

# **The Influence of Social Welfare Grants on the Dependency on and Valuation of Wetland Ecosystem Services**

Report to the  
**Water Research Commission**

by

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**ANNEXURE 1:** A preliminary report on the *status quo* of use and dependency on the Mbongolwane Wetland by local households

## EXECUTIVE SUMMARY

The primary objective of this study was to qualitatively explore whether the introduction of social welfare grants had resulted in a change in the perceived value of, and associated behavioural responses to, wetland ecosystem services by local households. The Mbongolwane Wetland (in KwaZulu-Natal) was used as a case study. This Wetland is well known for its importance to local households and small scale farmers through providing services such as water provision, resource harvesting and crop production.

A livelihoods-ecosystem approach was used to explore the cause and effect relationships between the condition of the environment (in this case the wetland) and local livelihoods. This was a qualitative study and, given limited resources, did not aim to quantify the extent of change in use levels and values of wetland services. The objectives were rather to qualitatively explore the changes in *perceptions* of a sample of the local community. The body of this report focuses on the key findings, conclusions and recommendations from the study. Information of the scale and extent use of the Mbongolwane Wetland by local households is summarised in the Annexure 1 (Status Quo Assessment Report).

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 domestics and livestock needs) and for 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.

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. 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.

Regulating and supporting services from the Wetland include stream flow regulation, nutrient cycling and flood attenuation. These services are not only important for local livelihoods, for example by underpinning the supply of provisioning services, but also provide important services to downstream communities (e.g. reducing flooding and regulating the downstream flow of water). However local households found it difficult to comprehend the concept of regulating and supporting services, and the role these play in the ongoing support of their livelihood strategies. Local households were therefore unable to perceive a value for regulating and supporting services to themselves, or express how use or dependency on these services had changed over time.

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 craft products
- Employment (formal and informal) and informal trade
- 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. However utilization of the Wetland's provisioning services has declined in general, and currently it is typically only the older women who are still working the fields and harvesting natural resources. There now 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, driven by cash incomes obtained primarily from welfare grants and to a lesser extent remitted incomes and trade (in which the commercial trade in natural resources forms a only a small proportion). 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.

Many of the households that have stopped utilising the wetland for agriculture and natural resources have introduced trade activities into their livelihood strategies as an alternative so as to increase their cash earnings. Some use the cash from their small child support grants or a portion of the pension to invest in initiatives such selling chickens, cell phone airtime, or commodities purchased in town and resold locally. This trade grows their monthly cash income. The income generated is then used for household necessities as well as for transport to town by those looking for work in town. 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.

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 they depend on to support their families, very few of the youth perceive it as having any value to them at all. The younger community members described that their focus and responsibilities have changed, and are now different to that of the older generation. They argue that those attending school go to school daily, have to complete homework and then do household chores leaving no time for wetland related activities. There is also a shift in ambition among the youth, with school leavers wanting to make a living from the skills they have learned at school (i.e. reading, writing, etc.) rather than from primary production activities which they see as being of a lower social status. As a result of this shift in cultural ideals, the youth increasingly see the wetland as being of little value.

This shift in perceived value of wetland ecosystem services appears to be strongly driven by an increase in schooling and formal education levels. It is also evident that the introduction of social

welfare grants has been a catalyst that has contributed to the evolution of the local economy from a largely subsistence resource based economy to a strongly commercial cash based economy. The social welfare grants have not only directly increased the purchasing power of the households, but they have also provided capital that households can use to start businesses and thereby increase their income base. In addition, the increase in cash flow around these rural communities has meant that many of those not benefiting directly from welfare grants have also been able to start businesses to sell goods or services to those who do have cash grants, and thereby increase their own cash earnings.

This shift in the makeup of the local economy and the cultural values of the youth towards commercial cash economy in preference to agriculture and resource use could have positive environmental implications. The decline in use levels of the wetland for crop production and resource harvesting reduces pressure on the wetland, and creates opportunities for improved management and a reversal in trends of degradation.

However the value of wetland services appears now, in general, to be locally perceived as low (particularly among the youth) regardless of resource scarcity, access to alternatives or the amount of time a household has available for agriculture and resource based activities. There is therefore an increasing risk that the shift to a cash based economy and the trend of decreasing dependency on the Mbongolwane Wetland for provisioning services will decrease concern about the condition of the Wetland, resulting in a reduced incentive to manage it.

This has important implications for future management strategies to protect and sustain the functioning of wetlands and the services they provide. It is important that new approaches to wetland management be identified and explored to promote and incentivise these changes. Examples of these new approaches may include:

- a) Develop a better understanding among rural communities of the functioning of wetlands, and how their use of the wetland impacts on its functioning and the generation of important ecosystem services.
- b) New approaches are needed to create incentives for the sustainable management of the *functioning* of wetlands so as to also protect the lesser understood and recognised regulating and support services (not just sustaining the provisioning services). Examples of these new innovations include efforts to implement Payment for Ecosystem Services (PES) models.
- c) Opportunities to incentivise welfare grants could be explored, for example to link these grant payments to investment in conserving natural capital and managing the condition of the natural environment (which is closely associated with poverty and human vulnerability).
- d) Strengthen natural resource use management systems at both the household and traditional / local authority level so as to address the degradation of wetland systems and the loss of associated ecosystem services.

# 1 INTRODUCTION

Few studies have assessed economic factors that drive resource use and environmental change at a local level. Consequently the economic and social values of resource use strategies in rural livelihoods are not fully understood, especially with regard to ecosystem services and their part in rural livelihoods. A deeper understanding is therefore needed of household level processes that determine resource use behaviour, which is closely linked to environmental condition and ecosystem functioning.

Many households harvest natural resources to diversify their livelihoods as a coping strategy to render households living in poverty more resilient to shocks to which they are prone (Giannecchine *et al.* 2007). Research has shown that social welfare grants, in the form of cash benefits, are contributing to poverty reduction and livelihood security (Case *et al.* 2005). In some African countries there is evidence that income sources such as social welfare grants bring some environmental benefits, reversing environmental degradation and resulting in investment in improved management (Ellis and Allison 2004). It has however also been proposed that although natural resources are central to livelihoods of the poor, wealthier households often consume greater total amounts of natural resources, thus challenging the simplistic poverty-environment hypothesis (Giannecchine *et al.* 2007).

South Africa has one of the world's largest social welfare grants schemes, with an estimated 12.4 million people as beneficiaries of grants. Social grants have become an important income substitute, and are accessed either as pension grants, child support grants, or disability grants (Fakir no date).

This raises questions about:

- The role that social welfare grants play in enhancing the resilience and reducing the dependence of poor households on provisioning ecosystem services to diversifying their livelihood strategies.
- The opportunities that the increase in cash incomes and potential decrease in dependence on provisioning ecosystem services by poor households creates for improved management of crucial ecosystem services.

This understanding and information has important implications for environmental managers and policy makers relating to environmental management as well as social welfare systems. The primary purpose of this study was therefore to determine whether there has been a change in the perceived value of, and associated behavioural responses to, wetland services by poor households associated with the introduction of social welfare grants. Do the increased secure cash incomes result in decreased dependency on the provisioning services from wetlands, and an increased valuation of the regulating, supporting and cultural services? If so, can these changes in perceptions towards wetland services translate into changes in use patterns that can contribute to improved management of wetlands?

The primary objectives of this study were therefore to:

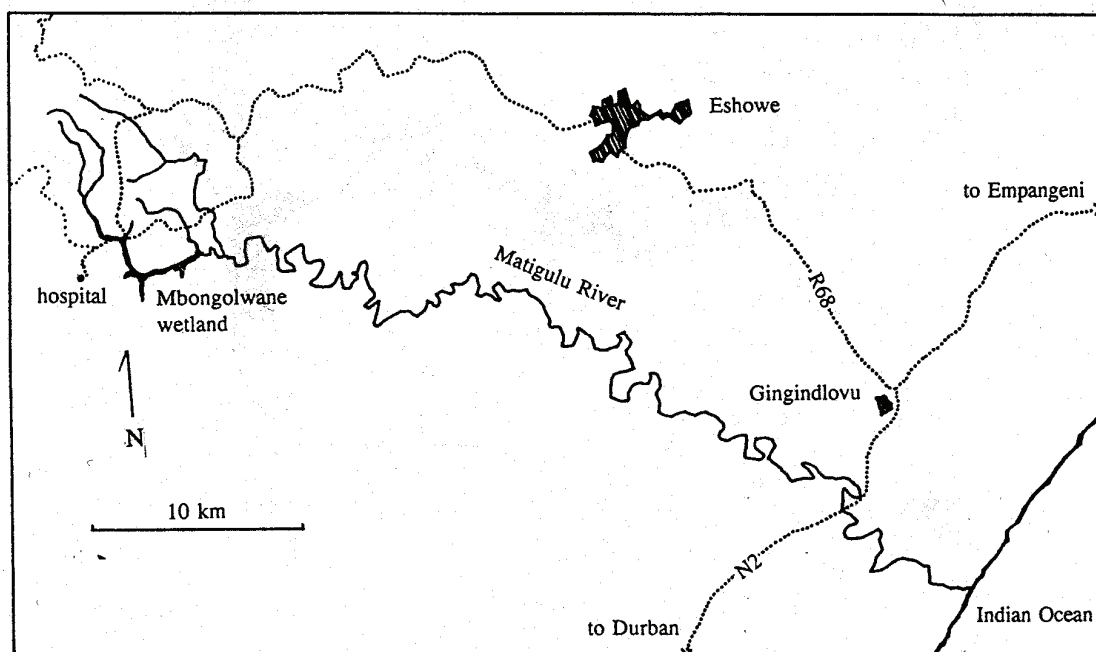


- To undertake a qualitative assessment to identify whether social welfare grants, in addition to addressing poverty alleviation, have resulted in improved efficiency in utilisation of wetland resources within poor rural communities.
- To qualitatively assess the impact of social welfare grants on farming skills and practices (including cropping and livestock grazing) in wetland areas.
- To review primary changes in the diversification of livelihood strategies following the access to social welfare grants.
- To generate new information on socio-economic drivers<sup>1</sup> that inform peoples' choices relating to wetland management in order to inform integrated management approaches to water resources and aquatic ecosystem.

It is important to note that this was a qualitative study and, given limited resources, did not aim to quantify the extent of change in use levels and values of wetland services. The objectives were to qualitatively explore the changes in *perceptions* of a sample of the local community.

## 2 METHODOLOGY

The Mbongolwane Wetland was used as a case study to better understand the relationship between social grants and utilisation and valuation of wetland services. The Wetland is situated at the headwaters of the Amatikulu catchment 25 km west of the town of Eshowe in KwaZulu-Natal (Figure 1). This Wetland is well known for its importance to local households and small scale farmers through providing services such as water provision, resource harvesting and crop production.



**Figure 1: Location of Mbongolwane Wetland** (source Kotze *et al.* 2002)

<sup>1</sup> This study recognizes that there may be other drivers that inform the way people use and manage wetlands, however the focus of this study is on the socio-economic drivers in particular.

**An ecosystem services approach** was applied to assess the contribution that the Mbongolwane Wetland is making to local livelihoods. The natural environment provides a range of ecosystem services that support the livelihoods of poor households, including provisioning, regulating, supporting and cultural services (Millennium Ecosystem Assessment 2005). Wetlands provide a critical range of both direct and indirect benefits through their ecosystem services (Sullivan *et al.* 2008). These services play a vital role in sustaining the livelihoods of local rural households, the majority of whom are very poor. Poor households have diverse strategies for sustaining their livelihoods including harvesting natural resources from wetlands such as building materials and water. Wetlands also provide an important environment for cultivation of valuable food crops because of their rich soils and year-round soil moisture, which is favourable to crops during both the seasons as well as in drought years. Wetlands therefore make an important contribution to household food security. In addition wetlands provide a source of food for livestock, particularly in dry winter months. Finally, wetlands provide medicinal plant remedies as well as cultural and spiritual services. Table 1 summarizes the different ecosystem services provided by the Mbongolwane Wetland that were explored during this study.

**A livelihoods-ecosystem approach** was used to better understand the relationship between livelihoods and the dependency on the wetland ecosystem services by determining the cause and effect relationships between the condition of the environment (in this case the wetland) and local livelihoods.

**Table 1: Ecosystem services provided by Mbongolwane Wetland**

	DESCRIPTION OF SERVICE	DESCRIPTION OF BENEFITS
DIRECT BENEFITS	Provisioning benefits	Water supply for household use and irrigation of crops
		Harvestable natural resources, mainly <i>ikhwane</i> and <i>umhlanga</i> , and also some medicinal plants
		Cultivated foods – mainly <i>amadumbe</i> and a variety of vegetables
		Grazing for livestock
	Cultural benefits	Cultural and spiritual sites used for baptism and ritual cleansing
INDIRECT BENEFITS	Regulating and supporting benefits	Stream flow regulation and flood attenuation

**Participatory Rural Appraisal (PRA)** is a ‘tool box’ which includes many techniques, which are applied depending on the situation and informed by the context of the project (e.g. socio-economic, cultural, gender and environmental perspectives. In this study, the following techniques were used:

- *Focus group meeting* – semi-structured interviews were conducted with a focus group of wetland users<sup>2</sup>, considering types and levels of wetland resource use, dependency and changes in dependency and use over time.

<sup>2</sup> For the purpose of this study the term wetland user is used to define local households that directly utilize the ecosystem services from the wetland either for crop production, harvesting of natural resources, water, livestock grazing, etc. These uses are defined in more detail in Section 3 of this report and in Annexure 1.

- *Household survey* – a semi-structured questionnaire with close and open-ended questions was used to collect data on the importance of various livelihood strategies
- *Transect walk and field excursions* – these were conducted with wetland users and provided an overview of the extent and nature of resource use activities and other features relating to the state of the wetland.
- *Local stakeholder workshop* – conducted with a group of wetland users. The purpose of the workshop was to integrate the range of stakeholders engaged during the study and to explore their perceptions and understanding of wetland ecosystem services, trade-offs and valuation.

This study did not try to quantify the number of households with access to fields in the Wetland, or the extent of these fields. These statistics and trends have been explored in other studies (e.g. Kotze *et.al.* 2002). The emphasis of this study was rather to qualitatively explore the perceptions and preferences of local households (both those currently working fields and harvesting resources in the Wetland, as well as those who have ceased these activities) regarding their use of the wetland, and to develop an understanding of what has driven the changes in these perceptions and preferences.

The following activities formed the framework for the engagement and information collection process:

**a) Focus group meeting with Wetland users: 12 May 2010**

This focus group meeting was held with eleven active wetland users including both crop producers and wetland resource harvesters. Nine of the participants were women and two were men (no youth participated in this meeting). The purpose of the meeting was to solicit information on how the users use and depend on the wetland. For the crop producers, the meeting was aimed at understanding the types of crops cultivated in the wetland and in the community gardens, the extent as well as the nature of crop cultivation in both the wetland and the community gardens. The meeting was also used to get an understanding of how the wetland has changed over time. Lastly, this meeting was used to collect information on wetland governance and related issues. This meeting did not aim to quantify the nature and level of resource use in Mbongolwane Wetland but rather, through discussions, to qualify local perceptions of changes in wetland use, causes of change in wetland use and the drivers of this change.

**b) Wetland transect walk: 12 May 2010**

A transect walk was carried out on sample sections of the Wetland to observe the extent and nature of existing land use activities, including cultivation and harvesting of reeds in the Mbongolwane wetland. The sampled areas were selected primarily because of their historical use, i.e. these areas used to be characterised by extensive harvesting of natural resources as well agricultural production. The transect walk was also used to observe any other features relating to the state of the wetland, e.g. active erosion, alien plants infestation, incidents of fire and grazing of livestock in the Wetland. The transect walk did not quantify the identified activities, instead a broad qualification of the activities was done. For example, low to high density was used to qualify the extent of alien infestation. Other factors such as fire and soil erosion in the

wetland were noted. Three wetland users participated in the transect walk, providing insight into issues such as the trends in use and condition of the Wetland.

**c) Household survey of Wetland users: 25-27 May 2010**

The survey of individual households currently using the Wetland was undertaken to obtain more detailed insight into cropping and resource use and drivers of this use. A questionnaire was applied as an interview guideline, and included open ended questions. Six households were interviewed all of whom were participants of the initial focus group meeting. There were between two to three family representatives present at each household interview and these included men and women. The survey was also used to gain an understanding of the livelihood strategies that local households rely on to support their families. In addition, the survey was used to explore households' perceptions on governance issues relating to the Wetland.

**d) Follow up interviews with Wetland users: 18 -20 August 2010**

Follow up household interviews were held with the six surveyed households to explore in more detail a number of the issues that had been raised in the initial survey, specifically to understand what activities were used to generate sufficient income to support the families before and after the introduction of social welfare grants, i.e. what activities have been discontinued or introduced since the introduction of social welfare grants. An additional two new households were also interviewed in this survey.

**e) Interviews with households no longer using wetland resources: 15-17 September 2010**

Interviews were held with seven households who used to cultivate or harvest resources from the Wetland but who have discontinued these activities. The aim was to understand from a qualitative perspective, why these households had stopped cultivating or harvesting resources from the Wetland, and to understand what new or alternative livelihood strategies had been adopted to compensate for the loss of food, resources or income that were previously obtained from the Wetland.

**f) Workshop with youth representatives: 16 September 2010**

The purpose of engaging with representatives of the youth in the community was to get their perceptions regarding the Wetland and its utilization. It had become evident during the study that the current wetland users are primarily older women and it was therefore important to understand why the youth are not engaging in wetland based activities. This workshop was also used to test whether perceptions expressed by older community members regarding reasons why the youth are not engaging in wetland activities to determine whether or not the youth agreed with these reasons. Six youth representatives participated in these discussions.

**g) Assessment of agricultural practices in the Wetland: 15 September 2010**

A field assessment of agricultural production and practices in the Wetland was conducted to explore and observe practical evidence of how and why agriculture is undertaken in the wetland. This assessment took the form of site visits to six sites in the Wetland in the company of the six farmers. Discussions were held about current farming practices and how these had changed over

time. The drivers of these changes were also explored through the in-field discussions with the farmers.

#### **h) Workshop on ecosystem services and trade-offs: 19 October 2010**

This workshop was held to present the concept of ecosystem services to local households and to explore their perceptions of the value and importance of the ecosystem services from Mbongolwane Wetland. All the people who had participated in the study to date (i.e. from the first focus group meeting, the household survey, and the follow up meetings) were invited. Not all these participants were able to attend the workshop, and a number of new participants also joined the workshop. A total of twenty people participated in the workshop, the majority being women. There were also two representatives of the youth at the workshop. The aim of the workshop was to gain an understanding of:

- Local people's recognition and comprehension of the range of ecosystem services (provisioning as well as supporting and regulating) from the wetland, and their benefits.
- Socio-economic drivers that inform peoples' choices relating to wetland management and the tradeoffs that households make in livelihood strategies and wetland use.

After the initial introduction of the concept of ecosystem services by the project team, the workshop took the form of open discussions and debate. A diversity of opinions was expressed by participants and conclusions on general consensus were based on majority agreement (no formal voting was undertaken to assess differing opinions as this may have become confrontational).

The study's resource constraints required that a sample approach be applied and consequently a sample of households and wetland resource users were engaged during the course of the investigations. These households and users were located in the southern reaches of the Wetland (Figure 2). However these users and use patterns are likely to be representative of the entire Mbongolwane Wetland as previous studies (Kotze *et.al.* 2002) did not indicate any variation in use patterns and trends across the Wetland.

With additional resources the scope and extent of this study could be expanded to include a quantitative assessment of the perceptions and use levels of households at the Mbongolwane Wetland, and how this has changed with the introduction of welfare grants and increasing levels of formal education. The geographical scope of the project could also be expanded to assess whether the findings from this study are representative of communities utilising the ecosystem services other important wetlands across South Africa.

### 3 THE CONTRIBUTION OF MBONGOLWANE WETLAND TO LOCAL LIVELIHOODS<sup>3</sup>

The Mbongolwane Wetland is approximately 395 ha in extent and is in a reasonably intact state (Kotze *et.al.* 2002). Given the condition of the Wetland, it is of great value to society and provides a range of important ecosystem services such as provisioning (e.g. harvesting of natural resources and crop cultivation), regulating (e.g. flood attenuation), supporting (e.g. nutrient cycling) and cultural services. The Mbongolwane Wetland provides a wealth of livelihood sustaining resources to the surrounding Community, including water, plant material for weaving crafts and thatching, grazing for cattle, and land for cultivating crops.



**Figure 2: Overview of settlement patterns surrounding the Mbongolwane Wetland** (shaded area)

The area surrounding the Wetland is densely populated, with a rapidly growing population. An estimated 1 026 households (5 746 people) were located within a 2 km radius from the wetland in

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<sup>3</sup> This section of the report summarises the milestone report produced during this study on the *status quo* of use and dependency on the Mbongolwane Wetland by local households, which is attached as Annexure 1.

2001<sup>4</sup>, compared with 797 households (4 464 people) in 1996. This represents a 29% population growth rate over the 5 year period (Figure 2). The density of people within an approximate 2 km radius of the wetland is therefore about 134 people/km<sup>2</sup>.

The Mbongolwane area is characteristically rural with very little access to infrastructure and services available to the local population. Households are self-reliant in the provision of domestic energy, water and sanitation services, and there is a high dependence on the ecosystem for the provision of these services.

Unemployment rates are very high and opportunities for formal employment are very limited. The local economy is largely driven by informal trade such as the sale of small surpluses of agricultural crops cultivated by individual households, and craft products manufactured from natural resources harvested locally. Social welfare grants are therefore a key source of cash in this local economy.

### **3.1 Local use and dependency on the Wetland ecosystem services**

There has always been a local culture among households of cultivating crops in the Wetland as a means of supporting the families. As children, most people started helping their parents cultivate fields in the wetland and harvesting resources. This helped them gain knowledge and experience which they then applied when they started their own harvesting and cultivation practices as adults. Individual households typically 'own' between 1 and 8 plots in the wetland, which are allocated to them by the Traditional Authority. Plots in the wetland can also be inherited from parents when they become too old to farm them, or when they pass away. The extent and intensity of the use of the Wetland has over time been influenced by factors such as drought, food security and levels of well-being of local households.

#### ***3.1.1 Use and dependency on provisioning services***

Provisioning services are defined as "products obtained from ecosystems such as food, fibre, and fresh water" (Millennium Ecosystem Assessment, 2005). Agricultural production, resource harvesting and grazing are the common provisioning services that people have relied on the Mbongolwane Wetland for.

##### **a) Crop production<sup>5</sup>**

The Wetland provides a valuable environment for agricultural production for local households. The wetland soils are fertile, high in organic matter and retain moisture, making them ideal for the cultivation of crops. The most common crops cultivated in the wetland are *amadumbe* (*Colocasia esculenta*) which cannot be cultivated in dryland agriculture, and to a lesser extent pumpkins. *Amadumbe* are widely cultivated for both household consumption and selling of surpluses to local households who do not grow their own. Crops like maize, beans and potatoes are also cultivated in drier areas along the edge of the wetland, which are more fertile than the dry areas but which are less frequently inundated

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<sup>4</sup> The 2001 census data is the most recent population data available for this area.

<sup>5</sup> See Section 4.1 of Annexure 1 for further details on cropping activities, patterns and trends



by water. Indications are that there has, in recent time, been a decrease in level of cultivation in the Mbongolwane Wetland. The local households attribute the decrease to the fact that crop production is mainly undertaken by older members of the household. Other members of the household are not taking over these activities when the farmers become too old to continue, and households suggested that the younger generations are not interested in agriculture or working in the wetland. However households that are still farming fields in the wetland confirm that the harvests from these fields remain a very important food source for them and their families.

**b) Livestock production**

The Mbongolwane Wetland provides valuable grazing for livestock, particularly in the dry winter months when there is very little grazing available in areas surrounding the wetland. However, grazing of livestock in the Mbongolwane Wetland is a relatively new practice. Until about five years ago, grazing of livestock in the Wetland was not allowed at anytime of the year. The main reason for this was that the cattle were a risk to the farmers' crops which are grown in the wetland in both summer and winter. The Traditional Authority at that time ensured that this rule was respected. This has had positive impacts for the wetland ecosystem as it prevented trampling and erosion in the wetland particularly in the wet summer season. However the new Traditional Authority no longer enforces this rule and with the decrease in crop production in the wetland, livestock are increasingly gaining access to the wetland.

**c) Harvesting of wetland plants<sup>6</sup>**

The most high value and widely harvested wetland plants include *ikhwane* (*Cyperus latifolius*), *umhlanga* (*Phragmites australis*), *incema* (*Juncus krausii*) and *ingcobosi* (*Juncus punctorius*). *Ikhwane* and *umhlanga* are available in large quantities. *Ikhwane* is used for craft making, including sleeping mats (*amacansi*) and bags. *Amacansi* have traditional and customary value as they are exchanged at the weddings and funerals. *Umhlanga* is used primarily as thatching material on the roofs of houses. In addition to this, a number of wetland plants are harvested for medicinal purposes, such as *uxhaphozi* (*Felicia erigeroides*) and *uklenya* (*Gunnera perpensa*). A few plants even provide a source of food such as the leafy *intshungu* (*Momordica sp*) and the bulb *intebe* (*Zantedeschia sp*). There has however also been a reported decrease in the harvesting of these food and fibre resources.

**d) Water provision**

The Mbongolwane Wetland provides a source of water for a three purposes, domestic consumption, watering livestock, and for irrigating vegetable crops. Historically, households from a wide surrounding area walked to the Wetland to collect water every day. However, more recently there has been a slow introduction of water schemes that supply water from the Wetland to standpipes in communities further from the wetland.

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<sup>6</sup> See Section 4.2 of Annexure 1 for further details on resource harvesting patterns and trends.



### **3.1.2 Use and dependency on cultural services**

Cultural services help to address some of the non-financial aspects of poverty by offering opportunities for cultural and religious practices, social events, etc. This helps to maintain the social cohesion and sense of community (*ubuntu*). This social cohesion helps to maintain social stability within the community, and provides important social safety nets in times of stress (e.g. drought, sickness or personal misfortune).

The local households recognise that the Wetland is not only a source of provisioning services but also creates an environment where local people can exercise their cultural and spiritual practices such as:

- Local widows who bathe in the wetland as part of a cleansing process following the death of a husband.
- Members of the community wash their hands in the wetland after a funeral as part of the cleansing process.
- Respect for the spiritual belief of *Nkanyamba*, the many-headed serpent who is the ancestral guardian of their wetland. Failure to respect the wetland and the serpent is said to result in a disastrous storm.

In recent years, many of the pools used for these practices have dried out or silted up and so no longer exist. People are no longer able to perform the above rituals without using a basin to collect water from shallow wells dug in the Wetland.

Recreational activities including fishing and swimming, especially by the young boys, used to be a common occurrence. However these activities are reported to have also decreased over time as many of the pools have dried out. These pools, according to community members have been lost as a result of a combination of sedimentation and drought.

Therefore there appears to be an overall decrease in the use of the cultural services from the Mbongolwane Wetland. While all the reasons for this decrease are not clearly expressed or understood, they do appear to be associated with:

- A deterioration in the condition of the pools as a result of drying out and siltation, and infestation by alien plants
- 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.

### **3.1.3 Use and dependency on regulating and supporting services**

Regulating and supporting services from the Wetland include stream flow regulation, nutrient cycling and flood attenuation. These services are not only important for local livelihoods, for example by underpinning the supply of provisioning services, but also provide important services to downstream communities (e.g. reducing flooding and regulating the downstream flow of water).

The benefits to local communities from regulating and supporting services are however difficult to quantify than the provisioning services as they are, in a sense, indirect benefits. Local households had no difficulty in identifying provisioning services – they put food on the table, provide water, craft

products for sale, or a roof on the house. However local households found it difficult to comprehend the concept of regulating and supporting services, and the role these play in the ongoing support of their livelihood strategies.

Local households were therefore unable to perceive a value for regulating and supporting services to themselves, or express how use or dependency on these services had changed over time.<sup>7</sup>

### **3.2 Local livelihood strategies**

Local households currently derive their livelihoods from a variety of resource and cash based strategies primarily including:

- Crop production and the sale of surplus agricultural products
- Harvesting of wetland resources and sale of craft products
- Employment (formal and informal) and informal trade
- Social welfare grants

#### **a) Agriculture**

The Wetland provides local households the opportunity to grow crops that cannot be produced under dryland conditions. Some households cultivate more than they need, and sell the small surplus locally. The income from the sale of surplus is used to buy items such as meat, rice, oil, sugar, salt and canned foods which cannot be produced by the households themselves. The contribution of agricultural activities to meeting household livelihood needs differs from one household to another, and varies seasonally. There has been a declining trend in the extent of cultivation in the wetland as well as in the surrounding dryland areas. However, the households that still cultivate in the wetland consider this cultivation to be very important for sustaining their households. One of the survey participants clearly expressed this sentiment as follows<sup>8</sup>:

*“When I did not cultivate in 2009, my family battled. Not cultivating my own food opened a big gap that could not be closed by anything else” (Gazu pers. comm. 2010)*

While crop production from the Wetland is not sufficient on its own to meet the entire needs of a household, it is a vital component in the livelihood strategy and provides diversity that forms an important safety net for these poor and vulnerable households, including many of those who receive welfare grants. Fifty percent of the households surveyed categorised the contribution of crop production to their households as “very important”, and this was plainly expressed by one of the survey participants as follows:

*“I rely on agricultural activities between pension days. Pension is often not enough to carry us through the month” (Mkhonde pers. comm. 2010)*

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<sup>7</sup> These discussions were held in focus group workshops and none of the workshop participants were able to express any importance of these services to them, or describe any benefit from these services to their household.

<sup>8</sup> Further details on the dependency on crop production are provided in Section 4.1.3 of Annexure 1.

## **b) Craft production**

Craft production is fairly widely practiced in Mbongolwane and it contributes to the livelihoods of households both through the use of the craft products themselves as well as the income from the sale of some of the products. Approximately 50% of the households surveyed rated the contribution of craft production to their livelihoods as “very important”, with the remainder valuing the contribution slightly lower. This sentiment was captured by the following statement by one of the household participants:

*“See this money in my purse – I got this from the wetland” (Mhlongo<sup>9</sup> pers. comm. 2010)*

However it is reported that the extent of craft production has also declined over the last few years. Therefore it can be concluded that the dependency on its contribution to livelihoods must have also declined.

## **c) Cash incomes**

Some but not all households have access to cash incomes. These cash incomes are derived from a number of sources:

- Formal or informal employment (permanent or casual)
- Formal or informal trade
- Remittance of incomes

While unemployment is high, some households have family members who are locally employed, for example with local commercial farms or businesses in town. A small number of people are self-employed (e.g. taxi owners).

Some households have family members who are permanently employed, and who remit money to the household when they can afford to do so. However this is not a reliable or secure income as it may not arrive every month and varies in value.

Incomes are also generated by some households from the sale of surplus agricultural or craft products, and from the local trade of commodities, such as cell phone airtime, chips and sweets, which are purchased in town and then resold locally. Although, this is not viewed as a major source of income it still contributes to supporting a household’s livelihood.

Less than 20% of the households reported that one or more of the family had formal employment that contributed to household incomes, and less than 20% acknowledged benefitting from remitted incomes. All the households interviewed reported earning some level of income from trade activities. All the interviewed households reported benefitting from one or more of social welfare grants (i.e. pensions, disability grants or child grants).

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<sup>9</sup> Pensioner referring to income generated from the production and sale of mats and bags from resources harvested from the wetland.

#### d) Social Welfare Grants

The evidence from this study is that a large percentage of the local households are heavily reliant on government funded social welfare grants to sustain their families. The household survey indicated that almost all the households from the Mbongolwane area access social welfare grants either in the form of old age pensions, child support or disability grants. The value of the grants varies between R250 per month (per child) for a child support grant and R1080 per month for both the old age and disability grants. Social grants are very important to the local households not only because of the value of the grant but also because it is a *guaranteed* monthly income, i.e. there are specific dates every month when they know they will definitely receive this income. This enables households to plan and budget for a month.

### 3.3 Farming practices and impacts on wetland functioning

*Amadumbe* (*Colocasia esculenta*) is the most commonly cultivated crop in the wetland and is cultivated in raised beds within the wetland. Land preparation occurs any time from July to September and involves the construction of raised cultivation beds surrounded by shallow drainage furrows (see Figure 3). Excess growth of vegetation (usually *ikhwane* – *Cyperus latifolius*) is removed by hand using a sickle or a slasher to facilitate access to the soil. The beds are then prepared by turning sods on the raised beds using spades and hoes. Sods are turned with *ikhwane* corms intact (i.e. the roots are not removed – effectively turning the plant upside down). Planting holes are then to a depth of 10-15 cm. A handful or two of well rotted kraal manure is placed in each planting hole, followed by an *amadumbe* corm.



**Figure 3:** Cultivation practices for wetland planting of *amadumbe* (1-Turning over of sods and digging drainage furrow; 2-Application of manure; 3-Planting holes with *amadumbe*; 4-Typical planting block for *amadumbe*)

Re-growth of *ikhwane* is controlled by hoeing, but the roots are not removed, which allows for the re-establishment of the *ikhwane* when the crop has been harvested. When asked about rotation, fallow periods and soil fertility, respondents indicated that they use growth and yield as indicators of decreased fertility. When a noticeable decline in growth or yield is observed, that particular bed is

left fallow for a year or longer, which is sufficient for fertility to improve. Respondents indicated that a fallow period is usually necessary every two to four years.

A major input into production is kraal manure, which is applied liberally (one to two handfuls per hole) prior to planting of *amadumbe*, which may be a source of additional nutrients into the wetland. Pollard *et al.* (2010) note that the actual Nitrogen entering a wetland from kraal manure is likely to be low, if the animals' diets are poor and storage and handling of the manure is poor (i.e. loss of nutrients during the maturing process). Visual observations of the quality of the grazing at Mbongolwane indicate that grazing is relatively poor. In addition, the manure was well rotted and desiccated, indicating that it is likely to have a low nutritional content. Finally, the fact that fallow periods are required every two to four years indicates that loss of fertility is probably more of a problem than excess nutrients.

Farmers stated that they did not use chemical pesticides for pest control on their crops (See Annexure 1 section 4.1.2). However, containers of "Blue Death", a proprietary general purpose insecticide powder, were observed adjacent to cultivated lands which indicate that pesticides are likely used to control pests on crops.

While there are a number of processes occurring as a result of disturbance, of relevance to the Mbongolwane Wetland is that drainage furrow are resulting in a loss of moisture from the wetland. Loss of moisture allows the introduction of oxygen into the soil, which facilitates the decomposition of nutrient rich organic matter, which can result in decreasing fertility over time. In addition, soil disturbance can cause erosion during severe rainfall events.

Consequently, long term cultivation practices can result in decreased fertility, loss of soil and drying out of the wetland. In Mbongolwane, the agricultural practices may have resulted in a gradual loss of wetland function through increased soil erosion, sedimentation and drying out of the wetland. However, despite observation of these symptoms by local farmers, there has been no revision to the practices in order to try to halt or reverse these negative impacts.

The decrease in cropping activities in the Wetland may in fact help to stem these negative impacts, however if cattle are not managed and kept out of the wetland the incidence of erosion and drying out of the wetland will likely continue.

## **4 LOCAL SHIFT TO A COMMERCIAL CASH BASED ECONOMY**

There is evidence from multiple studies conducted at Mbongolwane Wetland that 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.

Cash trade in natural resources increased fairly recently with the introduction of markets for the sale of natural resources such as reeds and sedges (e.g. *umhlanga* and *ikwane*) and products made from these wetland resources (e.g. conference bags and sleeping mats). This provided a level of incentive for protecting the resources, however it only constituted a relatively small component of the local economy as it was not practiced by all households. It did however form an important component of the household income for those who did engage in these practices.

However utilization of the Wetland's provisioning services has declined in general, and currently it is typically only the older women who are still working the fields and harvesting natural resources. This study corroborates observations from other studies (Kotze *et al.* 2002) that there has been a decline in agricultural practices, both wetland and dryland, with many areas that were intensively cultivated in the past now standing fallow. Many households, despite still having access to fields, report that they no longer actively cultivate them (see Annexure 1 section 4.1.4), or harvest natural resources from the wetland (see Annexure 1 section 4.2). There is almost no involvement of men or the youth (i.e. young men and women) of the community. The older women however continue cultivating in the wetland as they have for decades. They still see value in it as they are able to contribute to supporting their families from cultivated crops or sale of crops and products made from wetland resources, and this is reflected in the statement expressed by one of these women:

*"I know the wetland can produce good food and that it is important"* (Mhlongo pers. comm. 2010)

Now there appears to be a shift from a subsistence and resource based economy (which includes only a small component of cash trade) to a more commercial and cash based economy, driven by cash incomes obtained primarily from welfare grants and to a lesser extent remitted incomes and trade (and in which the commercial trade in natural resources forms a only a small proportion).

The 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. In the past younger community members worked the fields for older people in return for payment in the form of produce from the fields. Now the youth are no longer interested in working in the fields and are only interested in employment that pays cash incomes. In general, youth are also not interested in harvesting wetland resources and producing craft products even though these can be sold for cash.

A common perception among the younger generations is that 'city life' is better. The youth commonly expressed their desire to go and work in cities, as there is a belief that there are more employment and wealth creation opportunities in the city that do not exist in the Mbongolwane area. This sentiment was expressed by one of the women as follows:

*"We go to school so that we can have a better future. There is no time to work in the wetland and us young people think about opportunities in big cities"* (Shoba pers. comm. 2010)

The older community members recognize this cultural transformation. One of the older women expressed the opinion that:

*“Young people do not realize that the wetland gives you money. They just want easy money because they think working in the wetland is hard work” (Gazu pers. comm. 2010)*

Many of the households that have stopped utilising the wetland for agriculture and natural resources have introduced trade activities into their livelihood strategies as an alternative, so as to increase their cash earnings. Some use the cash from their small child support grants or a portion of the pension to invest in initiatives such selling chickens, cellphone airtime, or commodities purchased in town and resold locally. This trade grows their monthly cash income. The income generated is then used for household necessities as well as for transport to town by those looking for work in town.

The preference of the commercial cash economy over the subsistence and resource based economy may be driving a shift in social values. For example, one young woman expressed the following sentiment:

*“If I was still young, I would have more children so that I would get more social grants” (Ziqubu pers. comm. 2010)*

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 they depend on to support their families, very few of the youth perceive it as having any value to them at all.

This shift in the makeup of the local economy and the cultural values of the youth towards commercial cash economy in preference to agriculture and resource use could have positive environmental implications. The decline in use levels of the wetland for crop production and resource harvesting reduces pressure on the wetland, and creates opportunities for improved management and a reversal in trends of degradation.

## **5 RELATIONSHIP BETWEEN WELFARE GRANTS AND THE VALUATION OF WETLAND SERVICES**

### **5.1 Wetland valuation**

The value of provisioning services from wetlands is typically calculated in terms of indicators such as (Turpie, 2010):

- Scarcity – ratio of user population to wetland area
- Demand – influenced by access to alternatives, substitutes, and cultural norms
- Labour time – time taken to access the resource

At Mbongolwane, it has become evident that the introduction of social welfare grants has been a catalyst that has contributed to the evolution of the local economy from a largely subsistence resource based economy to a strongly commercial cash based economy. The value of wetland services appears now, in general, to be locally perceived as low (particularly among the youth) regardless of scarcity, access to alternatives or the amount of time a household has available for agriculture and resource based activities. There has been a shift in lifestyle and culture, and this has influenced the behavioural practices and values. For example, unemployed youth spend a large part of the day unoccupied, but are not willing to invest this time in working in the wetland.

Poverty is not strictly defined in terms of income, but incorporates deprivation and insecurity (Turpie, 2010). Social welfare grants, while they may not lift households out of poverty, have played an important role in addressing aspects of deprivation and insecurity by providing a secure and reliable source of cash income. This has reduced the vulnerability of these poor households. Whereas in the past households maximised the diversity of their livelihood strategies through agriculture and natural resource use as a mechanism to reduce their vulnerability, the introduction of welfare grants appears to have reduced the need for this. Households are now more confident to invest the time they would have used to cultivate fields or harvest wetland resources for the manufacture of craft products, in search of employment opportunities that will generate the now preferred cash incomes.

It is widely understood by environmental managers that the sustainability of resource use is driven not only by resource users' concerns for the current value of a resource but also with medium and long term value of natural resources (Turpie 2010). However, the shift to a cash based economy and the trend of decreasing dependency on wetlands for provisioning services is resulting in a decrease in concern for the condition of the wetland, and reduced incentive to manage it. This has important implications for future management strategies to protect and sustain the functioning of wetlands and the services they provide.

## **5.2 Trade-offs between livelihood strategies**

### **5.2.1 *Wetland resources versus commercial cash resources***

Despite the fact that the local population is growing, cultivation levels in the wetland and adjacent areas have decreased and continue to do so. Historically, a much larger proportion of the wetland was cultivated (Kotze *et.al.* 2002). This is evidenced in the decrease since the 1980s in both the individual fields as well as the community gardens (see Annexure 1 section 4.1.3). Similarly, harvesting of wetland resources has decreased (see Annexure 1 section 4.2.2).

This points to a trade-off between utilisation of the wetland as a primary livelihood strategy in exchange for increased dependency on a predominantly cash based economy and the associated commercial commodities. For example, *umhlanga* (reeds) were traditionally used as thatching material for roofing of houses. Increasing accessibility of alternative materials, notably corrugated iron, has resulted in less *umhlanga* being utilised despite it being readily available. The alternative (corrugated iron) appears to be favoured for two reasons:



- *uMhlanga* degrades relatively quickly meaning that the thatching has to be replaced on a regular basis, while corrugated iron lasts for much longer.
- Having a house with a corrugated iron roof is considered to be ‘progressive’ because it indicates that the household has cash available to purchase such roofing materials. It is therefore also seen to point to a higher social standing in the community.

This transition to the use of commercial alternatives to replace locally harvested wetland reeds importantly also points to the increased “affordability” of these alternatives. Whereas *umhlanga* is available for free locally (apart from local labour cost of harvesting), households are increasingly able to afford to move towards roofing materials that are purchased from commercial retailers. Decreased preference for or reliance on the wetland resources can have positive environmental implications as it results in decreased pressure on the ecosystems and the services they provide.

### ***5.2.2 Trade-offs between types of wetland ecosystem services***

Pollard *et al.* (2010) highlight that wetlands are closely linked to other elements in the landscape, and that they supply ecosystem services to local and distant beneficiaries. Wetland function is influenced by processes and activities occurring within the wetland and at broader geographic scales (e.g. upstream). In turn, these processes have an influence on downstream beneficiaries of wetland ecosystem services who may enjoy improved streamflows from a well managed wetland upstream (Pollard *et al.* 2010; Turpie 2010).

However the sampled Mbongolwane households were unable to comprehend the role of ecosystem services in sustaining livelihoods and maintaining the well-being of downstream communities or the wider society (see section 3.1.3). In response to concerns raised about the potential impact that local wetland use is having on regulating or supporting services for downstream users (such as stream flow regulation for water supply), local households argued that downstream users had piped potable water for drinking. They also argue that, in general, downstream water availability is a function of rainfall, rather than services from the Mbongolwane Wetland.

Local households acknowledged that wetland condition has changed over the past 30 years, and the signs of wetland degradation such as erosion, sedimentation, loss of pools, etc. They also acknowledged that this is impacting on certain local activities such as cultural and recreational practices. Local households themselves raised examples of this such as:

- Historically, furrows around the beds planted to *amadumbe* were much deeper and larger, while furrows draining water away from cultivated lands were common. Today, the furrows are much shallower and there are no large furrows draining water away from the cultivated areas.
- Pools where youngsters would swim and fish 15 to 20 years ago have become filled with sediment.
- Areas where community members would bathe as part of traditional cleansing ceremonies no longer have sufficient water. Instead, basins of water are filled from the water source and the cleansing occurs adjacent to the water source.

Households also acknowledged that cultivation in the wetland may be contributing to the drying out of the wetland and sedimentation. However, the households universally attributed decreasing and

variable rainfall to be the overriding driver of these changes rather than their use of the Wetland. There is no acknowledgment of the consequences which current and historic use patterns and practices may be having on current condition of the wetland. There is also no recognition that a change in these use practices could help to improve the functioning of the wetland and to reverse the trends in the deterioration of some of the services and regain benefits from some of the cultural services for example.

### **5.2.3 Conclusions**

Local households clearly understand and relate to the concept of provisioning services provided by Mbongolwane wetland. However, comprehension of concepts of regulating and supporting services, and cultural services was limited. Households were unable to acknowledge the impacts that their agricultural and resource use activities are having on wetland function and the generation of these services. They were also unable to acknowledge that the decisions they were taking were in fact resulting in trade-offs between certain benefits which they, and downstream communities, were gaining from the Wetland.

The fact that the concept of trade-offs between types of ecosystem services could not be clearly comprehended by local households participating in the study may potentially be attributed to the following reasons:

- The concept of ecosystems services was poorly understood and the focus is purely on provisioning services so the trade-offs made are not conscious decision-making processes.
- Lack of understanding of how the wetland functions in the broader landscape context and how soil disturbance can impact on the ecology and hydrology of the wetland.

This current unwillingness or inability of local households to comprehend the consequences of local use on wetland functioning for the benefit of wider beneficiary groups has important implications for future water resource management strategies.

## **6 CONCLUSION: HAVE WELFARE GRANTS AFFECTED VALUATION AND DEPENDENCE ON THE WETLAND?**

There is general consensus among the sampled Mbongolwane households that the level of use of the wetland for agriculture and resource harvesting, and the associated perceptions of the value of the wetland, is closely linked to the agrarian culture attached to the older generation. This sentiment is succinctly captured in a statement made by one of the older community members:

*“Once we [referring to elders] are gone, there will be no more cultivation of wetland” (Mhlongo pers. comm. 2010)*

Individuals receiving old age pensions continue to cultivate and make use of the wetland resources despite having access to incomes from social welfare grants, as these practices are something they

have grown up with and learnt from their parents. In general, only those who are ill or infirm do not cultivate their fields. In contrast, the younger generation was unwilling to engage in agriculture or resource harvesting activities even if they have no income of their own and have the time to invest in these activities.

The younger community members described that their focus and responsibilities have changed, and are now different to that of the older generation. They argue that those attending school go to school daily, have to complete homework and then do household chores. This leaves little or no time for agriculture or craft production. In the case of the older generation, participating in cultivation activities started at a young age when schooling was not compulsory or common in rural areas, and is therefore part of their culture.

There also appears to be a shift in ambition among the youth, with school leavers wanting to make a living from the skills they have learned at school (i.e. reading, writing, etc.) rather than from primary production activities which they see as being of a lower social status. Others suggested that those who did not study agriculture at school were also unlikely to have the skills to cultivate, and they did not recognise that they could learn the cropping skills from their parents, as they did when they first started working the fields with their parent. As a result of this shift in cultural ideals, the youth see the wetland as being of little value. This shift appears to be strongly driven by an increase in schooling and formal education levels, and not necessarily the introduction of social welfare grants.

Welfare grants do however seem to be *indirectly* linked to a shift in the dependence on and valuation of wetland provisioning services. The increased injection of cash into the rural economy from the range of welfare grants appears to have been a catalyst to the shift from a primarily subsistence and resource based economy to a commercial cash based economy. The social welfare grants have not only directly increased the purchasing power of the households, but they have also provided capital that households can use to start businesses and thereby increase their income base. In addition, the increase in cash flow around these rural communities has meant that many of those not benefiting directly from welfare grants have also been able to start businesses to sell goods or services to those who do have cash grants, and thereby increase their own cash earnings.

This transition to a commercial cash based economy has increased the affordability of, and demand for, commercial alternatives to wetland resources for food and building materials. It has therefore reduced the dependence levels of poor households on the provisioning services from the wetland in particular. Welfare grants have also reduced the financial vulnerability of poor households which appears to have afforded them the opportunity to reduce the diversity of their livelihood strategies (i.e. the number and range of activities they undertake to provide for the family), which in conjunction with the shift in cultural ideals among the youth, has resulted in a decrease in agriculture and resource based activities in the wetland. This has decreased use pressures on the provisioning services from Mbongolwane Wetland.

## 7 RECOMMENDATIONS FOR WATER RESOURCES MANAGEMENT

The decrease in crop production and natural resource harvesting pressures on the Mbongolwane Wetland (associated with the increased cash incomes, the higher levels of formal education among youth and the associated cultural shift between the younger and older generations) is potentially a positive opportunity for improved management and condition of the Wetland.

However, there are potential risks associated with this trend – the decrease in use of the Wetland and dependency by local households on wetland ecosystem services to meet their livelihood needs may result in a decreased willingness to invest time and effort in managing and protecting the wetland by the younger generations. This would increase the risk of neglect of the Wetland and may consequently result in the continuation of the degradation and deterioration in the ecosystem functioning rather than a reversal in these trends. A potential scenario for the future valuation and management of wetlands by rural communities if these trends continue may therefore be:

- Cultivation and resource harvesting will decrease and eventually cease as the current older generation becomes too frail to continue their farming and craft activities.
- The youth will not take over their parents' fields and resource harvesting practices and these will become unutilised.
- Decreased agricultural interest in and use of the wetland will reduce the incentive to keep livestock out of the wetland and this will result in increasing grazing pressure, trampling and erosion.
- Reduced incentive and commitment to protect the wetland associated with a decrease in use of wetland fibre resources for craft production will result in increased impacts from fires and the invasion of alien plants.

These drivers, together with an anticipated continuation of the decrease in traditional institutional authority and control over the management of the wetland, increase the risk that there may be an overall decrease in the condition of the wetland and deterioration in its functioning despite the decreased use pressures by the local community. This will result in an increasing loss of the important ecosystem services current generated by the Wetland.

Another scenario may be an increasing risk of substantial degradation of the wetland from large scale mechanical ploughing and crop production by a few relatively well resourced households. These households may see the discontinuation of use by local households as an opportunity for them to “take over” the wetland. Interest in the large scale cultivation of maize has already been expressed by some local households. Extensive ploughing and cultivation of the wetland would compromise the natural functioning of the wetland.

There appears to be limited understanding by local households of the importance of the ecosystem services for downstream users or for broader society. As a result, there is no sense of responsibility among the local community to sustainably manage the wetland to protect the broader interests of outside stakeholders.

Therefore, the loss in perceived value and use of the wetland by local households is likely to erode their interest and willingness to invest in the sustainable management of the wetland and will likely result in increasing wetland degradation, unless new interventions and incentives are identified and implemented. While there are opportunities for improved environmental management associated with the decrease in use of the wetland (linked to drivers such as the introduction of welfare grants and higher education levels) these opportunities may not automatically materialise as they would likely need incentives or catalysts to trigger the behavioural change by local households.

It is important that new approaches to wetland management be identified and explored to promote and incentivise these changes. Examples of these new approaches may include:

- a) While rural communities recognise the benefits from many of the provisioning and cultural services from wetlands, there appears to be little comprehension of the hydrological functioning of wetlands and therefore the associated regulating and support services. There is no perception of the value of wetlands in their entirety, and the full range of important services that they provide for the local communities and communities beyond the immediate geographic location of the wetland. In the interest of water resource management, and broader environmental management, these communities should be assisted to better understand the functioning of wetlands and how their use and management of the wetland impacts on its functioning and the generation of services. Awareness raising will be an important step towards gaining support from local communities to manage the wetlands, even if they perceive that the wetland no longer has any direct value to them.
- b) The attachment of economic value to wetland resources (i.e. provisioning services) has to date provided some incentive for improved wetland management by local communities. However, with younger generations no longer interested in taking advantage of this economic value, this will no longer be an effective incentive. New incentives for wetland management need to be identified and implemented. These new approaches need to create incentives for the sustainable management of the functioning of wetlands so as to also protect the lesser understood and recognised regulating and support services. Examples of new innovations include efforts to implement Payment for Ecosystem Services (PES) models in many parts of the world to promote improved rangeland and forest management for carbon sequestration and water production.
- c) Opportunities to incentivise welfare grants could be explored. South African welfare grants are unconditional, with no restrictions on how the money is spent. In contrast throughout Latin America conditional cash transfers are dominant. Conditional cash transfers are delivered only on condition that the recipients meet certain requirements. For example (Devereux 2009):
  - i. Child support grants are only issued to parents if their children attend school.
  - ii. Rural families only receive grants if they also actively farm their fields.

These programmes aim not only to alleviate current poverty but also to reduce future poverty by encouraging investments in human capital (such as nutrition, education and health) (Devereux 2009). There is clear evidence that poverty and vulnerability are intricately linked to environmental condition (Department of Agriculture, Environmental Affairs and Rural Development 2010). Opportunities could therefore be explored to similarly link these payments

to investment in conserving natural capital and managing the condition of the natural environment. While making welfare grants conditional is still controversial and requires significantly more administration, there could be substantial benefits both to the grant recipients and to the broader society if this can be linked to incentives for improved and sustainable management of the environments, particularly aquatic environments.

- d) Historically, the traditional governance structures (through the *iNkosi* and his Council) managed levels of resource use and equitable allocation of resources among local households. This management approach also had the benefit of protecting ecosystem functioning of natural habitats, such as wetlands, from overuse or destructive practices. More recently this traditional governance system has weakened and in Mbongolwane the current Traditional Authority does not have any rules that it enforces relating to use and management of the Wetland. There is therefore a need to explore the opportunity for strengthening natural resource use management systems at both the household and traditional / local authority level so as to address the degradation of the Wetland and the loss of associated ecosystem services as a result of a lack of interest to protect the Wetland by both the younger generation and the traditional leadership within the local community.

## 8 REFERENCES

Case, A., Hosegood, V., and Lund, F. (2005) The reach and impact of Child Support Grants: evidence from KwaZulu-Natal', *Development Southern Africa* (22) 4, pages 467-482,

Department of Agriculture, Environmental Affairs and Rural Development (2010) KwaZulu-Natal State of the Environment 2004: Vulnerability Specialist Report. KwaZulu-Natal Provincial Government, Pietermaritzburg.

Devereux, S. (2009) Cash transfers: To condition or not to condition? In: *Poverty research findings for development policy makers and practitioners*. December 2009, Issue 80.

Ellis, F., and Allison, E. (2004) *Livelihood diversification and natural resource access*. University of East Anglia, United Kingdom.

Fakir, S. (no date) *Failing the Poor: Their Double Inflation Burden*. (Accessed from internet site: <http://www.sacsis.org.za/site/article/97.1>)

Giannecchini, M., Twine, M., and Vogel, C. (2007) Land cover change and human environment interactions in a rural cultural landscape in South Africa. *The Geographical Journal*. Vol 173. No. 1. March 2007. Pp 26-42.

Kotze D.C., Memela, B., Fuzani, N. 2002 & Thobela, M. (2002) *Utilization of the Mbongolwane wetland in KwaZulu-Natal, South Africa*.

Kotze D. C. undated. In Pollard, S and Cousins, T. (2008) *Towards integrating community-based governance of water resources with the statutory frameworks for IWRM: A review of community-based governance of freshwater resources in southern Africa to inform governance arrangements of communal wetlands*. Report to the South African Water Research Commission, South Africa. Report no TT 328/08.

Millennium Ecosystem Assessment (2005) *Ecosystems and human well-being: Wetlands and water synthesis*. World Resources Institute, Washington, D.C.

Pollard, S. du Toit, D. Cousins, T. Kotze, D. Riddell, E and Davis, C. (2010) *Sustainability indicators in communal wetlands and their catchments*. Water Research Commission. WRC Report No 1709/1/10.

Sullivan, C. Macfarlane, D. Dickens, D. Mander, M. Brojean, M. Teixeira-Leite, A. And Pringle, C. (2008) *Keeping the benefits flowing and growing: Quantifying benefits of wetlands in the upper Orange/Senqu Basin*. Report to NeWater, a project funded under the Sixth Research Framework of the European Union. Institute of Natural Resources, Pietermaritzburg, South Africa.

Turpie, J. (2010) *A tool for the assessment of the livelihood value of wetlands*. Wetland Valuation Volume 3. Water Research Commission Report No. TT 442/09.

# ANNEXURE 1

## **A preliminary report on the *status quo* of use and dependency on the Mbongolwane Wetland by local households**

July 2010

Prepared for

**Water Research Commission**



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# 1 Introduction

This study is being undertaken in the area surrounding the Mbongolwane Wetland, situated at the headwaters of the Amatikulu catchment 25 km west of the town of Eshowe (Figure 1). The Mbongolwane wetland is approximately 395 ha in extent and is in a reasonably intact state (Kotze *et al.*, 2002). Given of the condition of the wetland, it is of great value to society and provides a range of important ecosystem services such as provisioning (e.g. harvesting of natural resources and crop cultivation), regulating (e.g. flood attenuation), supporting (e.g. nutrient cycling) and cultural services. The Mbongolwane Wetland provides a wealth of life-sustaining resources to the surrounding KwaNtuli people, including water, plant material for weaving crafts and thatching houses, grazing for cattle, and land for cultivating crops. Utilisation of wetland resources therefore provides an important contribution to the livelihoods of the local people.

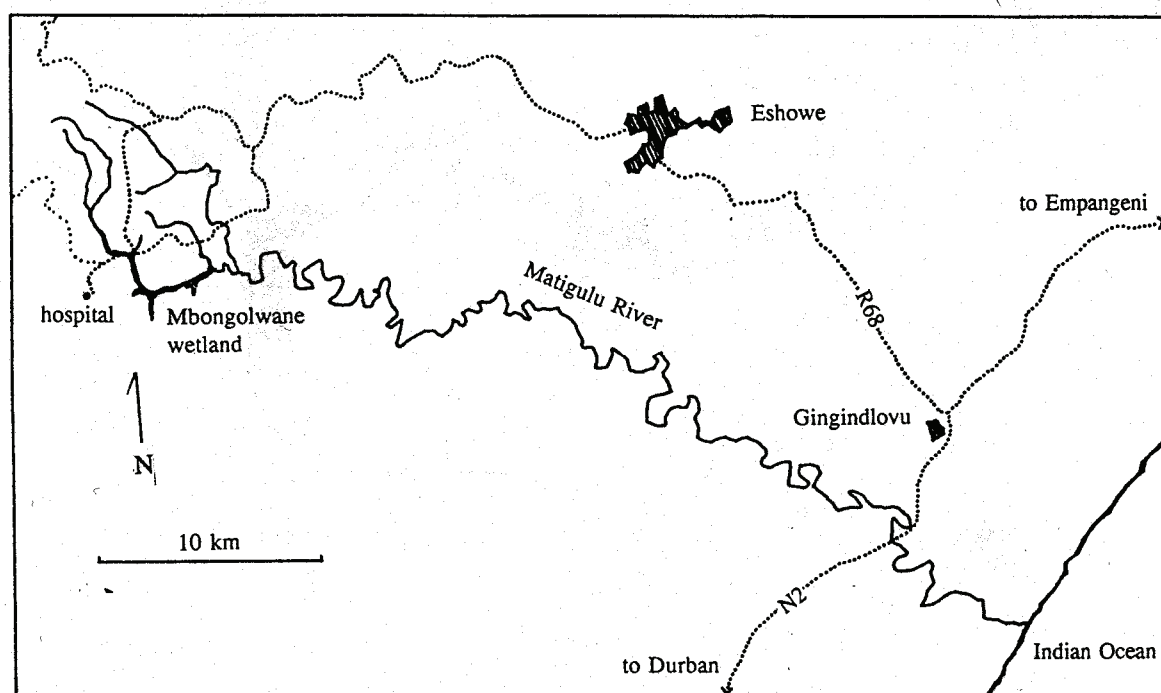


Figure 1: Location of Mbongolwane Wetland (source Kotze *et al.*, 2002)

The area surrounding the Wetland is densely populated, with a rapidly growing population. An estimated 1 026 households (5 746 people) were located within a 2 km radius from the wetland in 2001<sup>10</sup>, compared with 797 households (4 464 people) in 1996. This represents a 29% population growth rate over the 5 year period (Figure 2). The density of people within an approximate 2 km radius of the wetland is therefore about 134 people/km<sup>2</sup>.

<sup>10</sup> The 2001 census data is the most recent population data available for this area.



**Figure 2:** Overview of settlement patterns surrounding the Mbongolwane Wetland (shaded area)

The Mbongolwane area is characteristically rural with very little access to infrastructure and services available to the local population. Households are self-reliant in the provision of domestic energy, water and sanitation services, and there is a high dependence on the ecosystem for the provisioning of these services.

Unemployment rates are very high and opportunities for formal employment are very limited. The local economy is largely driven by informal trade such as the sale of surplus crop products cultivated by individual households, craft products manufactured from natural resources harvested locally, or

commodities purchased in town and resold locally. Social welfare grants are therefore a key source of cash in this local economy. As a result of the scarcity of cash resources there is a high dependence on ecosystem services for meeting domestic needs and supporting the livelihoods of the household, with the cash incomes being used to meet those needs that cannot be secured from the local environment.

The primary objective of this study is therefore to assess the impact of social welfare grants on the utilization and valuation of the ecosystem services from wetlands. Few studies have assessed economic factors that drive resource use and environmental change at a local level. Consequently the economic and social values of resource use strategies in rural livelihoods are not fully understood, especially with regard to ecosystem services and their part in the rural livelihoods safety net. A deeper understanding is therefore needed of household level processes that determine resource use behaviour, which is closely linked to environmental condition and the sustainability of socio-economic development.

## 2 Activities to date

This report provides a description of the *status quo* of local livelihoods and the utilisation of the wetland. The report presents progress to date based on the outcomes of PRA assessment of levels of wetland resource use, farming practices, and levels of dependency on welfare grants. The data were collected using the following processes:

- **Focus group discussion:** A semi-structured interview was conducted with a focus group of wetland users. The discussion focused around types and levels of wetland resources use, dependency levels, and changes or trends in utilization or dependency.
- **Household interviews:** A semi-structured questionnaire with both direct and open ended questions was used to collect household specific information on uses the wetland, households' livelihood strategies and their relative importance, and wetland governance issues. The questionnaire was informed by insight gained during the focus group discussion.
- **Transect walks:** These were conducted to provide an overview of the extent and nature of land and resource use activities (e.g. cultivation and cutting of reeds) and any other features relating to the state of the wetland (e.g. active erosion gullies, alien plant infestation, fire damage, and soil trampling).

Focus groups were compiled from households participating in two community gardens in the south of the Mbongolwane Wetland, namely, Thuthukani and Sizanani gardens. The Thuthukani and Sizanani gardens were established by the local Department of Agriculture for about 60 and 30 members respectively. Initially, members cultivated these gardens as a collective but, have since transformed to farming individual plots within the gardens. The original motivation behind the establishment of the community gardens was that they would consolidate cultivation in localized areas of low environmental sensitivity, reducing widespread of cultivation across the wetland.

Numerous studies have been conducted locally and internationally into the contribution of wetlands to rural livelihoods, and into the functioning of the Mbongolwane Wetland specifically. A review of this literature has therefore formed a key activity for contextualizing this study.



### 3 History and trends in use of the Wetland services

The families living around Mbongolwane have been cultivating in the wetland as long as they can remember. There has always been a culture of cultivating crops in the wetland as a means of sustaining the families; however the extent and intensity of cultivation has been influenced by factors such as drought, food security and levels of well-being.

Some people started by helping their parents cultivate fields in the wetland and harvesting resources when they were children. This helped them gain knowledge and experience which they applied when they started their own harvesting and cultivation practices as adults. Other people moved into the Mbongolwane area as adults (either driven there as a result of unrest in other areas or because they married into families in the area). They were then either allocated fields by the traditional authority or joined the cultivation of plots owned by the family they married into. Plots in the wetland can also be inherited from parents when they become too old to farm them, or when they pass away.

#### **BOX 1: TRANSECT WALK OBSERVATIONS**

##### **Alien Plant Infestation**

Areas of the Wetland were observed to be infested by a range of alien species. These included primarily bug weed, American bramble and wattle trees. These infestations were scattered across the Wetland and were particularly evident in disused former cultivated areas. The level of infestation can generally be rated as low, however in the cultivated and along disturbed areas infestation levels are rated as moderate.

### 4 Use and dependency on the Wetland services

The Mbongolwane Wetland provides a range of goods and services that support the livelihoods of local households. The main dependency appears to be on the provisioning services from the wetland in the form of (Figure 3):

- crop cultivation
- resource harvesting
- water harvesting for domestic needs, livestock and irrigation of crop





**Figure 3:** Examples of uses of the Mbongolwane wetland by local households

The most common crops cultivated in the wetland are *amadumbe* (*Colocasia esculenta*) which cannot be cultivated in dryland agriculture, and to a lesser extent pumpkins. *Amadumbe* are widely cultivated for both household consumption and selling of surpluses to local households who do not grow their own. Crops like maize, beans and potatoes are also cultivated in drier areas along the edge of the wetland, which are more fertile than the dry areas but which are less frequently inundated by water.

The natural resources most widely harvested from Mbongolwane Wetland are *Cyperus latifolius* (*ikhwane*), *Phragmites australis* (*umhlanga*), *Juncus krausii* (*incema*), *Juncus punctorius* (*ingcobosi*) and *Cyperus sexangularis* (*imizi*). Some of the most popular medicinal plants harvested from the wetland include *Ranunculus multifidus* (*uxhaphozi*) and *Gunnera perpensa* (*uklenya*). Harvesting is primarily undertaken by local households; however there are crafters or healers from other areas who travel to Mbongolwane specifically to harvest these valuable resources.

#### **BOX 2: TRANSECT WALK OBSERVATIONS**

##### **Cattle Grazing**

Herds of between 10 and 30 cattle were observed grazing in various sections of the wetland. Some of these animals were attended by herders, while others were unattended. It is the unattended cattle that people cultivating in the wetland said cause problems, because their plots are not fenced and so the cattle eat and trample their crops.

### **4.1 Agricultural practices**

#### **4.1.1 Field allocation and use**

Results from the focus group discussions and the household survey indicate that individual households 'own' between 1 and 8 plots in the wetland. Some of these plots are actively being cultivated while others were being left fallow to help restore their fertility. Various crops are cultivated, including *amadumbe*, pumpkins, potatoes and maize.

#### **BOX 3: TRANSECT WALK OBSERVATIONS**

##### **Fire Damage**

There was no evidence of new fire incidents in the wetland. However, there were some burnt areas outside the wetland, especially around sugarcane fields. Despite the fact that the members of the focus group said fire is a major problem during this time of the year, there was no sign of burning in the wetland.

All households use a portion of their harvest to meet their own families' needs and none of the households cultivate purely for commercial purposes. About 33% of the households reported that they regularly sell some of their *amadumbe* harvest, while almost all households reported selling surpluses cultivated in dryland fields outside of the wetland. The cultivation activities are driven primarily by the need to supplement household food supplies, and a portion of the harvest is sold only if there is good yield.

In addition to individually owned *amadumbe* plots in the wetland, many households also participate in community gardens in the wetland. Even within the community gardens, cultivation is still on an individual basis. Each household manages their own plot. The benefit of participating in the community garden is however that extension officers from the Department of Agriculture provide assistance to the group and the group shares also supports its members, e.g. in accessing seed and other inputs.

#### **BOX 4: TRANSECT WALK OBSERVATIONS**

##### **Soil Erosion**

Two gullies were noted during the transect walk, one along the wetland and another one starting upland and potentially depositing soil into the wetland. However, both gullies were now vegetated. Marginal erosion was also noted along cattle paths and water points where animals drink.

A tractor was observed harvesting sand in the wetland.

### **4.1.2 Use of inputs**

The productivity and yields from the fields in the wetland vary and are influenced by two key factors:

- The use of fertilisers
- Effectiveness of pest control measures

The Farmer Support Group (FSG) through the LandCare Project introduced a number of guidelines governing the use of fertilizers and pesticides, as any chemicals used would enter the wetland system and jeopardise its functioning and the health of the ecosystem service users. Examples of these guidelines include the avoidance of chemical fertilizers or pesticides. Alternatives have been introduced including the use of a mixture of aloe pulp combined with sunlight soap, pepper, and water to control insects and pests that destroy the crops.

However there was also evidence (observed during transect walks) that some farmers are nevertheless using chemical pesticides in the wetland, such as ant poisons (Figure 4). Members of the Thuthukani community garden reported that they recognised that this was not a good practice but that they felt they did not have an alternative as some pests are very difficult to control with the aloe/sunlight mixture and often they have to resort to *blue death* insect powder. The main source of fertiliser used by the households is kraal manure, which members collect from their own cattle kraals or from their neighbours' kraals if they do not need it themselves (Figure 5).





Figure 4: Some farmers rely on factory manufactured chemicals



Figure 5: Kraal manure used as an input for vegetable crops

### 4.1.3 Trends in agricultural practices in the Wetland

#### a) Community gardens

The focus group participants and the transect walk revealed that the extent of cultivation both in the community gardens and the individual plots has changed since the 1980s. This is evidenced by the following trends at the Thuthukani Community Garden:

- The Thuthukani Garden was established in the early 1970s and initially had more than 60 members. Currently, there are less than 10 individuals cultivating in the Thuthukani garden.
- To try and control the extent of cultivation that was taking place in the wetland the Department of Agriculture formalised and fenced Thuthukani garden. The fencing also helped to keep the livestock outside and prevented them from damaging the crops.

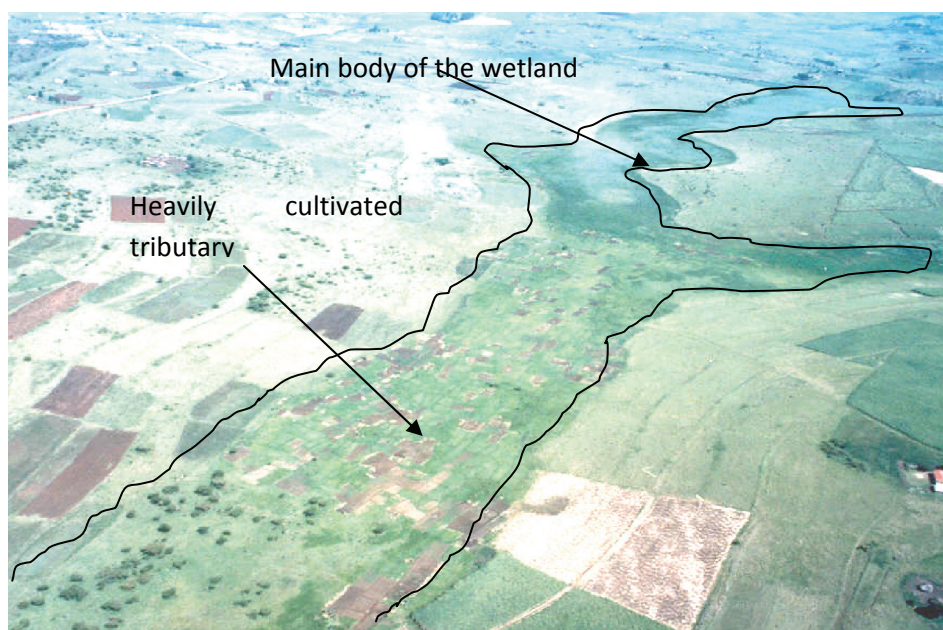


- Since 2005 there appears to have been an increase in the rate of decline in the number of members. Explanations provided by local households is that they did not enjoy being responsible to the group. Furthermore they reported that the agricultural extension officers were emphasising commercial production which they did not support. Some of the members who dropped out of the Community Garden started cultivating their own individual plots in the wetland, while others discontinued their farming activities in the wetland completely.

About 22% of the total 2.41 ha of the Thuthukani Garden is now cultivated (Figure 7). A greater proportion of the Zamani Garden is still cultivated (60%) but it too as seen a decline since it was established in the 1970s. Site inspections indicate that the abandoned areas have until relatively recently been cultivated. Members of the Thuthukani Garden suggest that the number of members actively cultivating in the Garden is likely to decline further as they want to use tractors to plough their fields and are struggling to access to afford the hiring of tractors. Some of the community gardens, e.g. Nhlanhleni and Mandlezizwe have been abandoned entirely. These gardens are reportedly no longer cultivated because of organisational problems and lack of support from the local Department of Agriculture. Mandlezizwe was assessed to be an erosion hazard to the wetland and the Department of Agriculture discouraged people from cultivating it (Kotze, *pers. comm.* 2009). None of the community garden groups reported new households applying for membership.

#### **b) Individual household cultivation**

Individual cultivation also appears to have decreased. Figure 6 illustrates the extent of cultivation in a south western tributary of the Wetland in the early part of the 2000s. The extent of current cultivation (2010) is demarcated in Figure 7, and it is evident that this is now a much smaller area. This was also evident during the transect walk, where disturbed areas that used to be cultivated are no longer cultivated. The focus group discussions that while some of the field are being temporarily rested and others have been completely abandoned.

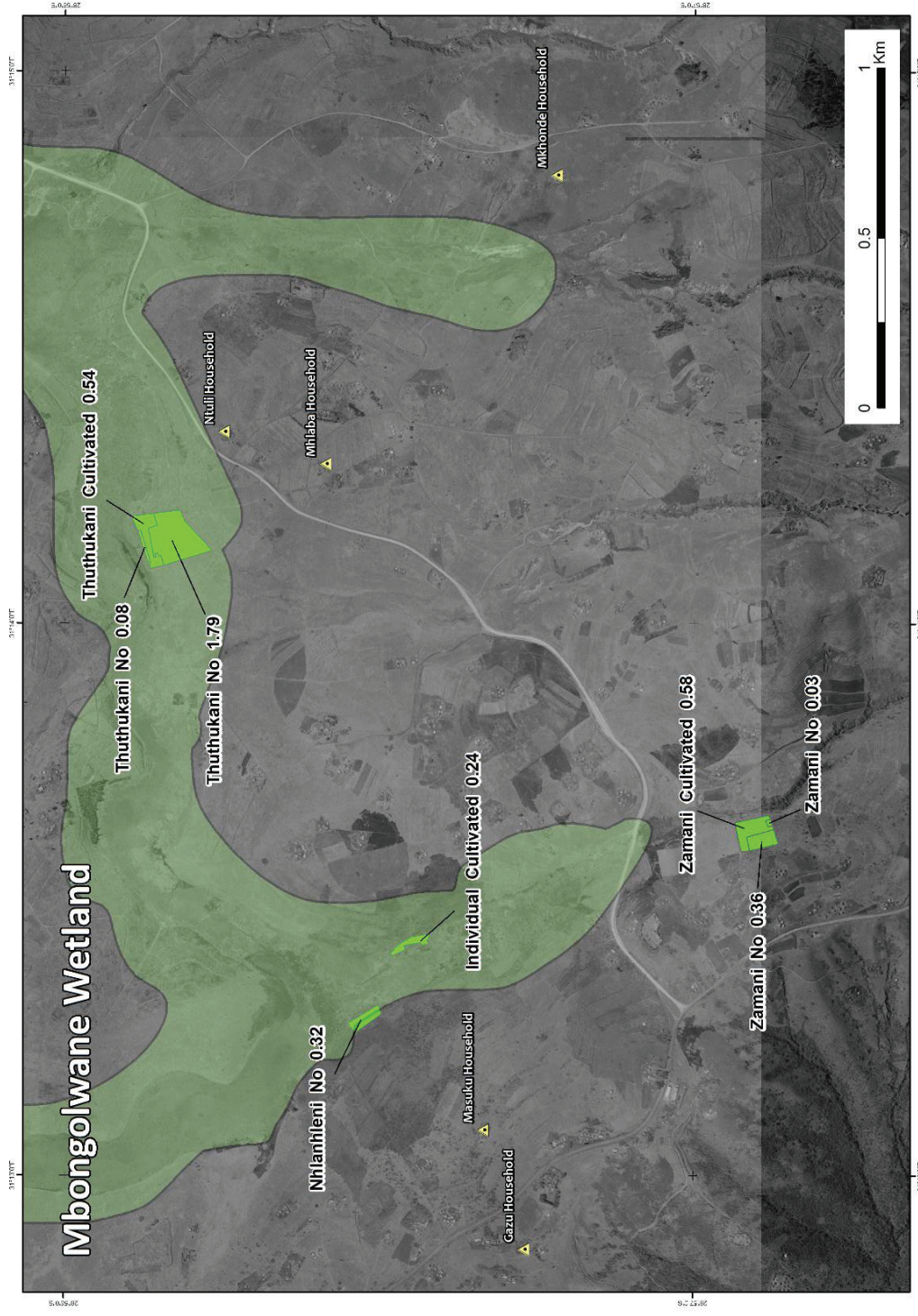


**Figure 6:** A heavily cultivated 'arm' of the wetland during the early 2000s (Kotze, undated)

#### **4.1.4 Preliminary assessment of drivers of agricultural trends**

Indications are that there has, in recent time, been a decrease in level of cultivation in the Mbongolwane Wetland. The local households attribute the decrease to the fact that farming is mainly undertaken by older members of the household. Other members of the household are not taking over these activities when the farmers become too old to continue and households suggested that the younger generations are not interested in agriculture or working in the wetland. However households that are still farming fields in the wetland confirm that the harvests from these fields remain very important to them and their families.

The difference in opinion between these households who still rely and depend on their wetland farming activities and those who do not needs to be explored more extensively in the next phase of the project.



**Figure 7:** Location and extent of cultivation (ha) in selected portions of the Wetland

## 4.2 Resource Harvesting activities in Mbongolwane Wetland

### 4.2.1 Resources harvested and their uses

A variety of wetland plants are harvested from Mbongolwane Wetland, the most common being *ikhwane*, *umhlanga*, *incema* and *imizi*. The amount of each resource harvested varies and depends on availability (Box 5). *Ikhwane* and *umhlanga* appear to be the two most abundant resources found in the Mbongolwane wetland.

Table 1 presents the most common natural resources harvested from the Mbongolwane wetland and used for craft production (based on the outcomes of the focus group discussions and household interviews).

#### BOX 5: TRANSECT WALK OBSERVATIONS

##### Reed Harvesting

There was no visible evidence of *umhlanga* harvesting along the transect areas. There was however harvesters who were harvesting *ikhwane*. The focus group participants said, until about 5 years ago by May of every year all the *umhlanga* would have been harvested. This not happening anymore, and they said people now use corrugated iron to roof their houses, even for rondavels which are traditionally known to be thatched from either thatching grass or *umhlanga*.

Table 1: Types of resources harvested from the Mbongolwane wetland and their uses

Resource	Botanical Name	Use/Products made	Nature of use	Traded for
<i>Incema</i>	<i>Juncus krausii</i>	Sleeping mats, Izicephu (smaller)	Household use	Traditional ceremonies, weddings and funerals
<i>Ikhwane</i>	<i>Cyperus latifolius</i>	Sleeping mats	Household use	Traditional ceremonies, weddings and funerals
<i>Ingcobosi</i>	<i>Juncus punctorius</i>	Sleeping mats	Household use	Traditional ceremonies, weddings and funerals
<i>Umhlanga</i>	<i>Phragmites australis</i>	Roof thatching, used alone or in combination with corrugated iron	Household use	Not traded
<i>Imizi</i>	<i>Cyperus sexangularis</i>	Sleeping mats	Household use	Traditional ceremonies, weddings and funerals

Household needs vary, with some households harvesting more resources than others, either for household use or selling. Some products crafted by the households are sold locally, i.e. to other members of the community for various purposes including traditional ceremonies, weddings, and



funerals. There are however some initiatives geared towards producing and selling commercially, such as the Thubaleth' Elihle Craft Group which makes conference bags and other craft products (Box 6).

Some local harvesters harvest excess resources, which they sell *ikhwane* to people coming from other areas as far as Inkandla or Durban who then process it into draft products to sell in their areas. The amount of each resource harvested is dictated by the demand, i.e. the amount of products made and the rate at which those products sell at the markets. As a result people rotate the harvesting areas and harvest from different areas of the wetland each year depending on the availability of the resource.

#### **BOX 6: THUBALETH' ELIHLE CRAFT GROUP**

The Thubaleth' elihle Craft Group is a local craft group drawing membership from local households, especially those surrounding the wetland. The group was established in the early 2000s and makes conference bags. The group has expertise in making file covers. The group which started with about 70 members has been reduced to about 20 members owing to lack of market and demand for *ikhwane* conference bags. The group hopes to receive assistance or training on other craft products and market opportunities.

Focus group discussions have however raised concern about the sustainability of these activities. There are reportedly areas within Mbongolwane Wetland that used to have *ikhwane* but from which it has now disappeared. However some of the harvesters reported that the site where *ikhwane* is found has moved further up from the road that cuts through the wetland, indicating that the construction of the road (rather than over harvesting) might have had an impact on the availability of this resource.

### **4.2.2 Trends in resource harvesting practices**

The Mbongolwane Wetland has over the years been characterised by changing patterns of resource harvesting. Both the focus group discussion and the household survey confirmed that there has been a decrease in resource harvesting from Mbongolwane Wetland. The decrease in the harvesting of *incema*, *ingcobosi* and *imizi* is partially attributed to an increasing scarcity of these resources. However the harvesting of *umhlanga* is also reported to have decreased despite the constant availability of this resource. In the past people harvested *umhlanga* to thatch the roves of their houses and the demand was therefore relatively high. Households now reportedly prefer alternatives such as corrugated iron, even though they need to buy it whereas the *umhlanga* was available locally at no financial cost. It was reported that, until recently, all the available *umhlanga* was usually completely harvested by May/June each year. This harvesting pressure appears to have decreased as there now appears to be significant stands of un-harvested stands *umhlanga*.

The drivers of the switch to more expensive alternatives from *umhlanga* and the reasons for their now apparent affordability need to be explored further in this study.

The scarcity of some of the resources has led to the increase in prices for products made from these resources. For example, the focus group participants revealed that the products made from *incema*

and *ingcobosi* are very expensive because of the scarcity of the resource and also the good quality of the resource.

### ***4.3 Other local uses of ecosystem services from Mbongolwane wetland***

The focus group and household interviews highlighted a heavy dependence on the provisioning (supply of agriculture and natural resources, and water supply for domestic and agricultural needs) and supporting services (soil formation and nutrient cycling which is important for the productivity of the fields in the wetland).

While there is less local recognition of the use of the cultural and regulating services, there is evidence of local benefits being derived from these services in the form of recreation and cultural activities in the wetland, and the flood attenuation role of the wetland. Examples of the dependency of these services include:

- Local widows wash in the wetland to cleanse following the death of a husband
- There is a belief with respect of *Nkanyamba*, the many-headed serpent who is the ancestral guardian of their wetland. Failure to respect the wetland and the serpent is said to result in a disastrous storm.
- Recreation activities include children, especially boys, fishing and swimming in the wetland however these activities are reported to have decreased over time.

## **5 Local livelihood strategies**

People living in the Mbongolwane area derive their livelihoods from a combination of strategies such as production of food and products from the wetland, dryland agriculture, and income generating strategies through informal and formal trade. Income generating strategies may include a combination of:

- Incomes from employment (formal and informal)
- Incomes from informal trade
- Incomes from social welfare grants
- Incomes from sale of surplus crops
- Incomes from the sale of craft products

These cash incomes are supplemented with the cultivation of food crops to help meet household food security needs, and the harvesting of wetland resources to produce some household needs (e.g. sleeping mats and baskets).

The contribution of the Mbongolwane Wetland to the livelihoods of households varies between households, and as such the Wetland is seen to be of varying importance by these households.

### ***5.1 Agricultural livelihood strategies***

Households rely on both dryland and wetland cultivation, with the wetland providing the opportunity to grow important crops that cannot be produced in dryland farming. Most farmers cultivate with the specific intention to sell surplus (i.e. the quantity produced that is beyond the

household need). Surpluses are usually sold locally, and the income from sales is used to buy basics such as meat, rice, oil, sugar, salt and canned foods which they cannot produce themselves. The importance of the contribution of agricultural activities to meeting household livelihood needs differs from one household to another, and varies seasonally.

Even though there has been a general decrease in the extent of cultivation in the Wetland, the household survey revealed that the wetland activities are valued by those households practicing them. Thirty percent of the household surveyed rated the wetland agricultural activities in the wetland as being “vital” to their livelihoods, while 50% rated them as “very important”. One survey participant expressed this sentiment as follows:

*“When I did not cultivate in 2009, my family battled. Not cultivating my own food opened a big gap that could not be closed by anything else” (Gazu, pers. comm.)*

The income generated from agricultural activities is an important cash supplement to pensions, as its value was expressed as follows by one survey participant:

*“I rely on agricultural activities between pension days. Pension is often not enough to carry us through the month” (Mkhonde, pers. comm.)*

It is therefore evident that, while crop production from the wetland is not on its own sufficient to support the livelihoods of households it is a vital link in the livelihood chain of activities and provides an opportunity for diversity that forms an important safety net.

## **5.2 Craft production strategies**

Many households in Mbongolwane supplement their livelihoods through craft production. They harvest wetland resources in order to make craft items such sleeping mats, locally known as *amacansi*, and conference bags using mainly *ikhwane*. These items are sold locally, i.e. in the community, and also commercially. *Amacansi* are sold for about R30 each while conference bags sell for about R150 each. Households reported that the sale of craft products contributes between R140 and R700 per month, which is an essential cash supplement for the household. Approximately 50% of the households surveyed rated the contribution of craft production to the livelihoods strategy of the household as “very important”, with the remainder valuing the contribution slightly lower. The income from craft production was reported to be used to cover costs associated with things such as school uniforms, funeral cover and financial investment such as *stokvels* (local group saving schemes).

The ranking of the income from craft production as very important was explained by some as follows:

*“I make reasonable income and this is very important for the survival of my family. Even though I cannot control sales, it is still a very reliable source of income. People know I make sleeping mats and sometimes they make orders” (Masuku, pers. comm.)*

*“It is a very important supplement or back up for our living. I don’t have to go outside and borrow money” (Mkhonde, pers. comm.)*

Even though craft production does not guarantee a regular income, it does provide households with an alternative supplementary source of income. Consequently, while craft production is not likely to be the primary source of household income, it provides a supplement and a diversified income stream.

### **5.3 Cash incomes**

Formal and informal trade and employment by household members is a critical source of income. Approximately 33% of the household survey participants have family members who are permanently employed and who remit money to the household on a regular basis. Cash incomes are also earned from the local trade of commodities that are purchased in town and then resold locally. The income contribution from formal and informal trade and employment ranges from about R350 to R3500, but is not necessarily monthly. Households are heavily dependent on the remitted incomes as expressed by one farmer who said the income she gets through her daughter is very important because:

*“...it is helping on other very important things, giving me time to spend the pension on food needs” (Gazu, pers. comm. 2010).*

However other households do not benefit from the incomes of employed family members and need to be totally self-reliant:

*“...children never send money home. You see them once a month and even then they don’t give you anything” (Zuma, pers. comm. 2010).*

### **5.4 Social welfare grants**

Almost all the households from the Mbongolwane area access social welfare grants either in the form of old age pensions, child support or disability grants. The value of the grants varies from R250 per month for a child support grant and R1080 per month for both the old age and disability grants. Qualification to receive social welfare grants is determined by the Department of Social Development. Some households qualify for more than one of these grants per month.

All households surveyed ranked social grants, especially the old age grants, as “vital” for the survival of household. The respondents provided a range of reasons in support of this significance rating, with the key reason being that unlike other sources of income, the social grants are guaranteed every month:

*“Without the pension I would starve. The pension is reliable. I use it to pay the tractor or the boys to cultivate in the garden or the wetland” (Ntuli, pers.comm. 2010)*

*“Pension is the most reliable source of income that I don’t have to work for” (Mkhonde, pers.comm.)*

Responses from the household survey showed that no household would easily give up their pension grant as it is their main and reliable source of income. They are able to use income from the pension to buy things that they cannot cultivate which are critical to the daily survival of their household.



Social welfare grants are a vital source of cash incomes because, unlike the other livelihood strategies, the income from the welfare grant is a known amount and is guaranteed and reliable. It therefore forms a critical baseline for the household.

## 5.5 Preliminary conclusions

Even though families in Mbongolwane generate income from other sources, such as agricultural practices and craft production, welfare grants are by far the largest and most reliable source of income for all the households surveyed (Table 2). All the households surveyed benefited from either multiple child support grants (of R250 each per month) or at least one pension (of R1080 per month).

Table 2: Income generated from four livelihood strategies

Livelihood Strategy	Percentage households per income category			
	< R 150	R151-R400	R401-R800	>R801
Agricultural activities	66%	0%	33%	0%
Craft production	33%	50%	17%	0%
Employment and trade	66%	17%	0%	17%
Social welfare grants	0%	0%	0%	100%

The social welfare grants appear to be the most important and reliable source of income followed by agricultural activities and craft production. While there appears to be a declining trend in agriculture and craft use, there are no households that suggest that they have received social welfare grants in the past but no longer depend on these.

The relatively high importance of agricultural activities and craft production for people's livelihoods indicates that there is a direct dependence on the Mbongolwane Wetland and its resources, which is likely to continue for as long as people are able to generate income or food from it.

Evidence to date indicates that there is widespread recognition of the important contribution the Wetland's provisioning services make to local livelihoods, however the contribution of the supporting, regulating and cultural services need to be explored in more detail in the next phase of this project.

## 6 Governance of the Mbongolwane Wetland

The wetland lies within communal land of the KwaNtuli Tribal Ward. *Inkosi* Ntuli is the custodian of land, including the wetland and the activities taking place in the wetland are therefore the responsibility of *Inkosi* and the rest of the Traditional Authority.

Use of the wetland has historically been regulated by a set of rules established by the *iNkosi* and his traditional council. These rules included time of harvesting, areas of cultivation, grazing areas and land allocation and the Ntuli Tribal Authority was responsible for the enforcing of these rules. For example:

- Reeds used to be harvested from 1 May onwards to prevent harvesting taking place too early in the season.
- Cattle were not allowed to graze in the wetland to prevent trampling and damage in the wetland.
- Outsiders, i.e. people not residing or owning homes in Mbongolwane, were not allowed to harvest resources from the wetland unless they had been given permission by the TA. This prevented over harvesting of scarce resources.

However, there is evidence that these governance rules are neither enforced nor obeyed by both the residents of Mbongolwane and outsiders.



**Figure 8:** Ikhwanwe harvesters from Inkandla



**Figure 9:** Cattle grazing in the wetland in the process creating paths susceptible to erosion

Evidently, the governance of the Mbongolwane wetland has changed over time, largely because of the changing “faces” representing various local governance structures. The Inkosi and various TA members who were part of the regime that implemented rules of use have changed. The reasons for this change in governance needs to be more clearly understood in the next phase of the project and to identify if there is any association between these changes and the way the value of the wetland services are perceived.

## 7 Conclusion and Way Forward

The utilization of the Mbongolwane Wetland has changed over time, and this has been driven by a number of factors. Although there has been a rapid increase in population, i.e. about 30 % over the past 5 years, there has been a general decrease the utilization of the wetland, either for cultivation or reed harvesting purposes. The number of people cultivating and harvesting resources in the wetland has decreased and the people of Mbongolwane now have had access to a wider range of alternative livelihood strategies, including commercial sale of craft products, formal and informal employment and social welfare grants. The social grants appear to form the core of household income for many households in Mbongolwane.

A number of issues have been highlighted during this preliminary phase of the project that will be explored in more detail in the next phase:

- Both the household survey and the focus group discussion suggested that the wetland is vital for people’s livelihoods yet there has been a decline in the level of agricultural and craft utilization. This needs to be understood better as it is assumed that a high wetland importance is most likely to lead to a general increase in the extent of wetland utilization and dependence.
- The social grants seem to be critical for people’s livelihoods and are said to have influenced diversification in people’s livelihood strategies. An assessment of changes in the diversification of livelihood strategies following the access to social welfare grants is required, as well as an examination of the relationship with utilisation of the wetland.
- Linkages between the valuation of ecosystem services and apparent increases in cash incomes will be explored in detail.

- The socio-economic drivers that inform peoples' choices relating to wetland management will also be explored in order to inform integrated management approaches to water resources and aquatic ecosystem.

## 8 References

Kotze D.C., Memela, B., Fuzani N. 2002 & Thobela, M. 2002: Utilization of the Mbongolwane wetland in KwaZulu-Natal, South Africa.

Kotze D. C. undated. In Pollard, S and Cousins, T. 2008. Towards integrating community-based governance of water resources with the statutory frameworks for IWRM: A review of community-based governance of freshwater resources in southern Africa to inform governance arrangements of communal wetlands. Report to the South African Water Research Commission, South Africa. Report no TT 328/08.

Kotze, D. C. 2009. *Personal Communication*.