Chapter 24

Protected Areas and Ecosystem Services — Integrating Grassland Conservation with Human Well-Being in South Africa

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Additional information is available at the end of the chapter

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1. Introduction

In recent years development agencies and conservation organizations such as the World Conservation Union, World Bank, Birdlife International, the United Nations, the World Wide Fund for Nature and Fauna as well as Flora International, have served to reinforce a number of conservation practices and policies in which the link between natural conservation and improving the lives of rural communities has been piquantly accentuated. The central emphasis that has emerged from these accents is that protected areas – and national parks in particular-cannot be viewed as isolated from the economic and social context within which they are located. Worldwide – and particularly in the developing world – protected areas are progressively expected to navigate past the conventional primary focus on biodiversity protection to also, through the process of conserving biodiversity, contribute to improving the well-being of those communities adjacent to conservation areas through the delivery of social and economic benefits [1]. To be more precise, it has become essential that the goals of protected-areas management and biodiversity conservation become acquiescent with the socio-economic expectations and needs of local communities [2,3,4]. The very survival of such areas and the people surrounding it depends on a mutually beneficial interaction. In fact, protected areas have a powerful potential to markedly influence human well-being through the generation of social, environmental and economic initiatives that may benefit both protected areas as well as the local communities [5].

One example in South Africa where protected areas have been influential in attempting to improve the well-being of neighbouring communities is the People and Parks Programme of

South African National Parks (SANParks), which was implemented as an intermediary that endeavours to address the various socio-economic tribulations that were often ignored or sidelined in favour of conservation during the Apartheid rule. The post-apartheid policy of SANParks is entrenched in the conviction that biodiversity conservation should be directly linked with the needs of neighbouring communities, thus opening up possibilities for augmenting the well-being of communities neighbouring national parks in the country [6]. Some of the initiatives aimed at improving the well-being of neighbouring communities include health programmes, the development of cultural resources, heritage management, environmental education, the interpretation of medicinal plant use, the unlocking of economic opportunities in the form of job creation, and the carrying out of an assortment of arts and crafts projects [3,6].

Emanating from the above, this chapter reflects on a study conducted in the Golden Gate Highlands National Park (Golden Gate) in the Eastern Free State of South Africa, and the role of the park as a vehicle for improving the well-being of those living within the surrounding communities by means of the latter's participation in a grass harvesting programme in the park. Essentially, the broad aim of this research venture was to assess to what extent the thatch harvesting programme at Golden Gate had impacted on human well-being within the park's neighbouring communities. More specifically, this study set out to explore and answer the following interrelated research questions: To what extent has the thatch harvesting programme at Golden Gate benefited the communities bordering the park, and particularly the most vulnerable and poorest section of the community? What evidence is there to indicate that the thatch harvesting programme has improved the community's well-being? What interventions are needed to strengthen and maximise the impact of the said programme in order for it to effectively enhance the well-being of those within the target community? To what extent, if any, has this programme impacted the park's conservation mission?

2. About the project

This section firstly provides a broad overview of the general state of the grassland biome in South Africa, followed by a more detailed discussion of the grass-harvesting programme at Golden Gate.

2.1. Setting the scene: The grassland biome in South Africa

Globally the grassland biome covers about 40% of the earth's surface, is home to more than one billion people in the world and provides many essential ecosystem services required to support these people and many others who are not living inside this biome [7]. Grasslands are the largest of South Africa's nine biomes and cover roughly one third of the country [8]. South African grasslands constitute a complex ecosystem that includes amongst others 42 river systems, five Ramsar wetlands and three World Heritage Sites. There are more than 3,000 plant species found in these grasslands, and only one in six of them are grasses. Grasslands are the habitat for a wide variety of wild life, and provide many crucial ecosystem services that are

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essential for human development and well-being. Apart from providing grazing for millions of cattle and sheep, the grasslands biome also offers all-important services in water production, wetland functioning, flood attenuation, recreational amenities and support for livelihoods such as thatch for housing, grass for weaving and medicinal plants [8]. South African grasslands play a critical role in the hydrological cycle by reducing erosion and runoff, and by storing runoff as either groundwater or in wetlands, thereby contributing to water supply and freshwater ecosystem services [7].

The grasslands biome is one of the most threatened biomes in South Africa as a result of population increase, rapid urbanisation, expanding mining operations, increased forestry and commercial agriculture. Approximately 35% of this biome has been irreversibly transformed and less than 2% is officially conserved [7,9]. The current state of South African grasslands, as well as expected future developments, means that the important biodiversity and ecosystem services in the grasslands are being degraded to such an extent that human well-being is threatened. As a result, the importance of protecting the grassland biome for both biodiversity and economic development reasons has been recognized by the National Biodiversity Strategy and Action Plan that has identified this biome as a spatial priority for conservation action in South Africa [9].

2.2. Grassland conservation and grass harvesting at the Golden Gate Highlands National Park

Golden Gate) is situated in the foothills of the Maloti Mountains in the north-eastern part of the Free State Province (Figure 1), and plays a critical role in the country's grassland conservation strategy. Established in 1963, Golden Gate comprises more than 30 000 hectares of highland habitat, is home to a large variety of mammals, antelope and bird species, and is renowned for its sandstone formations and important paleontological discoveries [3]. The park is home to more than 60 species of grasses, and is currently the only national park in South Africa that protects the Afromontane grassland biome. The grass species include the red *Themeda triandra*, which is a highly nutritious grass for grazing antelope and widely regarded as an indicator of a healthy ecosystem [10]. Much of the grasslands outside the park have been permanently lost as a result of overgrazing and soil erosion. The larger Golden Gate region is also one of the most important water-catchment areas in South Africa, with more than half of the country's freshwater supply coming from this area [3].

Since the proclamation of the first national park in South Africa in 1926, no form of resource utilization was allowed in any of the 22 national parks, including grass harvesting at Golden Gate. This conventional policy of SANParks changed in 2003 when national legislation was amended to provide for communities to access resources from protected areas. The changed legal provision subsequently called for a revision of SANParks' own policy on resource use, and introduced a new resource use policy that regulates standard operating procedures for resource use in all South African national parks. In a broader context, the new policy on resource utilisation in national parks serves to confirm many initiatives since the mid 1990s that have served to underline the importance of the role of national parks with regard to

Figure 1. Locality of the Golden Gate Highlands National Park [11]

sustainable economic development and their augmentation of the well-being of their neighbouring communities.

The thatch harvesting programme at Golden Gate has been one of several projects for resource use within SANParks aimed at transferring social and economic benefits accruing from biodiversity protection to the impoverished surrounding communities through prospective employment opportunities by means of commercial access permits and park assisted entrepreneurial endeavours [12]. For many generations QwaQwa National Park, which amalgamated with Golden Gate in 2009, offered a rich source of accessible and harvestable grasses for communities residing in the area. These grasses were used to produce a wide variety of items such as brooms, hats, baskets, roof thatching, decorations and floor mats [12]. However, in accordance with the National Environmental Management Protected Areas Act (Act 57 of 2003), Golden Gate was obliged to restrict harvesting activities within its borders, which as a result cut off natural resources otherwise used by local community members. Recognising the financial consequences of such constraints, and in conjunction with SANParks Resource Use Policy which was signed into effect in March 2010, Golden Gate began exploring the possibility for regulated and controlled access and use of harvestable grass within the park. In June 2011, the necessary documents pertaining to the application for access, the access permits, the conditions for entry and harvesting within the park as well as the monitoring document for

http://dx.doi.org/10.5772/59015

harvesting, were conceptualised and submitted for evaluation. In September 2011, a draft needs analysis report was also submitted for review [12]. Upon consideration and acceptance of these supporting documents, a pilot project for the proposed thatch harvesting programme was subsequently launched in 2012.

3. Conceptual framework

3.1. Ecosystem services and human well-being

In recent years, the need for more efficient management of ecosystem services, coincided with the needs and values of neighbouring communities, has become increasingly acknowledged by numerous governments as a means for improving the quality of life and well-being of their respective populations [13]. It is widely agreed that poverty and well-being are commonly experienced and expressed as counter extremes of one another, with the 2000/01 World Development Report further strengthening this concept by defining poverty as "the pronounced deprivation of well-being" [13]. Adding to this, the experience of well-being or ill-being is strongly dependent on the situation and context in which local personal and social factors such as ecology, gender, age, geography and culture play a large and very important role [13].

Both the ecosystem and human well-being are directly interdependent in that ecosystem services provide humans with the necessary resource opportunities they require to survive and improve their quality of life, and the availability of these resources can profoundly affect aspects such as health, the rate of economic growth, the frequency and persistence of poverty, livelihood security and so forth. The ecosystem also offers human beings nonmaterial benefits such as education, recreational and spiritual services. On the other hand, ecosystems are impinged upon by human activity through the need of ecosystem services such as fuel wood, food, fresh water, fibre and grass. [13]. It clearly follows from this interaction that nature is often valued for its usefulness: it satisfies a predilection, provides a function, and meets human needs [14]. These values are assigned to something because of the satisfaction and enjoyment that can be obtained through the use of biological resources. When an object is utilized as a method to satisfy a need or as a means to achieve an end, either the relation or entity can then be classified as an instrumental value. Thus through the *economic/utilitarian* perception of the value of nature, the efficacy of the environment is articulated through individual preferences or an accumulation of preferences [14,15]. In addition to this, the consumption of environmental resources refers to *consumptive use values* which are the values placed on those resources which are consumed directly without having passed through a market. Consumptive use values are especially significant to the rural populace in developing countries where these biological resources are used and collected as a source of subsistence. Pressures to conserve biodiversity have consequently resulted in reduced access to these resources and for the poor and politically weak, this has typically impacted them severely [15]. Put differently, the erosion of natural capital has serious consequences for human quality of life, and particularly that of poor, rural communities.

Natural capital can be defined as those goods and services supplied by ecosystems that are both renewable and non-renewable, including the ecological practices regulating their use and existence that may serve to meet various human needs [16, 17]. Natural capital plays a fundamental role in determining the well-being of both individuals as well as groups, in that it provides a number of essential elements such as air quality, the reduction of greenhouse gases, water quantity, quality of soil and landscape, but to name a few [13, 18]. In addition to this, ecological services play a fundamental role in providing the necessary resources required to live a life of normal length through medicines for diseases, freshwater, foods, and the regulation of threatening human diseases [19]. Thus, natural capital impacts all communities, most especially those communities surrounding protected areas wherein healthy, sustainable ecosystems with numerous community benefits are essential to their well-being and quality of life [13,20].

3.2. Measuring quality of life linked to ecosystem services

The search for a conceptual clarification of "quality of life" has seen the development of two essential methodologies of measurement, namely subjective well-being and "objective" or social indicators of well-being [17,21]. Objective well-being is quantifiably assessed by making use of both economic, social and health indicators, as well as observable variables such as life expectancy, literacy levels, and economic production that reflect the degree to which human needs have been met and which are deemed essential for a good life. However, whilst these measurements may provide researchers with an indication of the extent to which the social and physical needs are met, they are limited, and do not encompass other elements essential to quality of life such as psychological security and life satisfaction [17]. Thus, by analysing the quality of life of a society solely in terms of economic, social and health indicators, it clearly depreciates fundamental elements such as self-development, love, and acquiring meaning in life [21].

Consequently, to successfully measure quality of life it is necessary to also consider individual perceptions of well-being, which leads us to the second measurement, namely subjective well-being. The latter pertinently focuses on individually reported levels of contentment, happiness, fulfilment, pleasure and other such forms of human experience and cognitive satisfaction [17,21]. This indicator is grounded on the supposition that in order for researchers to understand the individual's or group's empirical quality of life, it is necessary to diametrically investigate how they feel about life within the perspective of their own standards and values [21]. The overall quality of life is thus determined by both the degree to which groups or individuals are content in their life experiences as well as the level to which their needs are met. By incorporating both “objective” and “subjective” variables, it becomes possible to gain a clearer picture of the true meaning of quality of life on both temporal and multiple spatial scales [17]. It is thus argued that constituents such as subjective well-being, objective well-being, human needs, values and the supply of ecosystem services are needed to form an integrated approach in order to understand human quality of life and how it might be obtained at the interface of people and protected areas.

http://dx.doi.org/10.5772/59015

4. Methods

4.1. The study site and target population

Golden Gate falls within the boundaries of the Thabo Mofutsanyana District Municipality (TMDM) in the QwaQwa region of the Free State. TMDM has the second largest population (736 238 in 2011) of the five districts in the Free State, with an average household size of 3.3, which is more or less equal to the national average of 3.4 [22]. Almost one third (31.9%) of the population of the TMDM is younger than 15 years. When it comes to socio-economic development and human well-being, the district is characterised by a high unemployment rate of 44.3% (2013) that translates into a staggering poverty rate of 69.1% (2011) – the highest of all districts in the province. The high poverty and unemployment rates have propelled an out-migration of male labour that in turn has resulted in a skew gender distribution of 87.3 males per 100 females in the district [22]. Overall, the district is thus hamstrung by low levels of human development and a low quality of life, low literacy and/or education levels and a high unemployment rate. Under these conditions, and more so in this area, grass has been known to have important livelihood functions, as traditionally it has been used for grazing, thatching, weaving and the manufacturing of household items such as brooms and mats [23].

4.2. Research design

As an analytical framework for the evaluation of the thatch harvesting programme, an outcome analysis was used in order to ascertain to what extent the objectives of the programme have been achieved. Elements highlighted in the outcome analysis included assessing how successful the programme has been, what obstacles this programme has faced, the levels of satisfaction among the direct beneficiaries of the programme, to what extent this programme has effectively reached its target population, and finally, to ascertain how this programme might be improved for future use. Both desk-top and empirical components have been incorporated within a mixed method design of quantitative and qualitative approaches. During the desk-top phase of the study, a theoretical basis was established that ascertained the relative interface between communities and the protected ecosystem which they neighbour. During the empirical phase various data gathering methods such as individual interviews, a focus group session and in-depth interviews with key informants were employed.

Analytically, the concept of well-being and the perceptions attached to this concept played a significant role in the development of the research design and methodology for this study. The methodology was developed in analogy of the five dimensions of well-being as proposed by the Millennium Ecosystem Assessment [13], which includes both the quantitative and qualitative components of well-being alluded to in section 3 of this paper. The first component is that of *material* well-being wherein an individual experiences a good and secure life through prospects such as income, assets, livelihoods, shelter, clothing and access to goods. Secondly, the *health* component pertains to living in a healthy physical environment, feeling well and being strong. The third component is that of good *social relations* which includes mutual respect, good family and gender relations, social cohesion and the ability to provide, when needed, for friends and children. The fourth component of well-being portends to that of *security* in which

secure access to natural or other resources, living in a controllable environment and having security from natural and human-made disasters are vital. The final key dimension of human well-being is *freedom and choice* in which the individuals must have control over their lives and their values or being. Accordingly, these five dimensions may serve to either positively or negatively reinforce one another, thus changes in one may bring about changes in others. Concurrently, these essential elements of well-being were pertinently and comparatively utilized and assessed throughout this study in order to gauge the degree of well-being for those stakeholders directly benefitting from the thatch harvesting programme established at Golden Gate, all of which were used to suitably address the complexities of human endeavor, human capability, and human life [13, 24].

Methodologically, the five dimensions of human well-being were operationalised in two separate, yet concurrently running, stages for the purposes of programme evaluation: a primary and secondary stage. The primary evaluation focused on those directly benefiting from the programme as well as the potential benefits for the park itself. (The concept of direct beneficiaries did not only allow for the inclusion of the individual harvesters, but also for their households). The secondary stage of the impact evaluation explored the impact of the programme on the broader community, as well as the business sector.

4.3. Sampling and sample sizes

In order to understand the machinations of the thatch harvesting programme, and subsequently it's potential strengths, weaknesses and opportunities, it was necessary to not only interview those directly benefitting from the programme, but also those directly involved in the development and running of the programme. Additionally, in order to ascertain possible secondary or multiplier impacts, those commercial companies involved in purchasing the thatch after harvesting of the grass were also interviewed. Consequently, three samples were drawn: one from the harvesters (direct beneficiaries), a second sample from park officials and a third from those commercial companies who purchase the thatch immediately after harvesting.

A total of 34 harvesters – i.e. everybody who were involved in the 2012 pilot programme-were selected and interviewed through the use of a purposive sampling method. The park officials in Golden Gate directly involved in the running and support of the thatch harvesting programme were sampled by means of a non-probability purposive sampling method. These key informants included the People and Parks Manager and the Community Facilitator based at the park. However, due to unforeseen circumstances, the People and Parks Manager was unable to attend the focus group session, but the Park Manager of Golden Gate was able to participate in her stead. During the secondary stage of impact evaluation, two commercial companies were identified and contacted, which served to ascertain possible potential multiplier effects of the programme within the neighbouring social and economic environment. The first company interviewed was *Biggarsberg Thatchers*, and the second company *Thatch Craft*. Both companies are located in the neigbouring KwaZulu Natal province (Figure 1). Official representatives of both these companies were interviewed telephonically due to a limited project budget. Interviews with the harvesters and park officials were conducted

http://dx.doi.org/10.5772/59015

between October and December 2013, while the two companies were contacted and interviewed during May 2014.

4.4. Data collection mechanisms and measuring instruments

Data for the 34 harvesters was collected by means of both structured and semi-structured individual interviews, while a focus group session was conducted with the two park officials. Instruments that were utilized during data collection included a structured questionnaire set for the harvesters and semi-structured questionnaires for both the park officials and the representatives of the commercial companies that purchased the thatch. The structured questionnaire developed for the harvesters served to assess to what extent and in what way the programme had positively contributed towards the well-being of not only the direct beneficiaries, but their household members as well. In addition to this, the questionnaire also served to ascertain the harvesters' perceptions regarding both the programme as well as Golden Gate itself, the application process, in what ways they benefitted from being a part of the programme, the challenges they faced in the past, and their perceptions regarding possible solutions to these challenges. Furthermore, the questionnaire also served to identify potential social networks and established social ties between the community and the protected area. Due to the anticipated low levels of literacy amongst the harvesters, a Sesotho-speaking facilitator was used to translate the English constructed questionnaire items during the interviews with the harvesters, in order that the validity and reliability of the measuring instruments could be enhanced. All interviews were recorded and later re-evaluated by another Sesotho-speaking facilitator.

Following the interviews conducted with the harvesters, a focus group session was conducted with the two park officials at Golden Gate mentioned earlier, who not only provided insight into the machinations of the programme, but also served to confirm and clarify main issues raised by the harvesters. Areas outlined during the focus group session included the logistics pertaining to those responsible for the running of the programme, in-depth information regarding the selection and sustainable use of harvestable grass found in Golden Gate, the application process for direct beneficiaries, the exploration of established/potential networks, the exploration of facilities offered to direct beneficiaries, the challenges Golden Gate has faced since the conception of the programme, and possible recommendations regarding issues revealed during the interviews with the direct beneficiaries. The interviews with the park officials as well as those with the respective companies were conducted in English, and thus no translation of the measuring items was necessary. Lastly, electronic correspondence was conducted with the specialist scientist: vegetation ecology in SANParks' Division of Scientific Services to determine how the grassland ecosystem in the park has been affected (if any at all) by the harvesting programme.

Analysis of the data sets was conducted thematically and descriptively to create an incorporated and holistic view of the progress of the thatch harvesting programme, as well as the potential opportunities it has to offer for future beneficiaries. Specific data-sets relative to the quantitative principles within this study were analysed through the use of predictive analytics software, namely the Statistical Package for the Social Sciences (SPSS), version 21.

5. Findings and discussion

The findings of the study commence with an overview of the socio-economic status of the households to which the respondents belonged. This socio-economic profile provides insight into the dire socio-economic circumstances of the communities that these respondents reside in. An overview of the socio-economic context enables the assessment of the contribution of the thatch harvesting programme to the overall well-being of the respondents and their households. The assessment of the programme's contribution to the well-being of respondents and their households follows the dimensions of the Millennium Ecosystem Assessment [13], as previously outlined in the methodology section of this chapter. More specifically, the findings assess the extent to which the thatch harvesting programme has benefited the most vulnerable and poorest section of the community and explores whether the programme has, as perceived by the respondents, served to improve individual and household well-being. Lastly, challenges experienced by beneficiaries in this programme are discussed and interventions proposed by them to strengthen and maximise the impact of the programme are outlined.

5.1. Socio-economic status of households

Households represented by the respondents are fairly large, with more than half of the households (55.9%) having between five and eight household members, and a further 8.7% of households comprising of between nine and thirteen members (Table 1). Household members were defined as those who sleep at the dwelling for at least four nights a week, share physical resources (i.e. food and income) and eat together with the rest of the household.

Members per household	Number of households	
	N	%
1-4	12	35.3
5-8	19	55.9
9-13	3	8.7
Total	**34**	**100**

Table 1. Household size of respondents

The average household size for this sample of respondents is 5.3. This is much higher than the average household size for the larger Qwa Qwa area, which is 3.3 as mentioned earlier. The households represented by the programme beneficiaries are among the poorest households in the community. Poorer households are generally characterised by larger household numbers due to factors such as higher fertility rates and poverty, compelling people to pool resources. When analysing the household age structure, it transpires that 76.5% of households had children under 15 years of age, while almost one third of the households interviewed (32.3%) had at least one household member older than 65 years. Almost half of the households

http://dx.doi.org/10.5772/59015

interviewed (47.1%) had two children under 15 years, while 23.5% of the households had between four and five children under 15 years of age. In total, the 34 households represented in the sample had 72 children under the age of 15, and 14 adults over the age of 65 (Figure 2).

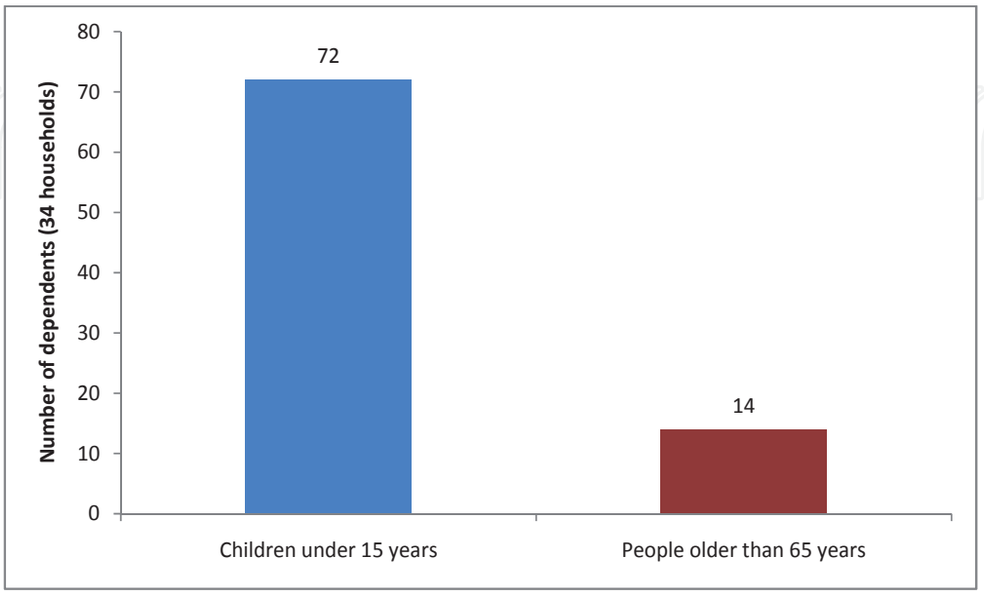

Figure 2. Total number of dependents per age category

The age structure of the households points towards a high dependency ratio and provides further insight into the overall profile of the households that are targeted by the thatch harvesting programme. The household size and the number of dependents per household present a population profile peculiar to poverty-stricken households in rural areas in South Africa and other developing countries, namely larger households with a large number of dependents. This profile is further strengthened by data on the total monthly income for the households in the sample (Table 2).

Monthly household income	N	%
Less than R1000 (US$95)	7	21%
R1001-R2000 (US$96-189)	14	41%
R2001-R3000 (US$190-284)	5	15%
R3001-R4000 (US$285-380)	3	9%
R4001-R5000 (US$381-475)	3	9%
R5001 and more (US$476 and more)	2	6%
Total	34	100%

Table 2. Total monthly household income (excluding contribution of thatch harvesting programme)

From table 2 it is evident that 62% of households as represented by the harvesters interviewed earned less than ZAR 2000.00 per month. This translates to approximately US$189.00 per month or US$6.3 per day per household. Three respondents (8.8%) reported household incomes lower than ZAR450.00 per month per household (or US$1.19 per household per day), placing these households below the upper bound poverty line of ZAR620.00 per capita per month [25]. The sources of household income in the sample comprised a combination of welfare grants, sporadic employment, self-employment and in one case formal, permanent employment.

Child care grants to the amount of ZAR300.00 per child were reported as sources of income by 26 of the households and 11 households reported that they benefited from a monthly old age pension of ZAR 1200.00 received by one or more of their family members. Occasional employment offers a limited contribution to the economic well-being of households. In some cases, occasional employment contributes to as little as ZAR100.00 per month, with the maximum amount earned through this form of employment being ZAR1500.00 per month. In six (17.7%) of the households, respondents indicated that self-employed individuals contributed to the household income, but the contribution was highly variable and ranged between ZAR 300.00 and ZAR 5000.00 per month. In one household, apart from the respondent, there was another member of the household who was part of a wetland rehabilitation and poverty alleviation programme run by Golden Gate, from which she received approximately ZAR 3500.00 per month. Notwithstanding these other sources of income, for 52.9% of households represented in this study, the only income that they received came from the involvement of one of their household members in the thatch harvesting programme.

Household expenditure is another indicator of the socio-economic well-being of households. Poverty-stricken households' consumption patterns are focused on day-to-day survival. A large proportion of household expenditure satisfies subsistence needs such as food and energy, with the consumption of higher-end consumer products such as electronic equipment and household appliances not forming part of the day-to-day household expenditure. In poverty-stricken households, even consumption of electricity is often regarded as a luxury, with energy needs being satisfied by relying more on freely available, or cheaper natural resources such as wood, animal dung, coal or paraffin. The data confirms that most, if not all, of the household income reported by the respondents in the sample was absorbed by day-to-day living expenses such as food and energy, with a small proportion of the household income going towards other needs such as transport and schooling. No household represented in the sample was required to pay rent for their dwellings, therefore no household expenditure went towards securing shelter. Electricity was purchased by 55.9% of households, but judging from the amount of purchased electricity (ZAR 100.00 per month), this was not the primary source of energy used by households. A fairly large number of households (41.2%), indicated that they did not spend any of their income on transport costs. This may again point to the fact that these households were characterised by low levels of economic well-being. Low transport costs may be indicative of an inability to afford transport, but may also reveal high unemployment, as households do not need to make use of transport to travel to work. Those households that did report transport costs as part of their expenditure spent relatively little (less than ZAR 600.00 per

http://dx.doi.org/10.5772/59015

month) on transport. The linkage between transport expenses and poverty is further substantiated by data on how one of the beneficiaries transported thatch harvested for personal use. This respondent indicated that she carried the bundles that she harvested home on foot, opting to not make use of other forms of transportation in order to save costs.

Households do not generally spend money on luxury items such as furniture, with furniture purchases rather being reserved for when extra cash was available. The four households that do spend money on furniture on a monthly basis all indicated that they are paying off store accounts for furniture purchases. Even expenditure on cell phones is not a regular household expense with only 5.9% of households purchasing air time on a monthly basis. Household expenditure on cell phone air time is very little, ranging from between ZAR 12.00 to ZAR 75.00 per month. Two households indicated that they paid clothing accounts on a monthly basis and only six (17.7%) respondents contributed to a funeral scheme on a monthly basis. Thus, it seems that households live from hand-to-mouth, with very few of the households being able to purchase consumer items such as furniture and clothing on credit, or, more importantly being able to make a monthly commitment towards their future financial security. None of the respondents indicated spending household income on any form of leisure or recreational activities such as family vacations. This does not, however, suggest that households do not fulfil the need for *play and leisure*, which according to Nussbaum (2007: 21) is regarded as a basic human right. Households partake in leisure activities such as community gatherings or cultural events that are not dependent on an economic contribution.

Another indication of the low level of socio-economic well-being experienced by these households is seen in the level of educational attainment of the respondents. For South Africa as a whole, there is a close correlation between the educational level of the household head and poverty, with 65% of households where the head had no formal education, compared with 2,8% of households where the head had a post secondary school qualification [25]. Only 9% of the respondents in the sample completed their secondary schooling, with 41% having partly completed their secondary schooling (Table 3). Low educational attainment is linked to lower economic prospects and reduces the ability of respondents to contribute to the material well-being of their households. Low educational attainment also has an impact on the future educational prospects of children growing up in these households, which then impacts on their future employment prospects. Thus, low educational attainment contributes to perpetuating the cycle of poverty and low levels of well-being that these households are subjected to.

Educational attainment	**N**	**%**
None	6	18
Completed primary school	11	32
Partly completed secondary school	14	41
Completed secondary school	3	9
Total	34	100

Table 3. Respondents' level of educational attainment

Low educational attainment does not only impact on current and future material well-being, but also constrains the day-to-day functioning of people. This is evident in the data on literacy-related questions asked to respondents. With regard to the literacy levels of those interviewed, the majority of the respondents (85.3%) reported having no difficulty in writing their own names. However, the ability to read, write and consequently, the ability to fill out forms, ranged from no difficulty to being unable to do this at all (Table 4).

Literacy ability	No difficulty	Some difficulty	A lot of difficulty	Unable to	Total
Reading	8 23.5%	12 35.3%	8 23.5%	6 17.6%	34
Writing	7 20.6%	14 41.2%	7 20.6%	6 17.6%	34
Filling out forms	7 20.6%	8 23.5%	7 20.6%	12 35.3%	34

Table 4. Respondents' ability to read, write and fill out forms

The majority of respondents experienced at least some difficulty in performing the skills of reading and writing, which in turn translated into a lower ability to fill out forms. Only between 20% and 23% of respondents indicated that they didn't have any difficulty with these three skills. While six (17.6%) of the respondents were unable to read and write at all, and consequently were unable to fill out forms, a further 17.6% of respondents also indicated an inability to fill out forms, despite their ability to at least read and write to some extent. This is an indication of low educational attainment as well as low skill levels that in turn impacts the respondents' ability to find stable and secure employment. Consequently, it can be assumed that due to these low levels of education and literacy, coupled with unemployment and underemployment, respondents and their household members are seriously constrained by their socio-economic circumstances to achieve higher levels of well-being.

The following sections serve to ascertain to what extent the thatch harvesting programme has positively contributed towards raising the level of well-being of its beneficiaries, and subsequently the households of which they form a part of.

5.2. The health and well-being of beneficiaries to the Thatch Harvesting Programme

The results presented with regards to well-being pertain to the 2012 harvesting season. For the 2013 harvesting season, half the respondents who harvested during the 2012 season re-applied and were granted permits to harvest again in 2013. The other half did not apply for this particular year and gave two reasons for this. These respondents stated that they either did not apply on time, or they did not profit sufficiently from harvesting in the previous year and therefore ventured into other areas of employment. However, during the 2013 season thatch harvesting was stalled due to two massive fires that destroyed the areas allocated for harvesting. This resulted in beneficiaries not generating any income for that year.

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With regards to the 2012 season, all of the respondents indicated that the programme has benefited them in some way, even though they only participated in one season of harvesting (during 2012). Most respondents remarked that their lives before participating in the programme were difficult and that their lives improved as a result of their involvement in the programme. Only one respondent expressed the opinion that her quality of life had not changed much since participating in the programme. Additionally, when asked whether the programme had in general affected them negatively in any way, 79.4% respondents indicated that it had not. The benefits of the programme for the participants, and consequently for their households, become more nuanced when gauged according to the dimensions of well-being of the Millennium Ecosystem Assessment.

5.2.1. Material well-being

Material well-being, according to the definition of this dimension [13], is the individual's experience of a good and secure life through prospects such as income, assets, livelihoods, shelter, clothing and access to goods.

For the 2012 harvesting season, most respondents did not harvest large volumes of thatch. Almost half of the respondents (45.5%) harvested an average of 5 to10 bundles per day, whilst a further 30.3% of respondents averaged 11 to 15 bundles per day. This amount was harvested over a 30 day period allotted by the park's management. However, even though a 30 day period was allotted for harvesting, this included weekends when transport was difficult to obtain, and subsequently respondents were actually only able to harvest for 20 days during this allotted period. Only 6% of respondents managed to harvest more than 25 bundles per day (Figure 3).

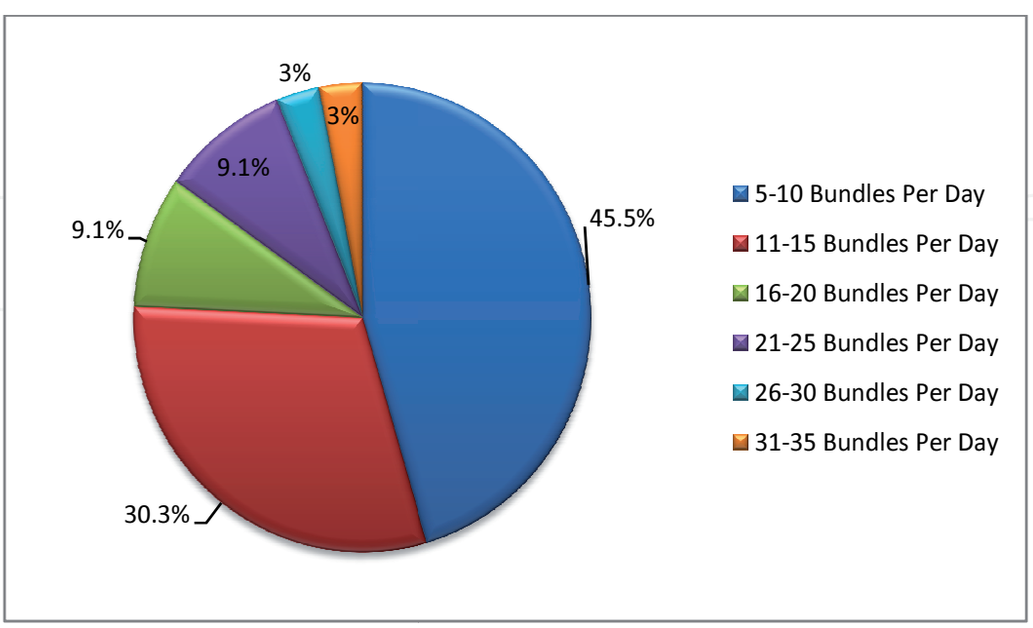

Figure 3. Average Number of Bundles Harvested by Respondents per Day (N=33)

Many beneficiaries were unable to indicate the actual amount that they had earned during the harvesting season as they were paid either daily or weekly for the number of bundles they harvested. This may enforce the earlier analysis that highlighted the hand-to-mouth existence of beneficiaries to this programme. The total income was calculated according to the average number of bundles that each respondent was able to harvest within a day. Each bundle was sold at approximately ZAR12.00. The equation used to calculate the total thatch harvest of respondents is as follows: (Number of Bundles per day X 20 days) X ZAR 12.00=Total individual income. Based on this calculation, the total income generated from the thatch harvesting programme approximated to ZAR104,580 for the 2012 season. This amounts to an average of ZAR3,076 for each of the 34 respondents in the sample, although eventually the per capita income depended on the actual number of bundles harvested per person per day.

Thirty three (33) of the 34 respondents actively harvested thatch, while one respondent was contracted as a driver by a harvesting coordinator to collect and transport the thatch harvested. Most of the respondents (91.2%) sold their harvest to the harvesting coordinator. These beneficiaries indicated that they were recruited by the harvesting coordinator to take part in the programme. The harvesting coordinator bought the thatch bundles from the beneficiaries and in turn sold this harvest to commercial thatching companies. One respondent indicated that the thatch harvested was used to repair the roof of their dwelling, while another respondent harvested thatch to make brooms and small carpets to sell to tourists and community members. Thus, only two of the respondents did not form part of the economic supply chain involving the harvesters, the harvesting coordinator and the thatching companies. The respondents therefore seem to prefer the security offered by having an immediate buyer for their thatch, rather than using the income obtained for the funding of entrepreneurial enterprises, which may prove to be more uncertain in terms of securing material well-being-especially in the short term.

One respondent, as indicated above, used the thatch as input material for a small entrepreneurial enterprise. Three other respondents indicated that the money received from selling thatch contributed to start-up capital for new businesses. One respondent used her money to fund the start-up of a small sewing enterprise. Another respondent purchased fresh produce to sell at the local markets, enabling the start-up of a sustainable small business supplying local markets with fresh produce. One other respondent was able to purchase enough stock to start a tuck shop close to one of the local schools in Qwa Qwa. Although at a very small scale, these cases are indicative of the potential of the programme to stimulate entrepreneurship and as such to contribute to a more sustainable economic well-being of beneficiaries. The number of respondents who saw the thatch harvesting programme as an opportunity for starting a new business is low, although this is on par with the general trend in entrepreneurship in South Africa. In a recent study on entrepreneurship in South Africa [26], it was found that only 37.8% of South Africans were of the opinion that there will be good opportunities to start businesses in the area in which they live within the next six months. This is much lower than the average of 74.5% for Sub-Saharan Africa as a whole. The same study [26] also revealed that only 42.7% of the South African adult population believe that they have the knowledge, skills and experience to start a new business.

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The ability of respondents to purchase assets with the incomes they obtained from selling their harvested grass is indicative of an improved ability to gain *materialistic control over their environment* [17,24]. When analysing what respondents spent the money on which they received from selling the thatch that they had harvested, their improved material well-being is evident. Only four respondents reported that the incomes generated from the thatch harvesting programme were used towards purchasing basic necessities such as food and toiletries, while 38% of the items purchased were consumable items such as blankets, clothes and shoes. Respondents indicated, among others, that they purchased electronic equipment, furniture, household appliances and livestock. Over half of the expenditure (52%) mentioned by the respondents could be characterised as spending on household assets, while 6% of the items mentioned could be classified as spending towards improving existing assets, i.e. purchasing of building materials or vehicle parts. Interestingly, most respondents did not mention that the money received was used for subsistence needs such as food and transport, but rather emphasised their improved ability to purchase items that would not have been possible if they did not have the added income received from thatch harvesting. Thus the programme seems to have contributed to improving the material well-being of those households benefiting from the programme.

However, respondents did not include expenditure for items that would improve their quality of life in the long term, such as education. It appears that the satisfaction of short-term material needs was more of a consideration for respondents than working towards obtaining long-term and sustainable material well-being that would be achieved by contributing to savings plans, or pursuing further education. Only one respondent used his income from harvesting to improve his prospects for finding permanent employment as a truck driver in the foreseeable future by utilising some of the money from harvesting to go for driving lessons. While the programme has therefore managed to improve the short-term material position of the beneficiaries, the long-term material well-being of these people did not seem to improve markedly. At least 65% of the respondents indicated that they struggled financially and could not find employment. Some respondents (17.6%) indicated that they were offered sporadic employment by the park, i.e. working in the stable yards, repairing perimeter fencing, or as part of other poverty alleviation programmes run by the park. It can therefore be concluded that the programme has not benefited the long-term employment prospects of the beneficiaries significantly.

5.2.2. Health dimension

The health dimension of the Millennium Ecosystem Assessment [13] pertains to living in a healthy physical environment and to feeling well and being strong. For the purposes of this study, the analysis of the contribution of the programme is assessed in terms of physical as well as psychological well-being.

With regards to physical well-being, 82.3% of the respondents indicated that the programme had positively contributed towards their physical well-being. Of this group, 64.3% experienced being physically fitter and healthier, while 35.7% indicated that they felt physically stronger after participating in the programme. Some respondents, however, indicated that the pro-

gramme impacted negatively on their physical health. More specifically, they pointed at health issues such as allergic reactions to the grass (5.9%) as well as severe cuts and wounds on their legs that took long to heal (11.8%). The harvesters were not provided with protective clothing such as safety boots and gloves that would prevent such injuries from occurring. One respondent indicated that she had problems with her blood pressure and that the hard labour of harvesting worsened her condition. She resignedly stated: *"But what choice do I have? I must work"*. These negative impacts on health were, however, not experienced by the majority of the respondents. The latter did not mention any negative health impacts as a result of their involvement in the programme.

The grass harvesting programme does seem to have significant benefits for the psychological well-being of participants. Fifty nine percent (59%) of respondents indicated that the programme had positively contributed towards their psychological well-being. Half of the respondents who indicated a psychological benefit specifically pointed out that the involvement in the programme made them feel more positive about their future, while the other 50% mostly experienced emotional relief over their ability to cope with their financial pressures. Additionally, the consensus among respondents (67.6%) was that they were very happy to be able to work in the thatch harvesting programme and that the programme contributed to their sense of pride, dignity and independence (32.4%). These positive perceptions of subjective well-being since joining the programme indicate the fulfilment of the need for identity with regards to feelings of differentiation and recognition. Two of the respondents specifically pointed out that the programme boosted their confidence and self-worth, while one respondent stated that by being a part of the programme, he was able to improve his communication skills and this consequently boosted his confidence as well.

5.2.3. The dimension of good social relations

The dimension of good social relations includes aspects such as mutual respect, good family and gender relations, social cohesion and the ability to provide, when needed, for friends and children [13].

An important component of social cohesion is affiliation. Affiliation can be conceptualised as the capability of humans to be able to envision the circumstances of another entity, and to acknowledge and display concern for this entity as well [17,24]. Without a sense of affiliation, group cohesion is not attainable. Respect, dignity, equality and receptiveness are key factors in this need. The grass harvesting programme contributed towards satisfying beneficiaries' need for affiliation on two levels: Firstly, in relation to the communities of which the beneficiaries form part, and secondly, in relation to Golden Gate itself.

Overwhelmingly positive sentiments were expressed when respondents were asked about how their community perceived their involvement in the thatch harvesting programme. Most of the respondents (73.5%) stated that the community was very proud of them for working in the thatch harvesting programme. Almost one in every four respondents (23.5%) nevertheless reported that many community members were jealous because they (community members) had not been able to obtain permits to harvest as the beneficiaries had. The predominantly

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positive perception about the beneficiaries' involvement in the programme may serve to bolster feelings of affiliation with the community and generate better group cohesion.

It also transpired that Golden Gate serves as a vital cohesive element in the lives of the communities surrounding the park. A large number of respondents (76.5%) often travelled through Golden Gate to reach the nearby towns of Clarence and Bethlehem, which means that the park serves to connect people from different surrounding communities to one another. The park is also utilised by community members for cultural and spiritual activities as well as for recreation and leisure purposes. One fifth of the respondents (20.5%) had used the park for cultural and spiritual activities such as initiation ceremonies and meditation, while 8.8% of the respondents had used Golden Gate for leisure and recreational purposes. Although the latter proportion might appear to be very small, it should be interpreted in the context of the high levels of poverty and unemployment that prevail in the region.

Figure 4 illustrates the respondents' perceptions regarding the importance of Golden Gate as a conservation area. Respondents were allowed to offer more than one response in this section.

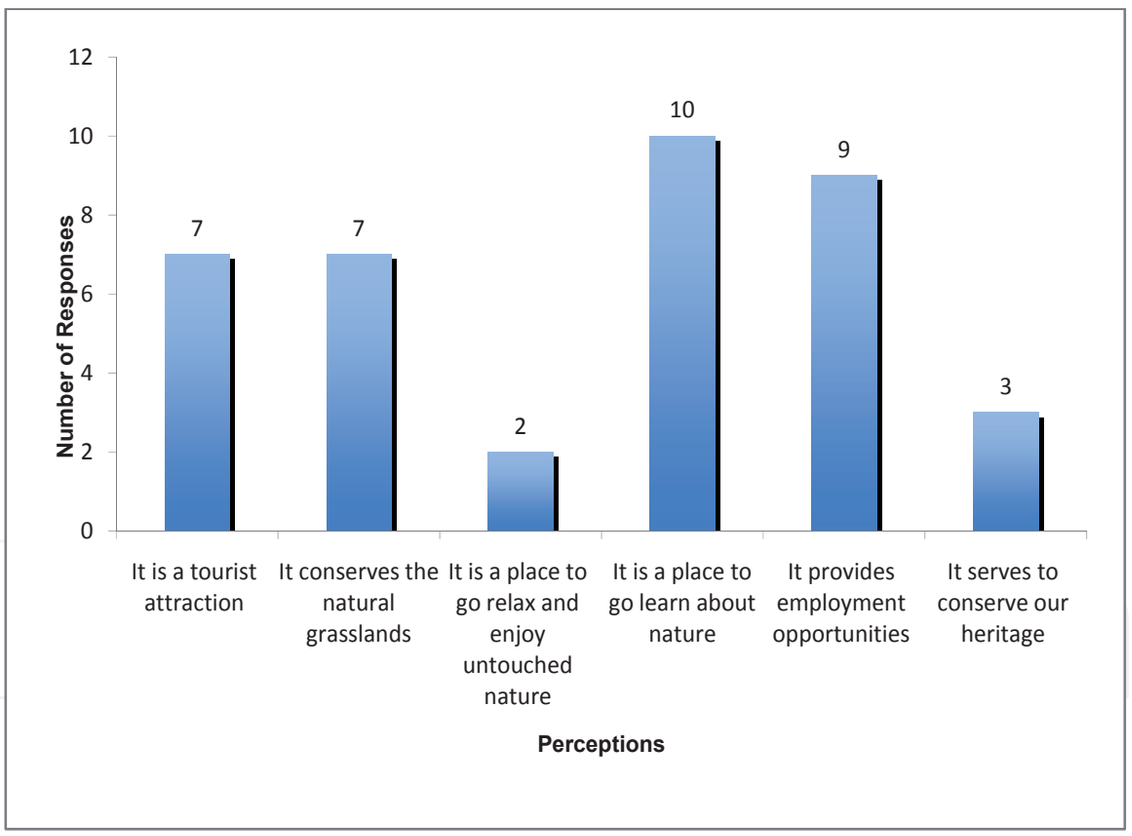

Figure 4. Respondents' perception about Golden Gate

All the respondents believed that the park is an important entity. The two most frequent responses given to substantiate this sentiment were that the park provided a place to go and learn about nature and that it provided employment opportunities. This was followed by responses such as "It is a tourist attraction" and "It conserves the natural grasslands". Notably,

three of these four categories mentioned are either directly or indirectly related to the park's contribution to employment and economic opportunities. Tourism was regarded as important by respondents because it provided them with an opportunity to sell their wares in the form of pots, brooms, baskets, mats and jewellery. The protection of grasslands was regarded as important by the respondents, since it is a direct source of income for them. Subsequently, several respondents stated that if everyone was allowed to graze their cattle in the park, live there and/or harvest the grass whenever they wanted to, then the opportunity to harvest good quality grass would be reduced. These respondents also indicated that it is important to set rules and boundaries in the park's conservation policy in order to ensure the future sustainable utilisation of resources and protection of the ecosystem services. Three respondents indicated that Golden Gate also served to conserve and protect their heritage-a heritage which they felt was an essential part of their culture and which they hoped their children and future generations might enjoy as well. Finally, two respondents felt that the park was an important place because it is where one can go to relax and enjoy the beauty of untouched nature.

Most of the respondents (94.1%) felt that the land should remain a protected area, despite the fact that this means that access to the park's resources are restricted. Only two respondents (5.9%) felt that the land should be utilized for economic practices rather than for conservation. These respondents felt that there was not enough grazing for cattle and that the land should be put to use for that purpose. The majority of the respondents therefore experienced a sense of affiliation towards Golden Gate. They were aware of the need for the land to be protected, the reasons thereof, and the benefits they gained from having a protected area so close to their local community.

The thatch harvesting programme also contributed to respondents being relieved at their ability to provide financially for their families. The majority of the respondents (85.0%) reported experiencing a sense of relief knowing that they were able to provide for their families. Poverty and a lack of employment are significant sources of family conflict. Thus, increased material well-being may serve to improve family relations. Interestingly, four respondents (11.8%) believed that some of their family members were jealous of the work they had found. This jealousy could again increase tension and impact negatively on family relations in these families. However, 30 (88.8%) of the respondents expressed that their family members were very proud of them because of the income they were able to generate from the project. Thus, overall, the conclusion can be drawn that the programme has contributed towards improving family relations and social cohesion in the neighbouring community.

5.2.4. The security dimension

This dimension refers to the ability to secure access to natural or other resources, living in a controllable environment and having security from natural and human-made disasters. The programme has to some extent contributed to improving the ability of respondents to secure access to natural resources by allowing them to harvest a natural resource for household use, as well as to improve their material well-being. Through their involvement in the programme, the respondents' knowledge of the natural environment, as well as the importance of conservation was somewhat improved. While only four of the respondents reported having received

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some form of environmental education from the park, another seven indicated that they had received information from the harvesting coordinator in this regard. The information provided to the respondents included common rules applicable within many protected areas such as 'do not kill the animals', 'do not litter rubbish in the park', 'you may not start fires in the park', and lastly, 'do not destroy other plant life within the park'. Information such as this is vital in assisting beneficiaries to secure access to natural resources, in this case thatch, and also empowered respondents to secure themselves from the possibility of natural and human-made disasters such as veld fires – a very real hazard in a grassland environment. However, 67.6% of the respondents indicated that they did not receive any form of environmental education while being involved in the programme.

With regards to the correct techniques and procedures to harvest thatch, the overwhelming majority of respondents (87.9%) had prior knowledge of this activity. This knowledge is vital in enabling respondents to effectively access the thatch resources. Of these respondents with prior knowledge, 22 were taught by family members how to harvest while growing up, while seven respondents indicated that the harvesting coordinator taught them how to harvest the grass, how to cut, tie, and/or store the grass after harvesting and the appropriate length and thickness of the grass that should be cut. Some of the respondents expressed their gratitude towards the harvesting coordinator who imparted this knowledge to them, since they would have harvested the wrong types of grasses, or the wrong length and thickness without his assistance.

Thus, it appears that involvement in the programme has, at least to some extent, enabled beneficiaries to gain access to natural resources. With regards to having security from natural and human-made disasters, the programme did, in the context of the activity of harvesting itself, provide beneficiaries with knowledge to secure them from veld fires which are among the most commonly expected natural disasters in a grassland environment. Security from disasters, however, extends further than the day-to-day harvesting. As was previously discussed under material well-being, one respondent indicated that she used the thatch harvested for repairs on her roof, while three others used the money received from the thatch that they sold to buy building materials with which to repair and improve their dwellings. Through these activities, households are provided with the opportunity to enhance their security from some environmental hazards that plague households that are not able to afford proper dwellings.

5.2.5. The dimension of freedom and choice

The dimension of freedom and choice refers to individuals having control over their lives and their values. From the data it transpires that 32% of the respondents reported that, before working on the programme, they felt helpless because they stayed at home doing nothing while their families had to struggle to find money to sustain the basic needs of those living within their household. Through the income provided by the programme, beneficiaries could expand the choices that they made about their immediate consumption patterns as well as their future well-being. This is evident in the different ways in which beneficiaries opted to spend the income they received, i.e. improving their dwellings, buying appliances and

electronic equipment, enrolling for driving lessons, using the money as start-up capital for small businesses and buying equipment such as sewing machines which would enable them to expand their future choices.

5.2.6. Responses from commercial companies

One of the key issues identified during the interviews with the two commercial companies that purchase the grass harvested at Golden Gate, was the lack of knowledge, skills and training of harvesters with regards to correct methods of harvesting thatch. This has resulted in both these companies receiving, at some point in time, bundles of thatch not suitable for use. Challenges included the following: the grass still being green when harvested; it was the wrong species of grass; the thatch was not straight; it was too thick, and/or it had not been cleaned properly. These challenges pose as major concerns regarding the sustainability and potential opportunities of this programme in the future. For instance, grass that is still green when cut means that the seeds have not yet had time to dry and drop from the stalk. Consequently, the premature harvesting of grass which may result in the absence of future re-growth could severely jeopardise the availability and sustainability of harvestable grass at Golden Gate in the future.

In addition to this, both companies strictly conform to guidelines set by the South African Bureau of Standards wherein the thickness, length, species and quality of the thatched bundles are core principles and must be stringently adhered to. Subsequently, these companies are forced to return grass that is unsuitable for use without payment or transport subsidy. Not only is this a waste of natural resources, but it also threatens the livelihood of these companies in that they rely heavily on the supply of thatch from harvesting coordinators. Augmenting this is also the negative impact this will have on those harvesting coordinators who had provided the thatch. The cost of transporting the grass from Golden Gate to the aforementioned companies is only viable if the grass can be sold upon arrival, and the return of unsuitable grass can result in harvesting coordinators such as the one previously mentioned, facing disgruntled labourers coupled with payment disputes. These issues can serve to heavily undermine the development of budding entrepreneurs such as this, and may result in the harvesting coordinator being forced to cease his/her operations. Even more worrying in a situation like this, is the fact that those labourers who had vested their time and physical energy to harvest the grass, must return to their homes empty-handed. Subsequently, lack of knowledge, skills and training has the potential to create this trickle-down effect and poses as a major challenge to the sustainability of this programme.

In order to prevent a situation such as this, it became clear that an intervention of sorts would be necessary. Upon enquiry, one of the commercial thatching companies indicated they would be willing to provide training sessions to those beneficiaries who have been granted permits to harvest in the park, wherein the beneficiaries will be provided information regarding matters such as the environmental impact of harvesting, how to identify the correct species of grass, the correct way to cut the grass, the required length and thickness of the grass, and how to properly clean the bundles for sale. Not only will this improve the knowledge base and skills

http://dx.doi.org/10.5772/59015

of the beneficiaries, but it will also serve to enhance the sustainability and viability of this project in the future.

Taking the above findings into consideration, the following section will serve to highlight the challenges faced by the thatch harvesting programme and the beneficiaries' responses to possible ways in which the programme can be improved.

5.3. Challenges faced by beneficiaries to the thatch harvesting programme

While the programme seems to have contributed to improving the overall well-being of respondents and their families, respondents also experienced some challenges while being involved in the programme and offered some suggestions for improving the programme for future beneficiaries (Table 5).

Challenges	N*	Suggestions for improvement	N*
Insufficient time to harvest grass	18	More time should be given to harvest	16
Rangers treat us badly when we are there to harvest	5	The park should provide tools/equipment for harvesting of thatch	14
Fires destroy our income we rely on being able to cut grass	5	The park should provide toilet facilities	12
The park does not advertise the programme early enough	2	The park should burn fire breaks earlier to protect the grass	6
It is difficult to find buyers	1	The park should provide training to improve harvesting skills	4
They (the park) do not provide tools/ equipment	1	The park should help us find people to buy our bundles of grass	3
		The park should advertise the programme earlier	2

* The n-values in table 5 indicate the number of respondents who identified each issue. Respondents could indicate more than one challenge or suggestion, or nothing at all.

Table 5. Challenges experienced and suggestions for improvement

From the data above, the biggest issue faced by respondents relates to insufficient time for harvesting. Eighteen of the respondents highlighted that the time allocated for harvesting was too short. This was followed by the issues of rangers treating them badly while harvesting and the issue of fires that diminish their potential to harvest. The respondents pointed out that fires destroyed the viable grass allocated for each season, forcing them to harvest in areas that were not designated by the park for harvesting. Park officials have indicated that they were aware of this challenge and, with the assistance of the harvesting coordinator, would choose harvesting areas more carefully for the coming seasons, and would also demarcate the allotted areas better to prevent people from harvesting in undesignated areas.

Some respondents felt that the park does not do enough to advertise the programme in a timeous manner. This leaves people little time to apply for the programme. When asked if they had experienced any problems with the application process, seven (20.6%) respondents indicated that they had not experienced any problems, whilst 19 (55.9%) felt that the process took too long. Other respondents added to this by stating that, by the time the permits were granted, the period for harvesting had already begun, and that this increased the risk of fires destroying the grass before they could harvest. The remaining eight (23.5%) respondents expressed having felt frustrated during the application process because they did not know when to pick up their permits. The park officials reported that during 2012, they noted a number of individuals that had come to harvest before and during the time allotted for harvesting who did not have permits. This made it difficult to ascertain and monitor who had permits to harvest and who did not. It must also be noted that during the interviews with the beneficiaries it transpired that a few of those who had harvested in 2012 were individuals who did not reside in the local community as defined by the park. It was reported that these individuals borrowed identity documents from members of the local community to pass off as their own in order that they might harvest. This challenge is an important one, as the purpose of the programme is to benefit members of the local communities only. Subsequently, illegal harvesting has posed as a major challenge for the park and for local communities who should benefit from access to the natural resources in the park.

Furthermore, there appeared to be miscommunication between the park management and the local community with regards to the nature of the programme. This came in the form of local community members perceiving the thatch harvesting programme to be a source of employment, whereas this programme is only offered as an opportunity to utilise the park's natural resources for their own benefit. Lastly, the respondents raised the issue of the park not providing them with tools or equipment with which to harvest, and a large number of respondents (n=14) suggested that the park should equip them with the necessary harvesting tools. Also, during the focus group session with the park officials, it was indicated that Golden Gate had established networks that formed part of a park forum wherein there are various traditional leaders that act as representatives within their local communities and serve to communicate issues of mutual concern. However, when asked; none of the respondents were aware of any community representatives, nor of any community meetings held with regards to projects made available by the park. In a similar vein, none of the beneficiaries interviewed reported having heard of any community members being involved in decisions regarding the thatch harvesting programme.

6. Conclusion

Due to the poor socio-economic conditions surrounding the park, most respondents and their households depend heavily on the income earned from their involvement in the thatch harvesting programme. In fact, more than half of the households represented in the sample have no other source of income except for the employment of one of the household members on the programme. Thus, although the immediate benefits of the programme are limited to

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only a tiny proportion of the community, these benefits still make a significant and tangible difference to the well-being of those households living on the edge of subsistence. As has been confirmed previously by other outreach programmes in protected areas [3], this 'limitation' should nevertheless not be seen as a defect or an impediment of the thatch harvesting programme, but should serve as a constant reminder of what is realistically achievable with programmes of this kind offered by national parks and other protected areas in developing countries. Arguably, the main strength and impact of the programme – and other programmes of this kind – is not so much to significantly reduce poverty among a large proportion of households, but rather its ability to cultivate positive perceptions regarding conservation, sustainable utilisation of ecosystem services and the specific protected area in particular, among the local population.

The thatch harvesting programme, at this stage, seems to be constrained by logistical and administrative challenges such as permits not being granted in time for harvesting, an unclear selection process and poor supervision of park officials to ensure that harvesting does not impede on the conservation function of the park. Anecdotal evidence from the interviews suggest that in some cases grass is harvested illegally, thus limiting the benefits that should trickle to local communities. This has also been found in a previous study conducted in the same park [27]. Although the current park management plan (compiled in 2011) provides the legal framework for the managing of natural resources at Golden Gate, the plan fails to quantify and account for the resources that are being harvested by adjacent communities. More specifically, the park's management plan does not adequately demonstrate *what* is being harvested, or the *extent* and *impact* of grass harvesting in the park. If managed properly, grass and grass harvesting can provide a long-term sustainable benefit to neigbouring communities and economic institutions, but the guidelines for such harvesting need to be set clearly in the park's management plan. Consequently, as previously pointed out [27], there is a clear need to monitor, evaluate and set the boundaries for grass harvesting in the park, and to clearly stipulate these limitations in the management plan. This problem, however, is not unique to Golden Gate, as there is a general lack of published research on resource extraction from national parks in South Africa, as well as from protected areas in general.

Based on the findings of the study, a small proportion of the community does seem to benefit from their involvement in the thatch harvesting programme. The data offers evidence of improved material well-being, better physical and psychological health, enhanced group cohesion, environmental security and more freedom of choice for beneficiaries. The impacts of the programme are however, for most respondents, short term. Only a limited number of respondents have used the money obtained from harvesting to enable the fulfilment of sustainable long term economic pursuits as is evidenced by the four respondents who managed to start small businesses and the one respondent who used the money to obtain a drivers licence.

In conditions of severe poverty and high levels of unemployment such as those that prevail in the area surrounding Golden Gate, natural resources play a crucial role in sustaining people's livelihoods. Under these conditions, the harvesting of grass for a commercial market presents an opportunity for the local community to increase their income base and improve their well-

being. However, as previously concluded [23], more grass would have to be harvested to meet the demands of a commercial market than would be required for household use or producing items for a local market. In other words, although an increase in grass harvesting holds potential benefits for increased human well-being in the local community, an increase in the commercialization of harvesting at the same time requires strict monitoring and evaluation mechanisms to ensure a sustainable supply of raw materials and mitigation regarding the impact on the protected area. Since none of the businesses interviewed are involved in grass management and protection, they are potential victims of overharvesting and resource depletion as much as the members of the local community. Resource harvesting in a protected area that supplies the demands of a commercial market thus clearly requires different rules and monitoring mechanisms, than rules aimed at the regulation of such activities at a local level and only for the strict benefit of the local community.

With reference to the impact of the thatch harvesting programme on the ecosystem of the targeted areas allocated, the results remain indefinite. The reason for this being that the programme only became active in 2012, and in 2013 a massive fire swept through the parks grasslands, subsequently also destroying the areas allocated for harvesting. As a result of this, coupled with the fact that this programme is relatively new, a detailed analysis of these areas regarding the grass species composition, vegetation structure and biomass measure following the harvesting in 2012 has not yet been finalised. SANParks (Division of Scientific Services) has initiated a vegetation monitoring project in two of the areas that form part of the harvesting programme. It is, however, a long term monitoring process and no informed conclusions could be made in the relatively short period that the monitoring project has been running in the park. Early indications are nevertheless that the grassland ecosystem in the park, as well as the patterns and processes that are associated with it, have not been negatively affected by the harvesting programme. In areas where the grasses have been harvested the height of the grassland is lower than the conventional 1.8 meters (Species *H. dregeana*), but apart from this visual impact it appears that the species composition of the grassland has not changed and the same grass species still dominates these areas. Currently harvesting is taking place on old agricultural lands that were previously ploughed and grazed in the time of commercial farming activities in the area. The main two grasses that are being collected are *Hyparrhenia* cf. *hirta* (common thatching grass) and *Hyparrhenia* cf. *dregeana* (thatching grass) which are often found in disturbed and degraded areas such as these. The sustainable manner in which these grasses are harvested also contributes to the stability of the degraded land that it occupies. In fact, the harvesting of these grasses improves the palatability for other grazers of the wildlife group within the park, and assists in supporting a natural succession process in these degraded areas. The harvesting (clearing of grasslands) also allows for other plant species to thrive within an area usually dominated by one or two plant species.

However, there were some concerns regarding the use of some of these areas by grass owls (*Tyto capensis*) for nesting. Consequently, in order to determine the impact of the harvesting on this species, a habitat assessment of possible areas has been proposed. Practices in other protected areas have nevertheless shown that, despite all efforts of national parks to conserve biodiversity and ecosystem integrity, unsustainable resource use remains a threat because

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ecological functions and processes often occur over larger spatial scales [28]. To ensure that an ecosystem such as the grassland biome retains the ability to renew itself, additional land is needed for the expansion of national parks. In South Africa, national population policy drivers such as social redress and poverty alleviation, strongly influence resource use in national parks. This means that localized management solutions for ecosystem integrity and resource use should be embedded in a broader systems approach that recognizes the interface between protected areas and their surrounding communities, while also acknowledging the complex, multiple and reciprocal relationships of sustainability between ecological and socio-economic components in the environment.

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