as the 'green economy' off-shoot of sustainable development thinking. Against such context, the concerns raised above are mainly about the possible negative effects of commercialization on the resilience of local ecosystems. Particular emphasis is given to the resilience of livelihoods and food security for affected rural women and vulnerable men, as well as the integrity of the ecological sub-systems that form the basis of productivity, social organization and economic growth and development within traditional rural communities. Given the imperatives to address macroeconomic policy objectives for poverty, inequality and unemployment, these issues raise a number of critical issues for research, policy and practice. The issues basically revolve around governance (and governability), participation and outcomes of efforts to commercialise natural resources and agriculture in traditional rural communities. This report frames the issues in terms of benefits, rights, power and capabilities within a micro-nexus of Gender, IKS and MVCs, which shadows the more prominent water-energy-food mega-nexus.

2.2 COMMERCIALIZATION OF NATURAL RESOURCES PRODUCTS IN TRADITIONAL RURAL CONTEXTS OF SOUTH AFRICA

The aim of this section is to develop clear understandings on current trends in the commercialization of natural resources in South African traditional rural community contexts. An overarching question is about what the unfolding wave of agrarian transformation means for ecosystem resilience, amid the onslaught of drivers of change, such as climatic change, population growth and economic trajectories. At the core of concerns herein is the need to foreground the interests of rural women and vulnerable men in traditional rural communities experiencing and/or envisaging commercialization of natural resources and agriculture at various scales (i.e. local, national, regional and/or global scales).

The review of literature on the commercialization of natural resources products to reduce poverty, unemployment and inequality in South African traditional rural areas settings builds upon commendable efforts from earlier research to include works by Charlie and Shackleton, Sharon Pollard and Tesa Cousins, Wayne Twine, Nokwanda Makunga, Penny Barnard and many more others and engages with more recent findings on unfolding trends. The review therefore contributes to the growing body of knowledge in the water sector regarding ecosystem resilience, from a green economy perspective.

The section begins with setting the background. The report then outlines the conceptual framework used by the study to develop clear understandings about trade in natural and agricultural products and its contribution to reducing rural poverty, unemployment and vulnerability within water-linked ecosystems. Subsequent sections of the report deal with policy and legislation, institutional arrangements and reviews of evidence-based case studies. The conclusion highlights key issues for policy, practice and research.

2.3 TRADITIONAL RURAL COMMUNITIES

2.3.1 DEFINING THE COMMUNITY CONCEPT

The definition of community more often than not has been problematic for the concept has several meanings (Warburton, 1997). Further compounding defining community as a concept is that it is not a homogenous entity but a diverse one (Chambers, 1997). Owing to these facts, difficulties emerge when “community” is made the starting point of any engagement process to include policy, guidelines, and development projects (Tapela et al., 2007). Major axes of divergence include age, gender, ethnic or social group, socio-economic class, capability/disability, education, and livelihood strategy and asset endowment (Ibid.). Community also has power-distributing cleavages that involve internal social differentiation, competing political structures and different vested interests in resources (Hasler, 1995). The complexity is exacerbated by the fact that community is not static but dynamic both in space and time (Warburton, 1998), often encompassing an ever-changing milieu of spatial, social, cultural, economic, political, spiritual, emotional and commemorative attributes and value systems. This diversity needs to be recognised. Similarly, the inherent power dynamics within community should be worked with and not against (Tapela et al., 2007).

Notwithstanding the above conceptual challenge, this report considers that community can generally be defined by a shared spatial, historical, social, economic and/or cultural background. From that perspective, community can basically be seen as “that web of personal relationships, group networks, traditions and patterns of behaviour that develops against the

backdrop of the physical neighbourhood and its socio-economic situation" (Flecknoe & McLellan, 1994 in Warburton, 1998). However, echoing the views of Tapela et al. (2007), the report also asserts that people from the so-called 'traditional rural communities' are themselves better placed to define the meanings of what they consider their communities to be. This seems to be more appropriate than the much-criticised (e.g. Mavhunga & Dressler, 2007) definitions that academics, researchers and technocrats impose.

2.3.2 FORMAL DEFINITION OF A TRADITIONAL RURAL COMMUNITY IN SOUTH AFRICA

In defining 'traditional rural communities', the Traditional Leadership and Governance Framework Act (Act 41) of 2003 (South Africa, 2003) states that a community may be recognised as a traditional community if it is subject to a system of traditional leadership in terms of that community's customs and if it observes a system of customary law.

2.4 CHARACTERISATION OF SOUTH AFRICAN TRADITIONAL RURAL COMMUNITIES

South African traditional rural communities are characteristically arenas for the interplay of macro-economic policy challenges relating to poverty, inequality and unemployment, as enunciated in the National Development Plan of 2012. They commonly share a colonial and apartheid historical political economy that systematically whittled away rights, wealth and power, primarily through land dispossession, alienation of natural resources, breakdown of pre-colonial social organization and a barrage of racially-discriminatory policies and laws. This political history has shaped the governance arrangements for natural resources (Pollard & Cousins, 2008). Although ascendance of the democratic state in 1994 set the stage for change, South Africa continues to be a deeply divided country and the legacy of colonial policies and apartheid planning persists in present-day traditional rural communities (Ibid.). Both the past and present resource governance and tenure regimes therefore need to be recognised.

Traditional communities are also fraught with contradictions, tensions and paradoxes inherent to the meeting points and fault lines between cultures of allegiance and democracy, customary and 'modern' laws and rights, and conventional (often Eurocentrist) scientific knowledge and the many ways by which local people build up their knowledge systems (Tapela et al., 2007). This report recognises that these tensions might not be circumvented, 'resolved' or avoided, but nonetheless need to be highlighted and addressed in ways that are mutually-reinforcing, acceptable and mindful of the precedence of the National Constitution's Bill of Rights.

Long after the promulgation of water sector reforms in the late-1990s, many women and vulnerable men in these communities continue to grapple with inadequate access to water for basic human needs, livelihoods and food security. Water insecurity is often conflated with a generalised deprivation of secure access to a range of social services and infrastructure. Vulnerable women and men commonly assume *de facto* key roles in informal water services provisioning and productive water use within traditional community contexts characterised by virtual 'absence' of government and social constructs that militate against their equitable access to bases of social power and productive wealth. By contrast, traditional leadership largely governs the allocation of land resources (Tapela, 2014c). In some cases, where government is perceived to be ineffective or absent, traditional leadership has also assumed *de facto* roles in the governance of natural resources and rural development, thereby helping to foster a sense of 'common property' (Tapela, 2013; 2014b).

2.5 NON-TIMBER FOREST PRODUCTS TRADITIONAL USE AND COMMERCIALIZATION IN INFORMAL ECONOMIES

Literature suggests that many South African rural women and men rely on natural resources for their livelihoods (e.g. Shackleton, 1996; Tapela & Omara-Ojungu, 1999; Twine et al., 2003; Gyan & Shackleton, 2005; Shackleton et al., 2007; Shackleton et al., 2011; Jaganyi et al., 2009; Tapela, 2014; Thondhlana and Muchapondwa, 2014). Such resources include fuelwood, wild herbs and vegetables, wild fruit, edible insects, fencing poles, reeds for weaving and construction, fish, bushmeat, construction poles, medicinal plants, gums, thatching grass, fodder grass for livestock, tree leaves for livestock fodder and raw materials for making furniture, wooden utensils, grass hand-brooms, twig hand-brooms and handicrafts. While there is a degree of socio-economic differentiation in the harvesting, processing, marketing and consumption of non-timber forest products (NTFPs) in informal economies, such practices are also a matter of preference, value systems and identity (e.g. Twine, 2003; Tapela & Omara-Ojungu, 1999). The latter often cut across class differences.

There is also an abundance of evidence that rural women and men have commercialised some of the natural resources traditionally used by indigenous communities (e.g. Shackleton, 2004; Gyan & Shackleton, 2005; Shackleton et al., 2007; Shackleton et al., 2011; Tapela, 2002; 2012; 2013; 2014). Much of this commercialization has tended to be informal and localised within traditional communities and/or linked to urban centres within the country. Informal trade in non-timber forest products attests to the straddling that persists within livelihood systems that embrace rather than differentiate between rural and urban settings.

Shackleton (2004) documents the case study of an expanding trade in marula (*Sclerocarya birrea*) beer in the Bushbuckridge area of South Africa. The scholar shows how women from an impoverished community have defied local taboos and commercialised marula beer, making use of roadsides and local townships as informal markets. Shackleton also reveals the value chain of the natural resource and the benefits accruing to the community. Importantly, the scholar reveals the ease with which local women and men can join in the marula beer trade. No adverse environmental effects from commercializing marula beer have been recorded. However, in other areas of the Lowveld, where palm beer is also a popular traditional beer, it has threatened a number of palm species in the region. Commercialization of natural resources needs to take all environmental factors into consideration.

Gyan & Shackleton (2005) document how the women of King Williams Town have commercialised an abundant NTFP, which is wild palm (*Phoenix Reclinata*), and found a ready market in the urban centres. They find that the women harvest the fronds of the wild palm and use these to manufacture hand brushes, which are sold in urban centres. The scholars examine the women's harvesting techniques, profiles of harvesters and the produce value addition and returns.

The harvesting techniques seemed to be sustainable, since the palm resource was in a reasonable state with most clumps being lightly (36%) or moderately (43%) harvested and many others uncut due to physical or culturally defined refugia. Tall trees within a clump were uncut because the fronds were too high. The estimated production of fronds was less than 25% of the local demand. Consequently, harvesters were seeking alternative source areas and species.

Mean gross monthly income was R475 (USD45), which was an important cash contribution. Net income was 75% of this. Income earned per seller was influenced by factors such as age, education, hours in the trade, and whether any household member received an old-age pension from the State. Older and less educated sellers had been trading longer than younger or more educated vendors.

Twine et al. (2003) find that the use of indigenous natural resources in three villages of Mametja Traditional Authority in Limpopo has been extensive. Resources most commonly used have included fuelwood, wild herbs, wild fruit and edible insects, as well as raw materials for making wooden utensils, grass hand-brooms and twig hand-brooms. Households in the poorest of the three villages have been the highest consumers of most types of wooden utensils, wild herbs, wild fruit and thatching grass. Fuelwood has been widely used despite that two of the three villages have electricity supply. Fuelwood consumption has indeed been highest in the largest and most developed of the villages. Decisions on exploiting fuelwood should be carefully considered against the backdrop of the potential extermination of endemic indigenous plant life. It is here where renewable energy has an important role to play. Meanwhile, the average direct-use value of indigenous bio-resources has been R3959 per household or R564 per person per year. The value has been highest in the poorest of the three villages. While poor households have relied most heavily on 'essential' natural resources such as wild foods, wealthier households have used a wider range of resources and utilised greater amounts of 'luxury' items, such as wooden utensils and poles.

Tapela & Omara-Ojungu (1999) document that most (74.3%) of the households of Makuleke community in Limpopo Province have used firewood as their main source of energy, despite the provision of electricity in all three villages. This has largely been due to the high cost of electricity. Over time, renewable energy sources could also become cost-effective options. The scholars also find that the majority (77.2%) of households have used thatching grass as roofing material. While the use of thatching grass has been more strongly related to the relatively low income earning capacity of most households, the practice has also been a matter of preference by some among the more affluent households. The utilization of these resources has provided income and employment to jobless people within the community. A number of women and men collect bulk supplies of firewood and thatching grass and sell these in informal markets within the local community (Tapela, 1997). The more affluent among these vendors employ labourers and use animal drawn carts to deliver the raw materials to consumers. By contrast, the resource-poor personally carry the bundles of wood and thatching grass on their heads. Prior to 1998, when a Settlement Agreement was reached to restitute land alienated from the community in the 1960s, the Makuleke were unable to use resources like *mopani* worms, *ilala* palm and preferred species of thatching grass within the Kruger National Park. Subsequent to land restitution in May 1998, Makuleke women and men gained access to some of these resources (Tapela & Omara-Ojungu, 1999). With the passage of time, however, there has been a reduction in the use of many of the natural resources as the Makuleke transition towards newer patterns of consumption and preferences (Tapela, 2012; 2013). This is in itself a potential viable course of development to promote the growth of modern local entrepreneurial activities.

Figure 1: Traditional infrastructure and dwelling units in Makuleke, Limpopo
Source: Tapela (2014)

Figure 2: Emergence of 'modern' dwelling structures in Makuleke, Limpopo
Source: Tapela (2014)

2.6 CASE STUDY OF CRAIGIEBURN WETLAND, LIMPOPO

This section reports a synopsis of the Craigieburn wetland, which is located in the North Eastern parts of South Africa in the Sand river catchment. It is a hillslope type of wetland commonly known as vleis in South Africa. The wetland is one of those in the country which are located at the headwaters of major river systems. The Sand River is the main tributary of the Sabie River, the last of the five rivers running through South Africa's Kruger National Park to retain perennial status (Du Toit, Rogers & Biggs, 2003).

In Craigieburn village, the wetland is used as a safety net for the rural poor community in the same manner as many other wetlands in such settings (Pollard et al., 2005). Little knowledge of how wetland resources function was the main reason for the depletion and degradation of resources due to overutilization. Table 1 summarises natural resources benefits from the Craigieburn wetland

Table 1: Summary of natural resources products from the Craigieburn wetland

Local names	English names
NATURAL PRODUCTS	
1. **Leshago**	*Schoemoplectus corymbosus*
2. **Segaba**	*Cyperus latifolius*
3. **Sediba**	Springs
4. **Lehlakanoka**	*Phragmites mauritianus*
5. **Hlakase le diphidi**	Wildlife
6. **Letsopa**	Clay
CULTIVATED CROPS	
1. **Marope**	(madhumbes)(*colocasia esculenta*)
2. **Mabele**	(maize)
3. **Marogo**	(greens)
4. **Dinawe**	(cowpeas; *Vigna sp)*
5. **Mohloka**	(*Miscanthus junceus*)
6. **Morepho**	
7. **Dibanana**	(bananas)
8. **Moba**	(sugar cane)
9. **Ditshekge**	(a traditional root vegetable

Source: Pollard et al. (2005)

The residents of Craigieburn village use the wetland mainly for subsistence agriculture and reed harvesting. The wetland is of utmost socio-economic importance to the people through enhancement of trade, and springs providing medicines and tourism potential which in turn creates employment directly and indirectly in the craft industries.

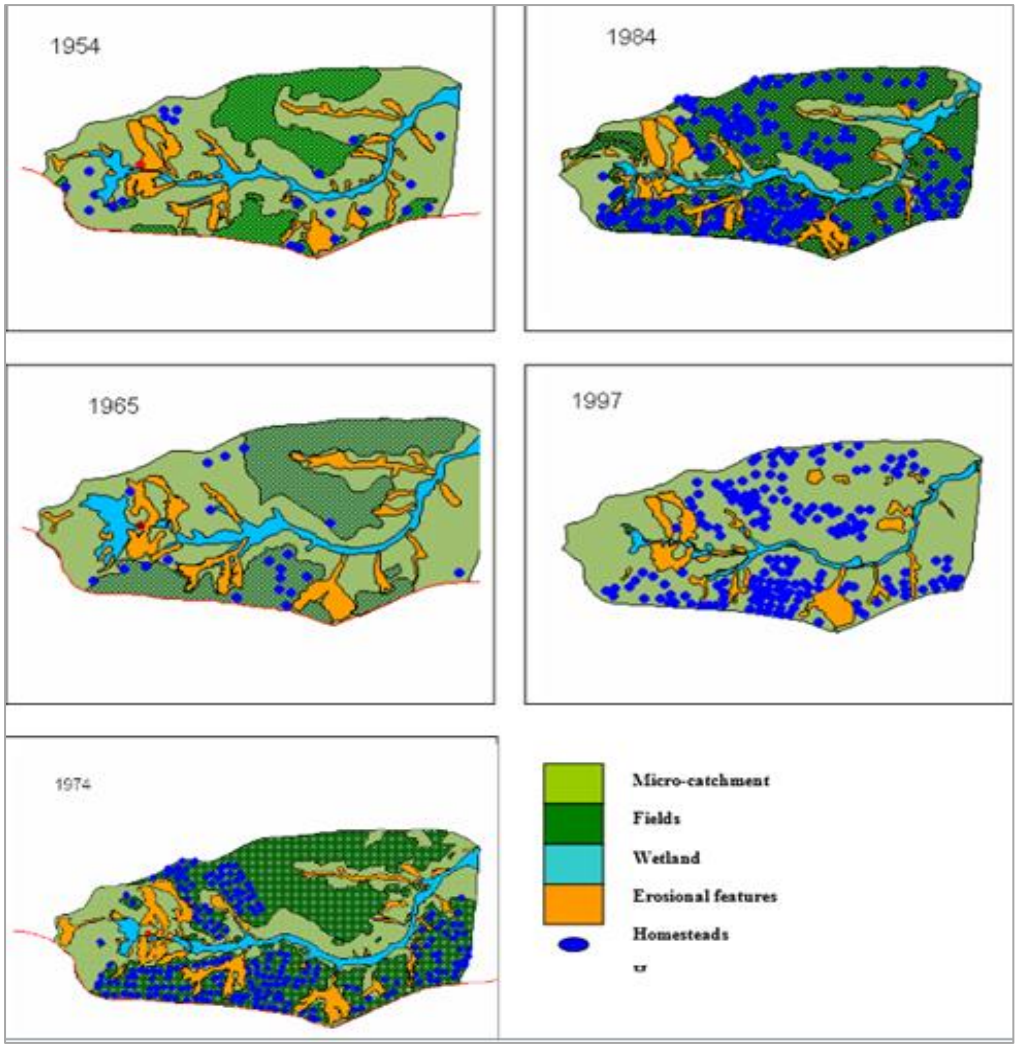

Figure 3 Land use changes in Manalana wetland of Craigieburn over 50 years
Source: Pollard et al. (2005)

Figure 3 shows land use changes in the Manalana micro-catchment of Craigieburn over 50 years. The major factor leading to this scenario was the forced removal of people and settling them in this wetland under the repressive apartheid era. The pressure on the land resource to produce enough food for everyone and sustain them was enormous and a real threat to the wetland health. Poorly planned agriculture is a serious threat to the wetland as shown in the Box 1, which gives a summary of the various features of the practiced agricultural systems, their impacts on the wetland and the prevalence of the practice in the case study. Poor land preparation, improper soil and water conservation technologies threaten the existence of this wetland.

Box 1: Agricultural practices' negative impacts on the Craigieburn wetlands

Features of the agricultural system	General impacts of the practice on:		Prevalence of the practice
	Short term productivity	State of health of the wetland	
a. Practices impacting on short-term productivity and state of health. Many of these are observed as fields are prepared (see Section 6.3.2).			
Poor **orientation** of raised beds (i.e. parallel with the direction of water flow) and **gradient** of furrows too steep (i.e. >1%)	"Over-drainage" of areas, particularly during dry periods, leading to potential water stress of crops	Leads to excessive drainage contributing to desiccation (1) of the wetland & to increased surface water velocity (especially stormflows) contributing to increased erosion and diminished trapping of sediment	Very high
Failure to **block furrows** and fully "re-wet" the plot when leaving land to rest		Potential benefits of resting are not fully realized because conditions most favourable for the recovery of soil organic material are not created (2)	Very high
Extensive cultivation, leaving little area under natural vegetation		Capacity to decrease velocity of surface water & control erosion is compromised. The wetland's value for biodiversity is also greatly diminished with reduced area available for fauna & flora.	High
Poor **weed** control	Potentially considerable competition with crops, diminishing yield	(4)	High
Lack of strategic bands of **natural vegetation**		Capacity to decrease the velocity of surface water and control erosion is	High

Source: Pollard et al. (2005)

2.7 CASE STUDY OF MBONGOLWANE WETLAND, KWAZULU-NATAL

2.7.1 INTRODUCTION

This is the case of Mbongolwane Wetland located within Amatikulu catchment area in KwaZulu-Natal. The case study exemplifies some of the salient challenges associated with maintaining the resilience of water-linked ecosystems in the context of traditional rural communities transitioning from subsistence to commercialised forms of resource exploitation. The Mbongolwane case provides useful contrast and insights for another case, the Pongola Floodplain in the lower reaches of Pongola River in northern KwaZulu-Natal. Although the two purposively selected sites are located within different types of water-linked ecosystems, both share very similar cultural and socio-economic characteristics, notably poverty, unemployment and inequality. Both also demonstrate similar traits in terms of the unfolding trends towards more aggressive and formal permutations of natural products and agricultural commercialization. While Mbongolwane Wetland has been the focus of a vibrant multi-stakeholder engagement and support process, Pongola Floodplain has received scant attention, save with regard to the issue of water releases from Jozini/Pongola Dam and recent

interests by stakeholders within the Africa Agribusiness Thinktank, whose members include the Great North Development Forum, DEDT, ADA, KZN Department of Agriculture and Environmental Affairs (DAEA) and Lonrho Projects SA.

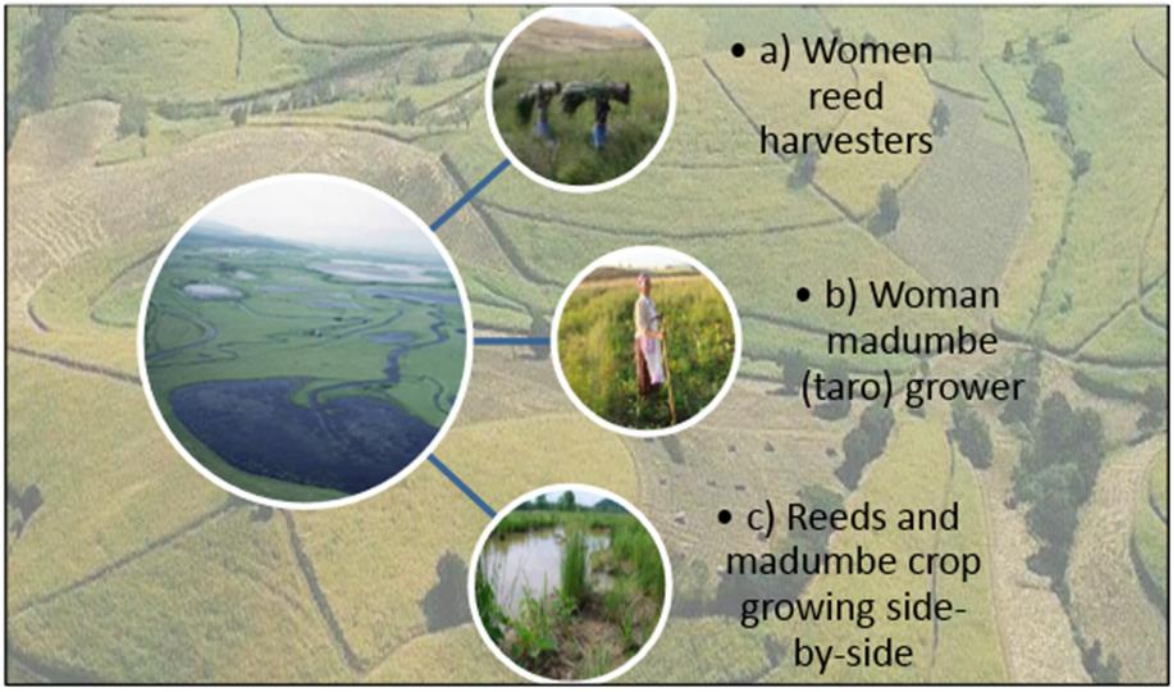

Figure 4: Mbongolwane Wetland: Ecosystem in Transition
Source: Urban Green File (2001)

Mbongolwane Wetland is located in the headwaters of the Amatikulu catchment (Urban Green File, 2001). The wetland is situated between 25 and 40 km west of the town of Eshowe in Ntuli Tribal Ward of Mlalazi Local Municipality, uThungulu District, KwaZulu-Natal. Mbongolwane Wetland meanders for 12 km through the Ntuli Tribal Ward, providing a wealth of life-sustaining resources to the Ntuli community. These resources include water, plant material for weaving crafts and thatching houses, grazing for cattle, medicinal plants and land for cultivating crops. Furthermore, the wetland is of cultural value and hydrological importance to the ecosystems within Amatikulu catchment (Ibid.).

2.7.2 HISTORICAL BACKGROUND

Literature has scant information on the history of Mbongolwane Wetland. The little available anecdotes are mostly found in tourism brochures and echoed in Integrated Development Plan (IDP) documents. These snippets allude to the local area's prominence as having been the birthplace of the famous Zulu King Cetshwayo, who ruled Zululand during the Anglo-Zulu War of 1879, and/or its infamy as the site of various colonial wars and skirmishes. Even so, many of these narratives have air-brushed Mbongolwane Wetland out of the picture by singularly referring to nearby administrative and service centres like Eshowe and Mtunzini. Effectively therefore, Mbongolwane epitomises much of the 'silent backdrops' of South African history, which various scholars decry (e.g. Marks & Rathborne, 1982; Bozolli, 1991 in Klopper, 2001; Rogers, 2008).

Suffice to say, Kotze et al. (2002) documents that from an estimated population of 2100 people in 1937, the number of people within the catchment nearly doubled in the intervening five decades to approximately 4000 people in 1991. The highest increases appear to have been concentrated in the immediate hinterland of the wetland (Ibid.). Lewis et al. (2011) also state that, historically, the Mbongolwane community relied heavily on the environment and agricultural production to meet their household nutritional needs.

While the above anecdotes provide fleeting glimpses into the history of the Mbongolwane ecosystem, they fall far short of constructing a coherent background with which a more nuanced and comparative analysis of this transitioning rural community can be made. This report considers that the Mbongolwane case warrants a more rigorous examination of the historical, social, economic and political sub-systems, as well as their relationships to the local ecological sub-system in and around the wetland, the successive governing institutions as well as the broader-ranging 'livelihood systems' within which Mbongolwane traditional communities are nested.

2.7.3 SOCIO-ECONOMIC PROFILE

From the IDP of the broader Umlalazi Local Municipality, it can be deduced that traditional rural communities around Mbongolwane Wetland are characteristically resource-poor and unemployment rates are relatively high (approximately 35%). Like many similar traditional communities across South Africa, Mbongolwane communal area is characteristically rural with very little access to infrastructure and social services available to the local population (Kotze, 2002; Urban Green File, 2001). Peculiarly but not uniquely, however, Umlalazi Local Municipality IDP documents state that the undulating topography, which is characteristic of the area, poses difficulty to the delivery of engineering services.

According to Lewis et al. (2011), local households currently derive their livelihoods from a variety of resource and cash-based strategies, including crop production and the sale of surplus agricultural products; harvesting of wetland resources and sale of handicraft products; employment (formal and informal) and informal trade; and social welfare grants. Local households have historically relied on the use of the wetland as a key livelihood strategy. The local economy has been significantly driven by subsistence use of natural resources harvested from the environment, and by crop production to meet household nutritional needs.

While there has always been a small level of trade, predominantly in surplus crop production and natural resource products, this has in the past only been a small component of the local livelihoods and the local economy (Ibid.). The utilization of the wetland's provisioning services has declined in general, however, and currently it is typically only the elderly women who still work the fields and harvest natural resources.

Lewis et al. (2011) observes therefore that there currently appears to be a shift away from a subsistence and resource-based economy, which includes only a small component of cash trade, to a more commercial and cash-based economy, which is driven by cash incomes obtained primarily from welfare grants and, to a lesser extent, remitted incomes and trade in natural resources, the latter forming only a small proportion.

Lewis et al. (2011) further observes that there appears to be an increasing proportion of the community, particularly the youth, driven by the desire to earn cash incomes as a primary mechanism of sustaining their livelihoods, rather than use of the wetland's provisioning services.

According to Lewis et al. (2011), agricultural production, resource harvesting and grazing are the common provisioning services for which people have traditionally relied on the Mbongolwane Wetland. There has always been a local culture among households of cultivating crops and harvesting resources in the wetland as a means of supporting the families, while the wetland has also provided a source of water (to meet domestic and livestock needs) and grazing for livestock. The extent and intensity of the use of these provisioning services from the wetland has over time been influenced by factors such as drought, food security and levels of well-being of local households. However, in recent time, there has been a general decline in the level of use and dependency on the wetland by local households. These findings resonate with observations made by the Institute of Natural Resources (INR, 2014), Pollard & Cousins (2006) and Kotze et al. (2002).

2.7.4 OVERVIEW OF LAND ACCESS AND USE 2001-2002

According to an Urban Green File of 2001, all households in the Ntuli Tribal Ward had access rights to natural resources in and around Mbongolwane Wetland and the rest of the commons within the Tribal Authority area. Local traditional leadership was responsible for allocating land and controlling the use of natural resources in and around the wetland area. Such leadership included the chief and his *indunas* (or sub-chiefs or headmen).

Kotze et al. (2002) states that most (88%) of the households living in traditional communities in Mbongolwane used the wetland for a variety of purposes. While food crop production was most prevalent, other wetland uses included the harvesting of wetland plants for handicrafts, construction and medicinal purposes; the withdrawal of water for domestic and livestock watering needs; the abstraction soil for domestic uses; tourism; cultural/ religious practices; hunting; and fishing.

2.7.5 FOOD CROP PRODUCTION

The wetland is roughly 395 ha in area (Pollard & Cousins, 2006). Kotze et al. (2002) found that a relatively small proportion (11%) of the Mbongolwane Wetland was cultivated with food crops geared mainly towards household consumption and small local informal markets. About 10% of the wetland [or 91% of the total area under food crops] was used for cultivating *madumbe* (i.e. taro), which is a traditional Zulu food crop that can tolerate seasonally waterlogged conditions (Urban Green File, 2001). Lesser grown food crops included sugar cane, maize and a range of other cultivars (Kotze et al., 2002).

Food producers used non-mechanised traditional cultivation methods with no artificial fertilisers, and this was less harmful to the wetland than mechanised commercial farming (Urban Green File, 2001). Kotze et al. (2002) confirm this observation and surmised that, apart from the need to rehabilitate some historical resource degradation, the majority of the wetland was in good condition. The study's prognosis was therefore that, for so long as the

community continued to sustainably manage it, Mbongolwane Wetland was not likely to be degraded in the foreseeable future.

2.7.6 HARVESTING OF RAW MATERIALS FOR HANDICRAFTS

The rest of the uncultivated land in the Mbongolwane Wetland was covered with natural vegetation, with the more common species including reeds (*Phragmites*), rushes (*induma* (Z) or *Cyperus* spp.) and mat rushes (*incema* (Z) or *Juncus kraussii*), sedges (*ikhwane* (Z)) and tough giant grasses. Local crafters harvested and used these natural resources to produce mats, baskets, bags and other handicrafts.

Ikhwane (sedge spp.) was harvested from December to June, and thus provided an important source of fibre for making sleeping mats (Urban Green File, 2001). Reeds were used for thatching houses. Traditionally, the harvesting of reeds took place mainly after the end of April, when the plants died back naturally, resulting in minimal impact. The harvesting of natural plants was thus carried out sustainably and did not harm the wetland's functioning (Ibid.).

2.7.7 PIONEERING THE COMMERCIALIZATION OF NATURAL PRODUCTS: ININA CRAFT AGENCY: 2000-2013

Based upon shared understandings, the well-conserved wetland was a "resource cow" (according to Urban Green File, 2001). A new project (Inina Craft Agency) was initiated in 2000 with the objectives to increase income from wetland crafts and reduce poverty and unemployment within rural communities around Eshowe. The overall management goal was that the people of Mbongolwane should obtain optimum benefits while securing biodiversity within the catchment. Prior to project inception, a pilot project was conducted from 1995 to 1998, which addressed the overall management of the wetland. This was part of a national wetland management programme funded by the Department of Environmental Affairs and Tourism (DEAT) and implemented by the Institute of Natural Resources (INR) and the University of Natal (Ibid.).

2.7.8 WORKING FOR WETLANDS PROGRAMME

Urban Green File (2001) further states that when Inina Craft Agency began during the pilot phase, the community development project had a membership of only 30 women crafters. Subsequently Inina grew into a lucrative Small, Micro and Medium Enterprise (SMME) with a membership of 150 active crafters (i.e. a five-fold increase) by May 2013. Whereas the business started with the production of a narrow range of handicrafts, such as mats, baskets and bags, by May 2013 Inina Craft Agency had expanded to hand-produce a wider variety of items, which ranged from conference bags to beadwork, pottery and fancy wedding cards. These products were supplied to both local and international markets. Such achievements were attained in spite of challenges associated with the 1980s political volatility in KwaZulu-Natal during the 1980s, which resulted in the violent deaths of some of the members and the displacement of others.

Having been critically affected by the political turmoil, the few remaining members then met and collectively decided to "put a plan together on how to increase their household income"

(according to Urban Green File, 2001). This strategic planning process was professionally assisted and guided by a team of community development experts from the University of KwaZulu-Natal (UKZN). Following this process, in 2009, Inina achieved a turn-over of R1.4 million. According to a Mondi Wetlands Programme report (http://www.wetland.org.za/), crafts made from wetland plants in the Mbongolwane wetland in northern KwaZulu-Natal have generated more than R600 000 for unemployed rural women over the past four years. And cultivation in the wetland of water-tolerant crops, such as madumbe or taro, helps provide food security for the Mbongolwane community.

The phenomenal growth of Inina indeed seems to be linked to the robust approach used by the project facilitators to mobilise broad-ranging stakeholder support, on the one hand, and strengthen the organizational capacity of the crafters' group. Significantly, the tenacious commitment of the crafters themselves contributed to the endurance and growth of Inina Craft Agency.

Support organizations included a locally-based craft group, which assisted with marketing and product development, the convening of awareness creation events and the drafting of mutually-agreed upon business management guidelines. Among government institutions, the launch of the LandCare Programme by the [then-called] National Department of Agriculture (NDA) helped to resolve the operational weaknesses of fledgling local organizational structures. A non-governmental organization (NGO) called Farmer Support Group was the Implementing Agent (IA) for the LandCare Programme in Mbongolwane. This NGO served to foster the development of local organizations, such as Inina Craft Agency, KwaNtuli Farmer's Association and various environmental clubs. Such support helped to enhance Inina's capacity to manage the communal wetland resources and broaden access by local and global consumers to Mbongolwane Wetland ecosystem services.

Beyond the support institutions mentioned above, other stakeholders who formed a 'core coalition of support' for Inina included the Department of Trade and Industry (DTI) and the Department of Arts and Culture. These consistently provided assistance with Inina's local and international exhibitions of commercial handicraft products. The two departments also funded Inina's travel expenses and basic business skills training. Ultimately in 2008, Inina and UKZN jointly won a Global Best Award for Women's Empowerment in Eshowe, which was awarded in Helsinki, Finland. Further to that in 2009, Inina also won the KZN Emerging Exporter of Year 2009, with assistance from prominent firms, such as Trade Port and the Durban Chamber of Business. According to the manager of Inina Craft Agency, the business operated as different suppliers under one umbrella agency (Ibid.). For example Ikhowe Craft Group specialised in Induma (*Cyperus sextalis*) fibres, while Thubalethe'lihle focused on Ikhwane. By contrast, Masibambane provided beading, while KZN Papermaking developed their products from recycled sugarcane tops. Regular clients included a Canadian charity organization called Bracelets of Hope, various universities, research organizations, government departments, conference organisers and craft-commissioning clients. By May 2013, support organizations also included the Water Research Commission (WRC) and Council for Scientific and Industrial Research (CSIR).

Livelihood impacts of this commercialised natural products enterprise have included the enhanced ability of some among Inina's women members to pay for tertiary education, the construction or renovation of houses, and purchase of household furniture. Enterprise employees have also robustly built their capacity to engage with a diverse local and global clientele, understand business and maintain a multiplicity of constantly open channels of information and communication.

The case of Inina demonstrates that, with the requisite commitment, support and desire to succeed, it is possible for vulnerable rural women to rise above the challenges imposed by disempowering social constructs, narratives and power dynamics. While the case of Inina might seem to have ended on a high note, there have been more recent developments within the Mbongolwane Wetland, which place the gains made so far on a balance. The next section reviews literature on unfolding trajectories within this water-linked ecosystem.

2.7.9 DECLINE OF TRADITIONAL WETLAND USES

A recent WRC-funded study by the Institute of Natural Resources (INR, 2014) finds that wetland use has declined in Mbongolwane. This finding affirms earlier findings by Kotze et al. (2002), Pollard & Cousins (2006) and Lewis et al. (2011). A number of reasons have been put forward to explain this trend.

One suggestion is that the decline is due to the overdependence of villagers on social welfare grants, i.e. the attraction of modernity (INR, 2014). While similar phenomena have been observed in traditional rural community contexts elsewhere, such as Makuleke (Tapela, 2008; 2012b), observations have also been made in other settings that such 'deagrarianization'[12] may be due to changing demographic profiles, in terms of values, aspirations, expectations, consumption patterns, lifestyle preferences and identity formations.

Indeed, Lewis et al. (2011) state that, despite the advantage of having access to an extensive wetland as their livelihood support, many of the households in the Mbongolwane area have deviated from utilising the wetland for agriculture and natural resources and have instead introduced trade activities. Lewis et al.'s study showed that many young people have opted for other activities, some of which are not sustainable as alternatives to increase cash earnings and improve livelihoods. Echoing the views of the INR (2014), Lewis et al. (2011) state that some of the people use the cash from their small child support grants or a portion of their old age pensions to invest in income-generating activities, such as selling chickens, cell phone airtime and/or other commodities purchased in urban centres and resold locally. This transition has been accompanied by a shift away from the use of locally harvested wetland resources such as reeds towards the use of commercial alternatives such as corrugated iron for roofing material.

Lewis et al. (2011) further observe that the changes in the social values and norms are also reflected in the perceptions about the value of the wetland. Whereas the older members of the community widely perceive the wetland to be a natural asset that supports their families,

[12] Deagrarianization describes the process whereby rural societal structures move away from an agrarian mode toward newer alternative ways of livelihoods generation, earning incomes and spatial realignment of human settlement and/or investments away from a long-standing agrarian pattern.

very few of the youth perceive it as having any value to them. The younger community members reportedly described their focus and responsibilities as having changed and become different from those of the older generation. Those among the youth who attend school reportedly argue that it is difficult for them to go to school daily, and then have to complete homework and perform household chores. These youth say that they are left with no time for wetland related activities. Furthermore, there are shifts in aspiration among the youth, whereby school leavers want to make a living from the skills they have learned at school, such as reading and writing, rather than from primary production activities. They perceive the latter to be of lower social status.

This report suggests that there is a need for in-depth research to develop nuanced understandings of the factors underlying the decline in the utilization of Mbongolwane Wetland resources. Such investigation would also need to clarify the gender dimensions of the observed trends. Another issue to be addressed is the extent to which IKS social capital is being transferred or lost inter-generationally within the resident socially-differentiated population. Given that traditional leadership institutions typically play prominent roles in the governance of rural land resources such as around Mbongolwane Wetland, there is a critical need to address the current nearly-complete 'silence' on the roles of this institution in the interplay of emerging trends in this case study.

2.7.10 RISE OF INTERESTS TO COMMERCIALISE NATURAL AND AGRICULTURAL PRODUCTS

As the case of Inina Crafts Agency shows, cash trade in natural resources within the Mbongolwane area has increased fairly recently with the introduction of markets for the sale of harvested natural resources (e.g. *umhlanga, induma* and *ikhwane*) as well as handicraft products made from these raw materials and others. While the local and international trade in products such as conference bags and sleeping mats has been lucrative for members of Inina, it seems that a relatively small group of women have taken up this initiative (Lewis et al., 2011). There is a need for gender-sensitive research to determine the reasons underlying this trend and, where possible, identify possible opportunities for strengthening vulnerable women's empowerment.

2.7.11 RESOLVING CONTESTATIONS THROUGH BRICOLAGED COOPERATION

Mbongolwane Wetland has increasingly become a point of convergence for three relatively new initiatives towards the commercialization of natural and agricultural products harvested and/or produced by women and men living in traditional rural communities surrounding the Mbongolwane Wetland. Although there have been on-going low-key tensions among different users, such as crop producers and livestock farmers, the level of contestation has been escalating owing to perceived economic benefit streams from the commercialization of various natural and agricultural products. Inter-generational contestations have emerged between the mostly elderly women resource harvesters and subsistence farmers, on the one hand, and the younger men and women, who anticipate income and employment opportunities from commercialised sugar production, handcrafts manufacturing and a more-recently muted madumbe chips factory.

Towards resolving these contestations and 'bricolaging' a mutually-reinforcing outcome, interested intermediaries have mobilised a multi-stakeholder engagement initiative, entitled '*Mbongolwane: Supporting Agricultural Development, Improved Food Security and Natural Resource Management*'. This inclusive title reflects both the diversity of stakeholder interests and the desire by the intermediaries to achieve a win-win solution that accommodates the positive aspects of various interests. There is a need for Participatory Action Research (PAR) to examine, though Narrative and Discourse Analysis and Stakeholder Analysis, this unfolding process.

The wetlands have increasingly become a point of convergence for three relatively new initiatives towards the commercialization of natural and agricultural products harvested and/or produced by women and men living in traditional rural communities surrounding the Mbongolwane Wetland.

"All this has been achieved without degrading the wetland," says Mondi Wetlands Programme (MWP) community co-ordinator, Vhangani Silima. The endorsement of the health of the wetland was given by a research project on the cultivation of Mbongolwane wetland catalysed by MWP. Vhangani lobbied the International Water Management Institute to use Mbongolwane as one of the Southern African Development Community wetland cultivation research case studies.

"We are extremely proud of the way the community manages this wetland," says Vhangani. In its role as wetland advisors, the MWP trained Mbongolwane wetland committee members to implement a management plan promoting the wise use of the wetland. Wetland awareness was also raised among government conservation and agricultural extension officers.

To maximise wise use, the MWP assessed the condition of Mbongolwane wetland and promoted rehabilitation of some previously degraded wetland areas to the government-led programmes, Working for Wetlands (managed by the Department of Environmental Affairs and Tourism) and LandCare (Department of Agriculture) projects. The Working for Wetlands programme has spent R250 000 in two years rehabilitating some of the identified degraded areas and employed 40 community members.

MWP continues working with both the Mbongolwane community and others around the country by facilitating the effective management and sustainable use of wetlands by rural tribal communities for water and food security, and maintenance of culture. It helps communities reduce the impact of subsistence agriculture on wetlands by giving information on sustainable cultivation methods.

While the local households have also used a range of cultural services from the Mbongolwane Wetland (e.g. recreation, religious and cultural sites) there also appears to be an overall decrease in the use of these services from the wetland (Lewis et al., 2011). The reasons for this decrease are not clearly expressed or understood, however they do appear to be associated with deterioration in the condition of some of the sites historically used for cultural services. They may also be associated with an intergenerational shift in cultural values and traditional practices with the youth less willing or interested in practices and beliefs

associated with many of the traditional activities that took place in the wetland (Lewis et al., 2011).

A third of Mbongolwane households' incomes comes from the sale of crafts woven from fibre harvested from the wetland. About 70 women from Ikhowe and Thubalethelihle sustainably harvest wetlands reeds such as *induna* and *ikwane* for conference bags, file covers and cooperate gifts generating around R200 000 annually. The harvesting of reeds fits well with the daily lives and thus home-based production system is employed enabling the women to continue caring for their families and taking care of the households' chores (Working for Wetlands report). Shackleton (2007) agrees with the people of Mbongolwane who have utilised both local and external markets for their craft products which appeal to foreigners and locals. The crafters are more appreciated in the community as they provide important wares needed during certain ceremonies in Zulu culture. In the event that one of the markets fails they surely have a fallback market.

According to a report by Lima Development Foundation and the University of KwaZulu-Natal, Tongaat Hulett Sugar has been involved with the implementation of 'Operation Vuselela', which has included the consolidation of small scale growers into co-operatives. This has included raising funds for the financing of re-planting and providing management and financial support to the newly established co-operatives. The Mbongolwane area near Ntumeni is a very high potential agricultural area and recent cane development programmes have resulted in 1 500 being planted in the area. Mbongolwane is also a very important water catchment and highly environmentally sensitive.

2.8 EMERGING TRENDS IN THE COMMERCIALIZATION IN TRADITIONAL RURAL COMMUNITIES

There is a general awareness of the importance and value of natural resources products in the livelihoods of poor communities across the world (e.g. Béné et al. 2010; Ellender et al., 2009; Makunga et al., 2008; Shackleton, 2006; Neiland et al., 2005; Smith et al., 2005; Shackleton, 2004; Jul-Larsen et al., 2003; Béné & Neiland, 2003; Nel et al. 2000). The commercialization of natural resources products associated with poor rural communities is seen as an effective tool for tackling Millennium Development Goal (MDG) (and therefore Sustainable Development Goal (SDG)) targets for poverty, extreme hunger and starvation and environmental sustainability (Scherr et al. 2004 in Shackleton, 2007).

Trade in natural resources products is a very lucrative business estimated to a value of US$128.5bn annually (Makunga et al., 2008)[13]. This figure combines both herbal and botanical dietary supplements, functional foods, natural plant and organic foods and natural personal care products. Globally the trade in natural medicines has been on the increase, registering a 10% growth rate per year with nutraceuticals alone raking in at least 50 million United States dollars annually (Ibid.).

A synopsis of literature on current trends in the commercialization of natural products and agriculture shows that there has recently been an upsurge of interest in integrating a broad range of medicinal plants, handcrafts, organic foods, bio-fuels and other products, which are traditionally produced in informal economies, into formal economies. This trend is driven

[13] Source: Natural Food Products Merchandiser (2002) cited in Makunga et al. (2008)

mainly by the demands of an increasingly health and wellness conscious population in highly developed countries in the north and emerging economies in countries such as Brazil, Russia, India, China and South Africa (BRICS), among others. The unfolding trend is also driven by private sector interests in wealth creation and safeguarding of access rights to product sources and natural resource bases, on the one hand, and intellectual property rights associated with product development, on the other hand. Effectively, there have been shifts away from local informal markets to broader-ranging, multi-stakeholder and multi-scale formal markets and MVCs.

These developments have brought about far-reaching changes in the governance, management and structure of production and marketing relations, as well as cost and benefit sharing. 'Contracts' have risen in prominence as institutional arrangements for governing the relationships between producers and investors as well as reducing supply-side uncertainty. Phyto-sanitary regulations have increasingly been used to govern trade in natural products and agricultural produce. Certification of products has become a lucrative means of gaining market credibility with consumers and civil society.

'Green economy' approaches have been used to promote commercialization as a means to reducing rural poverty and under-development, enhancing livelihoods for vulnerable gender groups, ensuring the resilience of vulnerable ecosystems and security the sustainability of global commons or 'Our Common Future', according to the Brundtland Report (IIED, 1987). This strategy has galvanised the support of an impressive multiplicity of governance institutions, such as the United Nations (UN) Food and Agriculture Organization (FAO), World Bank, International Fund for Agricultural Development (IFAD), Bill Gates Foundation, the New Partnership for Africa's Development (NEPAD) and the Southern African Development Council (SADC), to name but a few.

Through a study involving 61 nations of the world, Belcher (2005) gave an insight into global issues surrounding commercialization of natural resources products. Commercial production of NFTPs is commonly integrated with other income generating activities, conditions necessary for a successful commercialization are not met in most poor countries and communities sometimes the process having anti-poor bias, commercialization in some areas presented opportunities to create employment and income generation but for this to be realised investments elsewhere were needed. He further notes that commercialization of NTFP presented little prospects for ensuring biodiversity although management options exist. Belcher (2007) challenges the notion that commercialization of NFTP can easily achieve dual benefits of improving poor communities livelihood and at the same time ensuring ecological sustainability as alluded to by other scholars from the development field. He however did not dispute that it can be done but not that easily. Shackleton (2007) advocates for both strong local and export market as opposed to emphasizing on global markets which causes further marginalization of the poor people and communities involved in that trade. Both markets also present choice in the event of a market not performing well.

2.9 AGRICULTURAL COMMERCIALIZATION

With particular regard to agricultural commercialization, the 'smallholder' model has been adopted by many international development institutions (e.g. IFAD) and regional development organizations (e.g. NEPAD). This model positions small-scale farmers as a potential engine for growth for rural areas, particularly in Africa (Béné et al., 2010:7; Valdes

& Foster, 2005; Hazell et al., 2007). The 'success-story' of the Eastern Africa export-oriented high-value horticulture sector (Dolan & Humphrey, 2000; Minot & Ngigi, 2004 in Béné et al., 2010:7) is viewed as additional evidence that the smallholder model might be the solution, and that trade with developed-country markets is of particular importance in this process (DFID, 2005 in Béné et al., 2010:7).

Consequently, an increasing number of donor agencies and governments of developing countries have been encouraged by their academic and policy advisors to push their national agri-food sectors (i.e. crops, livestock, forests and fisheries) along this high-value, export-oriented avenue. Proponents of such approach claim that the exportation of agri-foods (in particular high value agri-food products) to developed countries' markets could be a powerful engine for poverty reduction and economic development (Béné et al., 2010:8; Cunningham, 2000; Valdimarsson & James, 2001; FAO, 2007). Agricultural commercialization in the post-1994 era has seen many South African smallholders becoming increasingly integrated into formal commodity markets and MVCs through joint ventures and strategic partnerships associated with RESIS (see Figure 1) and Land Reform programmes. However, the debate about whether such trade actually benefits small-scale producers, such as smallholders and fishers and local populations or possibly the wider national economy remains unresolved (Tapela, 2012; Béné et al., 2010:8; Kaczynski & Fluharty, 2002; Hersoug, 2004).

Figure 5: RESIS Agricultural Commercialization: Makuleke Petty Commodity Producers
Source: Tapela (2014)

2.10 COMMERCIALIZATION OF NATURAL RESOURCES PRODUCTS

2.10.1 MEDICINAL PLANTS

Indigenous medical plants are part of a longstanding traditional healthcare system that has been intimately-linked to folklore and livelihood security for a significant proportion of the South African population, particularly the poor (Makunga et al., 2008). According to Horak

(2005), there are over 200,000 traditional healers in South Africa; most (70%)[14] of the population regularly consults a traditional healer; and possibly 3,000 to 5,000 of medicinal plants used by traditional healers may have biological activity. For the economically marginalized, access to such plants is largely through herbal markets, which are part of an informal economy (Makunga et al., 2008).

Makunga et al. (2008) states that South Africa has recently seen a tremendous growth in ecosystem services geared towards a formal natural products economy. This growth mirrors the global cultural trend for organic naturopathies (Ibid.). It has entailed the 'bio-prospecting' and/or commercialization of traditional plants and their contribution to the cosmeceutical, nutraceutical and pharmaceutical industries locally and abroad (Horak, 2005; Makunga et al., 2008). Bio-prospecting is defined as the systematic search for and development of new sources of chemical compounds, genes and micro-organisms to generate medicinal or commercial value (e.g. Correa, 2002). In South Africa, the development of new products is inspired by the traditional plant knowledge of Southern African people (Horak, 2005; Makunga et al., 2008). Product development has led to a burgeoning of research to confirm the pharmacological efficacy of traditional medicinal plants. Lead institutes in such research include the Council for Scientific and Industrial Research (CSIR), whose bio-prospecting strategy combines a triad of biodiversity, indigenous knowledge and scientific knowledge (Horak, 2005). According to Horak (2005), the CSIR's bio-prospecting vision is to add maximum value to bio-resources and indigenous knowledge through consortium-based research, thereby creating economic and social benefit for all stakeholders. The underlying assumption is that value addition to IKS through scientific innovation can create new benefits for society. The CSIR's Bio-Prospecting and Product Development Cycle shows that investments in new product development cumulatively increase with time from lead discovery to market sales (Figure 6). Some of the achievements by CSIR include the signing of benefit-sharing agreements with owners of Indigenous Knowledge, such as the San Council and Traditional Healer Trust, a signed bioprospecting agreement with Namibia (2005), collection of one-third of South Africa's plant biodiversity (more than 8 000 plant species), and investigating more than 400 ethno-botanical leads provided by Traditional Healers. Herbal products, which have lower degrees of value adding, occupy the lower end of the risk and profitability scale, while the upper end is dominated by patented drug leads, which require significant investments in new product development and value addition.

[14] Makunga et al. (2008) puts this figure at 75%.

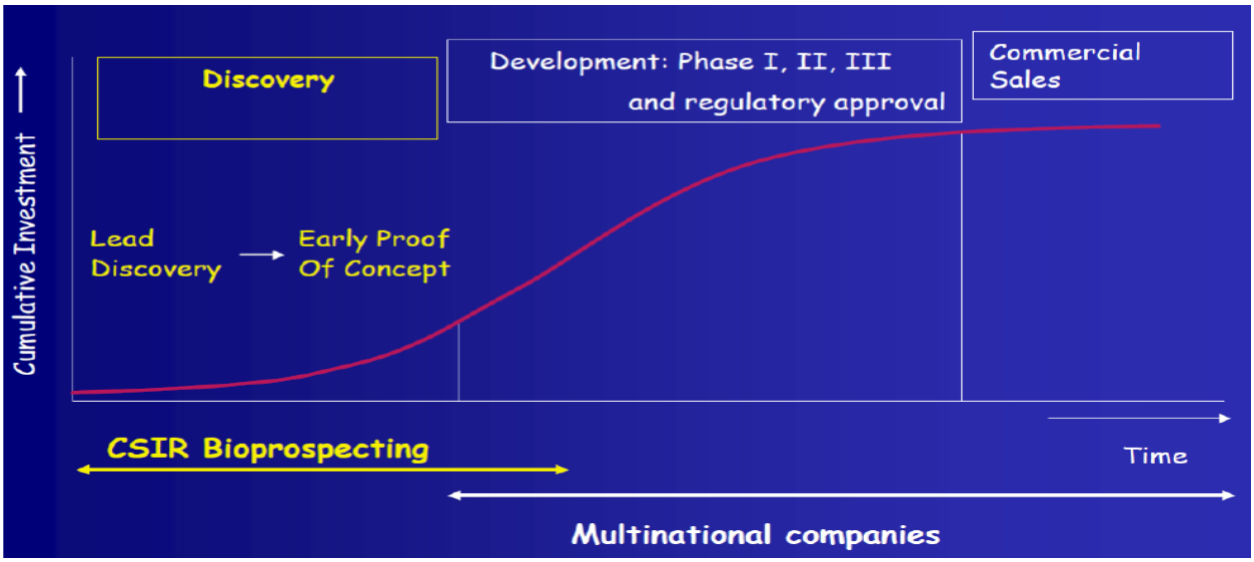

Figure 6: CSIR's Bio-Prospecting and Product Development Cycle
Source: Horak (2005)

Makunga et al. (2008) observes that while bio-prospecting and product development research is fuelling greater trust in indigenous flora and a rise in the consumption of ethno-medicinals as highly valued commodities, the socio-economic opportunities have also brought challenges for less developed countries, such as South Africa.

Challenges include, for example, the threat of 'bio-piracy', whereby corporations from the developed world claim ownership of, free ride on, or otherwise take unfair advantage of, the genetic resources and traditional knowledge and technologies of developing countries (Dutfield, 2004; Correa, 2002). This has necessitated the development of regulatory measures to protect traditional medicine knowledge and practices either codified in writing or transmitted orally. South Africa launched the Bioprospecting, Access and Benefit Sharing Regulatory Framework in July 2012[15].

2.10.2 NON-TIMBER FOREST PRODUCTS

A growing trend in the NFTP sector is the expansion of rural people's long-standing traditional use and commercialization of these natural products beyond the boundaries of local and national informal economies and into the more aggressive and globalised formal markets and MVCs. The gender differentiation of the harvesting, use and trade in NTFPs, which is found in many traditional community contexts, is increasingly acknowledged in institutional interventions and research. Shackleton et al. (2011) explore opportunities for enhancing poor women's socio-economic empowerment in the value chains of three African NTFPs. These are gum arabic, gum olibanum (frankincense) and honey from Burkina Faso, Ethiopia and Zambia respectively. The scholars find that women perform a variety of functions at different stages in the value chains, but their roles tend to be poorly visible and inadequately acknowledged, mainly because they operate in the informal sector, are part-time employees, or carry out their activities at home between family responsibilities. Where women's roles are more conspicuous, this is largely due to gender orientated interventions by external agencies (Ibid.).

[15] Bioprospecting, Accessing and Benefit Sharing Regulatory Framework: Guidelines for providers, users and regulators. Internet http://www.envirnment.gov.za/content/molewa.award 27 July 2012

The scholars also identify several constraints to fostering women's empowerment. The most difficult constraints to resolve are the gender-based, social-cultural barriers to women's access to bases of social power and productive wealth. Suggestions put forward to enhance women's empowerment and benefits include:

- Greater recognition of informal markets and the opportunities and constraints associated with them;
- Greater acknowledgement of the position of informal local and national markets relative to export markets;
- Improved support for collective action, where this can provide women with greater voice and negotiating power, as well as assist with economies of scale;
- More targeted training that addresses areas identified by women as useful and important to them;
- Adoption of time-saving technologies and support systems, such as child care; and
- Creating greater gender awareness amongst stakeholders.

Beyond gender issues, new methodologies are being developed to improve the valuation of ecosystem services associated with NTFPs. For example, preoccupation with narrow economic and ecological valuation, cost-benefit analysis (CBA) and distribution analysis is giving way to more holistic valuation and analytical frameworks. The latter foreground social dimensions, participatory approaches and sound governance. The interests of marginalized groups are addressed through 'smart' measures, such as compensation and benefit sharing, participatory problem analysis and Comprehensive Options Analysis (COA), among others. The involvement of civil society organizations and commitment of governments, in particular, have been critical to the achievement of this milestone.

2.11 IKS AND ECOSYSTEM SERVICES IN TRADITIONAL COMMUNITY CONTEXTS

African rural women and men have since pre-colonial times grown and harvested crops in and around water-linked ecosystems including wetlands, rivers, floodplains and pans mainly for subsistence use deriving limited or no market value. They have also harvested natural resources such as fish, reeds and wild vegetables, without exchanging these in monetised markets. These long-standing practices, however, are increasingly pressurised by demands for incomes by growing populations of marginalized rural women and men, who continue to live in traditional rural economies that are undergoing transition from informal subsistence practices to more formal and highly commercialised productive enterprises. There are concerns about what an unmanaged transition might mean for ecosystem resilience in such contexts, particularly in view of drivers such as climatic change. Amid such concerns, attention has been brought to bear on the role of IKS and practices in ensuring ecosystem resilience, particularly for vulnerable gender groups, economies, ecological sub-systems and productive sectors.

Indigenous Knowledge as a concept has proved very difficult to define due to unresolved debates on the validity of available diverse perspectives on what it means. Attempts to generate a broadly and generally accepted definition of Indigenous Knowledge have tended to plunge in conceptual and semantic rants. This report acknowledges these debates on the use of the term Indigenous Knowledge as not doing so will be nothing short of being naïve. The report also clarifies how this much contested term and concept are used and understood

in this report. Firstly, the term indigenous knowledge is specifically used herein both as shorthand and an umbrella word for various forms of knowledge that have had long-standing, traditional or local associations with groups of black African people with a shared common historical and/or territorial and/or cultural background.

Indigenous knowledge and practices have increasingly been considered to be vital vehicles for the achievement of 'sustainable' rural development especially in Africa, where development is still at very low levels (Eyong, 2007: 122). Arguments have been put forward that benefits of indigenous knowledge and practices can yield more value if such knowledge can be properly merged with scientific innovative systems, such as through processing natural resources and/or agricultural produce in partnership with business. However, African indigenous heritage has seldom been represented in formal education and community development processes, primarily due to colonial exclusion, marginalization and subjugation (O'Donoghue & Shava, 2013). The vast traditional and modern knowledge that already exists in rural areas has not been fully utilised due to lack of complementary institutions and facilities for enabling rural people to utilise their knowledge towards improving productivity (Chaminuka et al., 2004). Escobar (1995:98 in Briggs, 2005) asserts that "the re-making of development must start by examining local constructions, to the extent that they are the life and history of the people, that is, the conditions for and of change". O'Donoghue & Shava (2013:9) state that "change…is necessarily a transformative process, an intellectual and political exercise, a community-engaged process of de-colonizing, and an educative opening up of new social innovations to enhance quality of life and sustainability".

More often than not, the role of healthy functional ecosystems (ecological infrastructure) to rural communities is overlooked and hardly quantified in prescriptions for alternative development approaches. Similarly, social valuations of ecosystem services often fall short of rigorous examinations of IKS and gender in traditional community contexts. In particular, the value implications of gender in access to and use, management and safeguarding of ecosystem services associated with water-linked ecosystems are often not detailed. However, women in rural areas are more involved in utilizing aquatic services and, in many cultures, women have very little or no say in decision-making regarding management of land and water resources they so depend upon. In some traditional rural communities, protracted marginalization seems to have generated negative attitude towards protection of water resources and associated ecosystems. This lack of 'ownership' is exacerbated by the fact that ecological infrastructure development, such as dams and heritage sites, often displaces and deprives the indigenous people of benefits they have historically derived from those resources, often leading to conflicts. These rural communities and their social values are often overlooked in drafting legislation, long term development plans, etc. The role of indigenous knowledge is hardly taken into biodiversity conservation, and yet there is huge impact this knowledge has played in traditional nature conservation efforts.

Owing to views, observations and arguments such as above, discussions in many international platforms have focused on the use and exploitation of traditional and indigenous knowledge. Inter-governmental organizations, such as UNESCO, UNEP, UNCTAD WTO and WIPO, have opened debates on the protection of indigenous knowledge (South Africa, 2008). Such debates have revolved around the use of intellectual property systems (IPS) to protect indigenous and/or traditional knowledge (Ibid.). In the case of South Africa, government has adopted an IKS Policy and instituted various related pieces of legislation and implementation frameworks.

The IKS Policy aims to affirm, develop, promote and protect IKS in South Africa. It is an enabling framework to stimulate and strengthen the contribution of IKS to social and economic development in South Africa. The policy was developed primarily by the IKS Unit of the erstwhile Department of Arts, Culture, Science and Technology (DACST), in consultation with multiple stakeholders, and was adopted by Cabinet in 2004. The Policy encompasses a broad range of actions and recommendations pertaining to IKS, which include, among other things, the integration of indigenous knowledge into the national education, research and development, institutional, administrative, funding and legislative imperatives and systems. From 2006 to 2009, the IKS Policy was driven by the National IKS Office (NIKSO) within DACST, through a number of funding instruments and initiatives, which were coordinated through three units. These were Knowledge Development and Innovation; Knowledge Management; and Advocacy and Policy Development. The Department of Science and Technology (DST) has also implemented the IKS Policy through its Ten Year Innovation Plan (2008-2018). The DST integrates IKS as a flagship funding instrument, thereby affirming government's commitment to mainstreaming IKS and ensuring that it significantly contributes *inter alia* towards the sustainable economic development of South Africa and the African region as a whole. The Policy provides for:

i) The protection of certain names associated with traditional knowledge (e.g. 'Rooibos' and 'Honeybush' tea);
ii) A National Council consisting of experts on traditional knowledge to advise the Minister and the Registrar of intellectual property on traditional intellectual property (TIP) rights;
iii) Communities to form business enterprises in order to administer and commercialise their traditional intellectual property.

Critical to note is that the IKS Policy uses the words "traditional knowledge" and "indigenous knowledge" interchangeably, even though the two terms have different meanings.

Examples of legislation and implementation frameworks related to the IKS Policy include the National Environmental Management Biodiversity Act (Act No. 10 of 2004) (NEMBA or Biodiversity Act), the Bioprospecting, Access and Benefit Sharing (BABS) Regulations of 2008 and the South Africa's Bioprospecting, Access and Benefit Sharing Regulatory Framework of 2012. Examples also include the National Heritage Resources Act of 1999, the Traditional Leadership and Governance Framework Act of 2004 and the Traditional Courts Bill of 2012. Furthermore, the post-Polokwane era of the African National Congress (also known as the Zuma era) has seen government reiterating and articulating its commitment to ensuring a more effective delivery of rural development, service delivery and environmental outcomes, as captured in the Delivery Agreements led by the Office of the Presidency (South Africa, 2010).

2.12 KEY CONCEPTS PERTAINING TO INDIGENOUS KNOWLEDGE

Many scholars (e.g. Neiland et al., 2005: 7) observe that exploitation of natural and productive resources has been an integral part of the indigenous culture and economy of many peoples and countries in Africa. Africa is portrayed as being endowed with vast swathes of natural habitats, which contain a rich biodiversity that has provided 'indigenous people' with food security, livelihoods, and opportunities for generating monetary and non-monetary incomes for many centuries. African 'indigenous communities' are therefore understood to have long-

enduring 'indigenous knowledge' and practices accrued over centuries and passed on through successive generations. They are also understood to possess dependable resource harvesting and processing technologies and techniques, which have helped various generations to engage in sustainable levels of resource exploitation. While such understandings of IKS seem clear enough, in practice definitions, interpretations and applications of the term 'indigenous' have varied. The absence of a broadly shared definition and meaning of 'indigenous' attests to the complexity of perceptions and thereby the unresolved debates about the concept. This section reviews definitions of concepts related to IKS.

There is no uniform definition of 'indigenous knowledge'. To a certain extent, indigenous knowledge could refer to what indigenous people know and do, and what they have known and done for generations, that is, practices that evolved through trial and error and proved flexible enough to cope with change (Eyong, 2007: 121; Melchias, 2001). Vital as this definition is, it is accused of trivializing indigenous knowledge as nothing more than a constellation of trials and errors (Eyong, 2007: 121). According to Eyong (2007), the definition devalues indigenous knowledge especially in comparison with western (modern) knowledge, also known as science, which is recognised to be a product of experimentation (p. 121). Therefore, while indigenous knowledge is presumed to be clogged, concrete and inaccurate, western knowledge is portrayed as intangible, weighty, right and imbued with universal reasoning (p.122).

Indigenous knowledge is also defined as "local community-based systems of knowledge, which are unique to a given culture or society and have developed as that culture has evolved over many generations of inhabiting particular ecosystem…" (IUCN, 1997 in Bisong & Andrew-Essien, 2010: 149). Local people are therefore a reservoir of knowledge of the workings of the local ecosystems that they depend upon for livelihood and sustenance (Mpofu & Miruka, 2009 in Bisong & Andrew-Essien, 2010: 153). Indigenous knowledge may therefore be seen as acquired human or institutional capacity derived, within the confines of one's environment, from experience and learning (Mpofu & Miruka, 2009: 85 in Ibid.). Bisong & Andrew-Essien (2010) surmise that indigenous knowledge is embedded in culture and is unique to a given location or society, and as such is integral in shaping community identities. Furthermore, it remains critical to informing the growth and evolution of all African societies and communities (Ibid.).

Other definitions (e.g. Warren, 1991) emphasize the uniqueness of a given culture or society and contrast indigenous knowledge with "the international knowledge system generated by universities, research institutions and private firms". However, given the porous nature of rural community boundaries, which permits an inevitable diffusion of knowledge and practices over time and space, it is not feasible that there exists knowledge and practices that can be definitively described as purely 'indigenous', in the unique sense of the term (Tapela, 2011). It seems possible that knowledge diffusion has, in most instances, led to a largely-undocumented fusion of endogenous local knowledge and practices with those emanating elsewhere, meaning that so-called indigenous knowledge is not static but dynamic in its evolution and development. Definitions by scholars such as Flavier et al. (1995) capture this dynamism and continual "influence by internal creativity and experimentation as well as by contact with external systems". Despite differences in emphasis, the various definitions are broadly valid and not necessarily dichotomous.

Indigenous knowledge, like other forms of knowledge, is not static but is continuously growing in response to new needs, challenges and experiences (Tagle, undated: 131).

Therefore indigenous knowledge “reflects the dynamic way in which the residents of an area have come to understand themselves in relation to their environment and how they organise that knowledge of flora and fauna, cultural beliefs, and history to enhance their lives” (Semali and Kincheloe, 1999: 3). However indigenous knowledges do not reside in “pristine fashion” outside of influences of other knowledges (Dei, 2000 in Le Grange, 2009: 190). Indigenous knowledge as other bodies of knowledge is continually influenced by other knowledge demonstrating the dynamism of all knowledge systems (Dei, 2000 in Le Grange, 2009: 190). Indigenous knowledge of a particular locality continues to be influenced by knowledge from other localities far and wide, as much as it is influenced by western knowledge. As such, much of what we regard as indigenous knowledge of some localities was actually acquired from other communities consciously or otherwise.

Eyong (2007:122) asserts therefore that it should be emphasized that indigenous knowledge was also developed by an analogous process of experimentation, although such experiments were not documented, and knowledge systems were legitimised and fortified under suitable institutional frameworks, culture and practices. Such knowledge has been passed on to other generations, though discriminatorily, and has enabled indigenous people to survive, manage their natural resources and the ecosystems surrounding them, including animals, plants, rivers, seas, natural environment, economic, cultural and political organization. Knowledge of these elements forms a set of interacting units known as indigenous coping systems. Eyong concludes that IKS, therefore are a set of interactions between the economic, ecological, political and social environments within a group or groups with a strong identity, who derive their existence from local resources through patterned behaviours that are transmitted from generation to generation to cope with change (p.121). These patterns are sustained by micro-level institutional arrangements that are vested with differentiated responsibilities that ensure the group’s continuous survival (p.122).

Ellen and Harris (2000) note that, as a term, indigenous knowledge emerged over the past two decades to describe the knowledge of a group of people local in a given situation. The term is sometimes used interchangeably with ‘‘local knowledge’’, ‘‘traditional knowledge’’ or cultural knowledge and to distinguish this body of knowledge from others (Fischer, 2005: 738). Indigenous knowledge is seen as vital to those who use it, which is why it did not die during the colonial period when it was placed under incessant attack (Mapara, 2009: 140, Fanon, 1967). Although it evolves and continues to change due to both internal and external influences, indigenous knowledge also draws its strength from its "embeddedness in the cultural web and history of a people including their civilization, and forms the backbone of the social, economic, scientific and technological identity of such a people" (Odora Hoppers, 2001: 76-77). It is therefore a people's way of life, defined by and defining a people within a locality or given territory.

For practical purposes, this report finds many elements of the above well-considered definitions useful. Also useful, however, is the broad but simple definition by Osunade (1994 in Nyong, 2007), who defines indigenous knowledge as “institutionalised local knowledge that has been built upon and passed on from one generation to the other by word of mouth”. From the foregoing and other definitions, the term indigenous knowledge is used in this study as shorthand for knowledge that is developed by black African women and men and adapted continuously to gradually changing environments, exposed and receptive to other forms of knowledge, passed down from generation to generation and closely interwoven with people’s cultural values. The emphasis on ‘black African’ is specific to practical purposes pertaining to

the African and South African context, and does not purport to restrict the broader applications of the concept.

Eyong (2007: 121) refers to indigenous people as people living in an area within a nation-state, prior to the formation of a nation-state, but may identify with it; and have maintained a great part of their distinct linguistic, cultural, social and organizational characteristics. Historically, African indigenous populations, who are also known as “natives” in colonial discourse, are basically groups of people that colonial invading forces found residing within particular territories in which they had existed for many years. These groups were subdued and placed under European rule. An indigenous population is therefore characteristically understood to be one that was disempowered, marginalized, despised and conquered (Mamdani, 1996; Ranger, 1985, 1983; Fanon, 1967).

By contrast, the World Bank (1991) considers indigenous people to be “social groups with a social and cultural identity distinct from the dominant society …". They are vulnerable to being "disadvantaged by the development process.” Indigenous people, according to this definition, share an almost ubiquitous vulnerability to vagaries of development processes. They are therefore projected as a universally weaker lot compared to other population groups. There could be reasons as to why they are weaker than others and these could be socio-political and not biological. One reason could be that indigenous populations do not usually control political power within nation states, regardless of their population size.

While the United Nations (UN) has no universally accepted definition of indigenous people, the institution argues that indigenous communities, peoples and nations are those which, having a historical continuity with pre-invasion and pre-colonial societies that developed on their territories, consider themselves distinct from other sectors of the societies now prevailing in those territories, or parts of them (Cobo, 1987). The UN appears to suggest that indigenous populations and other populations within the nation state have different degrees of power as a result of socio-political processes over time, such as conquest or colonialism in the African context.

Scholars such as Tagle (undated) characterise indigenous people as protective of their knowledge, which in turn preserves their identities. Their quest to protect their knowledge has over the decades gained prominence in international debates, and the United Nations Declaration on the Rights of Indigenous Peoples recognises indigenous peoples’ rights to maintain, control, protect and develop traditional knowledge; however, not all traditional knowledge may be considered as indigenous knowledge (Tagle, undated: 131). Interest in indigenous knowledge continues to grow as debates continue and give rise to research and legal discussions with regards to protection, exploitation and patenting of indigenous knowledge are also ongoing (Ibid.).

According to a Human Sciences Research Council (HSRC) Report (HSRC, 2009), there is no criterion for identifying indigenous peoples in South Africa and other African countries in general. In practice, however, the term ‘indigenous’ is used in South African legal discourse in reference to the languages and legal customs of the majority black African population as opposed to the other races. For example, the Preamble to the Traditional Leadership and Governance Framework Amendment Act (Act 23 of 2009) states that ‘”South African indigenous people consist of a diversity of cultural communities”.

The report is also cognizant, however, of the controversy regarding the definition of ‘indigenous peoples’. For example, it has been suggested that the principle of self-

identification should be the main criterion for determining whether or not a group of people can be defined as 'indigenous'. Self-identification is indeed emphasized as a key criterion in international standards identified by the International Labour Organization (ILO) Convention No 169 (Article 1) and the African Commission's Working Group's Report on African Indigenous Populations/ Communities (see Box 1) (HSRC, 2009.

Effectively, however, self-identification narrows the definition to include those groups that are in a structurally-subordinate position to the dominating groups and the state, and who identify themselves as "indigenous" (HSRC, 2009). These groups have tended to include various San and Khoe ethnic groups, who have remained subordinate, discriminated against and marginalized and therefore continued to demand recognition as indigenous peoples and protection of their fundamental human rights and freedoms (Ibid.). However, reliance on self-identification as a key criterion is insufficient and brings with it the danger of unsatisfactory results. For example, it led to a group of Afrikaner nationalists attending a 1996 United Nations Working Group on Indigenous Populations (UNWGIP) and claiming indigenous status. Similarly, the same or similar group in 2005 petitioned the UN Special Rapporteur on Indigenous Peoples during his mission to South Africa (Ibid.). Both the UNWGIP and UN Special Rapporteur rejected these claims on the grounds that the group was neither marginalized and/or discriminated against, nor did it meet the other criteria 'set out in international legal standards and discourses at the present time' (HSRC, 2009).

2.13 FRAMEWORKS GOVERNING TRADE IN NATURAL RESOURCES

In defining 'natural resources', Zimmermann (1971 in Mitchell, 1979) states that resources "are not, they become; they are not static but expand and contract in response to human wants and human action". Zimmermann's philosophical view is that objects become resources when they are considered to be capable of satisfying human needs. Hence, amenability to human use rather than mere physical presence appears to be the main criterion that defines a resource (Tapela, 1997). The term 'natural resources' in this report is used to refer to a wide range of the fauna, flora and habitats, which make up the biophysical environment upon which human livelihoods and economies are based.

A review of literature shows that the commercialization of natural resources is driven and governed by a diversity of global, regional and national institutional imperatives and frameworks, which are both generalised and sector or product specific. This section examines some of the key institutional frameworks and arrangements found.

2.13.1 GLOBAL INSTITUTIONAL FRAMEWORKS

RAMSAR CONVENTION (1971)

Ramsar Convention (1971) aims at achieving international cooperation and national action for conservation and wise use of wetlands for sustainable development. It also ratified the International Union for the Conservation of Nature (IUCN).

UNITED NATIONS CONVENTION ON HUMAN ENVIRONMENTS (1992)

Of importance is the United Nations Convention on Human Environments (UNHE, 1972) which established United Nations Environmental Programme (UNEP) with the mandate of administering a number of international conventions including the Convention on

International Trade in Endangered Species (CITES), Convention on Migratory Species, United Nations Framework Convention on Climate Change and the Global Programme of Action for the Protection of the Marine Environment from Land-based Activity (GPA). In all these, South Africa is obligated to uphold 5 June of every year as Environment Day and seen to partake associated public activities on the day. South Africa also accepts responsibility for achieving environmental goal, "to defend and improve the human environment for the present and future generations", which is to be in harmony with policies supporting world peace, social and economic development.

AGENDA 21 (1992)

The World Commission on Environment and Development's Brundtland Report (1987) has its concern on economic development that is not ecologically destructive and notes that humanity has the ability to embark on sound economic sustainable development. In Rio de Janeiro, the Earth summit (1992) agreed on a sustainable development strategy. The Water Chapter 18 of Agenda 21 talks of capacity limits of nature to guide use of the said resources. It talks of taking care of the world population in provision of sufficient water of a good quality whilst maintaining such water for ecological use. This has informed the principle of the reserve in the Water Act of South Africa which allocates water for meeting the basic human needs for current and future generations as well as that required for healthy functioning of the ecosystem before any other water allocations.

CONVENTION ON BIOLOGICAL DIVERSITY (1992)

Article 15(7) of the Convention on Biological Diversity deals with 'benefit sharing', and provides for fair and equitable participation by traditional knowledge holders in the benefits arising from the commercial and other utilization of such knowledge. The Convention on Biological Diversity (1992) came into force in 1994 and South Africa ratified it in 1996 and currently 188 nations are contracting parties. The convention aims at conservation of biological diversity, sustainable use of biological resources and the fair and equitable sharing of benefits arising from the use of genetic resources.

JOHANNESBURG DECLARATION AND PLAN OF IMPLEMENTATION (2002)

World Summit on Sustainable Development (2002) adopted the Johannesburg plan of implementation and the Johannesburg declaration. It acknowledges importance of biodiversity in sustainable development, livelihoods and cultural integrity. It notes the fast pace of biodiversity loss due to human activities. The realization that the trend is reversible if local people benefit directly from the conservation and sustainable use of resources in their area in accordance with article 15 of the Convention on Biological Diversity.

MILLENNIUM DEVELOPMENT GOALS (2000)

In September 2000 in New York, USA the eight MDGs were adopted. MDG 7 on environmental sustainability speaks directly and explicitly on biodiversity and wise use of biological resources. South Africa's introduction of the National Development Plan in 2011 and its subsequent passing by the house of parliament in 2012 aligns the country on a development clear path ensuring that unmet MDGs and emerging development issues are all embraced in future development agenda aimed at addressing the triple challenges of poverty, inequality

and unemployment (Statistics South Africa, 2014). The MDGs have since been succeeded by the SDGs.

PARIS DECLARATION ON BIODIVERSITY (2005)

Paris Declaration on Biodiversity (2005), convened the International Conference on Biodiversity Science and Governance and agreed that biodiversity is a natural heritage and that it is being irreversibly destroyed by people and thus requires a concerted effort to discover, understand and sustainably use biodiversity (Roux et al., 2006 as cited by Swanepoel, 2007).

2.13.2 REGIONAL POLICY FRAMEWORKS

Many of the major rivers in South Africa, such as the Orange-Senqu, Limpopo, Inkomati, Olifants/Lepelle and Pongola, are transboundary watercourses that are shared with one or more neighbouring riparian states. The 'fugitive' nature of some of the natural resources involved, such as water, fish species and migratory birds, animals and insects, means that degradative impacts in any part of the transboundary river basins may have off-site ramifications in a different area or country, often downstream. For example, the establishment of aquaculture dams along transboundary rivers may disrupt long-standing inland fisheries communities and biodiversity. In the same vein, the impacts of surface and groundwater water pollution or accelerated soil erosion may be felt downstream and/or adjacent areas or countries that share the same water flows and storages (e.g. dams, lakes and aquifers). This accounts for the requirements for stakeholders – and governments in particular – to notify others of planned actions or unplanned incidents that may result in alterations of the integrity of natural resources.

Similarly, emergent formal markets and MVCs for commercialised natural resource products and agriculture traverse national and regional boundaries. There is therefore an ever-present risk of widespread diffusion of plant and animal diseases, as well as the likelihood of inadvertently reinforcing – through indiscriminate or ill-informed consumption patterns – sub-optimal, unethical and/or undesirable business practices. Generic measures to curb the spread of unintended negative impacts, such as phyto-sanitary regulations, product certification (e.g. Fair Trade and authenticity of 'Organic' products) and contractual agreements have been developed and adopted. Nonetheless, regional institutions like NEPAD and SADC have also come up with context-specific regulatory frameworks to guide the coordination of national policies, legislation, strategies and actions.

SOUTHERN AFRICAN DEVELOPMENT COMMUNITY (SADC)

The SADC treaty preamble, "deeper economic cooperation and integration, on the basis of balance, equity and mutual benefit, providing for cross-border investment and trade, and freer movement of factors of production, goods and services across international boundaries", is a befitting one for the commercialization of natural resources products across political boundaries of countries in the region (SADC, 1992).

One of the objectives of SADC is to "achieve sustainable utilization of natural resources and effective management of the environment". This is to be achieved through popular participation, development of policies aimed at eliminating obstacles to free movement of

people, goods and services, and harmonization of policies and plans of member states (SADC, 1992).

The Southern African region has 14 member states who acknowledge transboundary natural resources management as the sure way of achieving socio, economic political and ecological sustainability in the region. Katerere (2001) attributes the intensification of the transboundary natural resources management movement in the region to the drive for economic development through regional integration and development, need for peace and security, need to better manage shared natural resources and external influences like globalization and donor agencies agendas. He further notes that promises that initiatives have made are to be realised from the community point of view whom he alleges have been subjected to offering labour advancing privatization initiatives and such has been the characteristic of their level of involvement and participation. Mbizvo (2000) blames weak legal and policy frameworks for the poor management of shared resources across the region.

Cross border investments in natural resources products like in mining, tourism and agriculture are on the increase in Southern Africa and they tend to limit beneficiation of local communities from their resources and transnational companies' influx has been noted and this poses an area of conflict which needs to be analyzed and rectified (Mudenda, 2000). Katerere (2001) points at the need for resolving land reform imperatives, the state role, power dynamics of actors, conflicts between community and private interests and inconsistencies in laws and policies. On transboundary water courses, the region has embarked on the SADC Protocol on Shared Watercourses, the SADC Regional Water Policy and Strategy, the Southern African Vision for Water, Life and the Environment as well as national legislation and policies all being steps in the direction of sustainable management of transboundary water in the region. A case of Zambezi river authority which involves Zambia and Zimbabwe two upstream countries whose activities and acts on the river has major transboundary impact on the downstream Mozambique is of particular interest. The Zambezi Commission bringing together about eight Zambezi basin states was signed in 2004 and only ratified by all members and operationalised after a decade is a clear example of the complexity of the use of cohesion to member states to ratify agreements (ZamCom, 2013 – www.zambezicommission.org).

NEW PARTNERSHIP FOR AFRICA'S DEVELOPMENT (NEPAD)

The New Partnership for Africa's Development is the African leaders' vision for the continent to eradicate poverty through sustainable growth and development (NEPAD, 2001). NEPAD's importance lies in its provision of a transboundary strategy influencing future development and management of natural resources. In doing so, NEPAD has identified six key areas around transboundary natural resources conservation and management in the backdrop of climate change.

Barrett (2008) notes that most rural people in Africa are semi subsistence and interventions aimed at reducing intermarket costs, ensuring access to technology and productive assets are better placed in achieving commercialization and not macroeconomic and trade policy tools. It has also been noted that farmer to markets linkages has improved livelihoods in many African countries and this is attributed to investments in policy, institutional and implementation strategies and the same investments cannot be said for natural resources management leading to resource depletion (Pali, 2010; Luoga, 2000). Taylor (1996) argues

that there is a general resistance to traditional foods by African urban markets and coupled by governments lack of investment in minor forest products as well as a general lack of knowledge of the many NFTPs that can be generated in any ecosystem by non-governmental agencies and the development community which pose as threats to commercialization of natural resources products potential in the region. He calls for a holistic approach agreeing with Pollard (2008) who advocated for integrated water resources management approach to complex systems and Nicol (2000) who believes in adopting a sustainable livelihoods approach.

2.13.3 SOUTH AFRICAN NATIONAL POLICY AND LEGISLATION

Acknowledging being a member of the global community, the Republic of South Africa ratified a number of international conventions and agreements. South Africa is therefore obligated to ensure that its legal and policy frameworks take into account the global and regional imperatives for achieving the SDGs and similar macro-economic policy objectives. In doing so it also aims at addressing its national imperatives, particularly the needs to redress the legacy of past injustice and reduce prevailing poverty, inequality and unemployment. The South African government is therefore expected to adopt effective measures to secure the economy, environment, society and productivity at large.

NATIONAL CONSTITUTION

The South African National Constitution (Act 108 of 1996) is the supreme law of the land and is one of the few robust pieces of legislation in the world. Chapter 2 of the Constitution, which is the Bill of Rights, speaks of the various rights to be enjoyed by each and every South African and places duty on government and individuals. The Bill of Rights gives citizens the right to a harm-free environment, health and wellbeing. The Bill also aims to have the environment protected for the benefit of present and future generations through reasonable legislative and other measures.

Section 24 of the Constitution stipulates that all South Africans have a right to an environment that is not harmful to their health or well-being and to have the environment protected for the benefit of present and future generations. The Constitution compels governance institutions to take reasonable steps to prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development and use of natural resources.

NATIONAL WATER ACT

The National Water Act (Act 36 of 1998) is the principal legal instrument speaking directly to all water resources utilization, development, protection, conservation and management in South Africa. It takes cognizance of all water-linked ecosystems. In a deliberate manner, the Act defines terms and concepts relating to the safeguarding of watercourse systems. Drawing from international frameworks, such as the Dublin Principles of 1992 and the 1997 UN Convention on the Law of Non-Navigational Uses of International Watercourses, the National Water Act enshrines the principles of gender equity, fairness and justice in the sharing of available water resources, and avoidance of undue harm to social, economic and ecological components of ecosystems.

NATIONAL ENVIRONMENT MANAGEMENT ACT)

The National Environment Management Act (NEMA) (Act 107 of 1998) sets the tone for application of basic environmental management principles in all national decision making processes. The Act establishes the concepts of participatory, cooperative and developmental governance in environmental management. It establishes principles for environmental management and provides for structures to facilitate these. NEMA also advocates for cooperative environmental governance.

With specific regard to wetlands and agriculture, Section 2(r) of the act states that "sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resources usage and development pressure". This Act has particular applications for the on-going expansion of bio-prospecting and commercial agriculture into sensitive and vulnerable ecosystems, such as Mbongolwane Wetland and Pongola Floodplain in KwaZulu-Natal and Baleni hot springs in Limpopo,

WHITE PAPER ON CONSERVATION AND SUSTAINABLE USE OF SOUTH AFRICA`S BIOLOGICAL DIVERSITY (1997)

This White Paper was published in 1997 and was a product of thorough public consultations. It identified six goals and informed the development of strategies for biodiversity conservation and use. Of particular importance was the White Paper's outline of an implementation plan, which included identifying key role players, defining their roles and responsibilities, outlining the legislative space in which environmental law would operate and determining the institutional changes required for optimum application.

CONSERVATION OF AGRICULTURAL RESOURCES ACT

The Conservation of Agricultural Resources Act (CARA) (Act 43 of 1983) came into effect in June 1984. The Act is administered by the Department of Agriculture, Forestry and Fisheries (DAFF). It aims to ensure the sustainable utilization and protection of agricultural land, soil, wetlands and vegetation. The Act also aims to control the spread of weeds and invasive alien plant species. According to Pollard & Cousins (2008), CARA is the only piece of legislation that directly aims at conserving wetlands in agriculture. Of particular importance to this report are the following extracts from the Act (among others):

Regulation 7(3) of the CARA specifically provides for the 'utilization and protection of vleis, marshes, water sponges and watercourse'. The regulation states that 'except on authority of a written permission by the Executive Officer, no land user shall (a) drain or cultivate any vlei, marsh or water sponge or portion thereof on his farm unit or (b) cultivate any land on his farm unit within the flood area of a watercourse, or within 10 m horizontally outside the flood area of a watercourse'.

Regulation 8(5) states that 'no land user shall remove or alter any obstruction in the natural flow pattern of runoff water on his farm unit, if such removal or alteration will result in excessive soil loss due to erosion...'.

NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT

According to the National Environmental Management: Biodiversity Act (NEMBA) (Act 10 of 2004), no person may without a permit conduct commercial bio-prospecting on any indigenous biological resource, or export any indigenous biological resources from South Africa for bio-prospecting or any other kind of research.

BIOPROSPECTING, ACCESS AND BENEFIT SHARING REGULATIONS

The Bioprospecting, Access and Benefit Sharing (BABS) Regulations of 2008 were developed and promulgated to regulate the permit system set out in NEMBA, in so far as that system applies to bio-prospecting involving any indigenous biological resources. Although the BABS Regulations entered into force in April 2008, government launched the new regulatory framework in July 2012.

The framework seeks to protect traditional medicine knowledge and practices, whether codified in writing or transmitted orally. Such protection essentially seeks to exclude the unauthorised use by third parties of protected knowledge, support the commercialization of traditional knowledge, ensure benefit sharing and/or prevent the misappropriation of traditional knowledge. Export from South Africa of any indigenous biological resources for the purposes of bio-prospecting or any other kind of research must be permitted. In addition, the BABS Regulations set out the contents of, requirements and criteria for benefit-sharing and material transfer agreements.

WORLD HERITAGE CONVENTION ACT

The World Heritage Convention Act (Act 49 of 1999) provides for the cultural and environmental protection, sustainable development and related activities in a world heritage site.

NATIONAL ENVIRONMENTAL MANAGEMENT: PROTECTED AREAS AMENDMENT ACT (2009)

The National Environmental Management: Protected Areas Amendment Act (Act 15 of 2009) provides for the assignment of national parks, special parks and heritage sites to South African National Parks. The Act also makes provision for flight corridors and permission of the management authority to fly over a special national park, national park or heritage site. It also provides for the winding up and dissolution of South African National Parks (SANParks).

This piece of legislation has relevance for traditional communities, such as the Makuleke, whose Communal Property Association (CPA) owns land within a jointly managed contractual section of Kruger National Park and therefore jointly controls traversing rights into both Thulamela Heritage Site and Makuleke Ramsar Wetlands. The Community-Based Natural Resource Management (CBNRM) approach that was adopted in the run up to the 1998 Settlement Agreement for land restitution ideally envisioned a gradual increase in management responsibilities of Makuleke CPA from more passive forms of participation, through joint management and, ultimately, to actively auto-coordinated participation. Although the progression to the final step is debatable (Tapela, 2002), the provisions for the winding up and dissolution of SANParks suggest the prospects for greater governance and management roles by the CPA, as well as sustainable use and (perhaps) non-consumptive commercialization of natural resources and products.

STRATEGIC PLAN FOR SOUTH AFRICAN AGRICULTURE

Within the agricultural sector, post-1994 support to emerging farmers by various sectors has earlier derived from the core objectives of the Agricultural Sector Strategy (South Africa, 2001) namely, to: enhance equitable access and participation in the agricultural sector; improve global competitiveness and profitability; ensure sustainable resource management; and ensure food security. The food security objective has embraced the interests of both the rural poor and the broader South African public. These strategic objectives have been complemented by the Broad-Based Black Economic Empowerment Framework for Agriculture (AgriBEE) (South Africa, 2004a), Irrigation Management Transfer (IMT), Water Allocation Reform (WAR), Policy on the Financial Assistance to Resource Poor Irrigation Farmers, Land Reform (South Africa, 2004b), Comprehensive Agricultural Support Programme (CASP) and municipal Local Economic Development (LED) frameworks, among others. In addressing the first two objectives, the AgriBEE has considered joint ventures and strategic partnerships to be key mechanisms for promoting entry by emerging black commercial farmers and petty commodity producers into mainstream agri-food systems.

SOUTH AFRICAN AGRICULTURAL PRODUCTION STRATEGY & STRATEGIC PLAN FOR SMALLHOLDER PRODUCERS

The South African Agricultural Production Strategy for 2011 to 2015 and its derivative Strategic Plan for Smallholder Producers are key institutional frameworks pertaining to agricultural commercialization in traditional rural community contexts (South Africa, 2012a). Within the latter, the Farmers Development Programme is a particularly pertinent strategic intervention in this regard. This intervention strives to stimulate rural economic growth by stimulating agricultural development through a commodity-based, value chain approach to spatial planning, both at a provincial and local level.

The South African Agricultural Production Strategy characterises smallholder farmers as typically having low levels of production efficiency and engaging in agricultural production to supplement their household food requirements while selling surplus produce in local markets. It is worth noting, however, that these farmers are often socio-economically differentiated according to scale and orientation of production enterprise. Denison & Manona (2007) identify four types of smallholders, namely the 'business farmer', 'equity labourer', 'smallholder farmer' and 'subsistence farmer'. From a class-analytic perspective, Cousin's (2010) typology identifies six categories of small-scale producers in South Africa. These include 'supplementary food producers', 'allotment holding wage workers, 'worker peasants', 'petty commodity producers', 'small-scale capitalist farmers' and 'capitalists whose main income is not from farming' and whose main source of income is another business. This typology seems particularly useful in helping to unpack the key variables relating to who engages in what agricultural activity, the degree to which agriculture contributes to social reproduction or expanded reproduction and the degree to which hired labour is used in the agricultural production process. Such variables are key indicators of class relations in agriculture (Cousins, Ibid.), and may have useful applications to agricultural commercialization in traditional community contexts.

PRESIDENTIAL OUTCOMES APPROACH'S DELIVERY AGREEMENTS

The Office of the Presidency launched the Outcomes Approach in mid-2010. Government Ministers, MECs and, in some cases, municipalities, agreed on a set of 12 outcomes, which would be a key focus of work between 2010 and 2014. Each of the 12 outcomes has a Delivery Agreement, which often involves all spheres of government and a range of partners outside government. Delivery Agreements are negotiated charters that reflect the commitment of the key partners involved in the direct delivery process to working together to undertake activities effectively and on time to produce the mutually agreed-upon outputs which in turn will contribute to achieving specified Outcomes. Respectively, Outcomes 7 and 10 pertain specifically to traditional rural communities and environment and water.

Outcome 7 specifically relates to the Delivery Agreements for 'Vibrant, equitable and sustainable rural communities and food security for all'. The governance of water resources associated with traditional rural communities, which are subject to customary rule and traditional leadership, falls within the domain of this Outcome.

On the basis of Section 24 of the Constitution, which stipulates that all South Africans have a right to an environment that is not harmful to their health or wellbeing, Outcome 10 speaks about environment and water and the objective 'to ensure that environmental assets and natural resources are well protected and continually enhanced'. The four Outputs identified in Outcome 4 of the Presidential Delivery Agreements are:

1) Enhanced quality and quantity of water resources;
2) Reduced greenhouse gas emissions, climate change impacts and improved air/atmospheric quality
3) Sustainable environmental management
4) Protected biodiversity

2.14 CONCLUSION

This chapter focused on traditional rural communities and reviewed literature pertaining to the commercialization of natural resource products and agricultural produce as a means to reduce rural poverty, unemployment and vulnerability within water-linked ecosystems.

Against a historical background of colonial and apartheid era land dispossessions, present-day high levels of dependency on natural resources in many 'traditional rural communities' are due to pervasive poverty and unemployment (Shackleton, 1996; Tapela & Omara-Ojungu, 1999; Twine et al., 2003; Gyan & Shackleton, 2005; Shackleton et al., 2007; Shackleton et al., 2011; Jaganyi et al., 2009; Tapela, 2014). Given government's reiterated commitment to resolving rural challenges of poverty, unemployment and inequality, there is a need for water research to test the arguments advanced that rural people's knowledge and practices for using water-linked ecological system services can yield greater economic benefits if indigenous knowledge is properly merged with 'scientific' innovative systems.

The issue of rights is particularly pertinent, given that the legacy of past discriminatory policies and practices continues to masquerade as growing landlessness, tenure insecurity and informal tenancy long after the dismantling of the apartheid state. Furthermore, the question

of rights sits squarely within the disjuncture between, on the one hand, traditional socio-cultural norms and practices that militate against women's access to bases of social power and productive wealth and, on the other hand, the promise of gender equity enshrined within South Africa's Constitution. The gender dimension requires that attention be given to IKS governing communal land rights allocation and land access, use, development, management and conservation. This social capital, in turn, may be reflected in and transferred through to commercial trade in natural products and agricultural produce (Shackleton et al., 2011).

Closely linked to the issue of gender rights is the need to address the persistence of limitations introduced by past Euro-centrist[16] preservationist and conservationist policies, legislation and practices on the extent to which marginalized rural women and men can derive economic value from ecosystem services. In ways reminiscent of neo-Malthusian perspectives such as Garret Hardin's 'Tragedy of the Commons' allegory, scientists and conservation agencies have tended to view traditional rural communities as poachers and degraders of natural resources (Carruthers, 1995; Tapela, 1997). Similarly, despite purported shifts away from top-down, state-centrist conservation approaches to participatory resource management approaches, many scientists and practitioners continue to view natural resources use within traditional community contexts in terms of 'open access' (*res nullius* or non-property) rather than 'common property' resources (Tapela, 1999, 2001; Rogers, 2008). From such ivory towers of poor understandings of rural people's relationships with ecological resources, scientists and conservationists have often lost valuable opportunities to engage with and benefit from gendered indigenous knowledge, social organization and traditional leadership roles in the governance and management of natural resources. Studies (e.g. Tapela, 2014) suggest that the stock of indigenous knowledge about natural resources in many South African traditional rural communities might be increasingly eroded.

Conversely, however, it is worth noting that rural people do not live in insular communities, and the possibility is strong that there are on-going changes in the way local people value, appropriate and conserve natural resources. The pervasive poverty, unemployment and changing aspirations and consumption patterns all combine to increase demands for goods to sell in commercialised markets, including the emerging MVCs. While it is important for rural people to derive greater value of healthy ecosystems and goods and services than they have historically enjoyed under traditional systems and repressive colonial and apartheid systems, empirical evidence shows that without sound governance and support of this transition, a possible danger could be an unmanaged erosion of subsistence levels of resource harvesting and, thereby, the vulnerability of ecological systems. Against the onslaught of the aforementioned developments, it cannot be assumed that IKS alone will provide the panacea for possible negative impacts and/or crises. In any case, the history of alienation of resources, principally due to forced removals, the fracturing of traditional societies and urbanization may have eroded much of the social capital associated with IKS (e.g. Tapela, 2012). Furthermore, local contexts have become increasingly characterised by greater cultural diversity and socio-economic differentiation than existed in pre-colonial societies. This effectively means that

[16] There is reason to believe that precolonial peoples were potentially far more conservation orientated. However, the introduction of exogenous processes of modernity and industrialization produced rapid population increase, and technologies of mass destruction of botanical and zoological biodiversity. As the past, present and future are interlinked, it would be unwise to completely ignore certain values in Euro-centrist preservationist and conservationist policies, legislation and practices.

whatever remnants of IKS are still available in rural South Africa today will need to be combined with other 'knowledges' and thereby strengthen the resilience of water-linked ecosystems.

More often than not, the role of healthy functional ecosystems (ecological infrastructure) to rural communities is overlooked and hardly quantified. The implications of gender towards access to water and roles in managing the resources are not detailed, such as how the collection of water from afar affects the collectors. Women in rural areas are more involved in utilizing aquatic resources, and associated goods and services. However, in many cultures, women have very little or no say in decision-making regarding management of land and water resources they so depend upon. People in the rural areas through historic years of marginalization may have developed negative attitude towards protection of water resources and associate ecosystems. Ecological infrastructure development, such as dams, tunnels, heritage sites, often displaces and deprives the indigenous people of benefits they have derived from those resources historically (e.g. spiritual relevance), often leading to conflicts. These rural communities and their social values are often overlooked in drafting legislation, long term development plans, etc. The role of indigenous knowledge is hardly taken into biodiversity conservation, and yet there is huge impact this knowledge has played in traditional nature conservation efforts.

The key issues around MVCs, the existence of gendered-constraints in welfare enhancing MVCs and lack of knowledge about the role of IKS picked from the literature review will be interrogated in an empirical study of Baleni salt mining by rural communities under the Mahumani Traditional Authority. The next chapter presents the methodology which was adopted from literature and improved upon to align with the peculiarities of traditional rural communities interacting with water-linked ecosystems.

CHAPTER 3: THE METHODOLOGY ON GENDERED VALUE CHAINS

3.1 SETTING OF THE STUDY

Anthropological, ethnographic and historical studies show that for a very long time, rural women and men have planted and harvested crops in and around water-linked ecosystems, deriving limited or no market value. They have also harvested natural resources, such as fish (e.g. Neiland et al., 2005: 7), reeds (e.g. Shackleton et al., 2002) and wild vegetables (e.g. Harries, 1984), without exchanging these in the monetised markets. More recently, there have been shifts away from subsistence to commercialised ways of utilizing natural resources and producing agro-foods. Small-scale producers are encouraged to participate in MVCs and thereby become integrated into mainstream agro-food systems and other coordinated commodity chains. A value chain describes the full range of activities which are required to bring a product or service from conception, through the intermediary of production, delivery to final consumers, and final disposal after use" (Kaplinsky 2000; Hellin & Meijer, 2006). Conversely, small-scale producers may themselves exert pressure from below to become more actively involved in MVCs as a means to overcoming their own challenges of poverty, unemployment and inequality.

The agrarian transformations that are emerging within South Africa's traditional community contexts raise a number of key policy and methodological questions. Predicated upon institutional imperatives to effectively address the macro-economic policy objectives for poverty, inequality and unemployment, policy questions relate to issues of resilience, power and governance, gender mainstreaming and equity, and the role of IKS within value chains. Methodological questions relate to finding a value chain analysis approach that sufficiently takes into account the (1) macro-economic policy level concerns, (2) multi-level/multi-actor value chain issues and (3) the micro-level issues pertaining to traditional rural community, household, group and individual. The methodological question also recognises the difficulty of working with the problematic and contested concept of "traditional rural community", which pre-supposes social homogeneity and disregards social change, albeit existing legislation makes limited provisions for these 'communities' to choose whether or not to accept such classification (which in itself raises a host of other problems)[17] and subordinate customary law to Constitutional law[2].

This report adopts a pro-poor and gender-sensitive approach to outline a methodology for mapping and analyzing linkages between gender, indigenous knowledge systems and practices (IKS) and market 'value chains' (MVCs) associated with South African 'traditional rural communities', which are transitioning from informal subsistence to formal commercialised water economies. The value chain concept considers the economic production and distribution of ecosystem services to be a chain of activities and processes (Gereffi et al., 2001; Gammage et al., 2009). According to the Traditional Leadership and Governance Framework Amendment Act (Act 41 of 2003), a community may be recognised as a traditional community if it is subject to a system of traditional leadership, in terms of that community's customs, and if it observes a system of customary law.

[17] The Traditional Leadership and Governance Framework Amendment Act states that prior to recognition of a community as a 'traditional rural community', provincial legislation must provide important controls and protections to ensure that these institutions act within the law and manage the affairs of the traditional community in a transparent and accountable way.

3.2 CHAPTER PURPOSE

The chapter presents the methodology that was used in the study. It borrows findings from Tapela (2015) in which the core research problem revolved around the need for a clearly articulated Methodological Framework to guide data collection and value chain analysis in ways that robustly tackled issues of poverty, gender and IKS, which pertain to traditional rural communities in South Africa. The following question summed up the core problem:

- What is the best way to develop a pro-poor, gender-sensitive and IKS-cognizant Methodological Approach for appropriately mapping and analysing existing value chains for the marketing of ecosystem services and their use by selected groups of women and men living in traditional rural communities

The following multi-faceted question was integral to this core concern:

- What are the requisite methodological considerations for:
    - Enhancing understandings of the embedded socio-ecological contexts of market value chains associated with IKS and women and men living in traditional rural communities;
    - Mapping market value chains associated IKS and women and men living in traditional rural communities;
    - Analysing market value chains associated IKS and women and men living in traditional rural communities, so as to clarify, at various levels of the value chain as well as within associated traditional rural community contexts:
      - Power relations and their governance;
      - Gender issues and segmentation; and the
      - Distribution of costs and returns, value added, and multipliers and spill-overs;
      - Livelihood outcomes for rural women and men; and
    - Mapping the resilience and/or vulnerability of socio-ecological systems affected by the involvement of rural women and men and/or use of IKS in market value chains?

Operationalization of the research questions above ultimately contributed to the development of clear understandings about the extent to which MVCs have responded to pro-poor policy interventions for IKS.

3.3 THE EMERGENCE OF PRO-POOR VALUE CHAIN ANALYSES

Pro-poor value chain analyses have emerged against the backdrop of the late 2000s financial crisis, which forced new thinking throughout the development community (Owusu-Gyamfi, 2009). These analyses arose specifically from the critical discourses around the concept of value chains, whose development and study expanded rapidly with the globalization of economies (Gammage et al., 2009). As various researchers adopted the idea that international trade in ecosystem services should be seen within the context of multinational enterprises or through systems of governance that link firms together in a variety of sourcing and contracting arrangements (Gereffi et al., 2001), a strong critique was that much of the thinking, study and development of value chains predominantly favoured interests of the more powerful actors within the chains while underplaying the issue of poverty (Gammage et al., 2009).

Since then, there has emerged a strong consensus around the importance of examining MVCs. However, the inclusion of value chain analyses in economic development programs, for

purposes of their potential to increase economic growth and reduce poverty, is more recent (Humphrey, 2005 in Gammage et al., 2009). Even more recent is the identification of gender issues (e.g. Gammage et al., 2009) and IKS roles (e.g. Fu et al., 2011) in and through value chain analysis. While it is useful to outline the background to the conceptual crystallization of pro-poor value chain analysis (and IKS and gender sensitivities therein), some consideration of the context within which governance issues have emerged is perhaps more pertinent to this study's overarching research aim, which is to develop and test a gender-sensitive value chain framework to guide efforts to enhance the effectiveness of contributions by ecosystem services to rural resilience.

According to Gereffi et al. (2001), the discussion of governance started with a distinction between buyer-driven and producer-driven chains. In buyer-driven chains, the global buyers establish and control geographically-dispersed production and distributions systems, often owned by others. By contrast, in producer-driven chains, the key technology and production facilities (manufacturers) are controlled by the producers. This is typical of capital-intensive and technology-intensive industries, such as automotive firms. With the rise of global value chains in the 'new' agricultures that emerged in the 1980s and grew in the 1990s, most of the chains were classified as "buyer-driven". Notable among these were the horticultural value chains directed by supermarket companies in Britain and Europe, which invested in smallholder production and packing plants in Africa and increasingly defined production and quality standards for crops such as green beans, snow peas, and cut flowers.

As global value chains continued to evolve and become more complex, it was recognised that, in practice, both the buyer-driven and producer-driven types of governance processes could be encompassed in a single chain. For example, producer-driven chains were starting to sub-contract out the less profitable manufacturing tasks, while maintaining overall control of assembly, marketing, and branding. The possibility of such complexity needs to be anticipated.

In light of the foregoing background, this chapter presents a clearly articulated Methodology, with research instruments that contributed to clear understandings of gender and IKS issues within pro-poor MVCs associated with traditional rural communities of South Africa.

3.4 METHODOLOGY: ADAPTED GATE PROJECT APPROACH

The methodology used by this study to examine MVCs in traditional rural communities is derived and adapted from the MVC analysis developed by the Greater Access to Trade Expansion (GATE) project (see Gammage et al., 2009). The GATE project has explored opportunities to improve market outcomes, raise productivity and wages, decrease gender inequalities and foster pro-poor growth. The GATE project integrates a gender and pro-poor analysis that aims to uncover the economic, organizational, and asymmetric relationships among actors throughout the chain and recognises that power differentials among actors may influence outcomes along the chain. Gendered value chain analysis allows for the consideration of groups and individual men and women's access to productive activities, differential opportunities for upgrading within the chain, gender-based division of activities and how gender power relations impact economic rents among actors throughout the chain. The distributional analysis explores the value added generated along the chain and examines the returns to labour and capital for the different actors participating in the chain. All data gathered and analyzed are intended to be disaggregated by sex in order to identify, from an

economic perspective, returns to men and women for participating in the chain. The methodology in this study particularly adds an IKS angle in the analysis to take care of a commonly occurring feature in traditional rural communities (Gammage et al., 2009).

3.4. 1 OVERVIEW OF THE MVC METHODOLOGICAL FRAMEWORK

Components of this study's Methodological Framework included Context Analysis; Value Chain Mapping; Analysis of Power and Governance; Gender Scan: Segmentation Analysis; IKS Scan; Narrative and Discourse Analysis; Distributional Analysis; Analysis of Multipliers and Spill-overs; Entitlements and Capabilities Analysis; and Analysis of Rural Livelihood Outcomes (see Figure 7).

Figure 7: Overview of the MVC Methodological Framework
Source: Gammage et al. (2009)

Recent empirical literature on gender and value chains reveals that there is increasingly a high incidence of female labour participation in one type of value chain: buyer-driven commodity chains. In these chains, women are most often concentrated in labour-intensive, low value-added activities. This "feminization" of labour results in reductions in wage and non-wage benefits, such as social insurance, for women (Gammage et al., 2009).

To date the GATE value chain analyses have demonstrated that the most vulnerable actors in the value chains occupy the least secure employment, and have limited opportunities to upgrade their production or change the terms and conditions of their labour and product exchange. Women are not visible in many activities even though their labour may be critical for particular nodes or segments of the chain. Women (and children) may be concentrated in the more flexible and insecure nodes of the value chain. Furthermore, insecurity in the chain is likely to be equated with low incomes and a greater vulnerability to poverty. The position of women could be further diminished by the growth of global production networks which have been linked to rising levels of income inequality, within and between countries, mainly

due to the dynamics of rents in global value chains, which are increasingly determined by intangible assets (such as copyrights, brand names and design) as more tangible barriers to entry in manufacturing have tended to fall (Gereffi, 2013).

3.5 SELECTION OF THE STUDY SITE

A case study approach was used to empirically examine gender, IKS and MVCs in traditional rural communities that are transitioning from subsistence to commercialised economies. Although many such communities commonly share the salient challenges of poverty, inequality and unemployment, there are contextual variations in the bundles of ecological system services and their use by rural women and men. Similarly, the historical backgrounds, socio-economic profiles, and value chain features and geographic scale vary from one place to another. However, a representative sample of this diversity was not tenable logistically within this study. A purposive site selection approach was therefore adopted. The rationale was that benefits of a deliberately focused and targeted inquiry for this exploratory study far outweigh the benefits of strictly adhering to statistical rigor for ensuring representativity of sample. Therefore, site selection criteria used included the following:

- Traditional rural community context
- Existence of formal and/or informal market value chain
- Transition into highly commercialised value chain
- Utilization of IKS by value chain
- Active involvement of rural women and/or men in value chain

On this basis, the study selected Baleni salt mining by rural communities under the Mahumani Traditional Authority in the Greater Giyani Local Municipality in Limpopo province, South Africa.

3.6 DATA COLLECTION

The gendered value chain methodology uses mixed-methods, which relied on primary data collection through surveys, secondary analysis of household survey and national accounts data, and qualitative analysis using key informant interviews and focus groups (Gammage et al., 2009).

3.6.1 KEY INFORMANT INTERVIEWS

Key informant interviews were used to develop an overview of the value chain sector, the key priorities and concerns, as well as opportunities for and challenges to chain expansion. A broad sample of actors was interviewed, which included private firms and businesses, government officials, and representatives of civil society organizations, local traditional leadership, as well as community-based groups and individuals. In particular, interviews were held with selected men and women of Mahumani community, selected municipal officials, a representative from the African Ivory Route management, representatives from Transfrontier Parks Destination, a salt marketing and distribution company, local salt vendors at Giyani market, wholesale shops in Giyani and a food salt company. An interview was also conducted with the Mahumani traditional leadership such as the Chief and the Secretary of the Mahumani Trust. Semi-structured interviews were used to explore key questions for primary research.

3.6.2 FOCUS GROUP INTERVIEWS

Group interviews were conducted at Shawela Village with the salt miners, who are all female. This allowed for immediate group-specific triangulation as well as insights on consensual and/or divergent viewpoints. Group interviews were structured to be gender-exclusive (i.e. "sex-segregated"). The key objectives of group interviews were to (i) understand the salt mining process, (ii) understand the nature of the terms and conditions of participation in key parts of the chain and (iii) uncover the power issues underlying the terms of exchange. A field trip to the Baleni Soutini hot springs and surrounding environs was undertaken to establish an understanding of the hydro-geothermal aspects.

3.6.3 HOUSEHOLD SURVEY

The study also used a household survey as the primary means to capture information about the costs, rents and returns in the sector; input types, input quantities, input prices and their origin; production stages, process types, types and quantities of labour; number of hours or person days worked; and wages and benefits. The survey was also used to collect socioeconomic data (e.g. gender, education, marital status, ethnicity, household income and expenditure, etc.) on workers and producers; access to and the terms of credit; as well as output types, output quantities, output prices and the terms of exchange, and output destinations (local, regional, national, international). The survey was designed to capture a representative sample of all the actors in the chain including producers, workers, intermediaries, processors, and exporters.

3.6.4 CENSUS DATA

The study used population census data from secondary sources such as Statistics South Africa. Such data are used to develop a broader overview of the study site.

3.6.5 SITE VISITS

The research team visited the study area four times. A combination of tools were also used to capture data and information:

- Video recordings were made between 2015 and 2017 of things such as the focus group interviews, interviews with salt vendors in Giyani, interviews with selected men and women of Baleni, the Baleni hot springs, the salt mining site, the salt pans environs, salt mining and processing equipment, salt making demonstrations and Baleni salt mining policy dialogue workshop.
- Photographs were also taken for the above activities between 2015 and 2017.

3.6.6 DIALOGUE WORKSHOPS

The WRC Dialogues are discussion-based events on topical water issues affecting the South African public, the aim of which is to serve as a platform to exchange ideas and opinions related to water. In this regard, the WRC Dialogues are guided by the principles of transparency, openness and honesty; plurality of perspectives and inclusivity, mutual respect; a commitment to problem-solving and mutual accountability; and in the broader interest of knowledge sharing. The value of the WRC's role as convenor of these events lies in its ability to be a neutral knowledge broker as South Africa's premier water knowledge resource.

In light of the above detects of WRC, two critical workshops namely (1) Water Currents Policy Dialogue Workshop on 'Water Governance in Traditional Rural Communities', and (2) Baleni

salt policy dialogue workshop were held from 17 to 18 March 2015 at the National Sports Science Institute in Newlands, Cape Town and on 27 January 2017 at Shikumba respectively constituting two deliverables (8 and 11) of the study.

The aim of the policy dialogue workshops was to generate policy recommendations to assist water institutions and National Government to better deliver on their primary mandate mainly around access to water resources and infrastructure for productive purposes and improved livelihoods.

The objectives of the workshops can be summarised as follows:

- Share and discuss research findings;
- Obtain and reflect on stakeholder perspectives about water and governance issues in traditional rural community contexts; and
- Collectively explore, through dialogue, policy options for ensuring effective institutional linkages between the national, regional and local levels of planning and micro-levels of water use in traditional rural communities and households.

3.7 DESCRIPTION OF THE STUDY AREA

Greater Giyani Local Municipality was established in 1969 and forms one of the five municipalities that falls under Mopani District Municipality. It is situated at the easterly extents of the Mopani District Municipality within Limpopo Province (see Figure 8). The Mahumani Traditional Authority area is located centrally within the Greater Giyani Local Municipal space. This area constitutes the broader study area. The Mahumani Traditional Authority area consists of Nkomo A, Nkomo B, Nkomo C, Shawela, Shawela RDP, Shikhumba and Savulani villages (see Figure 9). These lie within wards 10, 22, 23 and 26 of the Greater Giyani Local Municipality.

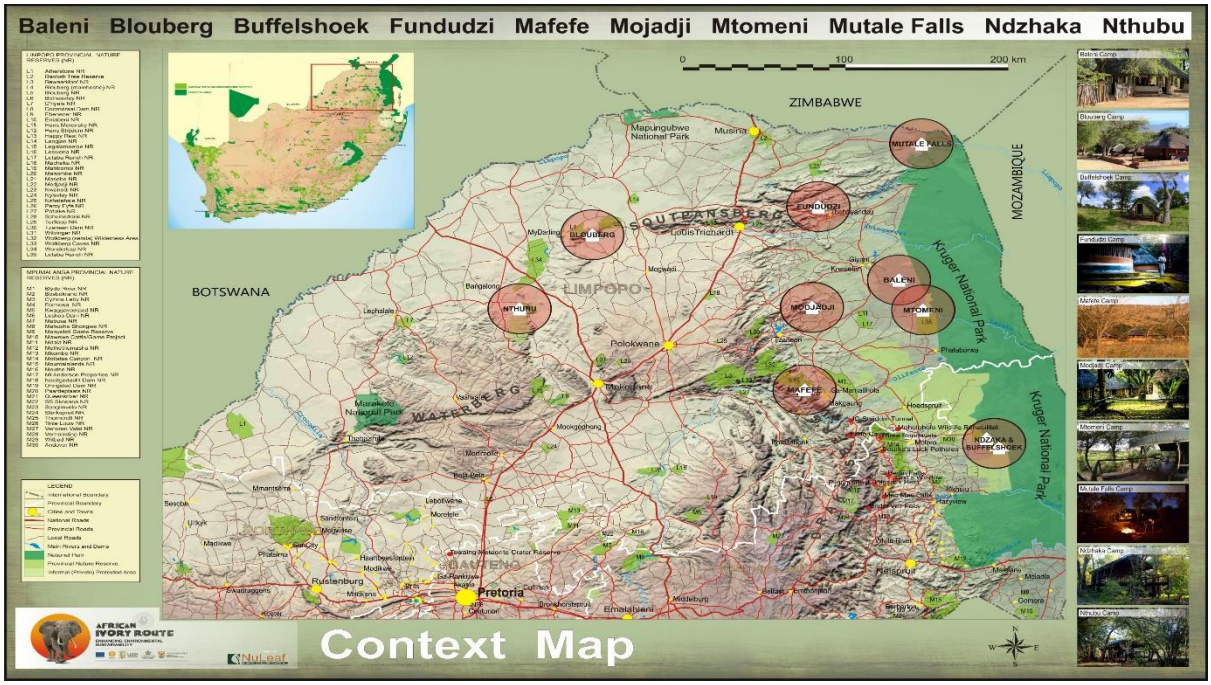

Figure 8: Map of Limpopo
Source: Africa Ivory Route

The Mahumani Traditional Authority Area is governed by the royal administration. The administration is led by His Majesty Hosi Aaron Mahumani. The Chief together with 14 *Indunas* and 30 elected councilors make up the Mahumani Traditional Council which is charged with the responsibility of administering the affairs of the Mahumani community. The population of Mahumani Tribal Authority area was last counted at 15,583 in the 2011 Statistics South Africa Census. Mahumani has a larger number of females (8,761) than males (6,822) and the unevenness is universal in all villages.

There is a main road linking the towns of Giyani and Phalaborwa which cuts through the area. However, the internal road network in Mahumani area is in a bad state. Most of the roads linking the villages are gravel and rocky. The common mode of transport is commuter omnibus taxi. Houses in the area range from mud, brick cement and face brick structures. Most households have access to electricity provided by Eskom mostly on a prepaid system. There are two clinics and a satellite centre within the Mahumani area. The map below shows the location of the Mahumani Tribal Authority villages.

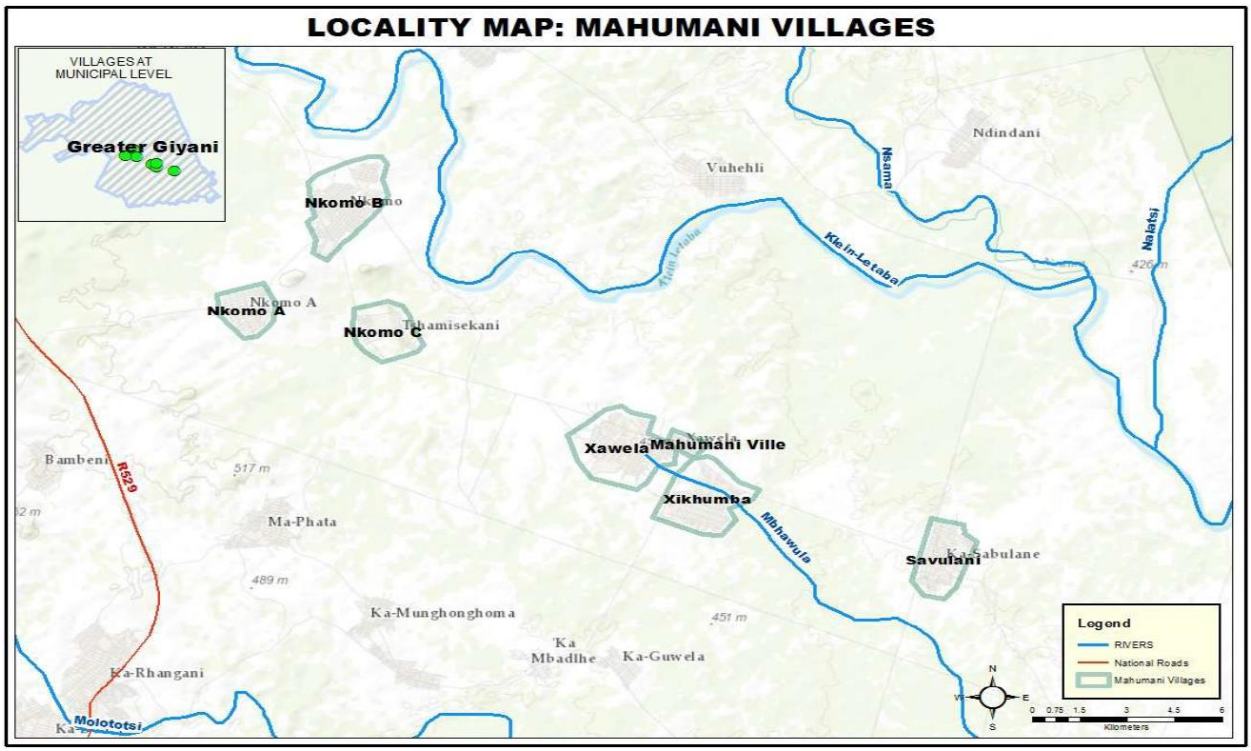

Figure 9: Map of Mahumani
Source: DRDLR (2015)

The Mahumani population has access to 6 primary and 4 secondary schools even though the conditions of some schools are not good. The Mahumani Tribal Authority area has a low number of people with post-matric educational qualifications. The area is characterised by high unemployment levels and very low income levels. These may be as a result of a combination of low levels of private investment, low levels of work opportunities and a general lack of skills.[18]

Water is a challenge in Mahumani as residents travel long distances with wheelbarrows/donkey carts and motor vehicles to fetch water. Some community members and schools have installed boreholes and water storage tanks. While the Klein Letaba River could be an additional source of water for the Mahumani Tribal Authority area there is currently no infrastructure to harness the water.

The study area is one of the localities which have been selected by the Department of Rural Development and Land Reform for assistance under the Comprehensive Rural Development Programme (CRDP), in response to a request by the Mahumani Tribal Council. The goal of the CRDP is to achieve social cohesion and development by ensuring improved access to basic services, enterprise development and village industrialization. Important for the study's purposes, the programme seeks to deal effectively with rural poverty through the optimal use and management of natural resources by rural people.

The Mahumani Tribal Authority area faces the following challenges: high level of poverty and unemployment; poor infrastructural development; protracted distances between key social amenities and economic opportunities; lack of effective development planning mechanisms;

[18] At a village level, Shawela has the highest level of unemployment and number of households with no income.

poor state of existing social amenities such as health facilities; and lack of financial support to effectively drive and implement municipal and community projects (DRDLR, 2015).

3.8 OPERATIONALIZING THE METHODOLOGICAL FRAMEWORK

The first task towards mapping the value chain was to develop clear understandings of the embedded ecosystem contexts. Both the Integrated Framework of Governance and Governability (Kooiman, 2008) and the Sustainable Livelihoods Framework (SLF) (e.g. Scoones, 2008, 2009) were used to clarify the linkages between governance institutions and systems-to-be-governed. The latter include socio-ecological, agro-ecological, socio-cultural, socio-economic and socio-political sub-sets of water-linked ecosystems.

Literature Review and Ethnographic Surveys were used to analyse both the broader policy shifts and case study-specific transitions. These two components of the Methodological Framework enabled the study to build upon existing scientific knowledge and thereby cast effectively generated new knowledge. Ethnographic Surveys, which derive from anthropology, enabled primary research to qualitatively develop in-depth understandings of culture and social life from an 'insider' perspective. Such surveys were particularly useful in shedding light about issues of gender, IKS, power and rights, which often do not get to be openly discussed within households and focus groups in traditional rural settings. Day-to-day primary research findings were recorded in a journal and cross-referenced and/or triangulated with other primary or secondary data sources.

3.9 PRINCIPLES OF ENGAGEMENT IN THE PROJECT

Owing to contradictions and tensions inherent to participatory social research (Tapela et al., 2008), it was anticipated that differing views might be encountered between researchers, members of rural communities, private sector actors, civil society, traditional leadership and government agencies. The IKS research process would indeed come across the paradoxes that reside in the 'fault line' between 'traditional' social science research and the many ways in which local people built up their knowledge systems (Ibid.). Hence, the conduct of field research was guided by principles outlined below, whose purpose was not to show how the researchers would circumvent, 'resolve' or avoid these tensions but rather to highlight them and to provide a framework of reference that researchers would use to develop mutually accepted solutions in a spirit of mutual respect.

- Principle of respect
- Principle of historical awareness
- Principle of reciprocity, mutual benefit and equitable sharing
- Principle of process
- Principle of full disclosure
- Principle of differential needs and objectives
- Principle of communication and due acknowledgement
- Principle of acknowledgement of different types of knowledge

The above principles were not a rigid and inflexible set of 'rules of engagement'. Instead they relied on respect for the South African constitution and the South African experience of flexibility and negotiation. The principles helped to encourage researchers, local people, institutional actors and other stakeholders to try to understand each other's positions, constraints and fears, and the opportunities that arose from agreement and collaboration. The use of multiple knowledge systems was encouraged, whereby different types of knowledge, formal (e.g. scientific knowledge) and informal (e.g. local or traditional or indigenous knowledge), were recognised for their strengths and weaknesses, and granted equal status.

3.10 VALUE CHAIN MAPPING

One of the first tasks to complete towards pro-poor value chain analysis is to construct a map of the chain. A value chain map enables the tracing and tracking of relationships between different actors, such as producers, intermediaries, processors and exporters, as well as the flow of inputs, services, and credit through the chain. A value chain map can also help to clarify the rationale behind the actors' decisions regarding their interaction with value chains. A good map reflects significant analysis of the value chain (Gammage et al., 2009).

In accordance with the GATE approach (Ibid.), the value chain map should estimate the number of firms involved in various functions and, where possible, provide estimates of employment in the chain. A flow chart is used for this. The various boxes and circles represent one or more organizational unit of varying complexity. The map of the value chain can indicate the type and size of these units graphically, and depict the flows of inputs, goods or services between the nodes.

The actors in each specific market value chain can be grouped according to function and/or role. Actor groups could include, for example, 'input suppliers' (e.g. natural resource harvesters, community-engaged conservation agencies, savings and credit facilities, agrochemical firms, extension and training service providers, etc.), 'producers' (e.g. crafters, farmers), 'processing units' (e.g. processing plants/exporters and producer-processors, exporters) and 'marketing agents' (e.g. buyers, transporters, brokers, supermarkets and other retailers) (e.g. Figure 10).

The emerging economic structure and other attributes of actor groups can subsequently be analysed to indicate the institutional arrangements governing actor relationships, IKS value added, gender structure of employment, and distribution of costs and returns in the chain, among other things. Value chain mapping can also be shaped to reflect main characteristics of production and exchange, such as relative size of productive unit by profit or return and by gender structure of employment within the value chain or productive unit (total or by gender). Figure 11 shows an example of a graphic reflection of gender information on a map, alongside the current convention to separate functions and operators.

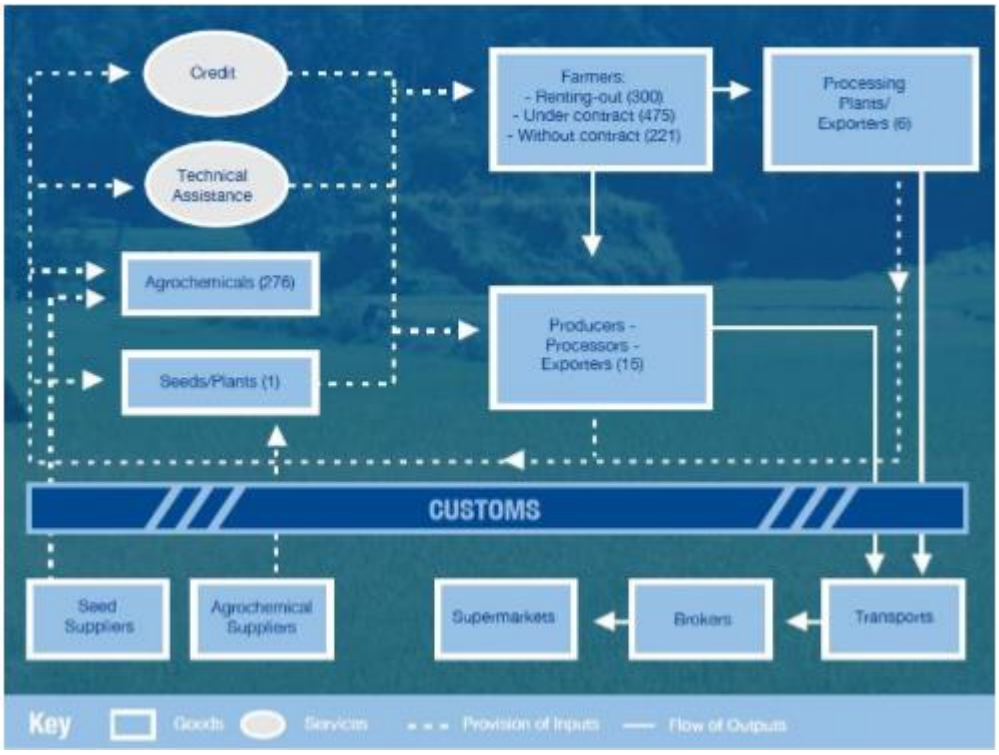

Figure 10: An example of a value chain: Artichoke in Peru
Source: Rebosio et al. (2007) cited in Gammage et al. (2009)

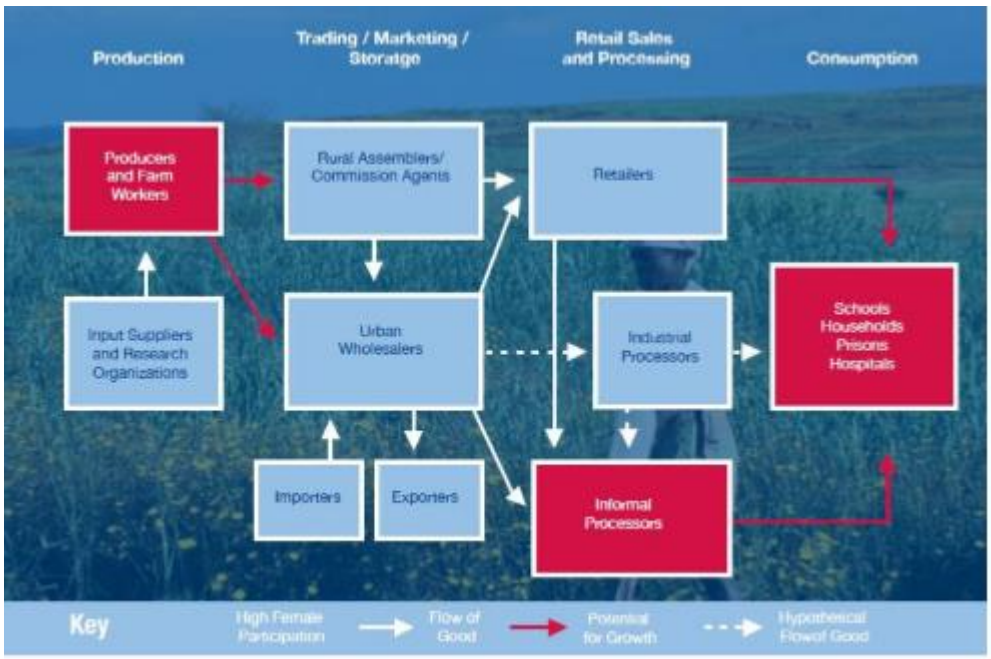

Figure 11: Example of gender roles in cowpea value chain of Kano, Nigeria
Source: GATE (2008)

3.11 VALUE CHAIN ANALYSIS

3.11.1 ANALYSIS OF POWER AND GOVERNANCE WITHIN THE CHAIN

Analysis of power and governance within the value chain investigates power within production and exchange relationships across the value chain, including the power to set market prices and bargain as well as indebtedness and sub-optimal contracting (Gammage et al., 2009).

Pro-poor value chain analysis also considers the dimensions of power and inequality along the chain and within the broader, overarching policy framework governing pro-poor value chains nationally, regionally and globally.

3.11.2 CONTRACTS

The analysis of contracts between producers, buyers, investors and other actors within the value chain were critical in developing clear understandings of the ways through which power relations within the value chain were institutionalised and legally reinforced. Contracts analysis generated information on how different parties agreed to work together towards achieving a common objective or performing a specific task and to share risks, responsibilities, resources, competencies and benefits. The examination of contracts also yielded useful insights regarding the structuring of the multi-scale value chain as well as issues of compliance and non-compliance, performance monitoring and evaluation.

3.11.3 MONOPOLY AND MONOPSONY POWER

From an economics perspective, the analysis of power and governance also explores the role of 'monopoly' and 'monopsony' power in setting market prices and influencing bargaining power between buyers and sellers, as well as indebtedness and sub-optimal contracting.

Box 2: Monopoly versus Monopsony

- Monopoly refers to a market structure characterized by a single seller (or producer), who sells a unique product in the market and effectively controls market supply. The seller/producer (or a group of producers acting in concert) typically controls the supply of a product or service, keeps the prices high (to maximise profits) and prevents or highly restricts the entry of new producers.
- Monopsony refers to a market similar to a monopoly except that one large buyer typically inter-faces with a number of sellers (or producers), controls a large proportion of the market, dominates the price action and drives the prices down.

Source: Tapela (2015)

3.12. GENDER SCAN METHODOLOGY

The analysis of intra value chain power and governance was used to provide useful insights making use of a survey of sector related policies, legislation, bills, charters and by laws to review existing provisions as well as regulatory overlaps, gaps, and conflicts. Unfortunately, the governing institutions that regulate market arrangements, such as contracts within value

chains, and behaviours (e.g. monopoly versus monopsony power) are located at the national level. The motivation for using a complimentary scan on the implementation structures, strategies, programs and action plans to shed more light on the linkages and disjuncture as well as resonances and dissonances on policies and practices was mainly because of the latter's ability to address lower levels of the chain to include local communities, households and individual levels.

A gender scan is a tool to help water utilities understand how their policies and operations affect men and women differently (Gender and Water Alliance – GWA, 2011). According to the GWA, the purpose of a gender scan is to assess performance and potential in the development and application of gender inclusive policies and practices, and the strengthening of overall gender mainstreaming. The scan can effectively show how, by taking into account the diversity of people, pro-poor MVCs can increase their efficiency, productivity, effectiveness, sustainability and customer relations.

Specifically, the gender scan helped to:

- Analyse the extent to which gender issues and principles have been incorporated and applied to the pro-poor MVC policies and/or products and services and the implementation of the internal gender policies, if these exist;
- Generate clear understandings about the level of organizational support for the development and/or application of gender sensitive policies;
- Highlight areas requiring institutional change for improved operationalization of gender mainstreaming; and
- Identify and share information on mechanisms, practices and attitudes that have made a positive contribution to mainstreaming gender in the utility (i.e. 'best practices').

Although analysis of the gender composition and profiles of different components of the value chain can shed light on gender equity and gender parity, good indicators of gender mainstreaming within MVCs also include the presence or absence of instruments such as Gender Budgeting and Gender Accounting, which disaggregate resource allocation and performance data according to gender.

Segmentation analysis assesses how the labour market is segmented by gender throughout the value chain. A segmentation analysis provides another means of exploring power and inequality along the value chain. Gender segmentation in ownership or asset control could be examined, but this analysis focuses on labour market segmentation. The labour market analysis focuses on the terms and conditions of employment for men and women. For example, men and women may have different tasks, roles, and responsibilities along a given value chain.

3.13 MEASURING GENDER SEGMENTATION IN THE LABOUR MARKET

More often than not the labour market is gender segmented in almost all dimensions with men and women not evenly distributed across sectors and occupations in proportion to their participation in the total labour force. A preliminary analysis of gender segmentation is a simple breakdown by gender of the number of workers in various organizational units. The prevalence of gender segmentation by unit can be easily read from the resulting table (see Table 2).

Table 2: Template on Gender Employment and Wages in a Value Chain

	Men	Women	Total	%F	% Informal	F/M Wages
Producers/Sellers						
SMMEs						
Large Businesses						
Processors						
Transport						
Total						

Source: Tapela (2015) as adapted from Gammage et al. (2009)

A method of measuring gender segmentation for the entire value chain is by using the Duncan Index of Dissimilarity (D). $D=\frac{1}{2}\sum i|mi-wi|$ where mi is the percentage of males on total males in the value chain in occupation i (or node of the value chain) and wi is the percentage of females on total females in the value chain in occupation i (or node of the value chain). The Duncan Index, ranging from 0 to 100, can be used to measure labour market segmentation by gender. An index of 0 indicates that the sectors or occupations are not gender-segregated and women and men are distributed across these sectors and occupations in proportion to their participation in the total labour force. An index of 100 indicates that men and women are in entirely different sectors or occupations.

The degree of gender segmentation in terms of person days per year can be calculated along the value chain using the number of segments in the value chain (see Table 3). The analysis uses person days per year, since hours and shifts vary across the value chain and in different activities. The data should be collected for the different tasks and activities undertaken in the different segments of the chain. The person days can be summed for each of these activities and expressed as a percentage of the total person hours reported.

Table 3: Template on gender segmentation in a value chain

	Person Days per Year			Female Intensity		
	Men (M)	Women (F)	Total	F/M	F%	Duncan Index
Natural Resource or Raw Material Harvesters						
Producers						
Sellers						
SMMEs						
Large Businesses						
Processors						
Transporters						
Total						

Source: Tapela (2015) as adapted from Gammage et al. (2009)

3.14 IDENTIFYING THE BALENI SALT MINING SITE

It is important to ensure that the boundaries of the natural resource to be managed are clearly defined. The area of interest is Baleni, formerly known as Soutini, with the hot mineral spring as its nucleus.[19] This geo-thermal spring is located south east of Giyani in the Mopani District of Limpopo Province. Water temperature at the eye has been measured at 43^{o}C and the water has high levels of sodium chloride (NaCl). The hot spring is called *Mukhulu* by the locals. The hot spring issues into a shallow depression, which is discernable as a bulrush and reed covered swamp (see Figure 12). Swamp water drains into the nearby Klein Letaba River through a small outlet (Antonites, 2006). In fact, even though Mukhulu is the most talked about, it seems that there is a network of hot springs with three at these GPS locations, (23^{o}4181',85", 30^{o}9152',37"), (23^{o}4183',39", 30^{o}9153',40") and (23^{o}4183',39", 30^{o}9150',63"), prominent and quite close to each other.

[19] Baleni means wide open flats or *vlei*.

Figure 12: Bulrush and reed covered swamp at the Baleni hot spring
Source: Photo taken by Edwin Muchapondwa (2017)

Baleni is a sacred site and was declared a Natural Heritage Site by President Nelson Mandela in 1999. The Baleni site incorporates (i) the geo-thermal hot spring, (ii) the Baleni wetland (about 450 m long x 159 m wide), (iii) major archaeological zone including the traditional salt making site and foot paths (iv) minor archaeological zone including the northern boundary of Klein Letaba River and riparian zone, (v) surrounding Mopani veld vegetation zone and (vi) the African Ivory Route base camp on the south-eastern periphery. The Baleni wetlands provides several benefits including water, salt, bulrushes, reeds, grazing, medicines, the stunted population of Mozambique Tilapia (*Oreochromis mossambicus*), site for spiritual rituals, rainmaking site, etc.

The women in the focus group were taken through a mapping exercise and were able to locate the Baleni site and associated infrastructure as in Figure 13:

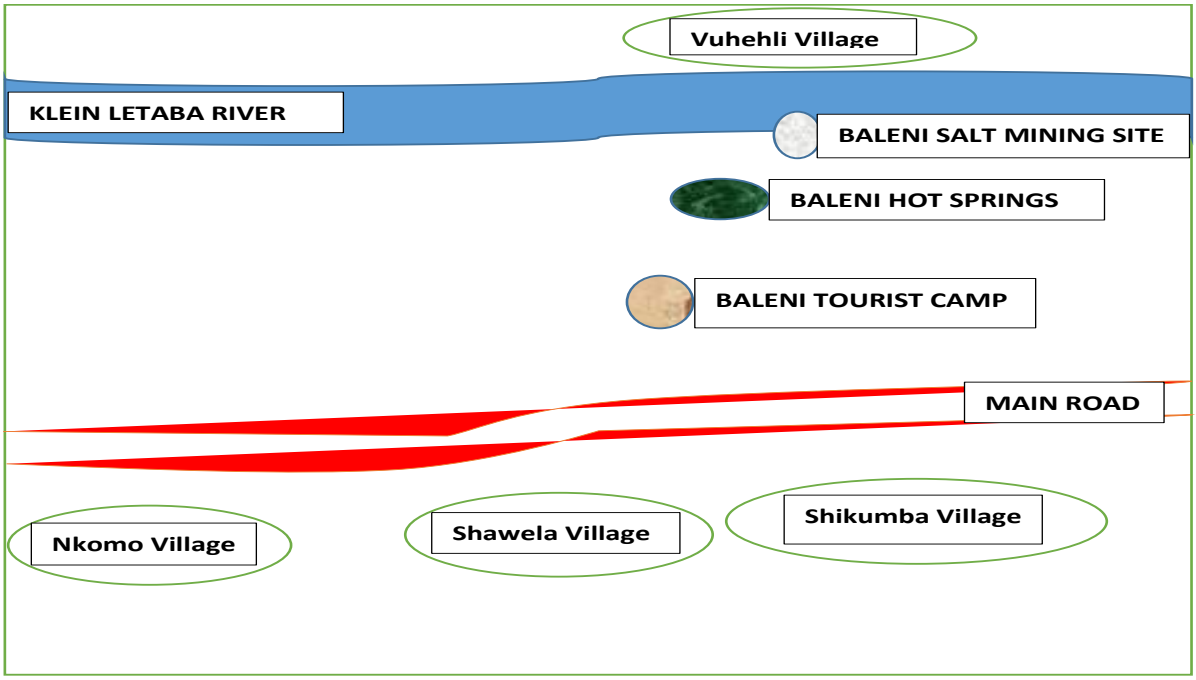

Figure 13: Locating villages around Baleni site from focus group discussions
Source: Own production from focus group discussions in Shawela, 2017

Baleni is the only active salt production site in South Africa where indigenous people harvest salt according to IKS. It is also the only un-developed hot spring left in Southern Africa. This uniqueness makes it not only a salt mining space, but tourist destination as well and these put together can improve the job creation efforts with entrepreneurial intervention and investment.

3.15 MAPPING IKS AROUND BALENI SALT MVC

There is a common awareness among stakeholders (salt miners, traditional leadership, tourism operators, municipal officials) about how Baleni salt is mined following specific IKS. It was established that Baleni salt mines are deemed sacred and specific rules of access are followed.

Salt mining a preserve of women: Salt mining is culturally a preserve of women and, as traditional custodians, boast of a tradition that has been gender-sensitive and democratic for about 1700 yBP against the background of South Africa`s democracy which was only realised in 1994. Men and women of Mahumani are aware of the dominance of Tsonga women in Baleni salt mining. The level of involvement in Baleni salt mining by men is very minimal. They seldom help with collection of firewood needed to make the salt following the specifications given by women. Sometimes, men provide transport for a fee from the Baleni site to homes using their carts or vehicles. The tourism fraternity is fully appraised of the dominance of (mostly elderly of above 55) women in Baleni salt mining. Latest technology must be investigated to attract and retain youth, if the future is to improve mining/tourism.

Mandatory initiation for salt miners: Aspiring salt miners need to be introduced to ancestors by a senior salt miner. The initiator introduces the initiate by her totem in a ritual which involves sniffing snuff, *vamachombele*. The women offer firewood, mealie meal and

vegetables to the ancestors by placing them at a designated Leadwood (*Combretum imberde*) tree (see Figure 14), which is in the vicinity of the mining site.

Figure 14: The Leadwood tree where initiation and rituals are done
Source: Photo taken by Edwin Muchapondwa (2017)

No intimacy or menstruation at the site: Salt miners ordinarily go camping for at least a week during each harvesting expedition.[20] During this time, the women should not be intimate with their husbands. Women are also required not to visit the mining site during their monthly periods. Salt miners with infants are not allowed at the spring.

Use of Baleni language: The women use a distinct derived language of pseudonyms at the mining site. Thus, under this language, they do not call certain things by their actual names. Table 4 gives examples.

[20] Most women coordinate with a colleague or two and go camping to harvest salt for two weeks at a time.

Table 4: Pseudonyms used at Baleni site

Actual names	Baleni Pseudonyms
Tree (nsinya)	Umbrella (xambhulela)
Clouds (mapapa)	Blanket (kumba)
Wind (moya)	Bride (mutekiwa)
Reeds (*rihlanga*)	Spears (*thlari*)
Antelope (mhala)	Timbuti (goat)
Snake (nyoka)	Sjambok (sambhoko)
Rock (ntamba)	Peanut (timanga)

Source: Own compilation from focus group discussions in Shawela, 2017

Use of traditional mining techniques: The technology used for mining Baleni salt has been passed on from generation to generation and largely remains unchanged. During the winter months, as water levels in the Klein Letaba River recede, a crust of white, saline soil forms on the newly exposed littoral. Women scrap the visible salt deposits from the dry riverbed using homemade scrapers and plates as shown in Figure 15.

Figure 15: A salt maker scraping for salt in Baleni

Source: Photo taken by Edwin Muchapondwa (2017)

This scraped soil/salt mixture is collected into buckets, mostly 25-litre old paint buckets. The scraped soil/salt is ferried on the head to the processing site on the banks of the Klein Letaba River. The method used for recovering pure salt from the soil/salt mixture is generating brine which is heated until the water evaporates leaving pure salt crystals. Therefore in addition to the soil/salt mixture, women also collect water and river sand from the Klein Letaba River using buckets. River sand is needed for its porous characteristics which facilitate for easier filtration of the brine. The soil/salt mixture, river sand and water are mixed in traditional filtration equipment called *xinjhava* (see Figure 16).

Figure 16: The traditional filtration equipment called xinjhava
Source: Photo taken by Edwin Muchapondwa (2017)

This homemade equipment made by the women themselves is made up of a funnel-shaped wooden frame lined with grass and/or leaves then suspended on four poles at about 120 cm height with sides about 60 cm wide. The inside of the *xinjhava* is waterproofed with clay except for a small opening left at the bottom. Brine will drip from that bottom and collected into a bucket. The brine will be poured back into *xinjhava* for as many times as are necessary to get clean brine, according to each woman's judgement. On average, across all women, the brine drains through *xinjhava* three times.

Figure 17: Women salt makers sieving the salt soil on the xinjhava to make brine and slow cooking of brine to extract salt
Source: TFPD (2015)

Using firewood collected from the nearby forest, the clean brine is heated on an open fire in a customised metal tray while stirring steadily and thereby results in the crystallization of Baleni salt (see Figure 17). Baleni salt, which is 100% hand manufactured, has no additives and is usually light brown (see Figure 18).[21] The Baleni salt sample sent by Transfrontier Parks Destination to the CSIR for testing in 2013 returned good results including the presence of trace elements such as calcium, potassium and magnesium.

Figure 18: Typical Baleni Salt
Source: Photo taken by Edwin Muchapondwa (2017)

Figure 19 depicts the complete Baleni salt making cycle: Construction of xinjhava; Scrapping the salt deposits; Transporting to the processing site; Collection of water and river sand; Filtration in xinjhava; Brine filtration; Brine cooked until crystallised; Emergence of Baleni salt.

[21] There is a case of a woman who produces white Baleni salt by taking the brine through several more filtration rounds.

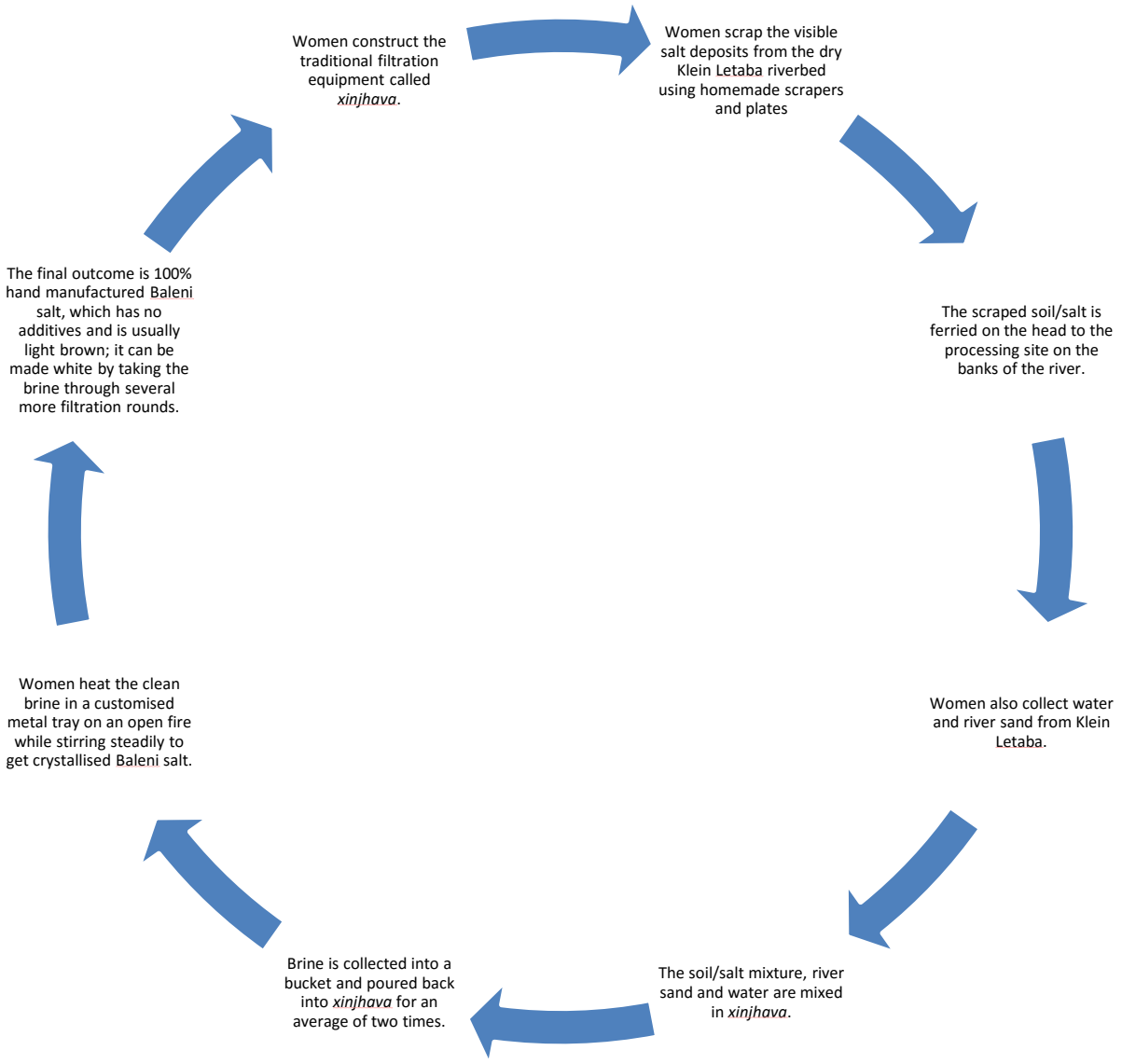

Figure 19: Complete Baleni Salt making cycle

Source: Own production from focus group discussions in Shawela, 2017

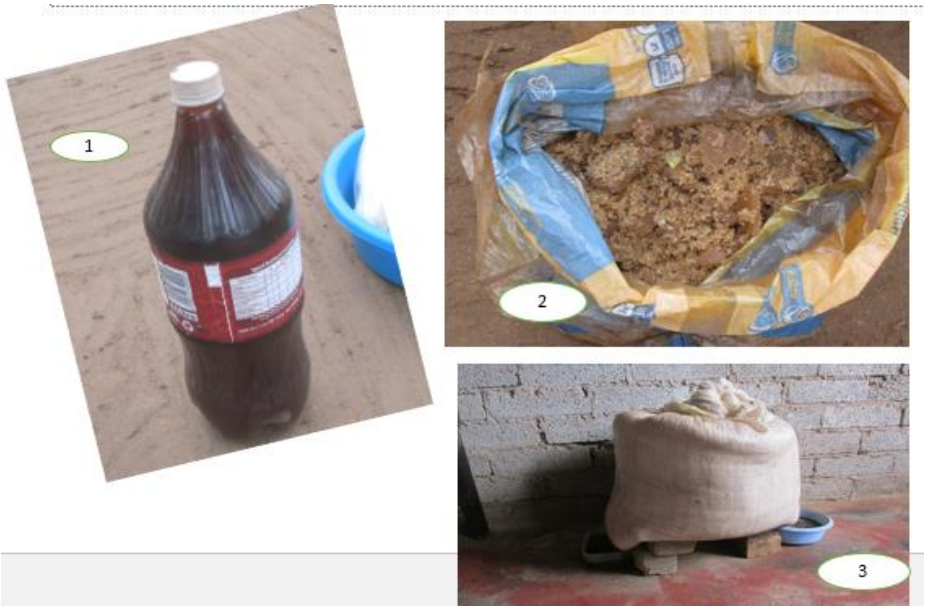

Figure 20: By products of Baleni salt and their uses
Source: Photo taken by Edwin Muchapondwa (2017)

In Figure 20, the photo marked 1 shows a by-product of Baleni salt that is produced from liquid residue collected from further draining Baleni salt as shown in photograph 3. This by-product is purported to heal inflammation and aching joints and muscles by the Tsonga people. It is therefore used as bathing foam to sooth the body and at times applied directly onto inflamed body parts. The by product in photography 2 is scrapped from the crust that is formed at the base of the heating pan. It is this by-product that can also be dissolved directly in water to form the product in photograph 1.

3.16 IKS RELATED TO POST HARVEST ISSUES

Proper handling of the moist Baleni salt preserves its quality and for many years the Tsonga women salt makers have devised ways to dry and/or remove the moisture from the salt. Immediately after heating the brine to produce salt, the salt is packed in “50 kg sacks” and suspended from trees further draining the remaining moisture. The salt has been in time sun dried. On arrival home, the salt in “50 kg sacks” is stored usually suspended on rocks and or bricks centimeters above the ground as shown in photograph 3 allowing further removal of moisture by gravity and the free circulation of air.

Submission to the authority of the ancestors: Over time and in succession there emerge senior women who serve as chief priestesses at the mining site. The chief priestess intercedes on behalf of all salt miners and, in turn, they respect her authority as she communicates with ancestors regarding the well-functioning of the mining site. The chief priestess will usually offer sacrifices and apologise to the ancestors for minor violations of tradition at the mining site on behalf of the women. However, the ancestors mete out their own punishments for inexcusable violations. Something mysterious will happen to signify the ancestors’ response to inexcusable violations. For example, the women in the focus group narrated an incident when it became very dark during the day during a mining expedition in 1947 and mysterious sounds of crying children could be heard when there were in fact no children in the vicinity.

At the same time, the sky very clear on the other side of the Klein Letaba River. Another incident related to mysterious clothes which could not be attributed to anyone of this world that were found laid out to dry at the mine site. There are usually only two options for the women during such incidents: either the chief priestess attempts to appease the ancestors or the women immediately vacate the mining site and come back after a few days once they have been assured that the ancestors' anger has subsided. Failure to take heed of the ancestors' directives results in either low salt yield and/or natural disasters for the women.

CHAPTER 4: MAPPING THE VALUE CHAIN, POWER AND GOVERNANCE

4.1 MAPPING THE VALUE CHAINS

One of the first tasks to complete in MVC analysis is a map of the chain which allows a tracing of the relationships between actors such as producers, intermediaries, processors and exporters and the flow of inputs, services, and credit through the chain (Gammage et al., 2009). Figure 21 presents the mapping of the value chain of Baleni salt

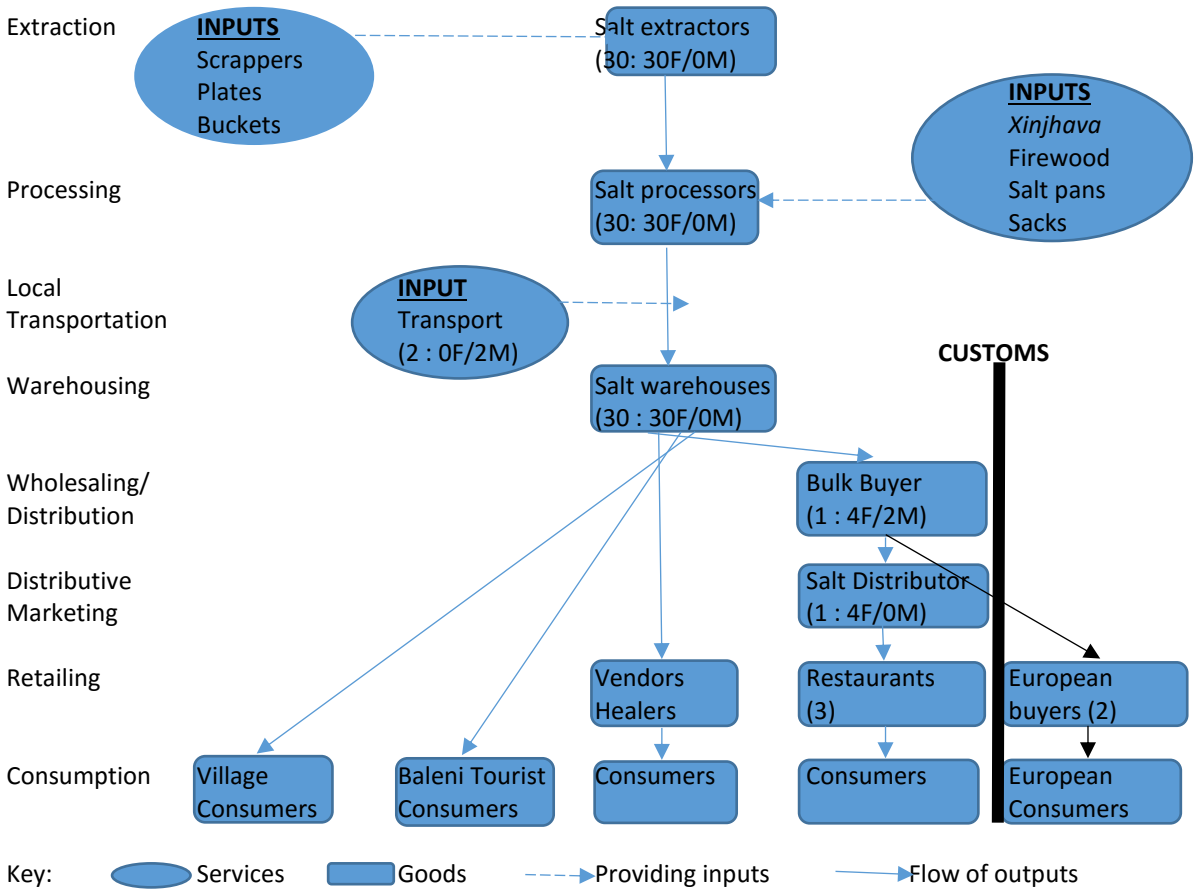

Figure 21: Mapping the Baleni salt value chain
Source: Own formulation from field data, 2017

The Baleni salt value chain is composed of eight functions: extraction, processing, local transportation, warehousing, wholesaling, distributive marketing, retailing and consumption. The first four functions are located within the traditional community while the rest predominantly take place elsewhere. There are four general groups of actors in Figure 21: input suppliers (for salt scrappers, plates, buckets, *xinjhava*, firewood, salt pans, sacks and transport); salt miners (for extracting, processing and warehousing); marketing and distributive agents (vendors, healers, external bulk buyer, salt distribution company, restaurants and European buyers), and consumers (village, Baleni tourists, Greater Giyani,

national and international). The rounded rectangle and oval shapes represent one or more organizational unit of varying complexity. Where possible, the number of units at each node have been indicated. As this is a gendered value chain, the numbers of men (M) and women (F) participating at each node have also been provided, where possible. The solid and dashed arrows depict the flows of inputs and goods between the different types of organizational units.

In order to get greater insights from the MVC analysis, one has to view the full set of relevant activities of each salt miner as defining a business organization. Given that there are 30 women mining Baleni salt we consider them as representing 30 business organizations. There is a vertical integration of functions in the actual salt making process whereby extraction, processing and warehousing functions are carried out by the same business organization. Accordingly, the value chain depicts 30 salt extractors, 30 salt processors and 30 salt warehouses.

The above three business lines make use of services from outside the salt mining sector. The salt extractors demand inputs to their business in the form of salt scrappers, salt gathering plates and buckets for ferrying and storing the salt soil, sand and water. The sources of these inputs may differ across women but plates and buckets are the ones which are often bought from shops while the women make the scrapper themselves using scrap material from home, welding sites and construction sites. The salt processors require *xinjhava*, firewood, salt pans and sacks for brine filtration, brine vaporization and salt storage. The women usually build *xinjhava* and collect firewood themselves while the salt pan is made from an iron sheet by either males in the household or welders in the village or the women themselves. There are a few males in the village who offer services for collecting firewood for the women and fetching the materials required for building *xinjhava*. The salt warehouses usually need the services of car or cart transport usually provided by males in the village to carry Baleni salt to their homes. It's only in limited cases such as when the salt yields have been quite low where women transport the salt themselves on their heads.

Following each salt mining episode, the final salt product filling either a "50 kg" or "80 kg" bag per person is taken home typically using a hired vehicle for which the miners pay R50 per person. Thus, on average, the women harvested between "50 kg" and "80 kg" per person per harvesting period, which is at most two weeks long and mostly during the winter months of June and July. The salt will then be packaged in simple translucent plastics for the local market and "50 kg" sacks for the external market.

The women dispose of the salt in any of the following five routes: (i) directly to consumers, (ii) directly to tourists in the Baleni area, (iii) vendors and traditional healers, (iv) the Transfrontier Parks Destination (TFPD) Foundation and (v) European buyers such as the Slow Food members and the specialty salt shop in the Netherlands. The various demands are informed by the following four uses of Baleni salt.

First, Baleni salt is used for preparing and seasoning food. The bulk of the users for this mode tends to be the miners and their friends, relatives and neighbors. Second, the salt is used for health and wellness purposes. The salt miners reported wide spread usage of Baleni salt for healing a lot of ailments including regulating blood pressure and diabetes. It was also reported that Baleni salt could help reduce body swells. The tourism fraternity also believes in the health and wellness properties of Baleni salt as it is a natural salt. Third, Baleni salt is used as a spiritual remedy by members of different faiths who broadcast the salt in their homes and

yards for spiritual protection. The users believe that Baleni salt chases away evil spirits. Traditional healers mix Baleni salt with other herbs to cure ailments which originate from the spiritual forces of evil. Fourth, there is also a great wealth of cultural tourism associated with the story of Baleni salt. Tourists are willing to learn about traditional salt-making and the culture around it.

On average, the women sold a “500 g” plastic bag of salt for R10 on the local market, their dominant outlet. This can be translated into R1000 per “50 kg” bag harvest, per woman. The smaller proportion of salt taken up by externals from as far as Cape Town and Mpumalanga is sold for an average of R1800 per “50 kg” bag.

The study found that there was no elaborate marketing strategy for Baleni salt beyond the word of mouth, which seems to work effectively locally. The women seemed to have targeted their production activities to match own consumption and sale of surplus produce to other members of the Mahumani community. The salt miners indicated that they sell most of their salt locally to ordinary community members, traditional healers, and members of the Zion Christian Church (ZCC). While production which is informed by the current marketing strategy is likely to help keep Baleni salt mining within ecological thresholds, the problem with this naive marketing strategy is the long time that it takes miners to dispose of their produce and conduct meaningful investments with the proceeds from sale. If women could sell their salt in bulk then they could potentially carry out significant investments to either deal with their immediate economic problems or optimally diversify their livelihoods particularly for the summer when mining is not feasible.

There are limited attempts at selling Baleni salt outside the Mahumani Traditional Authority area. Only a very few women indicated that they had either tried selling in the nearby town of Giyani or sold to vendors who operated in Giyani. This confirms the study’s observations in Giyani. Several vendors on the market stalls had salt in stock. However, only one of them had Baleni salt. This vendor was selling the salt on behalf of a relative from Shawela village. Even though a few people have heard about the Baleni salt story, there generally seems to be unawareness of the Baleni salt product and its properties. This probably explains why one vendor attempts to market her product as Baleni salt especially to people not coming from the Giyani region. The study gathered that the vendor’s white salt had been sourced from a Chinese-owned shop in Giyani, which had purchased the salt from a local wholesaler, who in turn had acquired it salt from the Tableview suburb in Cape Town. This product was merely sea salt. The existence of vendors selling bogus Baleni salt potentially poses a threat to Baleni salt miners’ aspirations to grow their market.

Box 3: Ark of Taste

Ark of Taste

The Ark of Taste travels the world collecting small-scale quality productions that belong to the cultures, history and traditions of the entire planet: an extraordinary heritage of fruits, vegetables, animal breeds, cheeses, breads, sweets and cured meats…

The Ark was created to point out the existence of these products, draw attention to the risk of their extinction within a few generations, and invite everyone to take action to help protect them. In some cases this might be by buying and consuming them, in some by telling their story and supporting their producers, and in others, such as the case of endangered wild species, this might mean eating less or none of them in order to preserve them and favor their reproduction.

The Ark of Taste is an online catalogue that is growing day by day, gathering alerts from people who see the flavors of their childhood disappear, taking with them a piece of the culture and history of which they are a part.

Source: http://www.fondazioneslowfood.com/en/ (Accessed 9 February 2017)

It should be noted that only a few of the women had access to the external markets and that some women still had difficulties selling off salt harvested either within the same year or previous years. The women's major concern is their failure to access lucrative external markets and realizing more benefits from their hard work.

The TFPD Foundation has made great attempts to help the women introduce their product in niche markets in the Western Cape Province and abroad. The TFPD Foundation is registered as an independent Section 21 Not-for-Profit Company, and established to provide an accountable, legal vehicle for acquiring and dispensing funds to the communities whose lodges TFPD manages and markets. In 2012, the TFPD Foundation started working with the miners to renew the value of the salt, and increase its market. Following those efforts, Baleni salt is now used by select Michelin chefs for specialty foods, and sold in attractive packaging by a specialty salt shop in Amsterdam. A custom made website also offers online sales. In addition, due to the product's improved profile, it was included in the Slow Food's Ark Taste and profiled at the Terra Madre shows in Turin. Of paramount importance to note is that Baleni salt has made a name abroad particularly in the Netherlands and Italy.

The benefit to the salt miners has come not just with increased volumes, but the TFPD Foundation has ensured that the producer price also increases. This move has been made specifically to acknowledge the back-breaking work of the miners, and to increase the attractiveness of learning this ancient tradition for the next generation. All the developments and marketing have been done with a view to keep production levels sustainable.

The TFPD Foundation buys a couple of "50 kg" bags of Baleni salt from a selected group of six women. In 2014, about "800 kg" of salt was sourced from the Baleni salt makers at an average cost of R1800 per "50 kg" bag of salt. TFPD Foundation shoulders the transportation costs to its head office in Cape Town. The salt is stored until there is demand for it. TFPD Foundation has largely preferred to distribute the salt through one company, Oryx Desert Salt. The salt company buys Baleni salt from TFPD Foundation in accordance with orders it receives from a couple of top restaurants with renowned chefs mostly in the Western Cape. Some restaurants in the winelands of the Western Cape make specialised use of Baleni salt in their dishes with one restaurant being famous for its celebrated salt-wine pairings. Evidence suggests that over the past three years, an average of 50 kg per month has been passed onto restaurants. There

have been unsuccessful experiments to package Baleni salt in smaller bags with the Baleni salt story written on them. It is important to note that the TFPD Foundation does not consider salt sales as a significant part of its income. Salt operations are mainly geared towards financially assisting local communities and spreading the Baleni salt story in the hope that it might generate tourism and associated benefits to the area.

On the tourism side, the renewed interest in Baleni salt and its harvesting site on the banks of the Klein Letaba River has created more business for the African Ivory Route's (AIR) nearby Baleni Camp. The development has also generated a community-wide interest in sharing other traditional crafts and skills with tourists. For tourists, what was originally a one-night visit to the camp to observe the salt harvest, itself a seasonal activity, is now becoming a multi-day experiential visit. Guests can combine salt harvesting with dancing and cooking lessons, instruction in beading and basic language lessons – a true immersion into current Tsonga traditional life, as practiced by the people who live around Baleni in the Giyani district of Limpopo Province. The AIR's plan for the community to benefit even more included the provision of bedding for the tourists by locals but the major challenge has been the camp's 6 km distance from Shawela village. Thus, the development of the Baleni salt business by the TFPD Foundation has engaged the local producer-community with the tourism industry, and set the stage for wider community engagement.

It is essential to raise the profile of a product that is the direct expression of a place as spectacular as it is important for indigenous biodiversity, both in the Limpopo region and across South Africa. More awareness will make it easier to market the salt while preserving the deep traditions behind it.

4.2 GOVERNANCE AND POWER RELATIONS IN THE VALUE CHAINS

The concept of governance in MVCs refers to the ability of lead organization units to organise the activities along a chain and their ability to control the distribution of resources (including labour) within it. Early literature used to identify the governance bearings in value chains by making a dichotomous categorization of the latter. On the one hand, in buyer-driven chains, retailers and marketers of final products exert the most power through their ability to shape mass consumption via dominant market shares and strong brand names. On the other hand, in producer-driven chains, power is held by final-product manufacturers and is characteristic of capital-, technology- or skill-intensive industries. However, as similar power relations could be found in aspects of both value chains, current typologies of governance structure include five different categories according to high or low levels of informational complexity, ease of codification of information, and supplier capabilities. The five network forms of governance identified are: classic markets, modular, relational, captive and hierarchies (see Gereffi et al., 2005 for more details). In these network forms of MVC governance, the lead firm exercises varying degrees of power through the coordination of suppliers without any direct ownership of the firms. Analyses on governance typically explore monopoly or monopsony power to set market prices, the power of bargaining between buyers and sellers, and sub-optimal contracting. In this study, qualitative methods were used to provide indications of the inequalities in bargaining power and the role that larger organizational units and intermediaries play in determining the terms of exchange.

Figure 22: Other types of salts
Source: Photo taken by Edwin Muchapondwa (2017)

Baleni salt is a unique product: its main element comes from a place considered sacred; its main element comes from hot springs discharging an ideal chemical balance for health and wellness of the body; it is natural and sustainable; it is handcrafted using traditional ways infused with spirituality. These characteristics cannot easily be reproduced elsewhere. They combine to form a unique technology which produces a unique product. This typically yields a supplier-driven value chain. However, a lack of awareness of what Baleni salt embodies and how it relates to and differs from other natural salts has made easy competition for it.

And with competition comes loss of power despite the potential given the enormous amount of IKS technology which goes into the production of Baleni salt. Thus, salt miners are not leaders in the value chain. At best, with respect to the major share of their output, the miners seem to operate in a classic market type of value chain governance where the degrees of explicit coordination and power asymmetry are low. To a limited extent, with respect to that produce going through bulk buyers, the miners operate in a modular value chain governance: Suppliers in modular value chains tend to take full responsibility for process technology. Linkages (or relationships) are more substantial than in simple markets because of the high volume of information flowing across the inter-firm link.

4.3 THE WAREHOUSE FUNCTION

One of the ways to reap more benefits would be for the women to create monopoly power over their product. With good marketing, possibly coming from TFPD Foundation initially, they can become a strong force to reckon with. As they have a unique product, if well marketed for what it really is, they can eventually become leaders in a supplier-driven value chain. However, there are several things which are needed for this to be realised. First, the women need to operate more collaboratively especially at the marketing stage. Of course, such collaboration might also engender collaborations at the production stage. This would be ideal in as far as such collaborations help protect economic and ecological balance in the use

of natural resources. The best form of collaboration could come through the establishment of a marketing cooperative--such as establishing an SMME, which must have a bankable business plan. This can be submitted to National Treasury, DST, DTI, Small Business Enterprise Department, Tourism, ABSA, international support, etc. This way, the women will sell their produce together and create the desired monopoly position. Second, the women will need more corporate management skills to operate in the new dispensation as they have currently operated as individuals and with different objectives mainly led by subsistence motives. They need to be equipped to operate within an increased commercial setting. Third, the women would need more tools to deal with environmental sustainability of their enterprise. While monopoly power potentially gives power to set extraction rates at sustainable levels there is also a need to make sure that any allowable extractive activity does not pose threats to the environment. It could well be the case that environmental issues have not been challenging in the past but in contemporary times one needs to look at the cumulative effects of extraction and processing activities as well. There are government departments which can be roped in to assist with environmental extension services, e.g. the Rural Infrastructure Development Branch at the Department of Rural Development and Land Reform can assist with closing of dongas, veld fire management, de-bushing, removal of alien species and fencing. Furthermore, potential legal obstacles such as those related to DWS, DEA, etc. must be addressed in the value chain. Full scale market operations will require authorization with respect to water use and the mining aspects to ensure sustainability (i.e. avoid over-extraction, dealing with waste, etc.).

There are indications that Chief Mahumani has previously tried setting up a structure similar to the above cooperative. It was proposed to be driven by women in the community with the Chief acting as a facilitative patron. It is not clear why such an initiative did not succeed but one of the necessary conditions for success would be to ensure that the structure is driven by salt miners themselves. In view of the previous failure, there could be other ways of structuring the warehousing function that women currently undertake. If this cannot be undertaken by the Cooperative, the first best solution for long term sustainability, then the second best solutions could involve the TFPD Foundation or Mahumani Trust. The TFPD Foundation can only work in the short-to-medium term as it is linked to the TFPD's role as implementer of the African Ivory Route, a connection which is not designed to be permanent. The Mahumani Trust is a committee of the Mahumani Tribal Council which is tasked with spearheading development in the area. However, given its broad mandate it might not prioritise micro initiatives such as Baleni salt mining. A suggestion would therefore be for a greater facilitative role for Mahumani Trust in an environment where the salt miners themselves largely drive the initiative. Examples of facilitation include provision of salt storage facilities, advance payments made against salt in storage, liaison and contracting arrangements with external bulk buyers.

4.4 PRODUCT STANDARDIZATION

Several differences were observed in salt samples obtained from the miners. These are mainly evident along the lines of salt colour and mass. There are various shades of Baleni salt even though the light-brown description seems to fit most output. There is one miner from Vuhehli village who constantly produces white Baleni salt. It seems that the ultimate colour of Baleni salt depends on the location from which salt deposits are mined but, most importantly, the number of times when brine is filtered.

It was generally the case that any two samples from each woman had a different mass. One example recorded 499 g and 444 g from two samples one woman deemed identical (see Figure 23). Similarly, it was generally the case that no two samples from different women were the same. One example recorded 397 g and 354 g for the second woman. The study investigated the differences in masses over larger samples and recorded examples of different masses across four women's 25-litre buckets of Baleni salt. It is evident that the ultimate mass of the salt depends on the moisture content as well. The moisture content can be regulated at both the evaporization and sun-drying stages. Thus, women had processed their salt to different levels of moisture content.

Figure 23: Weight of packaged Baleni salt
Source: Photo taken by Edwin Muchapondwa (2017)

From the colour and mass differences, the study concluded that women generally use different levels of inputs to produce the same level of output. A more efficient use of inputs therefore presents one way in which women can generate more revenue from their produce. As women move towards the concept of the marketing cooperative there could be standardization on the number of filtration times and the timing of the evaporization and drying stages so that the colour and mass differences converge to an acceptable range. It should be pointed out that one of the attractions with handcrafted products is their unevenness and difference across producers. The suggested standardization need not greatly temper with that but just enhance technical efficiency which is an important factor in benefit sharing schemes by marketing cooperatives.

4.5 PRICING

All the women but one currently sell a *bikiri* (metal cup, see Figure 24) full of Baleni salt for R10. This quantity is roughly equal to the volume which ordinarily fills the plastic bag which comes with 500 g of ordinary salt. One woman sold her Baleni salt for R20 per *bikiri*. She elaborated on the failed attempts at price collusion, which she nevertheless was not prepared

to abandon. This seemed to work for her as she was a bit far away from the other salt miners and hence could still keep her market intact. The women discussed a new pricing regime for Baleni salt at the mining site at the end of the 2016 harvesting season. They agreed to increase the price R20. However, once they went back to their respective homes some women reneged on the pact. As word on the betrayal got out, the rest of the women reverted to the old price for fear of competition.

It seems that the personalised nature of sales in the village make it difficult to sustain higher price increases. When neighbors, especially poorer ones, come to haggle over prices they often win. Therefore, it would conceivably be easier to sustain the price hike to external buyers. However, as can be expected, the women do not have much power in the face of external buyers either. This is mainly because external buyers bring lump sum payments which can temporarily change the fortunes of salt miners positively. This gives externals significant bargaining power and they often win. In some ways, the above situation helps demonstrate how the salt miners are not leaders in the value chain. The salt miners need to engage in collusive price fixing.

Figure 24: Bikiri of Baleni salt
Source: Photo taken by Edwin Muchapondwa (2017)

4.6 HIDDEN AND PUBLIC TRANSCRIPTS OF POWER

Scott (1992) did a lot of work in this concept of public and hidden transcripts of power which he acknowledges as very important to understand as they mould the everyday politics of power. He distinguished public transcripts of power as that behaviour, language and or customs that the dominated exhibit in the presence of their masters/mistresses as opposed to the hidden transcripts of power which the dominated exhibit whilst away from the eyes

and ears of their masters in the comfort of their homes in their groups of the dominated. Public transcripts are acts meant to avoid conflicts with the powerful by simply respecting their power. Hidden transcripts of power or the off stage simply put are more important as they reflect the true near to reality feelings and experiences of the dominated thus provides a better basis for understanding the real power relations at play.

4.6.1 SOCIAL POWER IN THE MVC

Even though gender equity is enshrined clearly in the Constitution of South Africa, in reality, traditional socio-cultural norms continue to suppress women`s access to bases of social power and productive wealth. These hidden transcripts of power could be direct inheritance from the repressive apartheid and or poor governance after democratization of the Republic of South Africa. In many traditional settings in South Africa, women in particular do not belong to the social bases of power. In many cases, with the exception of only two tribal authorities in KZN, women cannot own land in their names; there should be a male counterpart in the picture. In Baleni, the women are not meaningfully involved in the decision making council on developmental issues affecting them. Often the men throng to the meetings whilst the few women who attend the meetings do so solely to prepare food and other non-essential components of the meetings. There is need for gender empowerment to filter through to traditional authorities in the country.

4.6.2 POLITICAL POWER IN THE MVC

Even though the salt miners are generally all less powerful in the value chain, there seems to be heterogeneity amongst them. The study sensed that there were at least two sub-groups along the distributive marketing. There is a group of women with access to the lucrative external bulk buyer while the rest of the women tend to offload all their produce on the not-so-lucrative village market. This situation seemed to create mistrust and sub-optimal alliances. However, the divisions amongst the women may well be mere perceptions as the external bulk buyer's intention has been to procure produce from all women on a rotational basis. Given the low levels of procurement by the bulk buyer it might then occur that other women's turns take long to materialise and generate the belief that they have been discriminated against.

Baleni salt mining presents potentially interesting political power play as it is located within a traditional authority, a scenario which could easily create rifts between the traditional leadership and the salt miners if their separate visions are not aligned. The national and provincial laws that provide for the recognition of traditional leaders and councils also provide important controls and protections to ensure that these institutions act within the law and manage the affairs of the traditional community in a transparent and accountable way. Provincial governments have been good in providing and affirming the "official status" of traditional leaders and councils as "official". However, in some cases they have been found failing to enforce those provisions of the law that require financial oversight and accountability. The 2013 Pilane v Pilane court case which started in North West High Court and ended at the Constitutional Court is instructive for all traditional authorities. Failure to enforce the important controls and protections to ensure that traditional governance operates within the law could render it a political foe.

A workshop was organised in the context of this project to interrogate issues on water governance in traditional rural communities. The workshop discussions also confirmed that

when innovations around the bio-prospecting and/or processing of natural resources associated with water-linked ecosystems become integrated into highly complex, globalised, competitive and capital-intensive value chains, sound governance can ensure that market-entry by vulnerable rural gender groups and indigenous knowledge systems does not lead to further entrenchment of inequality, poverty, unemployment, injustice and unfairness.

4.7 SUMMARY OF ISSUES FROM A POLICY DIALOGUE WORKSHOP

4.7.1 OVERVIEW

On Day 1, break-away sessions were convened with the objective to create space for rural community participants to identify and prioritise key water governance issues. From the outputs of break-away discussions, workshop facilitators produced a colour-coded map of priority issues identified across various communities (see Figure 25). The purpose of Issues Mapping was to inform discussions on Day 2.

Overarching and cross-cutting water governance issues mainly related to i) drought, global warming and climate change; ii) pressure on water reserves; and iii) indigenous knowledge systems. The key priority issues facing rural communities revolved around water access, insecurity and inequality in relation to water governance, along with extreme 'information poverty'. Many participants, including traditional leaders, were unaware of the very existence of water governance systems. This highlighted issues around a lack of inclusion, lack of information, lack of representation and lack of clarity on the role of traditional leaders in water governance. The group of issues in the red box in Figure 25 comprise a critical area of investigation that requires careful planning. The snapshot picture provided was of extreme water inequality in South Africa, particularly evident in the case studies, which showed a contrast between water availability and access, as well as inequalities in the sharing of costs and benefits from utilization of water resources. Concerns were also raised about water scarcity and declining water quality, which were related to 'open access' scenarios in some cases and lack of ownership and clarity on institutional roles and responsibilities. Although these issues had broad applications to the water sector in general, they also had particular relevance to this study's research.

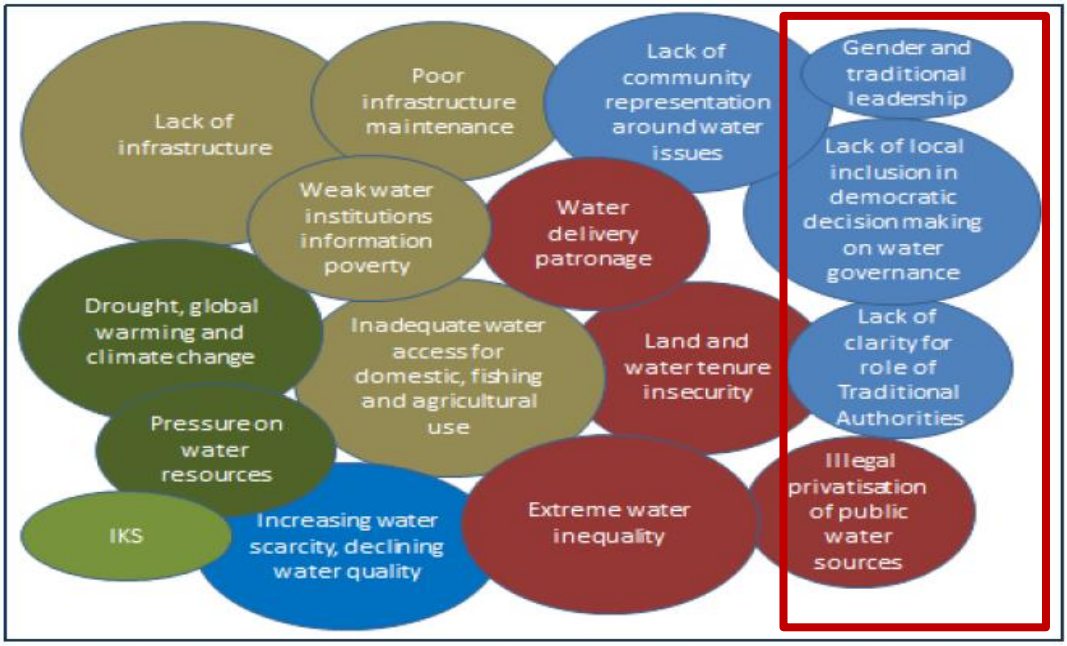

Figure 25: Priority and cross-cutting issues identified across communities

Source: Own production from Policy dialogue workshop, 2015

Proceedings of the Water Currents Dialogue Workshop basically underscored this study's premise, which is that since pre-colonial times, rural women and men have planted and harvested crops in and around wetlands, rivers and floodplain pans, deriving limited or no market value. They have also harvested natural resources such as fish, reeds and wild vegetables, without exchanging these in the monetised markets. While the study cites arguments that have been put forward that such practices can yield greater economic and/or health benefits, nutritional value and/or food security if indigenous knowledge is properly merged with scientific innovative systems, the dialogue workshop highlighted a key point that sound water governance is crucial to the realization of such benefits. Water is a facilitator of production.

CHAPTER 5: GENDER SEGMENTATION ANALYSIS

5.1 GENDER IN THE VALUE CHAIN

The first step to examining gender relationships in value chains is to identify where men and women are located throughout the chain. An initial mapping should attempt to capture both the absence of women as well as their presence. The absence of women usually indicates strong gender-constraints (Gammage et al., 2009).

In many value chains, it is feasible to analyze segmentation in ownership, asset control and employment. In this study, the bulk of value is generated from a communal natural resource. The only meaningful type of analysis would be segmentation in employment. Obviously, our study requires a flexible interpretation of employment given the informal nature of operations in Baleni salt mining. The study rather focused on participation and exertion of effort on relevant processes regardless of whether the individuals receive salaries/wages or not. This is particularly important for the first four key functions which are undertaken by the salt miners whom we categorise as both enterprise owners and employees. When it comes to formal business organizations, an attempt is made to account only for those individuals who are directly involved with the product. Accordingly, the study includes 6 people from TFPD Foundation, though it is an organization with more employees. There are downstream organizational units such as retailing and consumption for which the study did not have the means to get the employment figures. The study left those functions out and proceeded with a segmentation analysis for the rest of the value chain.

5.2 MEASURING GENDER SEGMENTATION

The preliminary analysis of gender segmentation involves a simple breakdown by gender of the number of people in various organizational units. The prevalence of gender segmentation by unit can be easily read from the resulting table. Table 5 shows the gender segmentation in the Baleni salt value chain.

Table 5: Participation in the Baleni salt value chain

	Men	Women	Total	%Female
Extraction	0	30	30	100
Processing	0	30	30	100
Transportation	2	0	2	0
Warehousing	0	30	30	100
Wholesaling	2	4	6	67
Distributive Marketing	3	4	7	57
Total	**7**	**98**	**115**	**85**

Source: Own computation from field data, 2017

It is discernible from inspecting the proportions in Table 5 that the only function with a predominance of men is transportation. Thus, women dominate the value chain. Notwithstanding these glaring results on gender segmentation, the study went on to compute the Duncan Index (D), a summary statistic which allows for easy measuring of gender

segmentation across the entire value chain (Blau et al., 2012; Hegewisch et al., 2010; Duncan, 1955). D=½∑i|mi-wi| where mi is the percentage of males on total males in the value chain in occupation i (or node of the value chain) and wi is the percentage of females on total females in the value chain in occupation i (or node of the value chain). The values of D range from 0 to 100 and measure the relative separation or integration of gender across occupations (or nodes) in the value chain. An index of 0 indicates that the sectors or occupations are not sex-segregated and women and men are distributed across these sectors and occupations in proportion to their participation in the total labour force. An index of 100 indicates that men and women are in entirely different sectors or occupations (Gammage et al., 2009). The value of the index for the Baleni salt value chain is 92% signifying a very high gender segmentation of roles in the value chain. This result is not surprising as the critical roles associated with Baleni salt mining are the preserve for women as per Tsonga culture.

5.2.1 UPSTREAM GENDER SEGMENTATION

In a value chain, upstream refers to the actors and operators toward the initial stages of product development. When we consider the first four functions (extraction, processing, transport and warehousing) of the value chain, men and women are in entirely different sectors or occupations. The functions undertaken by women are more labour intensive while those undertaken by men are capital intensive. Besides the traditional system of beliefs, this situation also demonstrates the combination of resilience and preferences between men and women. As with other occupations elsewhere, women miners are more insecure and liable as a result of upstream gender segmentation. While in other value chains women's insecurity is more likely to be as a result of being contracted under informal arrangements for lower wages, the Baleni salt miners have to break their backs searching and collecting salt soil, river sand, water and firewood then spend long nights during the camping period processing the salt for which they will get little or no return. This study makes a finding similar to the value chain analysis conducted by GATE and others that women are often disproportionately located in the more insecure nodes of the chain. As a result, women are also more likely to earn lower returns and be more vulnerable to poverty.

5.2.2 DOWNSTREAM GENDER SEGMENTATION

In a value chain, downstream refers to the actors and operators toward the consumption end (i.e. the final market or consumer). Unfortunately, this study did not have the means to collect gendered data on downstream actors but there are general observations that were made from interactions with stakeholders. Marketing of Baleni salt is generally gendered and tends to target women as happens with other campaigns for selling high value goods. In the case of salt it is comprehendible as the responsibility for household provisioning largely lies with women, even in the developed world. A key element in marketing and sales strategies in higher income countries is to provide women householders with foods that can be easily prepared with the minimum expenditure of time and effort. Downstream gender segmentation potentially enhances benefits for the salt miners as some women in developed countries have a willingness to pay a premium to support women in the developing world. Therefore, the marketing strategy for Baleni salt needs to be explicit about women's involvement in the production process. For example, the Rwanda Peace baskets sold throughout the U.S. market women's role in the production process as an attribute of the basket.

5.3 IMPLICATIONS OF GENDER SEGMENTATION

In many cases, gender segmentation is considered a problem as it usually discriminate against marginalized groups such as (young and old) women and disadvantaged men. In this study, gender segmentation is in favor of elderly women. Therefore, one concern might be around the role of disadvantaged men and youth (young women). As it turns out, there are widely held views that salt mining is for old women. The elderly women passes on the knowledge and expertise in Baleni salt mining to young women of their choice usually those closely related to them. A stigma that the practice is for elderly women strongly attaches itself in the community and results in younger women shunning the practice. Furthermore, it is misconceived that Baleni salt only has short value chains which end with consumption in the village. As a consequence, many disadvantaged men and youth will not consider venturing into the salt business, at least under the current environment. There is a need to conscientise young men and women about their potential roles in longer MVCs such as the ones the TFPD Foundation is promoting. Without necessarily changing the local system of beliefs which assures old women's exclusive rights to salt mining, there could be a change in perceptions about how others can play a part beginning with the warehousing function.

Though favoring women, the high gender segmentation observed poses a challenge in another dimension. There is a risk of women being locked in salt mining and thereby failing to move to other high valued activities. However, this does not seem to be a huge problem yet for the study area as there are not many high value alternatives available.

Looking ahead, there are conceivable future threats to Baleni salt as we know it once the ongoing initiatives to enhance its value succeed. Highly valued Baleni salt will attract stakeholders who have not previously been involved in salt mining. For example, if men and young women were to enter the value chain in response to lucrative prices without proper initiation then they could temper with an ecological and spiritual system which has worked in harmony for about 1700 yBP and possibly degrade the natural resource. There are signs that the sanctity of Baleni has gradually been tempered with over time. Stories are told of early years when men would never enter or go in the vicinity of the mining site. Today, stories are being told of how anyone (men and women) have access to the mining site and rights to mine as long as they have been introduced to the ancestors. The women miners themselves appear to be gradually giving up on their exclusive claim to the mining site as a gender category.

CHAPTER 6: DISTRIBUTIONAL ANALYSIS OF GENDERED VALUE CHAINS

6.1 COSTS AND BENEFITS IN THE VALUE CHAIN

The analysis of costs and benefits should be undertaken for each of the sets of actors to produce a rough estimate of the gross profit secured by each representative actor. Of special interest are the costs and benefits for the salt miners. The study uses the average of figures collected from a sample of 24 women. The financial cost of inputs were adopted from those respondents who reported market transactions. The costs for the wholesaling and distributive marketing actors were self-reported. Table 6 presents the breakdown of the variable costs of a representative processor in the sector.

Table 6: Variable costs in the Baleni salt value chain

	Financial Costs/season (R)	Financial Costs/kg (R)	Time Commitment/kg (Hours)
Inputs		**11**	
Scrapper/season	18		
Plate/season	20		
Buckets/season	250		
***Xinjhava*/season**	283		
Firewood/season	273		
Salt pan/season	175		
Sacks/season	20		
Transport/season	137		
Extraction			**0.9**
Processing			**1.2**
Wholesaling		**85**	
Distributive Marketing		**135**	

Source: Own computation from field data, 2017

6.2 VALUE ADDED IN THE VALUE CHAIN

The analysis of value added is designed to depict the distribution of returns throughout the value chain. The value added is the difference between the total revenue and the cost of bought-in (intermediate) raw materials, services, and components. The difference measures the value which actors have added to materials and services through a specific stage of production and/or processing. Table 7 shows the value added calculations for selected actors across two different routes through which Baleni salt can go.

In accounting sense, miners purchase inputs (scrapper, plate, buckets, *xinjhava*, firewood, salt pan, sacks and transport) worth R11 for use in producing a kilogram of Baleni salt. In route 1, the miners sell their produce to regional vendors at around R20 per kilogram generating a value added of R9. The vendors in turn put a markup of R4 and sell the salt to consumers at R24 per kilogram generating a value added of R4. Indeed, the study observed vendors at Giyani people's market where a variety of salt was being sold at varied prices with the ordinary

white one going for about R14 for a 1 kg packet while Baleni salt was sold at R12 for the 500 g packet.

Table 7: Value added calculations for selected actors

Actor	Costs/kg	Revenue/kg	Value Added/kg
Route 1			
Production: Salt Miners	R11	R20	R9
Retailing: Vendors	R20	R24	R4
Route 2			
Production: Salt Miners	R11	R60	R49
Wholesaling: TFPD Foundation	R60	R85	R25
Marketing: Oryx Desert Salt	R85	R135	R50

Source: Own Computations from Survey Data, 2017

The value added needs to cover for the factors of production used to produce it. In the case of the salt miners, the major cost which needs to be accounted for is their human capital. This includes their labour and entrepreneurship. It is quite clear that accounting properly for even just labour uncovers the financial losses of the salt making enterprises. On average, women use 2 hours to produce a kilogram of salt. These costs of extraction and processing activities in terms of time committed were reported by the women. They can be monetised from the reported tradeoffs between self-production and the buying of inputs such as firewood and poles for *xinjhava*. The women suggest that their time is valued at R26 per hour. Therefore, the labour cost for producing a kilogram of Baleni salt is R52, which should be compared to the valued added of only R9. There are several disclaimers which could be issued against this scenario. First, the level of confidence around the R26 per hour is not likely to be high in communities with high unemployment as Mahumani. Some would argue that, in such cases, the opportunity cost of the women's labour is close to zero. Such an argument would make the current situation look plausible. However, in mitigation, there are other costs which have not been taken into account, e.g. the role of entrepreneurship and IKS in production. Crossing to the other side, there may well be other benefits which have not been accounted for. In some ways, IKS itself could also be a factor on the benefits side; as women continue with salt mining activities they might get satisfaction from the sustenance of IKS on behalf of the community. On the strength of the two latter points, it seems that the value added of Baleni salt ought to be enhanced. Besides marketing, one strategy for capturing a greater proportion of the final price and increasing value added is to diversify the types of processed Baleni salt by increasing the "presentations" available such as Baleni garlic salt, Baleni onion salt, etc. (see Figure 26). Diversifying product presentation would involve some limited upgrading, training of workers and the installation of new machinery.

Figure 26: Example of value addition of salt
Source: Photo taken by Edwin Muchapondwa (2017)

Route 2 helps increase the value added. The miners sell their produce to TFPD at about thrice the price they get locally. They generate a value added of R49 which greatly cushions the labour cost and other costs unaccounted for. The TFPD Foundation sells the salt to Oryx Desert Salt at R85 per kilogram generating a value added of R25. In turn, Oryx Desert Salt sells Baleni salt to three of the top restaurants in the Western Cape at R135 per kilogram generating a value added of R50. It should however be noted that the TFPD Foundation and Oryx Desert Salt currently use all the value added. The TFPD Foundation covers the costs for transporting the salt from Mahumani to Cape Town and storing it as it awaits buyers while Oryx Desert Salt covers the costs for marketing and packaging (storage, containers, labels, courier services).

There are at least two other routes which have not been addressed explicitly in this study. For example, tourists are charged between R200 for a couple and R900 for a group on top of a R200 transport fee for traditional salt making demonstrations. The African Ivory Route negotiates the prices for the women but lets the community deal directly with tourists. Furthermore, the African Ivory Route has a strategy of sharing 5% of turnover with all communities in the portfolio. For Mahumani, this is mainly on account of how Baleni salt draws tourists to the area. The community is also intended to benefit from the 1% levy on all costs incurred by the tourists on staying at the camp.

An analysis of multipliers and spillovers provides an estimate of the role that a sector plays in stimulating other economic activities. Backward linkages represent the sum of all input purchases from other local and national industries by a particular sector expressed as a ratio of total sales, while forward linkages are the amount of purchases by other local industries from a particular sector. This analysis is important to understand the actual and potential contribution of the value chain to poverty reduction or stimulating economic growth. However, such analyses are data intensive and this study did not have the means to generate the necessary data. Nevertheless, it can easily be concluded that the linkages of this value chain with the national economy are currently very dense because the majority of inputs such as plates, buckets, etc. are made locally, a fact that magnifies the size of the multipliers. The value chain still pretty much ends nationally. However, the analysis also demonstrates that the actors with the greatest backward linkages in the value chain (salt miners) are also those that generally capture a smaller percentage of the total value added. Therefore, the spillover effects are not very great. The opportunities to maximise national content in the value chain lie in more effective and more attractive packaging for Baleni salt destined for the export market, e.g. the production and use of traditional beaded packaging. There are also opportunities in sharing knowledge which exploits the Baleni history, culture, sacredness and tourism dynamics.

Enhancing the value of Baleni salt will require a new modus operandi. Baleni salt mining essentially involves sand mining from the Klein Letaba riverbed. The regulatory system governing sand mining in South Africa is three-pronged: mineral regulation, environmental regulation and land use planning regulation. Firstly, sand is a mineral resource and the extraction of which is subject to mineral regulation. Secondly, sand mining has the potential to cause environmental impact and is therefore subject to environmental regulation. Thirdly, sand mining uses land and is therefore subject to land use planning regulation.

In terms of section 22 of the Mineral and Petroleum Resources Development Act, a mining permit will be required. This Act binds the holder of a mining permit to the requirements of the National Water Act. As the salt miner would be deemed to be either taking water from a water resource or impeding/diverting the flow of water in a watercourse or altering the bed, banks, course or characteristics of a watercourse, a ‘Water Use License’ will be required. Therefore, as things stand, Baleni salt mining operations do not follow the three key pieces of relevant legislation which includes the National Environmental Management Act. However, there could be reasonable grounds for authorizations in view of the controlled level of activity by previously disadvantaged women who are promoting cultural heritage dating back to about 1700 yBP.

CHAPTER 7: RURAL RESILIENCE THROUGH ECOSYSTEM GOODS AND SERVICES

7.1 INTRODUCTION

When we deal with water-linked ecosystems, the concept of value becomes more elaborate than in the context of manufactured goods. This complexity is brought about by the different attributes of the inputs and outputs from an ecosystem. The goods and services provided by ecosystems are called ecosystem services. The Millennium Ecosystem Assessment (MA) recognised four categories of ecosystem services, all of which potentially bear values, whether sold on markets or not: supporting services (e.g. nutrient cycling, soil formation and primary production); provisioning services (e.g. food, fresh water, wood and fibre and fuel); regulating services (e.g. climate regulation, flood and disease regulation and water purification); and cultural services (aesthetic, spiritual, educational and recreational) (MA, 2005).

Much happens before ecosystem services are provided, and decision-makers need to understand what this involves. It is therefore helpful to distinguish "ecological functions" from "ecological structures" and "ecological processes" in the sense that the ecological functions represent the potential that ecosystems have to deliver a service which in turn depends on ecological structure and processes. For example, primary production (= process) is needed to maintain a viable fish population (= ecological function) which can be used (harvested) to provide food (= service); nutrient cycling (=process) is needed for water purification (=ecological function) to provide clean water (= provisioning service). The benefits of these ecosystem services are many, for example, food provides nutrition but also pleasure and sometimes even social identity (as part of cultural traditions); clean water can be used for drinking but also for swimming (pleasure) and other activities aimed at satisfying needs and wants (TEEB, 2010).

Clearly delineating between ecological phenomena (ecological functions), their direct and indirect contribution to human welfare (services), and the welfare gains they generate (benefits) is useful in avoiding the problem of double counting that may arise due to the fact that some services are inputs to the production of others. Such differentiation is also crucial to provide a clear understanding of the spatial distribution of where the ecological function occurs, where the provision of the service can be assessed, and ultimately where the benefits are appreciated. Although the distinction between ecological functions, services and benefits is important, especially for economic valuation, it often is not possible to make a fully consistent classification, especially for regulating services (TEEB, 2010).

It should also be realised that many people benefit from ecosystem services without realizing it, and thus fail to appreciate their value (importance). To make the dependence of human wellbeing on ecosystem services clearer, valuation studies should therefore not only include direct benefits (direct use values) but take due account of all the indirect benefits (indirect use values) and non-use values derived from ecosystem services (TEEB, 2010).

Since the ecological functioning of ecosystems and their services affect so many aspects of human welfare, a broad set of indicators can and should be used to measure the magnitude ("value") of their impact. The MA defined value as "the contribution of an action or object to

user-specified goals, objectives, or conditions", the measurement of which could include any kind of metric from the various scientific disciplines, e.g. ecology, sociology, economics (MA, 2005; TEEB, 2010).

The common metric is monetary valuation and some critics say the reliance on this metric has plagued many ecosystem service assessments, failing to incorporate several types of value which are critical to understanding the relationship between society and nature. Other ways to analyze the importance of ecosystem services include livelihoods assessments, capabilities approaches that emphasize the opportunities available to people to make choices, and vulnerability assessments. Such considerations are necessary for integrating into the analysis some dimensions of human well-being that cannot (or should not) be measured in terms of money, such as freedom of choice, human rights and intrinsic values. They are also important for measuring the services and benefits that are of cultural and philosophical (spiritual) nature. However, while monetary assessments only partially capture the total importance – i.e. value – of ecosystem services, they are vitally important for internalizing so-called externalities in economic accounting procedures and in policies that affect ecosystems, thereby influencing decision-making at all levels (TEEB, 2010).

Following the MA (2005) approach, this research makes a distinction between ecological, socio-cultural and economic benefits and values. The reason for separating benefits and values is because people have needs which, when fulfilled, are translated into (more or less objectively measurable) benefits. For example, catching fish from the ocean gives us food (health), but also cultural identity (as a fisherman/-woman) and income. How we value these benefits is subjective: some people will value the income much higher than their cultural identity (social ties, etc.) and may be willing to give up one aspect of their wellbeing (cultural identity) over another (e.g. material wealth). Thus, different values can be attached to a particular benefit (TEEB, 2010).

Ecological measures of value (importance) are, for example, integrity, "health", or resilience, which are important indicators to determine critical thresholds and minimum requirements for ecosystem service provision. To obtain at least a minimum (baseline) measure of importance of socio-cultural benefits and values several metrics such as the Human Wellbeing Index have been developed. For many people, biodiversity and natural ecosystems are a crucial source of non-material well-being through their influence on mental health and their historical, national, ethical, religious, and spiritual values. Socio-cultural values cannot be fully captured by economic valuation techniques and have to be complemented by other approaches in order to inform decision-making.

In economic terms, biodiversity and ecosystem services contribute to different elements of "Total Economic Value", which comprises both use values (including direct use such as resource use, recreation, and indirect use from regulating services) and non-use values, e.g. the value people place on protecting nature for future use (option values) or for ethical reasons (bequest and existence values). The economic importance of most of these values can be measured in monetary terms, with varying degrees of accuracy, using various techniques (including market pricing, shadow pricing and questionnaire based) (TEEB, 2010).

This study focused on the use of value chain analysis for a case study in the Mahumani Tribal Authority area. It should be emphasized that such results are important as an input to a process which uses other types of evidence to make holistic decisions about sound natural resource exploitation. As observed in the study, salt mining is an important activity which

could help bring the rural women of Mahumani out of poverty. However, salt mining ought to take place in the context of integrated community livelihoods to avoid overexploitation of the resource or tempering with the sustainability of other ecosystem goods and services. The salt mining enterprise need to take cognizance of the ecological thresholds of the activity as they do exist.

There is scientific evidence suggesting that the hot springs have brought the salty material to the surface. The availability of the salt deposits around the many scattered springs in Baleni seem to suggest a close relationship between the springs and the occurrence of the salt. The issue around thresholds of the salt deposits comes to the fore when sustainability issues are discussed. All the women miners seemed to suggest that, the more they mine the salt, the more it appears on the land surfaces. This thinking is in contrast with the outside world which believes that the salt deposits have a threshold and as such must be responsibly and gainfully exploited. During the 1940s the hot spring wetland was prospected and it was ascertained that salt deposits around 2300 metric tons were available for exploitation (Gevers, 1947). This is a clear indication that surely the salt deposits have a threshold. It must be appreciated that most natural salts of the world have derived their great values from the mere fact that they have thresholds and must be treated as such. Marketers in the salt industry have indicated that salts of this nature are rare and very important and are not for everyday use and therefore that's where they derive their great value especially for the affluent market of the world.

As noted earlier, Mahumani has other challenges which are naturally linked to the salt mining enterprise. The challenges confronting the Mahumani community inspired the Mahumani Tribal Council to formulate the Mahumani Integrated and Sustainable Development Initiative (MISDI), of which salt mining is a part. The MISDI consists of the following 7 phases (see DRDLR, 2015 for more details):

- Phase 1: Construction of a "Mini-City", 16 kilometres from Giyani central business district.
- Phase 2: Construction of a Moral Regeneration & Recreation Centre, about 15 kilometres from the "Mini-City"
- Phase 3: Creating a tourism route, centred on a few attractions such as the cultural camp, hot spring, the river lodge, Ka Mukhulu spiritual site and Baleni-Soutini (salt-pans).
- Phase 4: Addressing the veld and land management issues requiring urgent mitigatory attention
- Phase 5: Skills training for locals who would participate in the infrastructure development entailed by MISDI
- Phase 6: Establishing the Mahumani Game Reserve incorporating Baleni
- Phase 7: Introducing Agribusiness around horticulture and livestock

Phases 3, 4, 6 and 7 will directly affect the salt mining site and vice versa. There are two good examples of how salt mining will affect the other activities. Firstly, over the entire period since about 1700 yBP the women miners have left piles of residual soil from the salt processing sites (see Figure 27). Thus, the landscape at Baleni includes ancient salt mounds, which date back to 250AD and which cover an area of 1.5 to 2 km in radius from the hot spring. Continued over centuries, the result around Baleni is a landscape dotted with more than 730 mounds.

These vary in size, but in areas where production activity was concentrated mounds have formed on top of each other to create embankments more than 2 m deep and 20 m long (Antonites, 2006). The area around Mukhulu hot spring indicated a change in elevation of about 7 m from the original ground and very steep slopes created as a result. The steep slopes have a bearing of increasing the rate of runoff and subsequently soil erosion. Evident in the area are rills and gullies that have developed as a result. Recent residual soil from the salt processing has been placed very close to the edges of Klein Letaba river banks posing risks of contributing to siltation of the water body which potentially can reduce the water holding capacity of the river.

Figure 27: Piles of residual soil from the salt filtration process
Source: Photo taken by Edwin Muchapondwa (2017)

Secondly, Baleni salt production requires a huge amount of dry firewood to act as fuel as they cook the salt slowly in the brine evaporization process. The 30 salt makers require roughly 30 tonnes of dry firewood for each season. According to the informal rules at Baleni, firewood is supposed to come from outside the area so many miners have resorted to hiring truckloads at an average cost of 100 rand or 10 *bikiri* of Baleni salt. It is anticipated that at the rate at which the firewood is needed it might result in deforestation of the currently exploited woodlots. With increase of more demand for the product comes increased need for firewood and this may subsequently lead to the much dreaded indiscriminant cutting down of trees.

There are challenges around potential competition for land by phases 3, 4, 6 and 7 which need to be resolved. The occurrence of the salt pans around the springs and the Baleni area and the evergreen grasses and water has been a constant pull factor of livestock, with cattle taking the lead. There is a sense of overgrazing due to high demand and volumes of cattle. One would need to reconcile having seemingly competitive land uses such as: (i) an attractive

tourism[22] route via Baleni, (ii) continued salt mining in Baleni with a technology which produces mounds, (ii) promotion of more livestock which currently favours Baleni, (iv) establishment of a game reserve encompassing Baleni.

Figure 28: Livestock grazing around the hot spring
Source: Photo taken by Edwin Muchapondwa (2017)

In dealing with all these challenges, laws and regulations will need to be followed and some of them might impose constraints.

There is a considerable array of legislation that controls planning within the geographic boundaries of the Republic of South Africa. Some of the most important ones which have relevance for Mahumani are:

- Constitution of the Republic of South Africa (1996)
- Municipal System Act (2000)
- National Environmental Management Act (1998)
- National Water Act (1998)

[22] Of course, no industrial production site is ever picturesque. It is supposed to be actively put to anthropogenic use. Tourists, interested in visiting the site, should prepare themselves for that. In Europe, tourists visit coal mine museums – real coal mining operations. There is reason to believe that a different environmental aesthetics needs to be acceptable.

- Mineral and Petroleum Resources Development Act (2008)
- National Heritage Resources Act (1999)
- Spatial Planning and Land Use Management Act (2013)

Furthermore, there are number of plans which are legally required to be prepared by the municipality ranging from a very broad level strategic plan encompassing the entire municipality down to a very detailed plan at which specific land use rights are assigned to individual properties (DRDLR, 2015). Any constraints imposed therein need to be taken into account in the governance of the value chain as it predominantly lies on the ability to extract natural resources from a specific site. Of added importance is to note the special protection that the designation of the site as a National Heritage Site entails. According to the relevant Act, "those heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations must be considered part of the national estate and fall within the sphere of operations of heritage resources authorities".

7.2 LAND GOVERNANCE IN MAHUMANI

The Baleni hot springs and the related environs are believed to be owned by the Mahumani Tribal leadership on behalf of the Mahumani community as common property. However, a major issue highlighted by DRDLR with respect to legislation was that tribal authority land allocation Proclamation gazette no. 64 of 1990 did not specify the exact boundary extent of Mahumani Tribal Authority even though it specified the villages under the tribal authority. As such, implementation of proposals falling outside the demarcated village boundaries need to be accompanied by the land ownership verifications to avoid future conflicts. This issue has affected both the Baleni mining site and the proposed game reserve. Baleni salt is currently also mined by villagers from the adjacent Homu Tribal Authority whom the Mahumani community view as trespassers. At the same time, there have been recommendations from the Environmental Impact Assessment plan for the proposed game reserve that for it to be ecologically viable it has to first extent to the north, to cross the Klein Letaba river to include part of the area in Homu Tribal Authority, a development which would require co-management between Chief Mahumani and Chief Homu of an area incorporating Baleni.

For rural resilience through use of ecosystems goods and services, it is important to ensure that a property rights regime has clearly defined boundaries of the appropriators, i.e. individuals or households with rights to withdraw units from the common pool resource, and clearly defined boundaries of the resource to be managed. If either of the two boundaries remain uncertain then no-one knows what they are managing or for whom. Without clearly defining the resource boundaries and successfully excluding outsiders, there is the risk that any benefits produced by the local appropriators through their own efforts will be reaped by others who do not contribute to these efforts – the free riding problem. Depending on the extent of the free riding, those who invest in the resource may not receive as high a return as they expected or as would give them enough incentive to continue managing the common. At the worst, the actions of the free riders could bring about the so-called 'tragedy of the commons' (Hardin, 1968). Apart from simply clearly defining the resource and governance boundaries it is important to ensure that, to the extent possible, those boundaries are consistent with each other. Boundary congruency would serve to bring the area of decision-making in line with areas of ecological interaction lest decisions taken by the appropriators

have only a partial effect on the ecological system or be in conflict with decisions made elsewhere about the remaining parts of the ecological system (Hanna, Folke and Mäler, 1995).

7.3 IMPORTANCE AND SIGNIFICANCE OF THE STUDY

The study was of utmost importance in the following ways:

7.3.1 THE STUDY'S CAPACITY BUILDING ROLE

Capacity building for rural communities, in particular, related to the creation of pockets of 'invited spaces', within which rural women and men, civil society and traditional leadership could voice their views. There was the need to manage gendered political power dynamics and the emotionally-charged participatory action space, which was anticipated in the study. The very idea of workshop that brought together ordinary rural women and men, traditional leadership and civil society evoked some very emotive issues, which were associated with both the historical injustices and on-going contention around issues of traditional leadership and governance. While this presented challenges to all concerned, and to the principal researcher and facilitators in particular, care was taken to focus a significant share of energies to supporting and helping rural women and men to prepare for entry into the discussion space and to present their issues and views as efficaciously and confidently as possible. This took much more than the usual share of delegate support, since for most of these vulnerable gender groups, this was their first exposure to a workshop such as this and also their first visit to far away Cape Town. For many of the ordinary rural women and men this and the notion of being in close proximity to Robben Island and the seat of Parliament were affirming. However, there was also a need to build confidence and to handle each individual participant with respect, dignity and genuine caring.

For the traditional leaders present, it was a different experience from the norm for them to sit within a democratic space with their own or other 'subjects' and dialogue on equal terms about governance issues. For civil society, there were concerns about what a dialogue workshop such as this could mean, which too had to be handled circumspectly. The bottom-line was for the study to avoid reinforcing the silencing of rural voices, meanwhile taking cognizance of the real and perceived threats identified by some but not others in the diverse group of CSOs.

STUDENT CAPACITY BUILDING

This project had two female students and two male students. The two male students St John Simpson from University of Cape Town doing a MSc in Economics (white Zulu speaking South African) and Felix Chidavaenzi, a black male Zimbabwean doing an MPhil in IWRM at the University of Western Cape. The Zimbabwean student, Mr Felix Chidavaenzi, actively participated in desktop research and field research in Limpopo and Cape Town, alongside the project research team. The student gained skills in utilizing gender mainstreaming approaches in research that dealt with respondents ranging from illiterate black rural women to professional white and black urbanite business women, who are global value chain players;

and from vulnerable rural men to influential traditional leaders. Furthermore, the student developed understandings of value chains and the Value Chain Analysis method.

The other two potential students, Miss Takalani (Masters candidate) and Mrs Matose (PhD candidate) dropped out of the project before any meaningful involvement. Two of the researchers of the team (Mr Lesego Loate, PLAAS Researcher and Ms Bukiwe Ntwana, PLAAS Junior Researcher/PhD) also dropped out following their resignations from PLAAS.

7.3.2 INFORM POLICY

From inception of the project one of the key objectives was for it to inform policies at different levels up to national level. Covering the whole range of case studies scattered throughout the country could not be effected due to reasons mentioned elsewhere in this project impacting on the ability of the study to inform policies at the highest levels. Whilst it is true that the study may not be able to inform policies at national level, it is also critical to note that this study consumed a lot of money and time and thus was big and deep enough to inform policy not at national level but at local, Tribal Authority and Municipality levels.

The new knowledge that will be relevant for policy was generated along several dimensions, namely:

A group of 30 Tsonga women salt miners produce about 2 metric tons of salt each year from the Baleni wetland system using traditions passed down since about 1700 yBP. The value chain analysis conducted in this study shows that about a third of the salt produced finds its way to the affluent market where the women fetch about double price (R36/kg) compared to local sales (R20/kg). However, at R135/kg, the affluent market is paying 3.75 times more than the women's receipts to salt distributors. The study uncovers IKS as being behind the huge premium on Baleni salt and yet women are not fully compensated for preserving and utilizing it. The study demonstrates that salt mining is an important activity which could help bring the rural women of Mahumani out of poverty. However, salt mining ought to take place in the context of integrated community livelihoods to avoid overexploitation of the resource or tempering with the sustainability of other ecosystem goods and services in the water-linked ecosystem. The study highlights the need to reconcile the seemingly competitive land uses proposed in the Mahumani Traditional Authority development initiative, namely (i) an attractive tourism route via Baleni, (ii) continued salt mining in Baleni with a technology which produces mounds, (iii) promotion of more livestock which currently favours Baleni, and (iv) establishment of a game reserve encompassing Baleni. The results of this study are important as an input to a process which uses other types of evidence to make holistic decisions about sound natural resource exploitation in the study area.

There are other issues which need urgent consideration.

7.3.3 BALENI SALT PURPORTED MEDICINAL BENEFITS

Central to the belief system in the use of the salt is its purported medicinal value. The salt has been purported to lower blood pressure and diabetes mellitus when consumed and also claimed to heal body inflammations as well as soothing the body when applied as herbal bath. For a long time, the Tsonga people have utilised the salt for medicinal, health and wellness

purposes with success and without known side effects and as such there could be some truths in their assertions. However, it should be understood that the medicinal properties in the salt are yet to be confirmed by other types of knowledge especially the western science. Concerns around the medicinal properties of the salt include the dosage, and contrary message to already known western knowledge that salt is bad for one's blood pressure and diabetes mellitus. Baleni salt needs to be put under rigorous testing to confirm or dispute its medicinal function and also ascertain the dosage for different ailments.

7.3.4 LIMPOPO, POLLUTED RIVERS AND BALENI SALT

Earlier research on rivers in Limpopo province has indicated high levels of toxic impurities present in these water bodies. WRC-funded projects have also confirmed these high levels of pollution on Limpopo rivers. In the Greater Giyani Municipality LED Strategy and IDP, pollution of the river systems has been noted as one of the problematic areas that need redress in the municipality, further confirming what research is saying regarding pollution levels of Limpopo Rivers. Using these research findings there is a basis for thinking that Baleni salt, which is scraped from the river banks of Klein Letaba river of Limpopo, could be a product of polluted rivers. As such, it could be plausibly be assumed that the salt is unsafe for human consumption as it is harvested in concentrated form. Furthermore, Baleni salt production is characterised by use of distrusted river water, rusty trays and, at times, unclean buckets casting doubt on the salt's suitability for human consumption. However, in the midst of all this, the current consumers of Baleni salt are convinced that their salt is safe and there is no threat to their health. A sample of Baleni salt has been tested before by CSIR and found free of toxic substances. However, tests need to be conducted on an ongoing basis. There is therefore need to subject the salt and its sources and the production process to a rigorous process of scientific testing to ascertain the fitness of the salt product for human consumption. There also needs to be regular visits to the site by a health official of the nearest local authority. Health officials can provide valuable advice and guidance.

7.3.5 BALENI SALT AND ENVIRONMENTAL SUSTAINABILITY

The study recommends the current salt harvesting quantities having compared it with maximum thresholds of 3 tonnes per season which can be harvested sustainably using IKS and technology be maintained. Value chains that encourage attaining higher values for the salt without increasing output of the salt are recommended. There are fears that, with the existing resource governance structure which seems to be unprepared for entry by external players who might not respect local institutions, sustainability concerns arise. IKS is dynamic, also evolving and thus receptive of innovative ways of production and processing of salt, like solar drying of the salt replacing the use of wood fuel.

CHAPTER 8: CONCLUSIONS AND RECOMMENDATIONS

Markets are a useful instrument for transferring the product from people who attach a lower market value to it to those who attach a higher market value to it. Rural producers ought to participate in MVCs as they could earn higher incomes because there are prospects for greater value addition as their products go along the value chain and/or there is usually a market participant who places a greater market value on their product.

Commodity chains originating from rural areas may contain unique value components on account of the indigenous knowledge they embody, something for which urban and global consumers are usually willing to pay huge premiums. Both rural men and women can potentially participate in MVCs even though there are usually gendered-constraints for doing so.

The lack of awareness of how to harness IKS to achieve better economic outcomes by struggling rural communities and the existence of gendered-constraints in participation in welfare enhancing MVCs find themselves at play in South African rural areas. Accordingly, this project maps and analyzes MVCs associated with South African rural communities while taking full cognizance of their linkages with gender and IKS. This is explored in the context of traditional salt mining by rural communities under the Mahumani Traditional Authority in Greater Giyani Local Municipality in Limpopo province, South Africa.

The study maps and examines the Baleni salt value chain which is composed of eight functions: extraction, processing, local transportation, warehousing, wholesaling, distributive marketing, retailing and consumption and four general groups of actors: input suppliers; salt miners; marketing and distributive agents, and consumers. Unfortunately, women are not leaders in the value chain. They need to create monopoly power over their product through the establishment of a marketing cooperative (or SMME) with tested bankable business plan.

The value of the Duncan Index of Dissimilarity for the Baleni salt value chain is 92% signifying a very high gender segmentation of roles. This result is not surprising as the critical roles associated with Baleni salt mining are the preserve for women as per Tsonga culture. However, it is misconceived that Baleni salt only has short value chains which end with consumption in the village. As a consequence, many disadvantaged men and youth will not consider venturing into the salt business. However, this is not unique with salt mining, rural women dominate in agriculture as well mainly due to migrant nature of men.

The functions undertaken by women in the value chain are more labour intensive while those undertaken by men are capital intensive. As with other occupations elsewhere, women miners are more insecure and liable as a result of upstream gender segmentation. The marketing strategy for Baleni salt needs to be explicit about women's involvement in the production process.

The women's labour cost for producing a kilogram of Baleni salt is R52, which should be compared to the valued added of only R9. Why do women continue operating loss-making mines? IKS could itself be an unaccounted for factor on the benefits side; as women continue with salt mining activities they might get satisfaction from the sustenance of IKS on behalf of the community. It seems that mining ought to continue and that the value added of Baleni salt should be enhanced. Besides marketing, one strategy for capturing a greater proportion of the final price and increasing value added is to diversify the types of processed Baleni salt by increasing the "presentations" available.

The new knowledge that will be relevant for policy was generated by this study along several dimensions, namely: A group of 30 Tsonga women salt miners produce about 2 metric tons of salt each year from the Baleni wetland system using traditions passed down since about 1700 yBP. The value chain analysis conducted in this study shows that about a third of the salt produced finds its way to the affluent market where the women fetch about double price (R36/kg) compared to local sales (R20/kg). However, at R135/kg, the affluent market is paying 3.75 times more than the women's receipts to salt distributors. The study uncovers IKS as being behind the huge premium on Baleni salt and yet women are not fully compensated for preserving and utilizing it. The study demonstrates that salt mining is an important activity which could help bring the rural women of Mahumani out of poverty. However, salt mining ought to take place in the context of integrated community livelihoods to avoid overexploitation of the resource or tempering with the sustainability of other ecosystem goods and services in the water-linked ecosystem.

Mahumani has other challenges which are naturally linked to the salt mining enterprise. The study highlights the need to reconcile the seemingly competitive land uses proposed in the Mahumani Traditional Authority development initiative, namely (i) an attractive tourism route via Baleni, (ii) continued salt mining in Baleni with a technology which produces mounds, (iii) promotion of more livestock which currently favours Baleni, and (iv) establishment of a game reserve encompassing Baleni. In dealing with all these challenges, laws and regulations will need to be followed and some of them might impose constraints. For rural resilience through use of ecosystems good and services, it is important to ensure that a property rights regime has clearly defined boundaries of the appropriators, i.e. individuals or households with rights to withdraw units from the common pool resource, and clearly defined boundaries of the resource to be managed. Boundary congruency would serve to bring the area of decision-making in line with areas of ecological interaction lest decisions taken by the appropriators have only a partial effect on the ecological system or be in conflict with decisions made elsewhere about the remaining parts of the ecological system. The results of this study are important as an input to a process which uses other types of evidence to make holistic decisions about sound natural resource exploitation in the study area.

Going forward, more research will be needed in this area to enhance the understanding of how gender and IKS sensitive MVC frameworks can guide efforts to enhance the contribution by ecosystem goods and services to rural resilience. Two research areas are suggested below.

Many value chains analyze segmentation in ownership, asset control and employment. In this study, the only meaningful type of analysis would be segmentation in employment where a flexible interpretation of employment in required given the informal nature of operations in Baleni salt mining. There are downstream organizational units such as retailing for which the study did not have the means to get the employment figures. The study left those functions out and proceeded with a segmentation analysis for the rest of the value chain. Future effort will need to expand the fieldwork and collect data from all organizational units in the Baleni salt chain.

An analysis of multipliers and spillovers provides an estimate of the role that a sector plays in stimulating other economic activities. This analysis is important to understand the actual and potential contribution of the value chain to things such as poverty reduction or stimulating economic growth. However, such analyses are data intensive and this study did not have the means to generate the necessary data. Future effort could need to distill macro level data to

the appropriate scale for joint analysis with the typical micro data from gathered at the level of the organizational unit.

At a practical level, there is merit in the WRC commissioning participatory action research whereby they work with the TFPD Foundation which has made great attempts to help the women introduce their product in niche markets in the Western Cape Province and abroad. Due to their efforts, Baleni salt is now used by select Michelin chefs for specialty foods, and sold in attractive packaging by a specialty salt shop in Amsterdam. In addition, due to the product's improved profile, it was included in the Slow Food's Ark Taste. TFPD works with a well-known salt distribution company called Oryx Desert Salt, which has helped distribute the salt to a couple of top restaurants with renowned chefs mostly in the Western Cape. TFPD and Oryx Desert Salt have constraints in maturing the niche Baleni salt markets. Mainly due to the logistics involved, the TFPD Foundation (and by implication Oryx Desert Salt) does not consider salt sales as a significant part of its income. Salt operations are mainly geared towards financially assisting local communities and spreading the Baleni salt story in the hope that it might generate tourism and associated benefits to the area. A future WRC project would need to work towards maturing the niche Baleni salt markets; enhancing greater synergies between the marketing of Baleni salt and the Baleni tourism story; experiment with achieving consistent moisture levels and anti-caking properties for Baleni salt; investigate the chemical/health/medicinal properties of Baleni salt on large samples across time and space; investigate the mechanisms for Baleni salt compliance with environmental, mining and land use planning regulations; assist in capacitating local level institutions in mitigating ecological decay in Baleni; and assist in ensuring an appropriate role for Baleni in Mahumani's integrated development strategy. The best way of taking the Baleni salt production to the next level which generates greater returns for the women from the MVC and maintains the ecological integrity of the Baleni ecosystem could come through the establishment of a marketing cooperative--such as establishing an SMME, which must have a bankable business plan for possible funding by National Treasury, DST, DTI, Small Business Enterprise Department, Tourism, ABSA, international support, etc.

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