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# Limpopo National Park One Health Assessment

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*29<sup>th</sup> July - 12<sup>th</sup> August 2013*

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All photos, except N.6, have been provided by Dr. M.D. Kock.



**Photo 1: Truck with villagers leaving Macavene**

## 4 Introduction

The independent assessment of One Health processes in the Limpopo National Park began in 2007, with a survey carried out by a team of experts belonging to the Animal and Human Health for Environment and Development working group for the Great Limpopo Transfrontier Conservation Area (AHEAD-GLTFCA). The exercise was concluded by a workshop with key institutional role players and was followed by a second exercise in 2010.

In 2013, the same team returned to Limpopo National Park (LNP) as part of what has become a longitudinal study of One Health in the LNP and its support zone. In view of its focus, the exercise also changed its title and terms of reference from the original “Approaches to Wildlife Veterinary Services for Mozambique: A Rapid Assessment” to a more comprehensive “One Health Assessment of the Limpopo National Park”. This decision, taken with the team members, reflects the approach of the AHEAD-GLTFCA working group to landscape analysis, its combination of qualitative and quantitative methodology, and its aim as a longitudinal study able to identify drivers of change in support of holistic protected areas planning.

The three critical elements that drive the exercise have accordingly been acknowledged as:

1. Health is a comprehensive terms which, in TFCAs, refers equally to veterinary, human and environmental issues. To focus on veterinary questions, therefore, would exclude directly and indirectly the two other related elements of sustainable ecosystem management;
2. The existence of a developing support zone to the LNP is both a critical element for the effectiveness of the LNP as a protected area and a fundamental ‘case study’ for the effectiveness of the GLTFCA, where all three aspects of One Health interface;
3. The existence of multiple cause-effect relationships between components and drivers of both the LNP and the GLTFCA that influence their sustainable development as complex systems.

The One Health theoretical framework includes the question of risks and risk reduction as a strategy to successfully manage a specific area in its geo-political and social contexts. The methodology that brings both theories and strategy together is Scenario Planning, which has been used since the beginning in the analysis of the drivers of change in the LNP and GLTFCA.

In line with the new conceptualization of the LNP assessment, this report aims



**Photo 2: Discussing alternatives to resettlement with Mbombi, Chimangue.**

at providing insights into the evolving relationship between the LNP and its national and regional stakeholders by identifying, through fieldwork analysis, the drivers of change that influence the One Health and Disaster Risk Reduction approach to the management of the LNP and, by extension, to the management of Protected Areas in the country.

All the information contained in this report is the result of a qualitative study conducted through a series of informal interviews with random and key informants alike. The author has strived to highlight in the text when information reported is perceived or

factual, as this is important for both the conclusions and recommendations to this report.

All the interviews conducted and meetings held in the course of the 2013 exercise have been noted and summarised, and they are available as a Dropbox folder should anyone wish to read them. Original recordings of the interviews and discussions are also available on request from the main author.

The recommendations resulting from this exercise are directed to both the management of the LNP and the National Agency for Conservation Areas (ANAC), as well as their partners, as they propose direct lines of cooperation between institutional scales, i.e. national (subdivided in provincial and district as well) and regional.



**Photo 3: Woman preparing traditional maize beer, Mbethi**

## 5 The historical context for the assessment

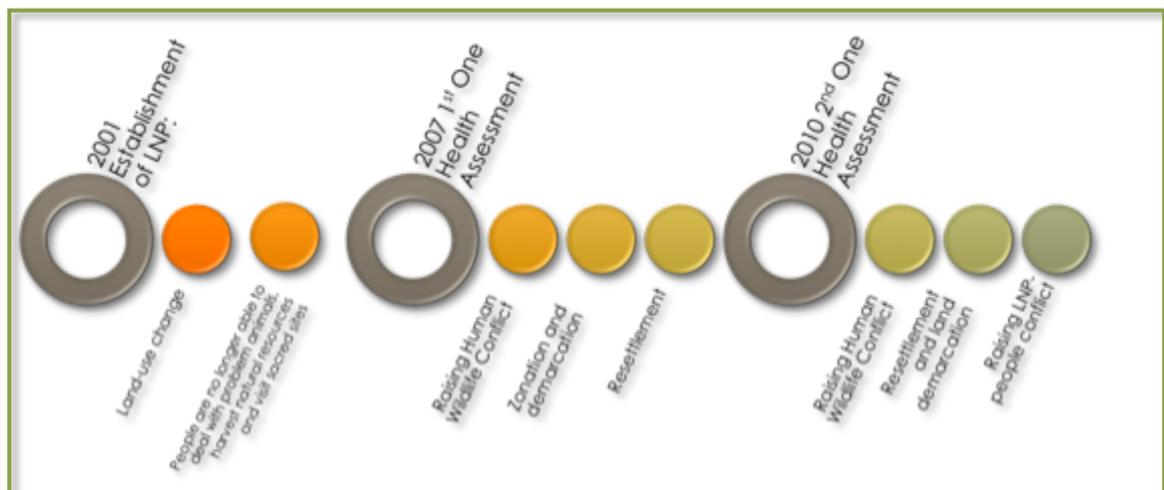
The first assessment of the Limpopo National Park was commissioned by the AHEAD Programme of the Wildlife Conservation Society, in concert with the National Directorate of Conservation Areas (ex-ANAC), the National Directorate for Veterinary Services (DNSV) and South African National Parks (SANParks), in order to identify management strategies to address veterinary health issues in the LNP. The team was composed by three members of the AHEAD-GLTFCA working group, namely Dr. M. D. Kock, Mr. M. J. Murphree and Dr. A. de Nazaré. The objective of the exercise was to understand the drivers influencing the LNP as the interface of contact between human, wildlife and livestock.

At the time of the first Assessment, the LNP had been operative for only six years and, despite its geographical boundaries, only one part by the border with Kruger National Park (KNP) was operated for conservation purposes. The fenced Sanctuary was situated between the Giriyondo Border Post and the Machampane tourist camp, in an area that was identified as having both potential for natural migration and sufficient carrying capacity for other wildlife to be released into the area. During the early years of LNP, the border fence along the KNP boundary was progressively taken down, with only a few exceptions. The opening of the Giriyondo tourism access facility in 2006 (GTAF) was a major landmark in the process of establishment of the GLTFCA as it granted direct access to both parks and was hoped to boost the 'bush-to-beach' tourism plans envisaged for the LNP. Most of the LNP, however, was still occupied by eight villages along the Shingwedzi valley in the central part and along the Massingir reservoir in the southern part. The World Bank funding conditions for the establishment of the LNP were for the communities to be resettled outside of the demarcated land for conservation. The resettlement programme was funded by the German Development Bank (KfW), while the World Bank procedures for voluntary resettlement were to guide the process. It soon became clear, from the work carried out by LNP extension services, that this was not a case of voluntary resettlement. At the time of the first Assessment, resettlement was still a controversial issue that

was noted by the team as a driver in the relationship between people and LNP. It must be noted, however, that people had perceived the LNP as an external project to the national government, with Peace Park Foundation, KfW and other agencies as the main role-players. Due to the favourable conditions with low water in the Limpopo River, the team was able to reach outside of the support zone and visited both Mapai Station and Chicualacuala, at the border with Zimbabwe and the third component of the GLTFCA (Figure 1).

Given this general outline of the progress made by LNP in 2008, the team identified the intensification of wildlife presence in the LNP as a critical negative driver for the future success of the LNP, since the park was the interface of contact. Human-wildlife conflict (HWC) was a common denominator to all villages interviewed in the LNP, the manifestation of which were multiple:

- Direct damage to crops, just before harvest;
- Injury or killing of people, specifically at water points;
- Injury or killing of livestock;
- Presence of transmittable disease in wildlife, and potential zoonosis.



**Figure 1: LNP evolution and the findings of the assessments**

Three years later, in 2010, the LNP was still experiencing problems with the resettlement programme, as only one village had been moved outside of the park area: Nanguene. Wildlife numbers and species had increased, particularly with the removal of the Sanctuary fence and the removal / damage of the border fence. HWC was exacerbated, as people were forced to live in

their fields in order to protect them from wildlife raids. Illegal hunting for local consumption was increasing both along the Shingwedzi River valley and in the south-eastern part of the park, near the confluence between the Limpopo and the Olifants rivers. Communities were generally antagonistic towards the LNP because of both resettlement and conflict with wildlife, as well as the decrease in service delivery: road infrastructure, health infrastructure, and protection from wildlife. However, a few were accepting of and looking forward to the resettlement because of HWC. In the interim, it was noted that the relationship between people and LNP was driven by the 'legal' benefits derived from the tourism revenues of the park. During the second exercise, some communities had already received the mandatory 20% of tourism revenues from the LNP, a very low amount considering the number of beneficiaries and the number of tourists who had actually made use of the park. The LNP Community Support Programme was helping communities to build institutions for the management of these revenues. The programme was also preparing to spend funding from the French Development Agency (AFD) in the support zone to increase community benefits and boost rural development.

Since the inception of the LNP and in the time between the two exercises, critical personnel for the management of the LNP had changed a few times from the Warden of the park to the PPF Project Manager, and the financial administrator. The only consistent figures of responsibility were the Conservation Advisor (Billy Swanepoel) and the Resettlement Programme Officer (Abel Nhalidede). Similarly, the only three external funding agencies that kept on being directly involved in supporting the LNP were PPF, KfW and AFD. Due to an institutional *faux pas* on land allocation, furthermore, the Resettlement Programme had to stop because of withdrawn funding. This incident, however, contributed to put pressure on the Mozambican government to take ownership of the LNP and its environmental and social programmes.

The relationship between people, LNP and national government has a fundamental role in establishing the potential for both the Park and the

GLTFCA to develop following a One Health approach. It was clear from the first two assessments that failure to address basic human concerns that would result in increased antagonism with both wildlife and the Park, thus moving away from the balanced systemic management of the interface. It was also clear that the informal and illegal harvesting of natural resources (wildlife, timber and non-timber forest products) would not be halted unless a direct and long-term beneficiation from LNP was negotiated and implemented. This, in turn, was perceived as a direct link between One Health objectives and Disaster Risk Reduction objectives, whereby the ultimate disaster would be the failure of the LNP conservation agenda, hence the existence of the GLTFCA.

What the two previous exercises have shown is that by using a multi-faceted approach to understand a given reality and repercussions on multiple scales, the LNP has appeared to be in a precarious situation as a Protected Area, as a government project and potential asset, as well as part of a multi-lateral project. The critical drivers that can influence its existence both in a positive and in a negative way are often grouped as:



**Photo 4: Informal chat with a bystander at Tihovene, 6to Bairro**

Political, Economic, Social, Environmental, Technological and Legal driver clusters. They also express themselves in various circumstances and that is why the Assessment, as a longitudinal study, is able to provide critical points of understanding and recommendations.

Table 1: List of interviews conducted for the OH LNP Assessment fieldwork

Code	Interviewee	Position	Location	Date
LNP13_FWI001	Fátima Júlio Cossa	Nurse	Massingir, Health Post	2013/07/30
LNP13_FWI002	Júlio Vaganhile Mongue	Community Leader	Thiiovene, 6º Bairro	2013/07/31
LNP13_FWI003	Enrique Ngovene, Patrício Cuna	Community members	Banga, new Macavene	2013/07/31
LNP13_FWI004	José Watch Ngomane	Community Leader	Cubo	2013/07/31
LNP13_FWI005	Lourenço Nendze Valoi	Community Leader	Massingir Velho	2013/08/01
LNP13_FWI006	Benito Ernesto Tamussene	Chefe de Posto Administrativo	Mavodze	2013/08/01
LNP13_FWI007	Jorge David Nhapossa	Agente de medicina	Mavodze	2013/08/01
LNP13_FWI008	Fanuel Zita	Community Leader	Macavene, LNP	2013/08/01
LNP13_FWI009	Ricardina Matusse	Coordenadora do Programa do Apoio Comunitário	LNP, Head Quarters	2013/08/02
LNP13_FWI010	Silva Magaia	Resettlement Advisor LNP	Manghane restaurant	2013/08/02
LNP13_FWI011	Francisco Passe, Remígio João Mungoi	Livestock technician and zootechnician	Escritório SDAE (Serviço Distrital de Actividades Económicas)	2013/08/02
LNP13_FWI012	António Abacar	LNP Warden	LNP Head quarters	2013/08/03
LNP13_FWI013	Irene Carlos Cuna	Agente de Medicina General	Health Post Chibotane	2013/08/03
LNP13_FWI014	António Macie Ngovene	Community Leader	Macuachane	2013/08/03
LNP13_FWI015	Jeremias Mafanato Valoi	Community Leader	Bingo	2013/08/04
LNP13_FWI016	Jaime Elias Matuassa	Community member	Outside Tchowe	2013/08/05
LNP13_FWI017	Jeremias Chauque	Agente polivalente alimentar – saúde	Panhame	2013/08/05
LNP13_FWI018	Albino Alfredo Chauque	Regional Operational Ranger, North	LNP, Mapai	2013/08/05
LNP13_FWI019	Jonas Maluleke	Head of the agri-association	Mbheti	2013/08/06
LNP13_FWI020	Armando William Maluleke	Community Leader	Salane	2013/08/06
LNP13_FWI021	Samuel Francisco Cossa	Chefe de Posto Administrativo	Pafuri	2013/08/06
LNP13_FWI022	Carlos Cossa	Chefe de Posto Administrativo	Mapai Station	2013/08/07
LNP13_FWI023	Rodrigues Maluleque	Chief Mapai	Mapai	2013/08/07
LNP13_FWI024	Sebastião William Maluleque	Community Leader	Makandazulo A	2013/08/08

<b>LNP13_FWI025</b>	Fernando João Mbombi	Community Leader	Chimangue	2013/08/08
<b>LNP13_FWI026</b>	Sandrosse Mongue	Community Leader	Machamba	2013/08/08
<b>LNP13_IM001</b>	Afonso Madope , Abdala Mussa	ANAC	Maputo	2013/07/29
<b>LNP13_IM002</b>	José Libombo Junior	DNSV	Maputo	2013/07/29
<b>LNP13_IM003</b>	Antony Alexander	PPF-LNP	LNP HQ	2013/07/30
<b>LNP13_IM004</b>	A. Alexander, T.M. Chauque, J.C. Cossa, R. Matusse, L. Dzovela	LNP, Veterinary Services and Health Services	LNP HQ	2013/07/30
<b>LNP13_IM005</b>	A. Alexander, S. Magaia, B. Swanepoel	LNP	LNP HQ	2013/08/09



Photo 5: Interview with Dr. Ricardina Matusse, LNP Head Quarters

## 6 The 2013 One Health Assessment

The third assessment of the LNP was negotiated between the Coordinator of the AHEAD-GLTFCA Programme and the management of the LNP, with the support of the TFCA Unit of the Mozambican National Agency for Conservation Areas (ANAC) and the National Directorate for Veterinary Services. The team was composed of the same people who had carried out the previous assessments, and the LNP provided the logistical support of Mr. Tomás Meque Chaúque, Operations Manager for the park. The fieldwork was conducted during the course of two weeks, from July 29<sup>th</sup> to August 13<sup>th</sup>, 2013, and covered all LNP communities, some resettled communities and some Support Zone communities. Using a qualitative methodology for field interviews to collect data, the team then borrowed some Scenario Planning methodology to analyse data. A total of twenty-six (26) interviews were carried out, mainly with government leaders, with Chief Mapai (a traditional leader), with health practitioners and with a few random community members (See Table 1). The team also took time to visit infrastructure around rural and urban areas to corroborate information collected during the interviews.

It is clear, in the general review of the data collected, that the history of relations between the LNP and the rural communities living within its boundaries and in the support zone is now showing the fatigue that was already evident in the first assessment. This fatigue is born out of conflicting interests over the natural resources, rather than the conflicting envisaged uses: conservation and tourism on the one hand, harvesting and transformation on the other. This fatigue is the core of all other issues pertaining to the temporal, environmental and socio-economic sustainability of the LNP, because it permeates into several other old and emerging drivers, linked to a fundamental sub-driver: the resettlement. Both feed off each other as the delay in completing the resettlement generates and exacerbates the conflict of people versus LNP. However, there are new (semi) positive drivers in the fields of health, which are by all means encouraging. The overall coordination of human health service delivery in the southern part has considerably improved, despite logistical transportation difficulties. Contrarily,

the production animal health seems to continue with financial, logistical and human resources difficulties that are far from being overcome. Differences in the response to the existence of the LNP have been found between the Support Zone Area, especially the beneficiaries of the agricultural projects, and the communities inside the LNP and those resettled. Within the structures of the LNP, the problems faced by the ranger body are still influencing their current positions both as officials of the LNP and as community members.



**Photo 6: the OH LNP Assessment team (from left T.M. Chaúque, A. de Nazaré, M.J. Murphree and M.D. Kock)**

### **6.1 LNP sustainability drivers**

The use of Scenario Planning methodology in situation analysis helps to identify drivers of change, as well as to categorise them as elements of the complex system that is being assessed. The PESTEL methodology is therefore used to provide a comprehensive analysis of driver impacts. From the two previous assessments, ten (10) constant drivers stood out as game changers:

1. Governance
2. Water
3. Wildlife
4. Demographics
5. Health and disease
6. Livestock
7. Human Wildlife Conflict
8. Formal economy
9. Infrastructure
10. Resettlement

These drivers pertain to different, yet interrelated, categories that should be identified, including the other drivers, in order to progress to the 2013 drivers analysis.

**Table 2: PESTEL analysis of the most recurrent drivers**

<b>Political</b>	<b>Governance</b>
<b>Environmental</b>	Water, wildlife, usable natural resources, Human wildlife conflict
<b>Social</b>	Demographics, Health and Disease (HIV/AIDS), Resettlement (Housing), Human-Wildlife Conflict, Livestock
<b>Economic</b>	Livestock, Resettlement, Formal economy, Infrastructure
<b>Technological</b>	Infrastructure (health, communication, transport, etc.) Fences Lack of capacity Housing
<b>Legal</b>	Resettlement, Human Wildlife Conflict, Infrastructure

Over the two previous assessments, critical drivers (such as water, health and disease, formal economy and governance) have been moved, by the team, into the “Less predictable” and “Higher Impact” section of the Drivers Matrix (see Figures 3 and 4). This was due to a perceived increased conflict, between people and Park, because of the influence the LNP effectively has over “predictable” human security drivers, such as the persistence of traditional rural livelihoods, in the absence of feasible cash-generating alternatives, and the ability to use the border as a livelihood strategy. This also includes the general perception of health - in the absence of foreign animal pathogens and zoonosis. Having said that, water has maintained its position and infrastructure has moved towards the risk area, given the decision of the LNP not to upgrade roads or any other infrastructure service accessed by the people living inside the LNP. As time progressed, the team saw that whilst wildlife related drivers were fundamentally not changing, except a lesser predictability due to the team’s understanding of how these drivers worked, other critical drivers were becoming more problematic while

new sub-drivers were emerging, such as housing, communication and other basic infrastructure related to health and education.

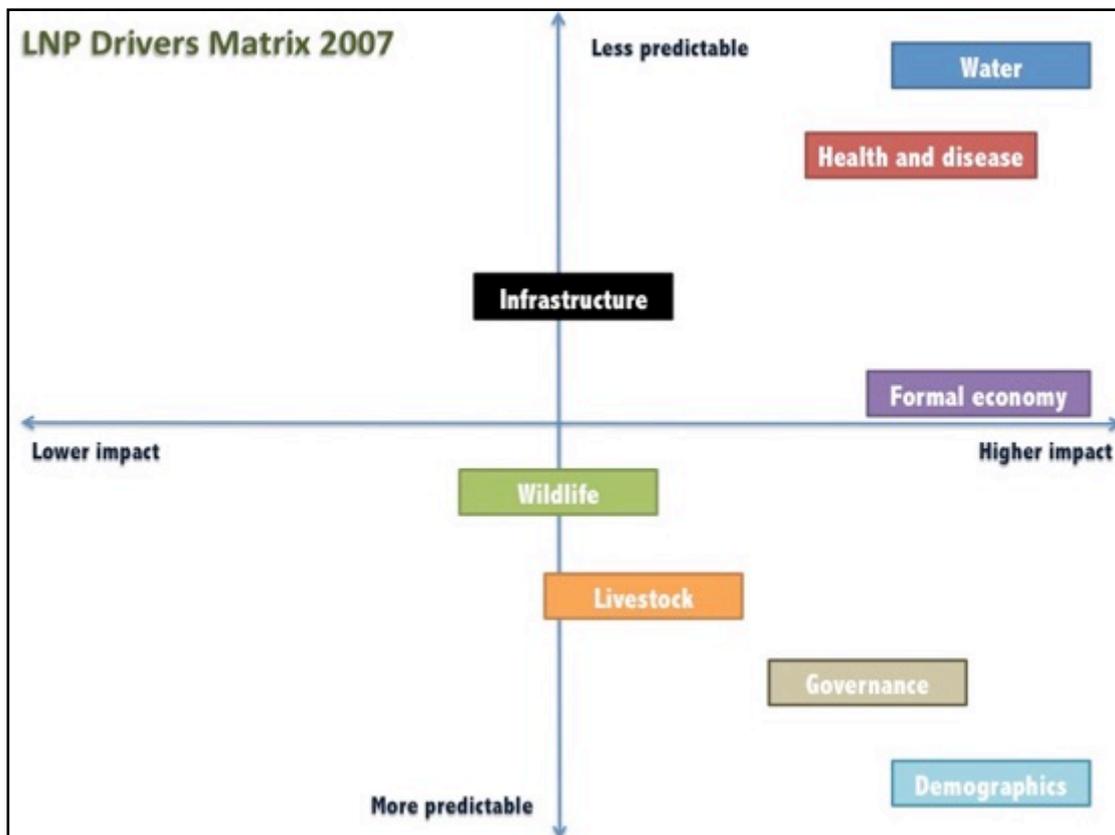


Figure 2: Drivers matrix resulting from the 2007 Assessment

The findings of the 2013 assessment are very much in line with this noted progression and refining of drivers that spell out the sustainability challenge for the LNP and the GLTFCA. Looking at the Economic drivers, we find that poverty (the basic assumption for the rural communities involved) has increased through Environmental drivers (climate and wildlife contact), in combination with Political and Legal factors (natural resource governance and resettlement). This has, in turn, dramatically shifted the human-wildlife conflict from mere bush meat hunting (local consumption) to crime-related national and cross-border poaching for trophies (ivory and rhino horn). The trade in highly sought trophies has thus created a new “wealthy” class in rural villages made up of youngsters who risk their lives in Kruger National Park, in exchange for their ability to “buy” big cars, build houses and secure the

silence of the populace by helping them where the State lacks, particularly transport to health centres.

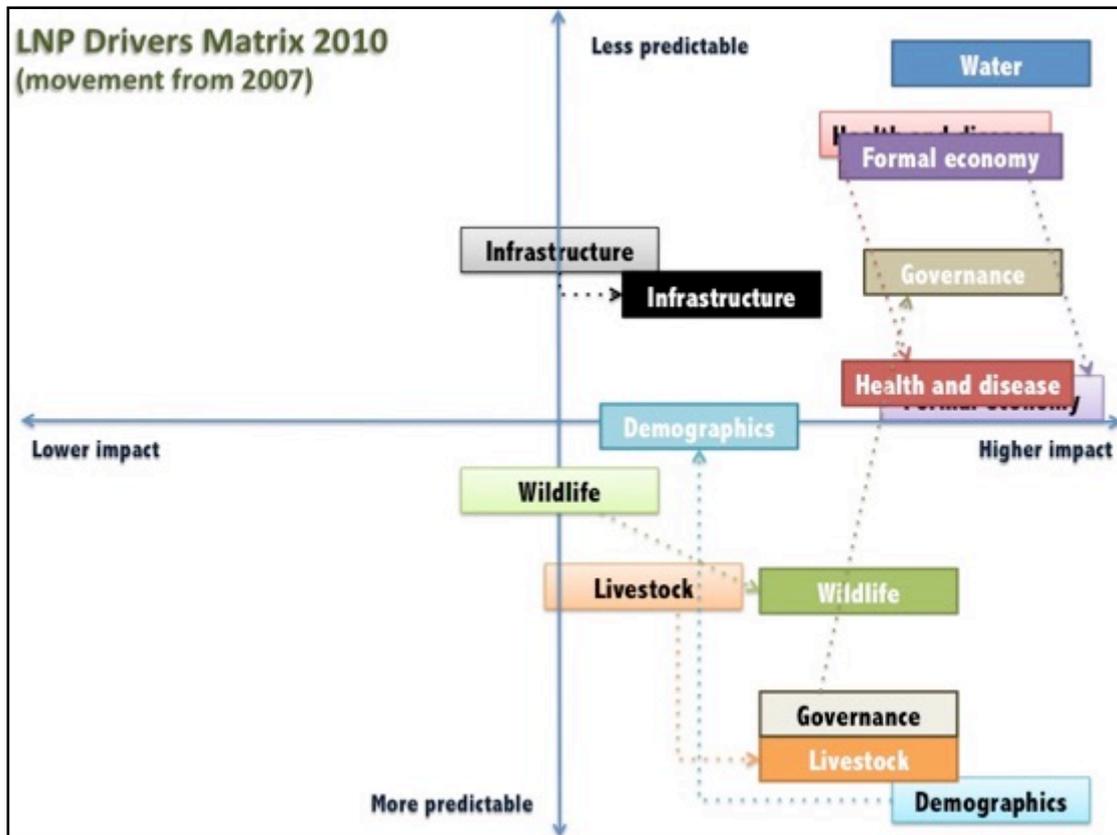


Figure 3: Drivers matrix resulting from 2010 Assessment

The latter is particularly the focus of the middlemen, between the hunters and the buyers, who have carved as specific societal niche. The team has called this section of population the “Robin Hoods” of the LNP, because they are willing and able to use their illegal wealth to provide social services the government has never been able to provide, or is no longer willing to help with.

Table 3: PESTEL analysis of 2013 drivers

DRIVER	ISSUES
Political	Governance
Environmental	Water, wildlife, usable natural resources
Social	Demographics, Health & Disease, HIV/AIDS, Housing, Human Wildlife Conflict (HWC), livestock, migration
Economic	Livestock, migration, formal economy
Technological	Infrastructure (health, communication, transport), Fences, Capacity, Housing
Legal	Resettlement, HWC, Infrastructure

The resulting governance picture is concerning both for government institutions and for traditional structures. The latter is losing control over people and their actions because unable to compete with the financial power of the new wealthy, who have also become a societal model. Whereas improvement has been noted in many drivers that are directly health related, the societal changes towards a lawless capitalism may prove a major hurdle.

## **6.2 Political drivers**

Since the end of the conflicts that involved at various stages and in different ways the three countries of the GLTFCA, conservation has evolved into a political driver both at national and regional scales. The establishment of the GLTFCA in itself as a “Peace Park” carries an important political meaning for the region as the first project aiming at using conservation as a means to foster a cross-border peace building process. Unfortunately, the creation of the LNP, as the Mozambican component of the GLTFCA, produced more politically driven issues at the national level by excluding the possibility of a conservation area able to incorporate both conservation and development needs, which could have been achieved by adopting a community-based and shared natural resources management model, allowing for a partnership to develop in time between park and people. In the first decade of LNP implementation, it is clear that governance is a major political driver at three different scales:

1. Regional: cooperation for conservation between the South African and Mozambican component of the GLTFCA;
2. National: responsibility over the area shared between LNP/ANAC and the Provincial, District and Locality management;
3. Locally: ownership and access to natural resources for rural populations in and outside the LNP.

All of these issues were noted in various interviews and are here discussed only as matters pertaining to the support of LNP governance.

### 6.2.1 Regional scale: governance and law enforcement by comparison

The cross-border cooperation question was raised mainly in the interview with ranger Chauque at the Mapai post (LNP13\_FWI018). Particularly, and of importance for the good governance of the LNP, was the difference in safety and security standards between rangers in Mozambique and in South Africa. Whereas rangers have now re-acquired their weapons and were given new ones, the period spent working without armed defence tools was seen as governance failure because of their inability to patrol and the ensued insecurity when facing armed poachers. Furthermore, in comparison with their South African counterpart, they feel understaffed and underpaid. It must be noted, however, that the construction of proper housing facilities has contributed to boost the morale.

#### **BOX 1: RECRUITMENT OF NEW RANGERS TEAM**

Regardless of the current situation in respect of poaching, it is important to note that for any Park Management profession, including the Rangers, selection and recruitment of personnel needs to be done on the grounds of merit (expertise and experience). Due to the situation in the LNP, however, recruitment for the existing group of rangers was carried out firstly by employing community members, for various reasons.

This has proven, over the years, to be a double-edged sword, as discussed in other sections of the text. As community members, they may know the geography of the area better and be more familiar with local people. Conversely, in conflict situations between park and people they may be caught between a rock and a very hard place.

The recruitment criteria, however, changed in favour of a process open to all applicants, but with strict requirements for experience, to avoid repetition of problems.

A further strain was also seen with regards to the influence of traditional governance systems on the professional role people play as rangers, which seems not to happen in the South African component. Much as it has been highlighted in other interviews (LNP13\_IM003), the fact that rangers are also community members and were born in the LNP villages creates a conflict of interests when facing an illegal operator in the park who is affiliated to their community.

The LNP is responding to this problem and to the escalation of criminal poaching activities with a new group of rangers for the Intensive Protection Zone, deployed in the Western region of the LNP recruited outside the Province, trained, and mandated to operate in isolation from the existing rangers (LNP13\_IM003). As recorded during the interview (LNP13\_IM003)

the original criteria focussed on discontinuing the community recruitment (see Box 1) to create a more independent unit. This may, however, create more governance issues building on the existing questions of seniority in the LNP services versus education levels in salary, notwithstanding the difference in equipment. In terms of sustainability, the future of this special group of rangers seems uncertain, should the external funding expire. If financially sustained, however, it may create internal conflicts with the existing group of rangers, should they continue to be treated differently from the new group.

This governance sub-driver must be read in conjunction with the following social and economic sub-drivers:

- Employment expectations;
- Salary expectations;
- Cost of living;
- Social status

### **6.2.2 National scale: accountability, responsibility and administrative divisions**

The administrative system of Mozambique, including the rollout of responsibility to the lower administration scale of Post Administration, is increasingly clear in national legislation. The superimposition of a Protected Area containing rural villages, and the related Support Zone, however, poses challenges in the definition of responsibilities for land management and infrastructure development. Whereas it is clear that villages inside the park are to be relocated, the delay has generated a passing of responsibilities between LNP management and the government administrative systems. Noted in the two previous assessments, this issue is still salient with the leaders of all the villages interviewed, specifically inside the park. The question of governance here related to access to land and natural resources, as well as access to health and education, transport, and communication infrastructure (LNP13\_FWI024).

Here is where the emerging issue of the new wealthy is most notable and, of course, the new money is derived by increased rhino horn poaching activities

and the formation of local intermediary gangs. Having acquired vehicles (mainly Toyota Land Cruisers and Hilux) and the ability to access fuel, the new rich are providing community services where both LNP and the State fail to reach an agreement on supportive actions: a notable example being transport for the communities in the LNP to reach services in Massingir primarily. The position of the LNP management is clear and sensible: no new infrastructure or infrastructure upgrades (road) will be funded until the resettlement is complete (LNP13\_IM003). Nonetheless in the limbo of the waiting game, the community is becoming dependent on a group of people, who is using their wealth to change the governance systems of the villages themselves. In direct questions to community leaders and to the Chief Administrator of Mavodze, it was made clear that both traditional and state governance systems are unable to counteract the support given by people to the criminals because of the benefits they obtain (LNP13\_FWI005 and LNP13\_FWI006).

This governance sub-driver must be read in conjunction with the following social and economic sub-drivers:

- Access to health;
- Access to wider socio-economic networks;
- Access to education;
- Power relations

### **6.2.3 Local scale: access to land and natural resources**

The essential point for this governance sub-driver was indirectly made by Chief Mapai (traditional leader) when he mentioned that the Mapai entrance gate of the LNP was built over sacred land for the Mapai clan, where all their ancestors are buried (LNP13\_FWI023). The question of land, when a new administrative layer is created over existing formal or informal arrangements, is always a critical driver. This case shows that lack of public participation in the planning phase has created an impasse between people and the protected area that can only be resolved by the community relinquishing their

ancestral land, unless a negotiated process begins with the traditional leadership to award access to the land.

With land is, of course, the question of natural resources, as summarised in Figure 4.



**Figure 4: Critical issues on land and natural resources in LNP and Support Zone**

People inside the Park and in the Support Zone acknowledge their ability to use natural resources inside the park (excepting wildlife) within a limited range, which is perceived as exactly so: limited. Furthermore, as the unsustainable land-uses are acknowledged (such as riverine agriculture and over harvesting of wood) and changes in the climate reduce the ability to produce harvest in the long term, the land sub-division given by the management of the park may need to be revisited (LNP13\_FWI023), especially considering that the population of the Support Zone will increase once all the communities are re-settled in the agreed areas. These questions, naturally, are not constant throughout the interviews.



Map 1: Map of LNP with old and resettled villages.

The Southern villages (See Map 1) are indeed happy about the fence being erected and the Southeastern corner of the LNP having been allocated to them (LNP13\_IFW014). In fact, in Macuachane, the Community Leader confirmed that wildlife incursions have lessened and they have enough land for both existing and re-settling communities. That said, he also raised concerns over the company Twin City wanting to acquire land for agriculture and animal production (LNP13\_IFW014), although after the visit with the local

administration there was no follow-up from the company, nor were activities commenced.

In the northern part of the Support Zone, where Makandazulo A and B are to be relocated (See Map 1), more concerns were raised over the ability of all communities to enjoy agricultural and grazing land, as well as to harvest natural resources (LNP13\_FWI023). The case was also raised by the two re-settled communities in the South around Tihovene (LNP13\_FWI005 and LNP13\_FWI006) and Chinangane.

The governance issue arising at the local level is strictly related to the perception of the LNP having taken land and rights from people to pass them on to a different user (tourists), without the communities being fully consulted, thus able to benefit directly and indirectly from the new land designation, with little consideration for their livelihoods needs. The statement quoted before from interview LNP13\_FWI009, with Dr. Ricardina Matusse<sup>1</sup>, resonates true throughout the communities: for people to accept conservation as a sole land use there have to be benefits beyond the 20% of tourism income.

In the assessment of local governance quality, ironically, the village posing the most threat to the current conservation goals of the LNP is also best managed by the Community Leader: Chimangue. Over the course of the three assessments, and particularly during the last visit, the village showed to be consistently governed by an autarchy headed by the government appointed leader, Mr. Mbombi, supported by various portfolio holders of mixed genders and age groups. Each time a question was asked on a specific topic, such as human health, animal health, relationship with LNP and resettlement, Mr. Mbombi would introduce the portfolio holder and ask he or she to respond to the questions. This kind of

#### **BOX 2: UPDATE ON LAND ISSUES IN AND AROUND LNP**

The LNP Authorities have confirmed that land sales to private entities is a recognised problem, especially for the conservation objectives. It has, in fact, resulted in competing claims previously. This shows poor cooperation with and/or understanding from the District Authorities over the presence of the LNP and the GLTFCA. At present, the Macuachane Community has not accepted the Twin City land request.

<sup>1</sup> Dr. Matusse was in 2013 the LNP Coordinator of the Community Support Programme.

governance systems speaks of an internal organisation and accountability system, which is rare in all other villages visited, where the leadership is only supported by other selected government appointees. It would have been useful for the LNP to use this organisation to its advantage, instead of finding itself presently with an impasse on resettlement.

### **6.3 Environmental drivers**

Land, water and natural resources are both a drivers in the governance and environmental categories, as much as they are part of social and economic drivers: a true cross-cutting issue which defines the relationship between park and people.

There is, of course, a remarkable difference between land and resources around inhabited areas and in the core areas of the LNP. The reliance of rural people on land and resources for their livelihoods has dramatically shaped the landscape surrounding villages, which is very clear from visiting the abandoned areas of resettled communities.

In addition to the human pressure on the environment, however, other issues continue to press against the sustainability of the LNP. On a global scale, climate change is affecting rural livelihood, and the LNP villages are no exceptions, with notable differences between the Shingwedzi River valley, the Southern corner of the LNP and the central Support Zone. The latter is the only area that greatly benefited from the 2013 floods, with all people having harvested two sets of crop after having lost the first crop to the Limpopo floods. While in the area between Salane and Mbethi people are building granaries to store the abundance, everywhere else the scenario is pretty grim. Inside the LNP, all four Community Leaders confirmed that in the last year they had no problem animals raiding their fields because they had no crops. The poverty is visible and, in Makandazulo, people are ready to move out: in fact, they have been since 2010.

There are several critical environmental sub-drivers that must be considered to get a full understanding of the risk factors involved.

### 6.3.1 *Wildlife growth*

It has been confirmed, in two institutional meetings, that wildlife numbers in the LNP are growing as a result of both natural migrations, especially along the Shingwedzi River valley and in the previous sanctuary area, and relocation from the Kruger National Park (LNP13\_IM003 and LNP13\_IM005). As far as predators are concerned, the University of Pretoria carnivore research based at the Gaza Safari camp confirmed increased presence of cheetahs and lions<sup>2</sup>. As it was noted that HWC, defined as both attacks to humans and field raiding, has decreased throughout the LNP and the Support Zone, the growth of wildlife species and numbers is a positive drive to the sustainability of the park, in terms of its wildlife growth objectives.

The concern, however, remains for transmission of known wildlife disease such as Foot and Mouth Disease (FMD), Bovine Tuberculosis (BTb) and the potential threat from Peste de Petits Ruminants (PPR), which is rapidly moving south from Tanzania: the threat here is currently unknown. The inability of the District Veterinary Services to conduct regular surveys on domestic livestock is not an indicator of disease absence, and the lack of a wildlife veterinarian in the LNP increases risks, particularly as people are resettled outside the LNP boundaries without veterinary control and herding the livestock through the park, instead of using the trucks provided. During the interview with the representatives of the District Veterinary Services, it was noted that a BTb research conducted by the Faculty of Veterinary Science of the University of Eduardo Mondlane, Maputo, on livestock in the LNP, using the intra-dermal skin test, four heads of cattle tested positive to BTb. Further analysis on the carcass, however, was prevented because the project had not enough funding to buy the animals from their owners (LNP13\_FWI11).

Three critical drivers are linked to wildlife and disease transmission: access to water, lack of veterinary control on cattle, and resettlement. In addition,

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<sup>2</sup> The two researchers, Leah Andersen and Kristoffer Everatt, were traveling away from their camp before we could reach them, but we met on the road and they updated us on their work and findings. Evidence for this statement is also found in the presentation given to the “LNP Workshop” held by the University of Pretoria in Mopani Camp, Kruger National Park, in November 2012.

considering that BTb is a zoonosis, the risk for contracting this disease increases in the presence of depressed immune systems in humans, which results from HIV/AIDS. Malnutrition is another risk factor in the potential transmission to humans often resulting in extra-pulmonary Tb infection. Nurse Cossa, of the Massingir Hospital, confirmed that diagnosis of extra-pulmonary Tb can only be done at the hospital in Chokwe, too expensive to reach for the majority of people (LNP13\_FWI001). Even in this case, therefore, the lack of reported cases does not signify the absence of the disease.

### **6.3.2 Water**

A critical driver since the first LNP Assessment, water is becoming an increased factor of risk for health in and around the LNP, both from a domestic and an agricultural point of view. Furthermore, it is directly linked to the wildlife sub-driver, as a means for disease transmission from wildlife to cattle and from cattle into humans. Water is also a critical component of the resettlement programme as a service delivered for both domestic and agricultural uses. In this respect, specifically, the quantity of water is a valid indicator only if matched by water quality and related infrastructure.

The area occupied by the LNP and its Support Zone is part of the catchment of two major river systems: the Limpopo and the Olifants (Elefantes) rivers. Other smaller river systems, such as the Shingwedzi, are important both for the direct objectives of the LNP (conservation and tourism development) and as a water source for the villages in the centre of the LNP. The conservation and tourism objectives, in fact, provide the basis for the resettlement of these villages, but there seems to be little urgency, despite the willingness of Makandazulo A and B, at the least to move.

The maintenance of the water quality and surface quantity in the Limpopo river has been severely hampered by industrial and urban development in South Africa, riverine subsistence agriculture in Mozambique and recurrent floods. Especially over the past decade, these have forced portions of the river underground and contributed to the desertification of riverbanks, with the contributing factor of forest clearance for subsistence agriculture. Inland, water sources have been found to contain quantities of Sodium Chlorine

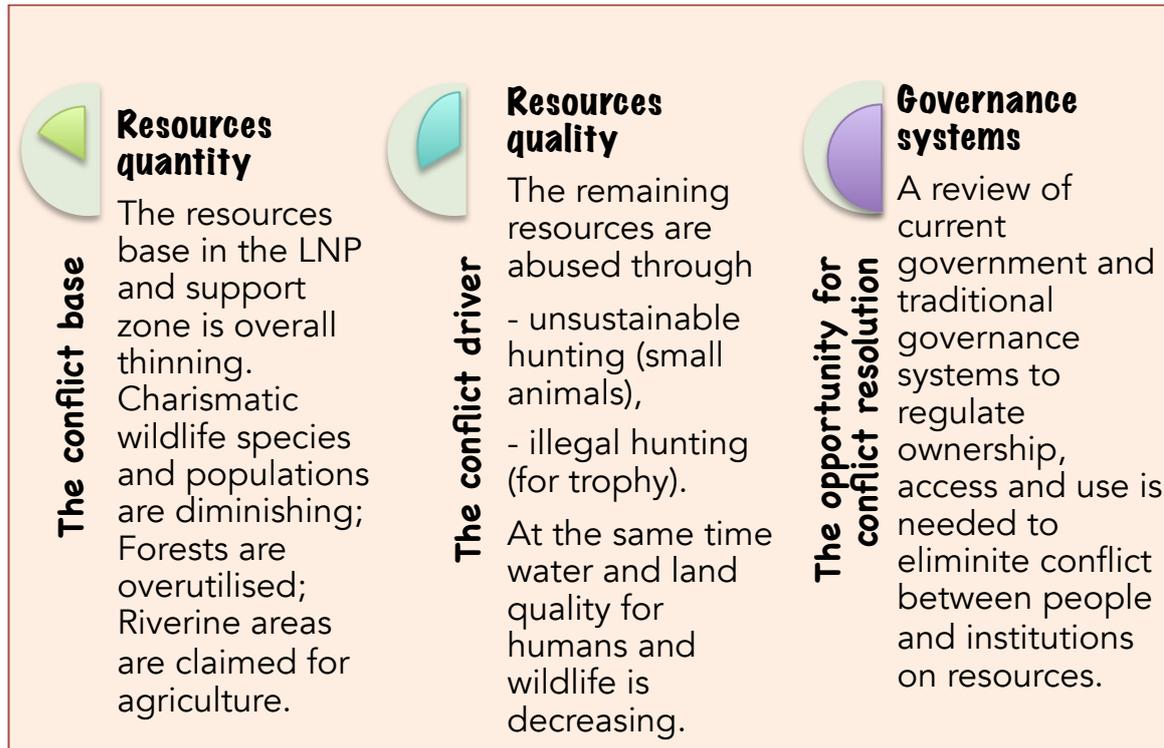
(salt), which makes the water undrinkable. The delivery of water for domestic consumption needs to find a delicate balance between the point of water availability and its quality. Furthermore, in the resettlement area of Salane, it was noted that the infrastructure being constructed is large in size but not good in quality: the housing for the pump, in fact, was already cracked despite it never having been used.

Water is such a precious resources that it is the tug of war between the resettled community of Macavene and their hosting community, south of Massingir Vila. The hosting community, in fact, is refusing the allocation of agricultural and grazing land to the resettled community, until the government fulfils its promise of a water point in the village (LNP13\_FWI003).

### **6.3.3 *Natural resource use***

Partly differing from the question of land ownership and access, and from water, is the question of extractable natural resources. Rather, the rule of ownership, access and use of natural resources are paramount for the resolution of conflict between people and LNP both inside the park and in its Support Zone. This is not a novel case in the establishment of protected areas in the country and the region, but is the one question that is still further away from a sustainable solution both for conservation and development objectives.

The establishment of the LNP and, for future reference the GLTFCA, has radically changed the rules of ownership and access for local inhabitants. Protected areas land uses exclude the rights of extraction of any natural resources from the area in question, which is particularly stressing for people that are mostly dependent on natural resources for survival and lack alternative sustainable livelihoods. In this particular case, the conflict, which affected Mozambique until 1994, had created a sort of law enforcement limbo in the remote areas of the country and, whereas many of the local Shangaan communities had left to take refuge in South Africa or Zimbabwe, those who stayed behind and the RENAMO occupants were able to freely access resources from straw to firewood, and timber, as well as wildlife for trade or consumption.



**Figure 5: The nexus between environmental and governance drivers**

The LNP and the new conservation policy put a halt to these activities and only after several years of implementation where the terms of access to natural resources summarily negotiated with the Support Zone villages. Nonetheless, the size of this Zone is still not clear to local inhabitants. This, with the rampant desertification of the Limpopo River banks, is posing questions to local leadership in terms of land and natural resources available and accessible to the people (LNP13\_FWI023). The alternative provided by the agricultural projects is proving so far not sustainable as an income-generating activity because there are no available markets for surplus produces and the local people are not able to preserve the harvested vegetables, which are then wasted (LNP13\_FWI019). Access to and use of natural resources inside the LNP, for people both inside the park and in its Support Zone, are very critical to understanding the people-conservation conflict that the LNP is experiencing to various degrees. This is also linked to the more classic HWC, in reference to problem animals. There are several points that need clarification:

1. **It is true that wildlife has been encroaching with humans (or vice-versa), which has been resulting in conflict, even before the LNP was established.** However, before the protected area legislation was enforced, people were able to deal with problem animals directly and derive some benefits (meat and by-products) as a compensation for the disruption to agriculture and livestock loss. The LNP has been a game changer and people are not at liberty to directly manage problem animals, often leading to repeated damage if LNP rangers do not intervene timely. Furthermore, although in the Limpopo River, crocodiles are also now perceived as wildlife belonging to the LNP, and ultimately responsible for their disruption of daily life. Regardless of the logic one may want to place on such arguments, this is the reality that needs to be acknowledged in understanding people-conservation conflict.
2. Regardless of whether it is used for personal / domestic purposes or for commercial purposes, **timber is a fundamental resource for local livelihoods.** Differentiating between uses will be important once the LNP has established a working partnership with the users, but currently it is not a priority. An agreement in terms of harvesting, and potential re-planting, is what would drive the conflict-resolution process of timber and firewood extraction in the LNP both with internal and external villages.
3. **The harvesting of non-timber forest products is an important livelihoods strategy both for consumption and for traditional uses.** In many respects, this activity should be considered no different from the sustainable harvesting of medicinal plants in other countries. The sustainability component is fundamental both for in-situ conservation of flora species and for the conflict resolution with communities.
4. Whereas snare hunting is in no ways tolerable from a conservation perspective, **it must be acknowledge that protein consumption in rural areas is not driven by livestock ownership.** Bushmeat hunting for subsistence is still a main component of food security and should be

regulate with consensus, rather than banned, particularly in the Support Zone where multiple land and natural resources uses are legal. The legal concept is that a subsistence hunter of small or problem animals cannot be treated in the same way as an illegal trophy hunter.

The consistent reinforcement of the concept that wildlife belongs to the LNP, with the ban on subsistence harvesting activities in the park, is the main driver for the conflict situations that the LNP is experiencing, particularly in the Shingwedzi River valley. Natural resources are a critical livelihood, since the harvests are periodically threatened by wildlife incursions or floods.

Figure 6 is an attempt to summarise the nexus between two of the critical drivers the LNP has to deal with in its sustainable development and implementation. The point being made so far is that governance related issues should no longer be seen as a space for assertion of power between players to control natural resources where these are clearly public goods or commons. Rather, a participative process of land use planning and management that acknowledges both the needs of the LNP as a government initiative and of the people managing its support zone should be in place, assuming that reconciliation is still achievable. This should begin with a common understanding that much as the State had, and continues to have, no geographic alternative to the LNP, people have no resource-base livelihood alternative than subsistence agriculture and harvesting. Of course, the presence of other drivers complicates the resolution of the current impasse.

### Social drivers

It is widely recognised that society can only grow if the people who are part of it, as both individuals and society members, are *secure* and feel so. The concept of Human Security, in the words of Kofi Annan as Secretary General of the United Nations, “encompasses human rights, good governance, access to education and health care and [ensures] that each individual has opportunities and choices to fulfil his or her own potential”<sup>3</sup>. In defining these as freedoms, furthermore, Mr. Annan specifies that human security translates into the “Freedom from want, freedom from fear, and the freedom of future generation to inherit a healthy natural environment”<sup>4</sup>.

These characteristics do not pertain to the communities inside and outside of the LNP, in many ways they do not pertain to most of the communities in and around the entire GLTFCA, where wildlife conservation is paramount and perceived as such by the rural people who have to coexist with all animal species under biased legislative regimes. The quantity of villages inside the LNP and in the Support Zone are an indication of how important human security is to determine the health of the LNP as a healthy system. The process of building security entails, however, not so much the balancing of numbers but the *perception of numbers*, as quantity of both people and wildlife.

#### 6.3.4 Understanding demographics in the LNP

The question of demographic growth has been for decades hailed as the critical problem faced by the nature conservation in the entire Southern African region and beyond<sup>5</sup>. None of the authors of such distressing theories, however, have contextualized why demographic growth in rural areas is a potential threat to wildlife and environmental conservation<sup>6</sup>. The LNP provides

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<sup>3</sup> Kofi Annan. “Secretary General Salutes International Workshop on Human Security in Mongolia.” Two-day session in Ulaanbaatar, May 8-10,2000. Press release SG/SM/7382.

<sup>4</sup> Ibid.

<sup>5</sup> Notable in the regional context is Attwell C.A.M and Cotterill F.P.D. 2000 ‘Postmodernism and African conservation science’ in *Biodiversity and Conservation* 9: 559-577.

<sup>6</sup> An issue that has been brought up in several publications authored by R.H.V. Bell, beginning with his chapter ‘Conservation with a human face: conflict and reconciliation in

an important example of the relativity of such theories, and the exactness of Bell's understanding.

1. *The area occupied by the LNP and its buffer zone is, by definition, finite.* More exactly, in negotiating with communities in the South over HWC issues, the LNP has given up a portion of land in the Southeastern corner, and erected a fence to protect the rural villages from wildlife incursions, specifically elephants. This happens despite the best intentions of (charismatic) species conservationists because governments, ultimately, should be more accountable to people than to animals.
2. *The amount of fertile land, grazing land and forested land is also finite, as well as diminishing.* This is, of course, due to anthropogenic hazards from degradation of the river courses, to eradication of riverine forests for agriculture, to overgrazing and unsustainable harvesting of timber. However, one should not discount the role natural hazards, such as climate, play in reducing soil fertility and floristic species available. This scenario discounts the role wildlife conservation plays in reducing land available to people, although the long-term role of ecosystem conservation is neither doubted nor disputed.
3. *The amount of land available for settlement is currently stable.* Land is, of course, a finite resource. Once its use has been allocated, an increasing number of people in a specific area has to be managed, either by fostering healthy balanced systems or by enforcing population reduction policies, such as the government of China has been doing.
4. *Population grows, everywhere, and it happens through the balance of births and deaths, as well as migrations.* Africa has, in fact, the healthiest population pyramid in the world, which would be something to be proud of, were we able to guarantee all citizens the basics of human security<sup>7</sup>. Unless any government desires to artificially curb its

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African land-use planning' in Anderson D. and Grove R. (eds) 1987 *Conservation in Africa: People, Policies and Practice*: 79-101. Cambridge University Press, Cambridge (UK).

<sup>7</sup> In Sub-Saharan Africa, which hosts the more economically stable countries in the continent, the situation is changing and there is plenty of scope for further research in both urban and

country's population growth, it can only be managed through integrated land use planning and settlement planning which, for areas such as the LNP and its surroundings means balancing the needs of the human and the natural systems and create more opportunities for sustainable development.

Given these 4 facts, it is important to accept that population in and around the LNP will continue to grow at a semi-natural rate, with health and migrations being the primary drivers for its balance. The challenge in this area is to create, through effective and, where possible, cooperative governance systems, a balanced system that integrates livelihoods in nature conservation to the tangible benefits of both people and park, as well as the ecosystem at large.

From the fieldwork carried out, the following issues on demographics are worth noting:

- The law enforcement response to the rhino poaching has led to the death of several local people, and some disappearances, leading to a subtle increase in mono-parental female-led families with no income 'because of the Park'<sup>8</sup>;
- The poor or impossible access to health centres, in the LNP and in the centre-north sections of the Support Zone, increases human mortality. This also occurs with lack of diagnostics which, in turn, translates into lack of accurate information on the current health status;
- Available prevention for HIV/AIDS, where available and requested especially by women, does not take into account cultural issues in marital relationships, stemming from male and female roles in society and families (see LNP13\_FWI007 and FWI013).

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rural areas. See Velkoff V.A. and Kowal P. 2006 *Aging in Sub-Saharan Africa: The Changing Demography of the Region*. In National Research Council (US) Committee on Population; Cohen B, Menken J (eds), *Aging in Southern Africa: Recommendation for Furthering Research*. Washington (DC): National Academies Press (US).

<sup>8</sup> This concept of the culpability of the LNP in various insecurity issues came forward in discussions with the village representatives in Makandazulo A and Chimangue, which was expected. However, the information related by the Chefe do Posto Administrativo in Mavodze is more serious in identifying how deteriorated the relations between park and people is.

Whilst being an important driver for the health of the LNP systems, demographics is important only in context to highlight the root causes of the environmental issues experienced by the management of the LNP, all of which are fundamental and long-standing sub-drivers, presented in this document.



**Photo 7: Family from across the Limpopo River and on their way to a village in the Support Zone near Pafuri.**

### ***6.3.5 One Health: human, animal and ecosystem coexisting***

Within the opportunities and challenges presented by the establishment of the GLTFA, the creation of the LNP in the years immediately following the civil war has historically been an experimental One Health terrain. To balance health in this superimposed governance system could, actually, support much needed changes in the two neighbouring countries, by preventing seasonal and permanent migrations, and support healthy cross-border human relationship not driven by survival and poverty. Similarly, to provide a cross-border healthy natural system would ensure extended direct and indirect benefits to people across the three countries.

Throughout the first decade, since the establishment of the LNP, and in this last field visit, it was clear that health has not been a critical priority for either the LNP, or the Provincial and District governments. This has recently been aggravated by the decision, made by the management of the LNP, to halt road maintenance services inside the park, which had never really been a priority, since the LNP was planned as a 4x4 experience<sup>9</sup>. Coincidentally, the number of operative health clinics inside the LNP has been reduced to 1 at Mavodze, leaving the villages of the Shingwedzi River valley isolated. The Pafuri area maintains a clinic on the hill by the border post, with the known difficulties of access experienced by all villages surrounding the border post (see LNP13\_FWI021).

The visit to the health clinics and the hospital in Massingir showed improvement in capacity and service delivery in the immediate surroundings, with 2 ambulances in Massingir (LNP13\_FWI001). Nonetheless, three critical issues need careful consideration:

1. all of the operative clinics in and around the LNP are manned by technicians with basic skills and poor technological capacity (see Table 1);
2. the district veterinary services are extraordinarily understaffed and under-resourced (see LNP13\_FWI011);
3. there is no resident (wildlife) veterinarian within the LNP staff.

While the human and technological capacity of human and animal doctors to respond to health issues is decreasing, the number of existing and potential health threats in LNP is on the rise.

In visiting Mapai, it was noted during the interview with the Chefe do Posto Administrativo that a new regional hospital is planned for the town, it was also noted that from the compulsory HIV testing of pregnant women 40/44 were positive in July 2013. This alarming data is perfectly in line, unfortunately, with the level of poverty in the town and surrounding villages and the increased

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<sup>9</sup> See Box 7 for the update on the road maintenance in the Support Zone.

presence of workers from other areas involved in the construction of the Chicualacuala-Chokwe road.

#### **6.3.5.1 Zoonosis and Human Wildlife Conflict**

Disease transmission from wildlife to livestock and livestock to humans has not been confirmed in villages or in health posts. The reasons for this are directly related to the poverty of animal and human health service delivery at the village level, as well as the lack of veterinary capacity in the LNP. The following should increase understanding of the risk factors:

- Extra pulmonary Tuberculosis (a manifestation of Bovine Tuberculosis in human) can only be diagnosed in Chokwe or in Chiquaquala - both these hospitals are too far and costly to reach for people living in and around the LNP;
- Zoonosis linked to animal diseases, such as BTb and Brucellosis, are often difficult to recognise in humans by non-medical or untrained staff;
- People potentially affected are already suffering from other pathologies such as HIV/AIDS and malnutrition, particularly in the central part of the LNP, as well as throughout the support zone, thus contributing to the fatality of any other infection;
- Rural people continue with unhygienic and unhealthy practices due to customs, opportunity and energy efficiency - these include drinking of unpasteurised milk, consumption of animals, which died of unknown causes and without veterinary control, hand washing and sharing of spaces with domestic animals.

Contributing factors to all the risks are chronic or seasonal, and include induced malnutrition, no access to potable water, and reliance on wood for energy production. Furthermore, the increased HWC and contact, particularly inside the LNP testifies to increased coexistence and resources sharing, specifically around water where transmission occurs and in productive fields, thus reducing local nutritional capacity.

Finally, and of critical importance, the absence of information does not signify the absence of zoonosis, particularly when so many hazards have been

identified through observation and interviews. The publication resulting from field research in the LNP areas, supervised by the National Directorate of Veterinary Services staff in Massingir, was discussed during the interview. Four cases of BTB were suspected to be positive from the intrademic skin test performed. However, no additional post mortem diagnostic could be performed on the carcass, because the project could not afford to buy the animal<sup>10</sup>.



**Photo 8: Livestock coming out of the Olifants river near Banga**

#### **6.3.5.2 Human Wildlife Conflict and security**

Besides providing the interactive disease interface, the areas of contact between humans and wildlife prompts security issues, in turn triggering individual and population health questions, for both groups. Specifically in this fieldwork, it was important to note the difference in attitude between villagers inside the LNP and outside the LNP, within the latter there is a further

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<sup>10</sup> See Tanner M. et al. 2014. 'Bovine Tuberculosis and Brucellosis in Cattle and African Buffalo in the Limpopo National Park, Mozambique' in *Transboundary and Emerging Diseases* DOI: 10.1111/tbed.12210 This paper is co-authored by two members of the BTB working group of South Africa.

difference between those feeling protected from wildlife (either by fences or by natural features) and those having to coexist. In Macuachane, for instance, the Community Leader was very happy that the Park has decided to place the fence (LNP13\_FWI014), because they have had no problem with elephant raids. Their geographical position has yielded multiple benefits for the villagers:

- Proximity to animal and human health centres means that they receive the programmes of the National Veterinary Services without fault;
- Their land is large and they have no problem in hosting Macavene, although there may be borehole water quantity issues, it is not as important a concern at the moment, as the assurance that the cattle of the hosted community are healthy;
- They enjoy fertile land along the banks of the Olifants river;
- They are in the process of selling some land to a South African investor, who plans to use it for intensive agricultural production.

At the other end of the Human Wildlife Coexistence, are the villages of Makandazulo A, Chimangue, Machamba and Massingir Velho. Here, in the heart of the Shingwedzi River valley the situation is worrying: Makandazulo A is ready to move, but is not at peace with the conservation objectives of the LNP; Chimangue does not want to move and has suggested that they be fenced in alongside most of the valley - the anger is palpable; Machamba has given up all interest in discussion, although the Community Leader keep a thorough eye on things<sup>11</sup>. In these cases, the recurrent theme was the sense of abandonment from the State and its apparatus, which visibly cares more for wildlife than it does for humans. Regardless, therefore, of the amount and severity of conflict occurrences, the perception is growing stronger amongst people and their leaders - who are civil servants - that they have a conflict with the State and its conservation objectives. The critical shift from previous

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<sup>11</sup> It is possible, for the conduct of the interview that the Community Leader of Machamba may have research fatigue, so while he engages with critical stakeholders, he is not keen on researchers.

fieldwork is that the LNP is no longer considered a foreign project, but a national one. In many ways, this recognition has exacerbated the conflict.

So if on the one hand, people and cattle in the Shingwedzi River valley and in the centre-north part of the buffer zone adapts to life without basic human and animal health services, on the other hand they use their peripheral position to continue and increase informal practices, such as human migration and harvesting of natural resources for subsistence and commercial uses, notable is the boom in rhino horn poaching incidents in the Kruger National Park. In this section, it is also worth noting that the village of Makandazulo A has been reported, both by Antony Alexander and the villagers of Makandazulo B as abandoned by its own inhabitants due to wildlife and climatic hazards, as well as unreliable water sources: some families moved to South Africa and others moved around the proposed resettlement area, at their own costs and with no service provision. Yet, this village has not been targeted as an LNP priority for formalising the resettlement, thus posing quite a few challenges in the future. Whereas the slow implementation of the resettlement programme is the consistent problem for people inside the park, it was indicated that the priorities were the villages in the Southern part of the LNP, i.e. Massingir Velho and Mavodze<sup>12</sup>.

#### **6.3.5.3 Migration, settling and security**

While it is irrefutable that migration has been and continues to be one of the most important socio-economic practices for the Shangaan people inhabiting the LNP area and its surroundings, the practice itself has changed in response to a variety of drivers, of which the LNP and the GLTFCA are two important ones. In the 2011 visit, which occurred in May, Chimangue was practically emptied of men of working age, they were all working in South Africa. In August 2013, that was not the case. Of course, it was the end of the winter season, yet it was also very clear that there were new economic

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<sup>12</sup> This is evidenced by the fact that in 2015, the villages in the centre have not been resettled, whereas the Southern part is almost completed, despite verbal recommendations to prioritise the more sensitive villages on the Shingwedzi valley.

drivers, related to illegal wildlife/trophy<sup>13</sup> hunting. This was evident inside and outside of the LNP, particularly in the Massingir area, and it was recorded in the interviews with the Community Leader of Massingir Velho (LNP13\_FWI005) and the Post Administrator in Mavodze (LNP13\_FWI006). Both lamented how the illegal wildlife hunting had shaped a new class of wealthy and impudent youth and young adults, who use their money to create allegiances within the populations, disregarding the traditional and government leadership, when these were contrary to the source of wealth. For resettling villages, furthermore, migrations have been disrupted by the local needs, with only the youth going away to work, while older adults and the elderly remain to look after the community.

**Box 3: UPDATE ON ILLEGAL HUNTING**

In 2015, it appears that both scenarios have materialised. On the one hand, Mozambican hunters no longer enter Kruger from the LNP border area, but outside of the protected areas, to avoid tightened controls. On the other hand, people living the Kruger Buffer Zone have begun illegal hunting, with episodes of severe corruption of officers within the Kruger National Park. The number of rhinos killed in South Africa rose from 1004 in 2013 to 750+ in August 2015, and most of the killings occurred in Kruger.

Surprisingly, it was understood during the visit that there is little cooperation between South African and Mozambican Shangaans over the logistics and the proceeds of the criminal activities. This, of course, may change if the hunters have to go further into Kruger National Park to find their targets, or it may increase if illegal wildlife harvesting increases in South Africa as well.

Should the youth feel that criminal activities are more cost-beneficial to achieve financial security, the practice of migration may be abandoned fully, while harvestable resources (rhino horn and/or elephant tusks) are available and within reach, with containable risks and reduced penalties. The ability of gangs to corrupt government officials is, of course, a risk reduction strategy on their part and it may prove effective

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<sup>13</sup> This distinction is very important and determines the difference between different types of illegal hunting. Whereas in some cases wildlife is killed for the animal or its skin, (bushmeat, traditional ceremonies and practices), there is an escalation of animals being mutilated because of their trophy, be they rhinos for their horns and elephants for their tusks. These animals often die as a result of mutilation, but some rhinos have been rescued. These two illegal hunting practices attract different players and, in many ways, should be addressed differently by the law.

when government officials also feel financially insecure, a notable case may present itself with the LNP rangers who have longstanding salary claims (LNP13\_FWI018).

In this current scenario, the resettlement of communities inside the LNP should be completed as soon as possible to curb the access to the KNP via the LNP, beginning with the Shingwedzi River valley, then the southern park of the LNP. It was, in fact, clear that while real wealth is created in Mavodze, Massingir and Massingir Velho, the real hunters are in the central villages, because they have a wealth of experience in tracking wildlife and know the areas well.

It is essential to note that the triggers for the changes in migration patterns and the role of resettlement in human development and nature conservation are directly related to the escalation of human insecurity for communities inside the LNP and in its support zone from the post-war period onwards. This has been exacerbated by a 'fortress conservation' style of Protected Areas development, despite the IUCN guidelines for Transfrontier Conservation Areas. The issue at stake here, therefore, is the resolution of human security concerns - both real and perceived - in order to redress the relation between people and government in reaching conservation goals.

In this respect, housing and service provision in the resettlement areas are critical to begin the dialogue between the parties. What was noted in the interviews with resettled and hosting communities is that the level of insecurity is rising in the planning and implementation of the resettlement. This was further confirmed during the visit to the resettlement area near Salane, where the new water pipeline and borehole had just been built, but were already cracked without having ever been used.

#### **6.4 Technological drivers**

The definition of technological drivers found in the LNP and buffer areas is very broad and encompasses the role played by Information Technology such as mobile phones and radio transmitters, used in the criminal and anti-criminal activities; the needs for physical service infrastructure (roads, sewage

systems, water pipelines); the access to transport within and outside the country; housing and health services.

In order to provide a clearer picture of the role each of these drivers play in determining the current and future scenarios for the LNP and its people, the report will look at their relevance by stakeholder and needs.

#### ***6.4.1 The LNP and its officials: healthy rangers, healthy parks***

It is very clear that the relationship between the LNP management and its law enforcement official has undergone some turmoil in reference to their physical and situational ability to perform their duty. As far as technology is concerned, the lack of initial success of the radio communication is a sign of how technological advancement cannot substitute basic needs, such as adequate salary paid on a monthly basis and adequate housing for the officers. Regardless of the passion law enforcement officers may or may not have for their job, incentives need to be provided to ensure that they are willing and able to perform their duties. Incentives, in this case and given the history of the LNP management, range from the basic security of salary payment (uncertain from 2005 to 2010 approximately), to the type of salary, as well as the housing arrangement and food rations when outside of the headquarters. In 2013, the staff quarters for the rangers in the Northern Section had just been completed: for the previous decade they had lived in bush camps. In 2013, the rangers had just be given back weapons to fight illegal hunting in the LNP: their weapons were taken away for the better part of two years<sup>14</sup>, due to governmental misunderstanding, during which time they were still required to patrol against armed poachers. They did so with the Police and the Border Police, which proved highly ineffective and wildlife crimes intensified. The Northern rangers are, in addition, heavily isolated from

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<sup>14</sup> LNP Authorities states that the rifles were taken away only for 6 months. The contradiction may be indicative of damaged relations: why would a head ranger exaggerate a dire situation?

centres of commerce, thus making it very difficult for them to access any type of goods beyond their rations<sup>15</sup>.

The critical question to answer is whether rangers in LNP have enough incentives to carry out their anti-patrol duties, in a situation of administrative and financial instability, and of social conflict. It is to be noted that rangers in LNP belong to the villages in and around the LNP: to apprehend a criminal, therefore, often means to go against their family, friends and neighbours, because here the criminals are the heroes defying the Park and earning money, while the rangers are poor and working for the Park, which wants to resettle them and exclude them from deriving alternative income from natural resource use.

Furthermore, it was understood as the intention of the LNP to hire a special squad of anti-poaching rangers, to be especially trained and equipped, with no links to the local communities or the existing rangers, and with a much higher pay than current Senior Ranger level. This may further unsettle the existing rangers, who already find it unfair that people with education but no local geographical knowledge get a higher salary compared to the local staff with basic education, for the same position<sup>16</sup>. However, this understanding was found to be untrue with the positions having been advertised openly, and salary brackets having been maintained in line with existing structures. The higher scrutiny in the employment process, based on merit and experience, as opposed to geographic provenance, was a game changer to ensure maximum performance.

If rangers are deemed essential to the conservation functions of the LNP, which they are especially now with rising rhino horn poaching, their current situation does not provide sufficient motivation to defend the conservation ideals, nor the protected wildlife, against all odds. The presence of the new team, however, seems to have made a difference and, in 2015, illegal hunting activities across LNP have decreased.

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<sup>15</sup> A brief account of events from 2005 was provided by the Regional Chief of Operations at the Mapai entrance of the LNP, Albino Alfredo Chauque: see LNP13\_FWI018.

<sup>16</sup> This information was provided by Mr. Anthony Alexander, LNP Project Manager: see LNP13\_FWI003.

#### 6.4.2 *The LNP and its villages: healthy people, healthy parks*

The original question of the establishment of the LNP is no longer disputable: the park is there and its limits have broadly been set, so are the rules of engagement for the communities inside the park. What has been a factor of conflict, though, is time: in the first decade since inception, for various reasons, only one of the villages has been fully relocated, that is Nanguene in Bairro 6 of Vila de Massingir<sup>17</sup> and at the time of the fieldwork part of the village of Macavene, in Banga, was being moved. These have not been successfully relocated either, considering the list of complaints received and witnessed during the fieldwork, which range from quality of housing, to service delivery for both hosted and hosting community<sup>18</sup>.

For the villages still inside the LNP, time has meant that HWC has escalated, with little or no autonomy in the response, nor prompt response from the LNP rangers. This also highlights the fact that people inside the park have never been allowed to carry out subsistence hunting of small animals to supplement their diet, especially when their crops were failing due to wildlife incursions or climatic events.

In general, a strong tension exists between the intentions of the LNP Authority to isolate these villages, in order to persuade them to move<sup>19</sup>, and the intentions of the villagers to stay and make themselves central in the wildlife crime arena, despite the obvious strain people are taking on health and nutrition. The following are a very basic list of technological drivers that contribute to a conflict-type relationship between park and people:

1. Road network: neither LNP nor government seems responsible to maintain the road system in and around the park. The crossing of the Limpopo River at Mapai is manned privately by the people who maintain the pontoon, thus making it expensive for people to travel to

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<sup>17</sup> For a full account of the resettlement process of Nanguene, including the years leading to the final removal, please refer to Milgroom J, 2013, *Elephants of Democracy: an unfolding process of resettlement in the Limpopo National Park*, Thesis, Wageningen University, Wageningen (NL).

<sup>18</sup> See interviews with community leaders and members: LNP13\_FWI002, 003 and 008

<sup>19</sup> This information was provided in unrecorded discussions with Anthony Alexander and Billy Swanepoel: there is not recorded evidence.

and from Mapai town: movement is restricted therefore to market day. The obvious result is the serious difficulty, almost impossibility, for people to travel by mini-van, or by ox or donkey cart, to reach any social, health or economic service in the North or in the South, especially from the Shingwedzi River Valley. On the other hand the road network in the Buffer Zone is being upgraded both along the Limpopo and the Olifant Rivers.

2. Telecommunications: people communicate with mobile phones, both within the country and outside in South Africa and Zimbabwe, but the network coverage is very poor and inexistent in the centre of the LNP, as well as in most of the support zone, although it was reported by Mr. Alexander to have improved in the recent years. From the Pafuri border post to the town of Massingir, people have to either use booster antennas or walk to the South African border on the mountain areas to get some signal. This increases their direct vulnerability, as well as placing them in socio-economic isolation. The ability to communicate, especially when services are so inaccessible and migration is the main income strategy, is fundamental to provide functionality to people. The absence of telecommunications for villagers, and the focus on building infrastructure for tourists may exacerbate conflict between societal and conservation objectives.
  
3. Water delivery and sewage systems: In all resettlement areas visited, including the newly prepared one in Salane, water delivery was very poor (with the pump system in Salane already cracked) and sewage systems inexistent. These are the two basic conditions for human health directly, as they provide fundamental services and indirectly as their presence prompts better personal and communal hygiene practice. Whereas it is recognised that villages were not provided with such services before resettlement, it is important for the government to note that such status quo will affect people's choice on hygiene more than any education or awareness programme.

4. Health clinic and health management capacity: There are only three operational clinics in the buffer area of the LNP (Pafuri-Chicualacuala, Chibotane and Macarringue), plus two hospitals in Ntlavene-Mabalane and in Pafuri-Chicualacuala, with a new regional hospital being built in Mapai. In the Massingir District of the Park, two other Health Posts exist in Mavodze and Machamba, although the latter is not serviced. The working conditions for medical doctors and technicians outside of the LNP are affected by a range of difficulties from water provision to waste disposal, to diagnostic and treatment capacity. Furthermore,

their distance from most villages, and the conditions of the road network, in and outside of the LNP discourages any attempt to

seek help by people who

are sick. In the case of HIV/AIDS, prevention is still not feasible given the cultural issues at play, whereas treatment (where available) is mainly accepted by women, men are not receptive to the use of condoms, and it is difficult to work on new-borns. It is a great improvement, however, that anti-retroviral medicines are available in some clinics, which have been furnished with solar-powered fridges. Unfortunately, they were not all operational.

5. Housing: The houses visited in the two resettled areas are already showing signs of ageing and cracking. Furthermore, in both areas, the urban area created has not connection with either the traditional Shangaan set-up, nor with more modern sustainable town planning. It does not even allow for households to expand with either traditional or



**Photo 9: Image of a solar power system for refrigeration in the Clinic, Massingir Velho**

modern buildings. This basic element of human security was not a driver in the previous or current resettlement plan, as the resettlement programme had not reached a stage, which would allow any understanding. At the moment, however, it is clear that from the onset the plan did not respond to basic indicators to ensure sustainable quality of life for the people resettled.

6. Fences: the whole concept of trans-boundary conservation is based on the absence of fences sectioning landscapes across countries and land uses, and the presence of a system able to develop a local economy contributing both to ecosystem conservation and human development. It has been established through the research presented at various AHEAD-GLTFCA conferences that for the GLTFCA and the LNP specifically the absence of fences may not be feasible in the short term due to veterinary health (to protect wildlife and livestock in Zimbabwe, and livestock in Mozambique) and human wildlife conflict issues in the LNP and the Sengwe Corridor, alike. Despite the erection of the fence along the South-Eastern boundary of the LNP, across the Shingwedzi river, which was conceived to reduce and pre-empt human-wildlife conflict issues for the villages between the LNP and the Olifants River, this will not resolve criminal operations in the LNP, nor shall it benefit the wider conservation and development strategy, particularly in light of the surge in rhino horn trafficking. There were two critical points noted during the fieldwork: (1) the possibility of problem animals, such as elephants still being able to move out of the Park through the gap in the fence created by the river, which has since been closed; and (2) the fact that the fence has already been cut to allow for human passage. During the visit, furthermore, a pick-up truck with Mozambican occupants was found by the fence, they were not tourists and did not respond well to the enquiries of Mr. Chauque (our guide). There was some commotion of people transported by a truck on the communal

**BOX 4: UPDATE ON NEW SOUTH-EASTERN FENCE**

Since the fieldwork, the river passage has been closed by a hanging fence, and no more illegal openings were found.

side, where a small motorbike was also found behind a bush by the fence. The fence is clearly not a deterrent for small and big criminals, alike. These points were made during the final meeting by Mr. Michael Murphree, who suggested following the Tchuma Tchato model and separate agricultural and grazing areas, not fencing wildlife in, but the suggestion was refused by the Senior Conservation Advisor, Mr. Swanepoel, with the support of the LNP Project Manager, Mr. A. Alexander (see LNP13\_IM005). The LNP Authorities maintain that whereas fences do not stop people they provide a clear demarcation between land uses, making it easier to define legal and illegal activities within the Protected Area. Consistent with the findings from the previous Assessment in 2011 was also the wish of the Chimangue leader and village to fence in the villages in a corridor inside the park from Mapai to Massingir to allow for communication. Whereas for Chimangue the size and extension of the enclosure is the starting point for any negotiations, this suggestion is totally out of the negotiation table for the LNP authorities, particularly at this time of soaring wildlife crime.

## 6.5 Economic drivers

The economic sustainability of the LNP and its buffer zone is highly dependent on the positive resolution of all previous drivers. Economy is, in many ways, more of an outcome than a driver in this respect. Both the LNP management and the people inside the park and on the buffer zone are driven to financial self-sufficiency as a first step towards a sustainable future. In both cases this self-sufficiency is driven by political, ecological and social factors, which can either support or crush it. So far, it seems that both parties have been playing against each other and this has contributed to the human-conservation conflict leading to the current situation.

The critical economic drivers emerging from the fieldwork are consistent with the previous surveys:

- livestock, which relates directly to animal and human health and influences environmental health;
- resettlement: a major game changer for both hosting and hosted community, particularly in terms of its delays and planning;
- formal economy, recognised as a requirement for the success of both the LNP and its support zone, specifically in terms of access to markets, especially since the inception of the agricultural schemes;
- infrastructure: related to the technological drivers preceding this section, but specifically essential to develop a formal economy or creating an enabling environment for its development.

Each of these has an important socio-cultural component, whilst being linked to governance structures and politics, as well as the environment.

### 6.5.1 Livestock: a driver for health, environment and growth

Traditionally, Bantu people (of which the Shangaan are a group) are pastoralist who sedentarised at the end of their southward migration. Regardless of the origin of the Shangaan group *per se*, livestock is a traditional form of livelihoods and status. In the LNP, the last uncontaminated herds can be found roaming all around the support zone and the genetic value of such cattle should be undisputed, considering that very few have

been mixed with non Nguni breeds. The fact that pure Nguni cattle in Swaziland are protected in the Hlane Game Reserve, as representative of indigenous fauna, should be a point of note as added value to the area. The reality, however, is that livestock is considered a problem for the attractiveness value of the LNP, as it does not attract tourism and it is privately owned by local residents. Furthermore, the number of cattle inside the park has grown exponentially over the years as people acquiring money through employment in South Africa have been investing in their herds<sup>20</sup>, creating – since the establishment of the LNP – a direct encroachment on ‘wildlife territory’. As negative as this can be for the purpose of the LNP, contact between wildlife and cattle has also proven extremely dangerous for cattle and their owners due to direct attacks and the potential for disease transmission, triggering both economic losses and health issues.

Reports of direct attacks of wildlife on cattle are difficult to corroborate, although the point is taken that when attacks happen because of crocodiles in the support zone along the Limpopo River, the LNP can be hardly held accountable. Furthermore, where records of predators in the northern Shingwedzi River valley have demonstrated increased presence<sup>21</sup>, it must be noted that the closest village to the site (Makandezulo A) no longer has inhabitants, due also to the hardships experience in living with wildlife. Nonetheless, one should also consider that owners keep their livestock in kraals at night, when attacks would more likely happen. Suffice it to say, for the purpose of the report, that complaints have been raised and some were confirmed in interviews with LNP members of staff. These occurrences and the perceived lack of response from LNP in protecting the interests of people and livestock owners is a contributing factor to the existing conflict, and has consistently been raised in the last and previous surveys.

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<sup>20</sup> It has been reported and confirmed in two recorded interviews (LNP13\_FWI006 and 11) and other informal conversations that a family in Mavodze, for instance, has over 1000 heads of cattle inside the LNP.

<sup>21</sup> This was reported by the LNP Project Manager, Mr. A. Alexander, in the preliminary interview (see LNP13\_IM003)

Linked to the wildlife-livestock interface is potential for disease transmission from wildlife to livestock and, in the case of zoonotic diseases, to humans.

This is an important economic and health sub-driver:

1. It renders the livestock unsellable in any formal or regulated market, specifically if FMD infected;
2. It forces people to sell livestock informally without health control, in order derive some income from the animal;
3. It impacts on the health of people who consume meat from 'naturally' deceased animals, without veterinary control;
4. It detracts from the income-generation capacity of people, who are unhealthy due to disease exposure, immunodeficiency (HIV/AIDS is a major problem) and/or malnutrition due to poor seasonal rains and problem animals.

Admittedly, the question of animal health in discussions has been increasing since the first survey to the point that people include animal health as a concern and a negative influence that the establishment of the LNP has had on their livelihoods, with the extra grievance from hosting communities in the case of resettlement.

Health of both animals and herds is a critical point to the economic wellbeing for the villages in and around the LNP. The initial refusal by LNP authorities to negotiate solutions for livestock protection with the communities has created part of the current conflict. The training of community members in HWC, and the presence of a dedicated HWC team, composed of 7 people, was a later solution, which has not been noted by communities as a relief mechanisms. In fact, none of the people interviewed mentioned the training of community members and reinforced the belief that, when HWC happens, the LNP is slow to respond. The absence of a veterinary presence in the LNP and the poor capacity of the National Veterinary Services, on which the health of LNP animals depends,<sup>22</sup> are only aggravating an explosive situation. The state

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<sup>22</sup> The issue of capacity was openly raised and discussed in the interviews with both the Veterinary Services officers in Massingir (LNP13\_FWI011) and with the Chiefs of the Administrative Post in Pafuri and Mapai (LNP13\_FWI021 and 22).

veterinarian interviewed simply stated that they have no human or financial/technical resources to accompany the resettlement programme with appropriate controls over the livestock movement (LNP13\_FWI011). Hence, they welcomed the research carried out by Dr. M. Tanner with Dr. A. Machado and her colleagues from the University of Eduardo Mondlane on Bovine Tuberculosis in cattle. Hosting communities are reluctant to have their cattle graze and drink in the same areas as that of hosted communities, because they have been warned of disease transmission (LNP13\_FWI003 and 8).

The establishment of an abattoir in Mapai is encouraging, because the structure was built to high standards, thus enabling cattle to be slaughtered with veterinary supervision and owners to be paid immediately. There is, of course, always the question of access, as people need to bring their animals across the Limpopo River to use it: it services a vast rural and peri-urban area.

### **6.5.2 Resettlement: health and economy**

The resettlement programme has raised positive expectations on access to basic services (water and electricity, health and education) and connectivity to the rest of the districts and the province, which may translate into access to markets and the formal economy. A major contributing factor to these expectations is the agricultural project initiated in six villages of the support zone, now extended to eighteen as shown in Map 1. The LNP provided the constant services of agriculture extensionists, as part of their Community Programme, and contracted a Mozambican NGO,



**Photo 10: Women on truck moving to the new Macavene**

LUPA, for the first year to help the communities establish their management systems. With the support of LUP, a Mozambican NGO with experience in local institutional arrangements, all villages have managed to find their own institutional set-up (some through trial and error) and all those visited during this fieldwork proved to have been very successful and self-sufficient. However, all lamented that with increased production the lack of a local market and their inability to transform the produce for preservation meant that a lot of the produces were wasted, with a great loss (FWI\_019 and post interview conversation with the Community Leader of Salane). The situation may change once the communities are resettled in the Support Zone, still the major problem continues to be a difficult access to the markets located east of the Limpopo River (Chicualacuala and Mapai) and in Massingir town.

Adding onto this, are the specific issues related to the resettlement programme and raised in discussions with both hosting and hosted communities in the south: the economic drivers related to agricultural and animal production manifest a level of insecurity that is rather high considering the time taken for resettlement to happen, which would have allowed specific issues to be addressed progressively.

Firstly, there is uncertainty as to what services will be available in the new sites, as well as concern about the quality of housing as discussed already. These services range from water and sanitation, to access to clinics and schools. The following issues were noted in the support zone villages:

1. Number of clinic and schools may not change thus overloading existing facilities with new users, and reducing the quality of service overall. People in new Macavene, for instance, will rely on the Massingir hospital. Since the hospital has an ambulance the perception of the Community Leader is that access to health will improve now that they are close to Tihovene (Town of Massingir). They have, however, been sharing the school with Banga, although they were promised a school. In the update received from

**BOX 5: UPDATE ON RESETTLEMENT**

The LNP has confirmed that the school was provided for new Macavene alone.

- Mr. Alexander, the community has now received the promised primary school.
2. The water delivery for domestic use is very controversial in both hosting and hosted communities. In new Macavene, the borehole is already broken and they rely on two jerry-cans per week only, since they have to share the pump with the hosting community. In Salane, the piping work for the borehole is arguably inefficient and the cement work at the point of collection is already cracked, although it has never been used.
  3. Electricity was promised for each household, but it has not materialised in Macavene nor in new Nanguene (the older settlement).

Despite the Community Leaders' efforts to accept the resettlement for the benefit of the LNP and conservation, reports of what the situation is for those already resettled are not as encouraging to villages still in the LNP. Chimangué, for instance, uses most of these arguments to refuse the programme: the idea that it is better for them to stay where they know than to go towards the unknown and be dependent on the leadership of another village. As Mr. Zita said in our brief discussion by the ruins of his old house in Macavene: "it is always sad to leave one's home" (see LNP13\_FWI008).

In addition, all other services that relate more to livelihoods and income generation for resettled and support zone communities are also being questioned, particularly in terms of the resources available to maintain or improve agricultural and animal production.

1. Veterinary diseases potentially contracted by animals inside the LNP have been highlighted as a risk as animals are moved to resettlement sites without veterinary control. On their part, hosted community know of the risk their cattle pose, but keep on walking the animals out through communal areas and across the Olifants River uncontrolled, because they know state veterinarians have no capacity to act. The truck provided to each family for resettlement is rather used for wood, which is scarce in the new area (LNP13\_FWI002 and 14). This uncontrolled movement of animals, the health status of which is

unknown, is a great risk to the health of both resettled animals and existing animals in the Support Zone, and people are aware of this. This risk could be mitigated by cooperation between the LNP and the agencies involved in the resettlement and the state veterinarians, which is not happening. The economic consequences of spreading animal diseases outside the LNP are rather obvious for both livestock owners and for the meat economy of the northern Gaza province. From a conservation perspective, the loss of pure Nguni cattle to disease transmission should also be considered.

2. Agricultural land and support has also been noted as controversial in the relationship between hosted and hosting communities. Whereas the success of the irrigation schemes funded by AfD has been noted, these are available for 6 villages only (now 18, each involving 20 to 40 families), in the Support Zone. So the question remains for all the other villages and the hosted communities, who maintain they were promised support by LNP in establishing irrigation schemes, and agricultural land by the hosting communities. In the case of Macavene and Banga, for instance, the hosting community is withholding land distribution to the people of Macavene until they receive the promised pump for irrigation<sup>23</sup>.

The information collected depicts a concerning situation whereby the basic drivers for economic security in a rural area have been jeopardised by the resettlement programme for both hosting and hosted communities, which was corroborated by interview LNP13\_FWI009 with Dr. Ricardina Matusse<sup>24</sup>. The LNP confirms that in most cases, resettled communities were

**Box 6: UPDATE ON THE IRRIGATION SCHEMES**

As of 2015, the community of Banga has received land for irrigation, but no pump, as this was not part of their compensation package.

<sup>23</sup> Mr. Mongue, the Community Leader of new Macavene, informed us of this controversy with Banga over the distribution of agricultural land, which he describes as 'embarrassing', he also mentioned that the Procana land acquisition and clearance has entailed less grazing land available for them. Livestock owner will, therefore, have to graze communal and private cattle together. See LNP13\_FWI002.

<sup>24</sup> Dr. Matusse left the employment of the LNP after the fieldwork was conducted.

not promised irrigation schemes, but offered support for an irrigation scheme as part of their compensation package. Community members are also free to participate in existing ones, which may be wishful thinking as people battle for sustainable livelihoods, food resources and lands in a demarcated space. On the question of Macavene, it was noted by the LNP that their agreement was to fulfil other commitments before the release of the land, hence the delay (although no irrigation pump was promised). In the case of Tihovene, the LNP and the community agreed that land would be exchanged for a water pump.

### ***6.5.3 Migration: raising income at the cost of health***

Besides land based activities and the harvesting of natural resources, migration has been a cornerstone for livelihoods in the LNP and its surrounding areas, since the end of the twentieth century. First as farm labour, then as contract miners, the Shangaan of the Gaza Province have moved seasonally, for extended periods of time and forever in South Africa. Originally the driver for migration was the sourcing of cash to pay taxes for the colonial government and to finance the purchase of weapons for insurgency, as well as supporting the families. These drivers have somewhat changed in the course of the past century are now driven by the need to improve personal and family quality of life with better access to housing, food and consumer goods. Still in 2013, it is easier to find employment in South Africa than in the Gaza province of Mozambique, but the higher salaries feature as prominent drivers for human migration. It was noted already in the 2011 fieldwork that some villages in the LNP, namely Makandazulo B and Chimangue were devoid of any male in working age group. This fieldwork revealed that migration to South Africa can contribute to wealth and income expectations in such a way as to have jeopardized the only collaborative programme of the LNP resettlement: the use of local labourers for the construction of the housing<sup>25</sup>.

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<sup>25</sup> The question of salary was fundamental in the contracting of local labour for the houses: people had been expected to be paid the same as they would in South Africa for the same job, not according to Mozambican salary brackets. When this was not the case, migration proved

Migration, especially when people come back or periodically send money back, is a very profitable enterprise and the only real cash generating activity for local inhabitants, unless one is an entrepreneur or a middle man in wildlife crime - a more recent type of employment. With it, however, come a whole host of health and social problems from the spread of HIV/AIDS to local women and new-borns, to the loss of the sole or main income provider, and the consequent creation of women-led families and orphans: this, besides being a semi illegal activity, involving illegal border crossing, illegal papers and so forth. If there is no local alternative to the income generated through immigration, regardless of the risks involved, this process will continue and the LNP/KNP border will continue to be illegally used as a crossing zone.

Overall, the Economic driver encompasses two critical issues: local poverty on the one hand, and payments for/from conservation on the other. Local poverty is historical and has consistently been exacerbated by several political, environmental, technological and social factors. The compartmentalisation of national and provincial government, furthermore, does not foster intra and inter departmental cooperation with integrated programmes that aim at providing sustainable solutions. Important recent changes, discussed under the technological driver, may change the current status quo in the area. However, they need not be implemented in isolation, and that is an important concern in fighting poverty by building resilient systems. In the interim, people find themselves stuck between what they have, and what they wish to have, trying to find the way to achieve their goals within the constraints posed by geography, policy implementation and conservation. Following from here, the growing expectation that conservation has to pay for its implementation, instead of weighing on national budget, has grown over the past decade and has focussed on the only visible income-generating activities in protected areas: tourism. Increasingly so in Southern Africa, it is not conservation thinking and natural resource management that

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more profitable than working at home. See LNP13\_FWI003 for the account of Mr. Enrique Ngovene.

dictates establishment and implementation of protected areas, but tourism needs, wishes and desires. An uncomfortable example of this shift in perspective is the on-going debate between the advocates of fortress conservation, focussed on species protection, and the natural resources managers, understanding species as part of a wider ecological system. Specifically in Transfrontier Conservation Areas, the focus should be on managing complex socio-ecological systems for sustainability, with a focus on the local social needs, since local people are bearing the cost of expanding protected and conservation areas.

Nonetheless, the economic driver for LNP (as well as neighbouring KNP and GNP) has meant that government investment is minimal and distilled, planning is done to suit the tourist experience out of any wider socio-ecological context, and donors have to constantly support any conservation activity in order to maintain the GLTFCA as the animal sanctuary that is portrayed to the public. Many authors have written important critiques to the Peace Parks process in the region, suffice it to say, for the purpose of this report, that the economic drivers of people in the Mozambican component of the GLTFCA and those of the LNP are becoming incompatible, especially in the absence of tourism, promoted as the only driver for change by several important stakeholders, and of any viable income-generating activity for people or access to natural resources.

## **6.6 Legal drivers**

Legal frameworks for conservation and development processes are fundamental to their success, for this reason it is always risky to change the rules of the game in course of implementation unless it is to suit specific needs that are recognised as long standing drivers for sustainability. In this case, it is particularly difficult to distil legal drivers from the fieldwork interviews, because of the changes in legislation and because of the perception of the legal framework by people in the LNP and support zone. Three themes, however, may be identified as recurrent in dealing with legal frameworks, implementation and legal perspective in the relationship between people and park that are to be considered fundamental One Health drivers:

Human Wildlife Conflict, Infrastructure and Resettlement. These are to be considered both in isolation and together in sustainability process of the LNP and the GLTFCA.

### **6.6.1 Human Wildlife Conflict (HWC): outcomes**

The original cause of all conflict, this requires an absolute legal context to understand its role in creating a gap between park and conservation on the one side and people on the other. Before the establishment of the LNP, the villages as we know them now were dramatically different, due to the rampaging conflict between RENAMO and FRELIMO forces, and the role South Africa played in supporting RENAMO from its Phalaborwa and Hoedspruit bases, across Kruger National Park and what was at the time the Coutada 16, a designated hunting area a small portion of which was operationalized by Gaza Safari. These operations were, naturally, closed during the war, and people living in the area were divided between those who sought refuge in South Africa and Zimbabwe, and those who held the fort while RENAMO soldiers raided the area. The bottom-line is that up to the establishment of the LNP, HWC was, effectively, inexistent either because there were no trophy animals left or found roaming around villages, or because the occasional animal was dealt with there and then, without any institutional intervention. This is not to say there were no anti-poaching laws, but law enforcement during and immediately after the war in most of rural Mozambique was very difficult to achieve.

Suddenly in the eyes of people, in 2001, the Park appears with people arriving from elsewhere in the country or outside telling villagers inside the newly defined LNP that even if they have just moved back they have to move again, and villagers in the Support Zone that they will not be able to use natural resources beyond an invisible demarcation line. This is bound to cause some concern: laws are now being enforced, the rights of people are discounted in the name of conservation and wildlife. With wildlife slowly moving back in, it is proving more of a loss to people than a benefit as they trample on fields and attack their livestock. Furthermore, despite having been told of the benefits of wildlife conservation through tourism, what is materialising is a totally different

scenario, whereby wildlife is only owned by the State when it is killed by villagers (for food or as problem animal) but is *res nulla* when it destroys people's livelihoods.



**Photo 11: New accommodation for the rangers of the Northern section, Mapai Gate**

If one was to look at frameworks, neither the GLTP treaty nor the regional and international frameworks for transboundary conservation speak of wildlife protection and tourism as the two fundamental priorities for such processes to be established. Rather the focus is given to ecosystems conservation across human boundaries through an integrated patchwork of land uses aimed at supporting environmental health and human development. The Mozambican legislation, however, is based on the original IUCN categories whereby National Parks are to be free of inhabitants, regardless of the reality on the ground, hence the resettlement programme. Given the novelty of the TFCA process, furthermore, the national legislation is also unprepared (much as it is in South Africa and Zimbabwe) to deal with multi-institutional governance of land, resources and human processes, economic or social.

It was, in fact, noted throughout this and previous fieldwork how the provincial and district government institutions had not been working with LNP authorities

since the beginning and have been unable to support their citizenship in ensuring their needs and priorities were on the negotiation table. Despite sufficient socio-economic research in the LNP and surroundings in the first decade of this process, not enough attention was placed in resolving the conflict between conservation legislation and reality, which led to outcomes worse than could have initially been foreseen, thanks to other international drivers.

People in and around the LNP, despite boasting a rhetoric of conservation as learnt over the years, are clearly still abusing natural resources in the LNP<sup>26</sup> be them wildlife, timber and non-timber forest product for household consumption and commercial purposes alike, although both uses are to a degree allowed by LNP. This is a civil disobedience tactic to show that their opinion and lifestyle will not, perhaps cannot, change on a whim and without any security for their future. The growth in rhino horn poaching of course is but a part of this general behaviour, and it has been growing thanks to the 2008 change in South African hunting legislation, spurred by the media and public uproar over Asian clients hunting with their female companions<sup>27</sup>. This, in turn, forced market providers to look elsewhere and found a fertile ground in the LNP where people, with tracking skills and knowledge, have had 10 years long grievances against the national government and international agencies over the priority given to wildlife conservation, not to human development.

### ***6.6.2 The changing legal framework for resettlement: outcomes***

Consistently, throughout previous fieldwork by this team (together and independently) it was noted that the LNP was construed in the imagery of local villages as an outside process imposed on them by foreigners recognised primarily as PPF and KfW (NB: the two main funders of the LNP

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<sup>26</sup> The use of natural resources, including land clearing for agriculture, is still permitted for household consumption.

<sup>27</sup> The new legislation poses special restrictions on charismatic trophy animals, the methods of hunting and set special requirements for international hunters, including on the export of trophies. For more information see the following: Government Notice N0.251 of 29<sup>th</sup> February 2008, Department of Environmental Affairs and Tourism, NEM:BA, 2004 (Act 10 of 2004) National Norms and Standards for the Management of Elephants in South Africa.

and sub-projects, with AFD). It was, therefore, perceived as above the legal framework of the Mozambican government in any aspect of its writing and application. This perception placed the government above reprimand for either the land demarcation to create the LNP, resulting in loss of access for land and natural resources for people along the Limpopo and Olifants Rivers, or the resettlement process requiring the uprooting of people from the LNP, just years after the disruptions caused by the internal conflict. During this period there was, however, no real drive for legal compliance because the 'laws' were not made by government. The role played by local employees in LNP in the initial phases of the resettlement programme were very delicate, because most of them were local people acting for a foreign and seemingly unstoppable power. Whatever pull they might have had in getting people to subscribe to the LNP, wildlife introduction (at the time only in the Sanctuary area) and resettlement, was severely curtailed by a defined government presence either in the form of local government (especially in the northern part) or of national government. In fact, the only time officials were significantly present in the area was at the opening of the Giryondo Border Post. Finally, the use of the World Bank Policy for involuntary resettlement was chosen as the initial guidance for the establishment of the programme, against the proposition that the resettlement was to be voluntary as auspicated by KfW. This provided on the one hand a recognised standard for the programme, which included more than the simple physical household relocation and sought a re-integration of socio-economic systems, hence the promise of basic services for the villages in the new area. The success of the implementation of such standard is debatable as previous assessment confirm, mainly because of the planning model chosen by the decision-makers, which does not reflect any sustainable urban planning concept. The programme was, furthermore, severely interrupted by the Procana affair of land allocation for sugar cane plantation, eating right into the land promised for grazing and agriculture to the Naguene and Macavene villages. Since then, the government has decided to take a more active role in the management of the LNP and, specifically, the resettlement programme. The resettlement committee operates at three levels:

- Local weekly meetings aimed at assessing progress, chaired by the District Administrator;
- Monthly technical meeting with uncertain chair as Dr. Pariela is no longer employed in his position with DNAC, and including the provincial government;
- Consultative meetings between government, communities, donors and NGOs occur twice per year or as need arises.

The Government of Mozambique had, originally, dedicated a budget to the resettlement programme, which was later matched by KfW: both are now supporting the resettlement. More recently, in order to help LNP with implementation, the Government has mandated the National Institute for Disaster Management (INGC) to execute the programme<sup>28</sup>.

Eng. Magaia, the current LNP Technical Advisor for the Resettlement Unit, has recognised the people's unwillingness to move and the length of negotiation processes for socio-economic benefits other than housing. The villages, who are in no rush to move, are virtually holding the LNP hostage of their own programme. The involvement of the INGC has been focussed primarily on the construction of houses, whereas the LNP still has the responsibility to ensure that social standards are maintained during implementation. Whereas it is recognised that, as Eng. Magaia states, "there is no guarantee that communities will have their situation exactly replicated", it is true that a resettlement programme of this scale and time frame should be able to provide better living conditions and solid grounds for sustainability in the new area than was possible in the original sites.

The outcomes of such changes in programming and strategies, actors and drivers, are very visible and relate to the various spheres of rural life and livelihoods. Human insecurity over the future ability of people to be granted a start-up to development, resulting in reluctance/refusal to move; abuse of resources in the LNP for production activities and extraction alike; and

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<sup>28</sup> This account was primarily related in the interview with Eng. Silva Magaia the Technical Advisor to the LNP Resettlement Unit, see LNP13\_FWI010.

continuation of illegal/informal income generating activities including escalating wildlife crimes.

### **6.6.3 Infrastructure development: outcomes**

The Mozambican National Plan for the Reduction of Absolute Poverty (PARPA) has, since 2001, defined the legal framework to support processes in the country, particularly its rural areas, to eradicate poverty. Since the beginning infrastructure development (roads, energy and water) has been declared an area of fundamental action together with education; health; agriculture and rural development; good governance, legality and justice; macro economic and financial policies. Housing, other economic activities (fishing and tourism) and the environment were second in the priority cluster.

The process of establishment and implementation of the LNP, including its effects on the villages around the park in the wider TFCA should have been incorporated in or, in the least, informed by the PARPA in its first and subsequent phases. This would have ensured that attention was to be given in the planning and execution of the resettlement programme to the fundamental actions for development, the link with the World Bank policy would have only reinforced what the national policies were already trying to implement.

#### **BOX 7: UPDATE ON ROAD MAINTENANCE**

The LNP has concluded 90% of the upgrading of the road infrastructure in the Support Zone, along the Limpopo and Olifants Rivers. It would be interesting to see how perceptions and reality has changed for Support Zone people since.

Firstly, lagging behind with basic infrastructure development for the villages negatively affected by LNP, both inside and outside its boundaries, was a fundamental initial mistake, which goes against the national policy. Secondly, the failure to maintain basic road infrastructure inside and along the LNP boundaries (See box 7 for updates on Road maintenance), by both the LNP and the District Administrations, has further sunk the interest in playing by the conservation rules by the people.



**Photo 12: Filled granary on the Limpopo River**

People in rural villages have been having difficulty in understanding which institution was responsible for what, and that is consistent with the clear separation of ownership, in their mind, between the country and the LNP. Thirdly, the delay in providing basic supporting infrastructure to hosting and hosted communities is only exacerbating the conflict between parks and people, who feel cheated no longer by foreigners, but by their own government who is now the recognised owner of the resettlement process.

The legal drivers noted during the fieldwork further explain how difficult it is to reach a healthy and sustainable balance between the objectives of the LNP and the needs of the people living within and outside its boundaries. They also provide a framework able to explain why certain processes leading to the current conflicts could have been avoided.

## 7 Conclusions

The fieldwork carried out in and around the Limpopo National Park in August 2013 was aimed at understanding progress in fostering a One Health development of the park per se, and within the broader GLTFCA objectives. All the villages visited are consistent with previous fieldwork, with the exception of Chicualacuala (which was not visited on the second and third fieldwork) and Cubo (which was only visited in this third fieldwork). This report has brought to attention all the drivers of One Health in a Scenario Planning approach identified during the interviews. It has sought to provide a context for them in order to show their progress throughout the years, not just present them as extemporary uprooted issues. The objective of such analysis is to promote a greater understanding of the socio-economic issues at play in the rural areas of the LNP villages (within and outside its borders), their relevance to national and regional processes and issues, and their importance as drivers for change (both positive and negative).

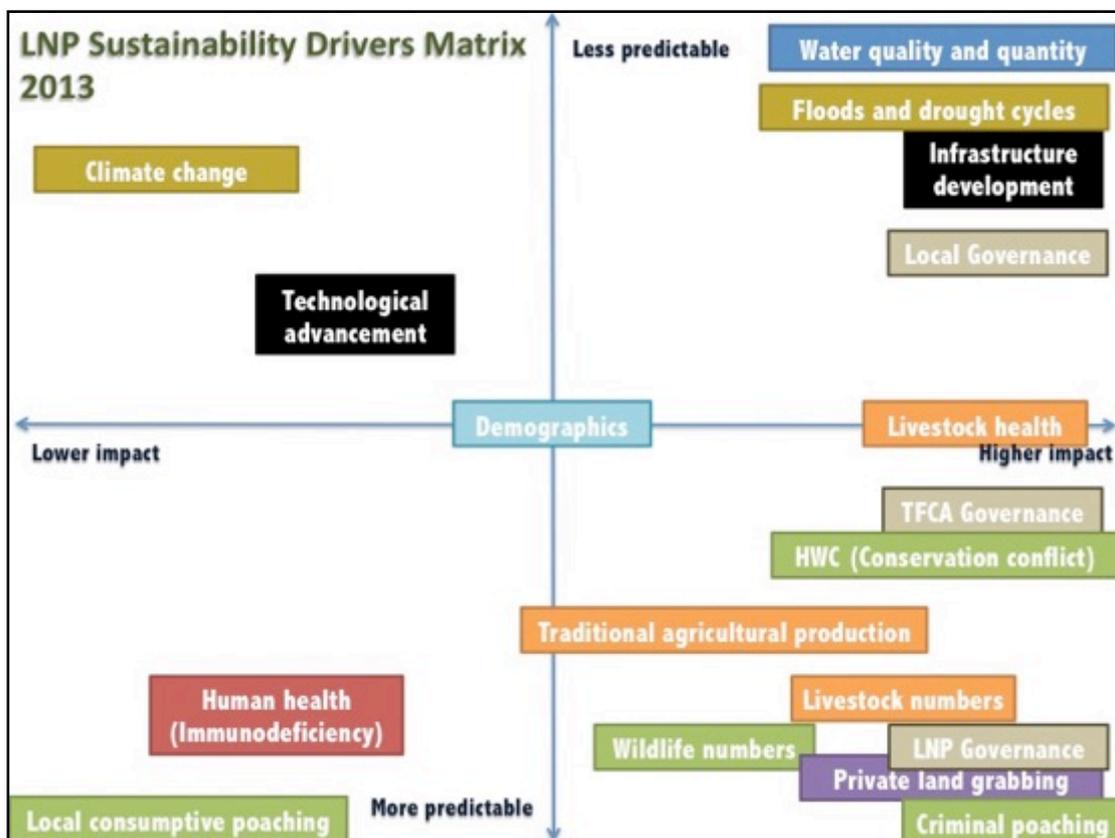


Figure 6: Drivers identified in 2013

Using a PESTEL analysis, all drivers and sub-drivers have been corroborated either by direct observation or by information gathered in the interviews attached, and their analysis. The outcome of such process is a comprehensive portrait of the LNP, its current position in the fostering of One Health principles for the sustainability of its conservation and tourism objectives, and the role people play in supporting or opposing its programmes.

In this assessment, it is important to note that the main objective of the LNP in terms of wildlife conservation, as increase in wildlife numbers, has made incredible progress.

The cost, however, of focusing on wildlife conservation is being paid with the rise in social conflict, resulting in increased wildlife crime and refusal to follow the resettlement scheme by Chimangue, Machamba and Mavodze (some of its population). Smaller acts of disobedience are, of course, the cutting of the new fence in the South-East corner of the LNP, although it is unclear what illegal uses this may have. Accordingly, the HWC driver is now understood as having a higher impact, while being still more predictable. Whereas the original HWC issues of wildlife encroachment are only found in the centre of the LNP, no longer in the Support Zone, the raise in wildlife crimes and abuse of natural resources are direct results of a conflict between human and wildlife objectives.

The cost of continuing a law enforcement policy, in Mozambique and South Africa, with minor interest at supporting human development, may be paid in the years to come depending on the interest for rhino horns, ivory and other natural resources on the national and international illegal markets. Also, another critical driver in changing this scenario would be the legalisation of the international trade in rhino horn and ivory. Fences are an important part of law enforcement because, as stated by Mr. Alexander, they demarcate the land making it easier to define what is legal and what is not. This management tool, however, is not part of a One Health approach to transfrontier

conservation as evidenced in the AHEAD publications and more specifically in Ferguson and Hanks (2010)<sup>29</sup>.

Between demarcation, fencing and resettlement, it may be rather late to begin trust-building processes between park and people. However, it may still be the only pathway for establishing a functional and healthy complex system in both the Mozambican component of the GLTFCA and in the two other countries. Certainly, there is no future for environmental, animal or human health and project sustainability under the current scenario, considering that:

- If illegal hunting continues in LNP, it will impact on herbivore numbers and behaviour. Eventually, other elements of the ecosystem will be affected including predators, which might then turn to livestock. Hunting may increase in the KNP in the future, in fact it has since the 2013 fieldwork. This has affected the conservation objectives of both parks and the decision to re-erect the border fence may not help practically, nor in the continuation of a transfrontier conservation programme;
- If promises keep on being broken (or perceived as such) to hosted and hosting communities in the resettlement programme, especially where infrastructure, basic services and land for rural livelihoods are concerned, people may well decide to move back in or to continue extracting illegal forest and non-forest products from the LNP, forcing encroachment and, once again, reducing the success rate of the LNP as a functioning wildlife protected area;
- If wildlife and livestock are not protected against potential diseases, nor basic surveillance carried out, a situation may be faced whereby livestock remains unmarketable nationally and internationally, and wildlife becomes vulnerable. The potential for zoonotic disease transmission will remain a possibility, lack of basic information on disease presence or absence complicates the situation further. The illegal sale of livestock from the Pafuri area, in particular, is flourishing

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<sup>29</sup> K. Ferguson and J. Hanks (eds) 2010 Fencing impacts: a review of the environmental, social and ecological impacts of game and veterinary fencing in Africa with particular reference to the Great Limpopo and Kavango-Zambezi Transfrontier Conservation Areas. University of Pretoria: Mammal Research Institute.

without any veterinary control. The risks for animal and human health may be significant.

Enough literature has been produced over the years to inform decision-making in the LNP, the recommendation session shall seek to distil lessons learnt for the benefit of the future programming of the LNP and the GLTFCA.

### **7.1 Recommendations**

The objective of this exercise is to support decision-making in the LNP, the national government authority ANAC and the GLTFCA to ensure that strategies and programmes lead to a sustainable and healthy process, which is not vulnerable to change and hazards. For this reason, the report and these recommendations are based both on fact and perceptions, which could actually be more threatening to the healthy future of the LNP and GLTFCA. The recommendations are, therefore, based on these findings:

1. Whereas the delivery on human health services (including the treatment of HIV/AIDS) has improved since the 2007 and 2010 surveys, the perception of people remains that the current services are not able to support the overall health of the population due primarily to accessibility and variety of services provided.
2. The delivery on animal health services has remained the same, if perhaps worsened, at a time when the movement of animals from the LNP to the surrounding areas is part and parcel of the resettlement process.
3. Access to clean drinking water is still uncertain in many areas and the sustainability of the existing and new boreholes is still questionable.
4. The focus of LNP remains on wildlife numbers, and not on ecosystem management. The emphasis on species conservation has heightened with the increase in commercial poaching of rhino and elephant. As a result of this broader conservation objectives and park/people relations have suffered.
5. LNP and government service delivery on the resettlement is perceived as and, in many cases, is still wanting: from housing, to essential

service such as clean water, resettled people have not in their opinions been able to replicate their previous standards of living.

While these recommendations are addressed to the management of the LNP, there are aspects of interest to the donor community and the national government.

### **7.1.1 On animal health**

The LNP should drive a process with the District Veterinary Services both in Massingir and in Chiqualaquala to achieve either or all objectives, by presenting their case to the national government and their donors:

1. **Sponsor the exiting technicians to conduct monitor and surveillance exercise with livestock leaving the LNP**, including those which have already moved;
2. **Facilitate access to veterinary students to both wildlife and cattle**, by providing basic services during their fieldwork in the LNP, on provision that their research addresses the need of both the LNP and the State Veterinarians;
3. **Create and fund the position of Wildlife Veterinarian for the LNP**, as well as providing him/her with the tools to perform on the requirements.

### **7.1.2 On human health**

The LNP should **encourage basic clinical services to be delivered to people still inside the park, by facilitating access and transport.**

Although this is not a direct objective of a national park, it should be accepted that people living within the park's boundary are there because the park was created before their resettlement and are still there because of the delays in the resettlement. This is one objective that works towards the building of a trusting and collaborative relation with people, which counteract the perception that the LNP does not care.

On the general drivers of health, nutrition plays as important a role as the absence of disease or immunodeficiency. Therefore, the following is advised:

1. **Establish clear agreements for the use (including extraction) of natural resources** within the park, which may include:
  - a. a regulated, sustainable use of wildlife species including small ruminants and non timber forest products such as *Gonimbrasia belina* (Mopani worm);
  - b. technical support to improve harvesting and distribution of fish from Massingir dam;
2. Liaise with the local governments in the Chiqualaquala and Massingir districts **to facilitate the provision of markets as outlets for surplus production in the irrigation schemes**. This is particularly important for the Chiqualaquala area.
3. **Seek expert advice in the future planning for the Support Zone with a special focus on preparing for Climate Change related issues.**

#### **7.1.3 On land use and resettlement**

**Seek expert advice in the future planning for the Support Zone that prioritises Community-Based Natural Resources Management initiatives able to take into account both Park and people objectives.**

This should not be a beneficiation strategy, but a more comprehensive plan addressing also the relationship between Park and people for the future health and sustainability of both.

This should also not simply identify projects for the Support Zone, but create a **real collaborative framework** that includes LNP, people and the private sector already operating in the area. It must ensure that people are able to legally manage and benefit from the natural resources they depend on.

#### **7.1.4 On Natural Resources Management and Ecosystem Services**

**Shift the priority of the LNP from species conservation and numbers to the creation of an enabling healthy ecosystem approach** that supports both animal and human activities.

It is clear, in fact, that despite all efforts to bring tourism into the LNP by prioritising human displacement and increase in wildlife, the revenues are yet

to materialise in sufficient amounts to support any of the critical activities of the LNP. The lesson learnt should be that a change in focus is needed: rather than looking at short-term income generation through wildlife production, **the LNP should work at creating a functioning ecosystem**, which will - in the least - always provide valuable services, be resilient to climate variation and lay the foundation for long term ecosystem services.

This shift will facilitate the realisation of the larger GLTFCA project of extending to the Banhine and Zinave National Park as an ecological continuum.

As mentioned in 7.1.3, **seek expert advice in making the Support Zone a real Natural Resources Management Area** able to support both the park and its ecology, and the people living in the Support Zone itself.

#### **7.1.5 On illegal wildlife hunting**

It is clear that had LNP management sought from the inception of the park to reconcile conservation and development objectives, the illegal hunting would not exist to the current extent. As much as certain conservation sectors insist on blaming and shaming the demand side of the illegal trade, it is obvious from the three LNP assessments in the least, that rural destitution is a critical driver on the supply side. Combating the illegal trade in wildlife has to start with the support of rural communities and their livelihood aspirations. This has been clearly identified as a priority by CITES, IUCN - Species Survival Commission, United for Wildlife and the Collaborative Partnership for Wildlife.

In this regard, the LNP is encouraged to take the bold step of **supporting access to wildlife as a source of protein for local inhabitants, with legalised quota hunting when possible and where applicable**. In addition these communities should be afforded access to other non-timber forest products such as mopani worms - *gonimbrasia belina*, as well as fruits such as baobab - *adansonia digitata*, marula - *sclerocarya birrea*, and green monkey orange - *strychnos spinosa*, notwithstanding a full range of other forest products. This system needs to be tailor-made for the LNP in the understanding that not all communities will have access at any given time, since the Park is investing into building its wildlife numbers.

Whereas it may seem that all these recommendations for the LNP and various government departments focus more on providing human health in a national park context, the users of this report should be conscious of the critical situation the LNP has been, and still is, in relation (1) to the people it has been seeking to resettle outside of its boundaries, (2) to the people living in the Support Zone and (3) to the role it plays in the success of the Great Limpopo TP and TFCA. In reviewing the two previous reports and writing this current report, it is obvious that should the relationship between people and park not be redressed with clear planning and implementation, the LNP may never be entirely functional in its own right or as part of a regional initiative. It is also understood that both Kruger National Park and Gonarezhou National Park face very similar constraint in their one health planning, so **joint regional collaboration is advised with the objective to work together for the GLTFCA with the people of the GLTFCA.**

#### ***7.1.6 For the national government and the donor community***

The decision to establish and fund the LNP, in its own right and as part of the Great Limpopo TP and TFCA, has been faced by numerous implementation obstacles, which have been overcome often at the cost of the health and sustainability of the entire project, which brings together conservation and development objective, as required by Mozambican policy and legislation.

Both government and, in particular, the donor community should begin to **emphasise in their funding mechanisms that project sustainability for conservation in countries like Mozambique, where poverty eradication has been a priority for decades, cannot be limited to wildlife and tourist numbers.** Rather these elements should be the result of critical systemic indicators such as:

- **Working partnership in natural resources management** (including access and authority for extractive and non-extractive uses);
- **Decreased environmental and social vulnerability to everyday hazards** measured by ad hoc indicators;

- **Existing and increased links for economic development in peripheral and marginal areas** (access to market outlets for local producers);
- **Periodical evaluation resulting in planning adjustments** by independent consulting teams (or individuals) who can work on both conservation and development objectives.



**Photo 13: Visiting family from the eastern banks of the Limpopo River, near Salane**