



# Socio-economic Impact of Lake Turkana Wind Power in Marsabit

---

Final Report

---

**FINNFUND**

---

**3 APRIL 2020**

# Executive Summary

## Introduction

NIRAS Africa Limited (NIRAS) was contracted by the Finnish Fund for Industrial Cooperation Limited (Finnfund) to undertake a socio-economic impact study of the Lake Turkana Wind Power (LTWP) Project. The project is located in Laisamis constituency, Marsabit County in North-Eastern Kenya. The objective of the study was to assess how the LTWP project has impacted the lives and well-being of the population in Marsabit and determine whether the project has contributed to poverty reduction in Marsabit. Specifically, the study sought to generate evidence on how the LTWP project has impacted the employees as well as benefits generated by communities living in Laisamis constituency from Winds of Change (WoC) initiatives.

The study was conducted over a period of four months between December 2019 and March 2020 with field data collection between 29th January through 6th February 2020.

## Evaluation Methodology

In our analysis, we used a mixed methods approach to generate qualitative and quantitative data from employees of the LTWP project and relevant stakeholders in from Laisamis constituency. We conducted interviews with 47 employees purposively sampled at LTWP project site (49% of employees from Samburu origin, 32% Rendille, 17% Turkana and 2% El Molo), seven Key Informant Interviews (KIIs) with stakeholders of the infrastructure assets built or rehabilitated by WoC, two Focus Group Discussions (FGDs) with members of the Community Liaison team (one for men only and another for women only) and field observations.

The proposed methods in our approach comprised of Contribution Analysis, most significant change and before and after comparison. Using contribution analysis we re-constructed LTWP impact pathways, developed by QBIS during the Socio economic study of key impacts from Lake Turkana Wind Power conducted in 2018, to better understand the achieved outcomes and plausibly attribute the results to LTWP's activities. We collected success stories as well as stories of change in the surveys, KIIs and FGDs and used a seven year period in the study to establish what the situation of the respondents was before the LTWP project and how these compare with their current situation. On average, the employees interviewed had worked at LTWP for three years with the shortest serving employee spending one year in the organisation and the longest serving for 11 years.

## Highlights of the employees' household demographics

- The average family size of the employees is seven people (minimum two people and maximum 18), which means that the employment dividends attained by the 339 employees have approximately impacted 2,373 individuals at household level. Within the families, on average three children were in school and over half (51%) of the employees had their children in boarding schools.
- Main sources of livelihoods of the employees are income from LTWP project (98%), sale of livestock/livestock products (26%) and small-scale retail businesses (34%). We noticed a big drop in emergency relief as a livelihood source from 70% before the project to 6% after the project.
- The average monthly household income from all sources was found to be KES 87,845 (EUR 760) which represented a 126% increase from KES 38,936 (EUR 336) before the project.
- The median monthly salaries for all employees was KES 50,000 (EUR 432) with a minimum of KES 28,000 (EUR 242) and maximum KES 365,000 (EUR 3,158).

## Direct impacts of LTWP to employees

- 87% of the interviewed employees feel that there have been improvements in their living standards qualified by the ability to pay school fees (81%), build permanent houses (51%) and purchase household assets (70%). Close to 60% of the employees increased the livestock herd sizes and since the households have been able to meet competing needs from salaries earned from the project, the sale and slaughter of livestock has reduced. Further analysis indicated that the 13% who haven't experienced changes in their household well-being are fresh employees with less than two years work experience with LTWP.

- Households have been able to invest in clean energy sources which has contributed to a drop in firewood and charcoal usage from 45% to 21% and from 34% to 28% respectively, before and after LTWP. A significant upward shift in households investing in solar panels has been recorded (ownership increased from 32% to 74%). The main source of lighting energy across all households is solar (70%, up from 43% before LTWP) whereas, the use of kerosene has dropped from 13% to 6%.
- Although several employees have used their earnings to improve the living standards of their families, only 17% have invested in alternative businesses which are mainly operated by their spouses. Businesses strengthen the households financial stability.
- LTWP provides medical insurance cover to its employees which takes care of up to five family members. Using the medical cover, a majority of the employees (64%) access health services from private medical service providers. The medical cover has relieved employees from financial pressure that come with ailments at household level.
- Generally, the employees feel their households are food secure as reported by 94% respondents. Before being employed at LTWP, 51% of the employees would occasionally go without food or cut down their daily food intake due to lack of money.
- Using PPI scores based on the household living standards, level of education of the household head, household assets and food consumption patterns we established that 84% of LTWP employees have a higher likelihood of falling above the national poverty line and only 16% are likely to fall below the national poverty line. The employees are generally better off than the average population in Marsabit, Turkana and Samburu where 76% of the population are likely to fall below the national poverty line (the general population in the area still live in traditional houses/manyattas, have low level of education and make very limited investments in household assets).
- Access to financial services has in overall improved and the project has instilled the culture of saving among the employees. Currently, all employees have bank accounts and 94% have joined employees Savings and Credit Cooperative (SACCO),<sup>1</sup> Winds of Power SACCO, where employees together save an average of KES 3 million (EUR 25,964) per month. Nearly all employees save in the employee owned SACCO which provides more financial security for investment and emergencies with access to loans at minimal interest rates of 8% per annum. The employees do not require a collateral to access the loans.

### ***Direct impacts of WoC to the population in Marsabit County***

- From own perceptions, communities around the project area feel that LTWP has contributed to enhancing security (the project site used to be referred to as a battlefield between Samburu and Turkana community). The largest department in the LTWP project is security. The project also has 20 additional policemen stationed at the site during the day and night. Respondents claim that this has contributed to the reduced cases of cattle rustling, community conflicts and conflicts due to water scarcity, with 30% mentioning that the situation has improved compared to the past, where these cases ranked between 85-89%.
- Boreholes drilled by LTWP have addressed water shortage in the area. The boreholes currently serve over 4,000 households. The communities using the water facilities have set up Water Management Committees who collect usage fees for sustainable maintenance of the infrastructure assets. The facilities have security guards during the day and night as well as troughs for animals taps for collecting water for household use.
- Support provided by LTWP to the health facilities have improved access to better healthcare services. For instance, LTWP support to Burri-Aramia dispensary has improved hospital maternity birth rates from an average of two to three hospital births per month to over 40 births per month (thus decreasing home

---

<sup>1</sup> SACCO is an acronym for Savings And Credit Co-Operative, and defined as an association of likeminded individuals, registered under the Ministry of Cooperatives (In Kenya), and authorized to take deposits from and lend to its members. SACCOs are governed by the SACCO by laws which state the objectives, membership, share capital, organisation structure, management and lending regulations

births). The hospital has equally increased vaccination programmes which before the LTWP support was a big gap.

- Support provided for schools include solar systems, water tanks, piping systems and construction of laboratories. Key informants interviewed during the study indicated that these have increased retention of students and teachers by creating a more conducive learning environment. Improved performance of girls in the Girls Secondary Schools in the area is being attributed directly to access to these facilities.

### ***Implications for LTWP and WoC***

- As a result of the successful lobbying by the LTWP, company the communities have come to appreciate that they can demand for social services from the Government. However, they are relying on LTWP to lobby for them since it has more influence on the County Government. The company can bridge the gap between the community and the Government but the community needs to organise themselves so that they are able to lobby effectively.
- The company is putting in place measures to manage the communities expectations.
- Our findings show that less women are employed at company compared to men. This is because of the type of work that is being done at the site, the qualifications and skilled required to fill the positions and the working arrangement at the site.

### ***Implications for employees of LTWP and population in Marsabit County***

- The communities and employees have come to value education, many of the low-skilled workers view it as the key to their children and relatives getting better job opportunities at LTWP and other companies in the County. A large proportion of employees are using their salaries to educate their kin. Some are also furthering their education. The company is looking for ways to make this possible for both the skilled and low-skilled employees through flexible hours, access to computers for online courses and working with trainer of trainers.
- The communities have become over reliant on WoC for social projects. This is because WoC has been delivering on its promise.

### ***Conclusions***

The socio-economic impact assessment provides a wealth of compelling evidence of the extent to which LTWP has positively impacted the local communities, mainly through direct employment and through the projects implemented by the WoC. The community engagement has been an important cornerstone and has enabled LTWP to correctly identify and prioritise community needs from before the Wind Farm was built and throughout. This engagement from the onset has instilled ownership and sustainability.

LTWP act as a catalyst for development in the area and has the intention to bridge the gap between the communities and the County Government as a short-term measure while building the capacities of the communities to become more proactive and coordinated in demanding services from their local Government. The risk is that as LTWP is becoming more institutionalised the communities over-rely on the company's services.

An important foundation for LTWP is to provide good salaries in order to attain higher living standard for the employees and their families. LTWP provides significantly higher salaries than the Kenyan minimum wage/and the market rate. The salaries provided are a source of motivation, particularly to the semi-skilled workers. In addition to receiving a high disposable income, the households of the LTWP employees are constantly becoming more financially empowered and have increased their financial capabilities as compared to before the project. They are now more equipped to make money management decisions, which is evident in e.g. the savings groups created by the employees, and in the way they invest their additional funds in education, household improvements and cattle or farm input that can assist them to achieve higher food security.

The families of the LTWP employees are much more likely to be above the national poverty line than other families in the area and it is our conclusion that this is not only related to higher incomes but also to the capacity built in money management and the provision of an enabling environment for the employees to save.

From the planning stage of the wind farm the LTWP has been aware of the importance of balancing the benefits of the project between the main ethnic groups in the area. The long-term community engagement, investment in social infrastructure and provision of equal job opportunities have reduced conflicts between different communities.


# Contents

---

<b>Executive Summary</b>	<b>2</b>
<b>Acronyms</b>	<b>8</b>
<b>1 Introduction</b>	<b>10</b>
1.1 Study area: Marsabit County	10
1.2 Lake Turkana Wind Power project	11
1.3 Objectives of the socio-economic impact study	14
1.4 Scope and timing of the study	14
<b>2 Methodology</b>	<b>15</b>
2.1 Study design	15
2.2 Sampling	17
2.3 Survey tool design	17
2.4 Data collection	17
2.5 Data entry, cleaning and analysis	18
2.6 Limitations of the study	18
<b>3 Findings</b>	<b>19</b>
3.1 Demographics	19
3.1.1 Gender and age	19
3.1.2 Education	20
3.2 Household welfare analysis	20
3.2.1 Income	20
3.2.2 Sources of lighting and cooking	21
3.2.3 Main roofing and floor material	22
3.3 Food security	23
3.4 Access to water and healthcare	24
3.4.1 Healthcare	24
3.4.2 Access to markets and business	25
3.5 Access to financial and telecommunication services	26
3.5.1 Telecommunications	26
3.5.2 Business	26
3.5.3 Security	27
<b>4 Impacts of the LTWP project on the lives and wellbeing of its employees</b>	<b>29</b>

4.1	Monetary dimension of wellbeing	29
4.1.1	Income	29
4.1.2	SACCO	30
4.1.3	Consumption	31
4.2	Non-monetary dimensions of wellbeing	32
4.2.1	Education	32
4.2.2	Ownership of livestock and household assets	33
4.2.3	Food security	33
4.2.4	Health	34
4.3	Other indicators of wellbeing	34
4.3.1	Social	34
4.3.2	Security	35
<b>5</b>	<b>Changes in poverty levels</b>	<b>36</b>
<b>6</b>	<b>Impacts of WoC on the lives and wellbeing of the population in Marsabit</b>	<b>37</b>
6.1	Monetary dimensions of wellbeing	37
6.1.1	Income	37
6.1.2	Business	38
6.2	Non-monetary dimensions of wellbeing	38
6.2.1	Improved access to the constituency	39
6.2.2	Enhanced education	40
6.2.3	Improved access to health	41
6.2.4	Improved access to water	42
6.2.5	Skills transfer	44
6.2.6	Environmental and climate impacts	44
<b>7</b>	<b>Discussion</b>	<b>46</b>
7.1	What are the implications for LTWP and WoC?	46
7.2	What are the implications for employees of LTWP and the population in Marsabit County?	46
<b>8</b>	<b>Conclusion</b>	<b>48</b>

---



## Acronyms

<b>AoI</b>	Area of Influence
<b>ASAL</b>	Arid and Semi-Arid Land
<b>CA</b>	Community Advisor
<b>CBO</b>	Community Based Organisation
<b>CDF</b>	County Development Fund
<b>CIDP</b>	County Integrated Development Plan
<b>CLO</b>	Community Liaison Officer
<b>CSO</b>	Civil Society Organisation
<b>CSR</b>	Cooperate Social Responsibility
<b>EU</b>	European Union
<b>FBO</b>	Faith Based Organisation
<b>FGD</b>	Focus Group Discussion
<b>Finnfund</b>	Finnish Fund for Industrial Cooperation Ltd
<b>GDP</b>	Gross Domestic Product
<b>HDDS</b>	Household Dietary Diversity Score
<b>HMIS</b>	Health Management Information System
<b>IPA</b>	Innovations for Poverty Action
<b>KCPE</b>	Kenya Certificate of Primary Education
<b>KCSE</b>	Kenya Certificate of Secondary Education
<b>KII</b>	Key Informant Interview
<b>KNBS</b>	Kenya National Bureau of Statistics
<b>KPLC</b>	Kenya Power and Lighting Company
<b>LTWP</b>	Lake Turkana Wind Power Project
<b>MFI</b>	Micro Finance Institutions
<b>NEMA</b>	National Environment Management Authority
<b>NGO</b>	Non-Government Organisation
<b>NIRAS</b>	NIRAS Africa Limited



<b>ODK</b>	Open Data Kit
<b>PPI</b>	Poverty Probability Index
<b>R&amp;R</b>	Rest and Recuperation
<b>SACCO</b>	Savings and Credit Cooperatives
<b>SECO</b>	Southern Engineering Company Limited
<b>SPSS</b>	Statistical Package for Social Sciences
<b>RAP</b>	Resettlement Action Plan
<b>ToC</b>	Theory of Change
<b>ToR</b>	Terms of Reference
<b>WARMA</b>	Water Resources Management Authority
<b>WoC</b>	Winds of Change

# 1 Introduction

NIRAS Africa Limited (NIRAS) was contracted by the Finnish Fund for Industrial Cooperation Limited (Finnfund) to undertake a socio-economic impact study of the Lake Turkana Wind Power (LTWP) Project. The study was conducted over a period of four months between December 2019 and March 2020 with a field visit between 29<sup>th</sup> January and 6<sup>th</sup> February 2020. This report provides evidence of the impacts of the LTWP project on its employees and communities living in Marsabit County.

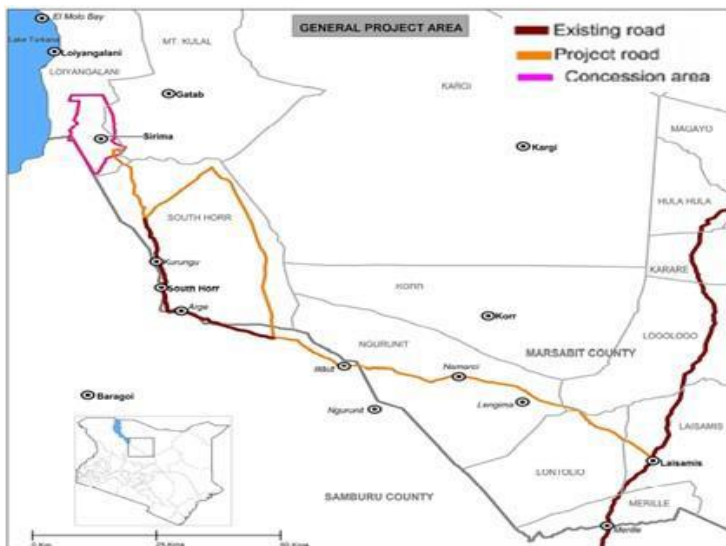
## 1.1 Study area: Marsabit County

The LTWP project is located in Laisamis constituency, Marsabit County, North-west Kenya. The County falls within arid and semi-arid land (ASAL) areas bordering Ethiopia to the North, Turkana County to the West, Samburu County to the South and Isiolo and Wajir Counties to the East. According to the 2019 Housing and Population Census, the County has a total population of around 459,785 people and covers a total area of 66,923 square kilometres characterised by extensive plains bordered by hills and mountain ranges. The County is divided into four constituencies, namely Saku, Laisamis, North Horr and Moyale, and 20 wards. It is populated by fourteen tribes including Rendille, Gabbra, Borana, Samburu, Turkana and El Molo.<sup>2</sup>

Laisamis constituency is LTWP's area of influence (AoI). It has a total population of 65,669 people and covers an area of 20,290.5 square kilometres - an area equivalent to 29 times the size of Nairobi County. It is divided into five wards, namely Loiyangalani, Kargi/South Horr, Korr/Ngurunit, Logologo, and Laisamis.<sup>3</sup> The constituency has 11 locations and 30 sub-locations. Within the AoI, there is a catchment area that is the most exposed to the impacts of the project. It covers Loiyangalani in the northwest (a mixed settlement with a large number of Turkana), Mt. Kulal in the north (comprising mainly of the Rendille community), and South Horr in the south (mainly populated by the Samburu). There are four main ethnic groups in the project area; El Molo, Rendille, Samburu and Turkana.

The main livelihoods in Marsabit County are nomadic pastoralism, agriculture and fishing. Other livelihoods include businesses, especially amongst pastoralists that have over the years adopted a sedentary lifestyle, and mining of salt, gemstones and sand.<sup>4</sup>

**Figure 1.1: Map of Project Area**



Source: Vestas internal presentation, October 2017

<sup>2</sup> Republic of Kenya and UNDP (2918). Marsabit. Second County Integrated Development Plan 2018 – 2022

<sup>3</sup> Ibid

<sup>4</sup> Ibid

## 1.2 Lake Turkana Wind Power project

The LTWP project is owned and operated by LTWP limited. It comprises of two main components: construction of 310 megawatt (MW) Wind Farm and rehabilitation of approximately 208 kilometres (kms) of the Kargi Junction-Loiyangalani Road (C-77) leading to the site. The project is financed by a consortium of equity partners (LTWP consortium) consisting of IFU, Norfund, Finnfund, Vestas, KP&P Africa B.V, Aldwych International, Sandpiper Limited and a group of lenders. Vestas plays a dual role, as one of the initial equity partners in the LTWP consortium and a key supplier of turbines to the LTWP project. Other contractors engaged in the LTWP project include Siemens, Civicon, Southern Engineering Company Limited (SECO) and RXPE (Developers).

During construction the LTWP project employed 2,500 people, of which 75% were from Marsabit County. Currently, 339 people are employed by LTWP with 24 based in the Nairobi office and the rest on-site at the Wind Farm. Approximately 315 employees (93% of the current work force) come from Marsabit County, 6% are Kenyans from other regions and 1% (seven people) are expatriates.<sup>5</sup>

### Wind farm

The KES 70 billion (EUR 625 million) Wind Farm is owned by LTWP Limited and is the largest-ever private investment in Kenya and the single largest Wind Farm project in Africa. The Wind Farm is situated in the Turkana wind corridor receiving strong winds travelling between Mt. Kulal to the North and Mt. Nyiro to the South. It sits on a concession of 150,000 acres of land (approximately 600 kms<sup>2</sup>) and occupies 40,000 acres (160 kms<sup>2</sup>) leaving a buffer zone of 110,000 acres. LTWP has leased the land from Marsabit County for a period of 33 years with an option to extend twice up to 99 years.<sup>6</sup> According to the second Marsabit County Integrated Development Plan (CIDP), LTWP is the largest industry in the County.<sup>7</sup>

The Wind Farm consists of 365 wind turbines each with a capacity of 850 kilowatts (kW); 310.25 MW in total which represents approximately 17% of Kenya's total power needs during the day time and 30% during night time. The electricity from each turbine is produced at 690 volts (V) and converted to 33,000 V (33 kV) which is transferred to the Overhead Collector Network (OCN). The OCN comprises of 160 kms of 33 kV overhead transmission line that collects electricity produced by the turbines and transports it to the LTWP substation in Loiyangalani. The substation consists of 33 kV switchgear where power from the OCN is accumulated and sent to the power transformer where the voltage is stepped up to 220 kV for transmission along the 435 kms line to the substation at Suswa (90 kms North of Nairobi). The transmission line was built and is owned by the Government-owned Kenya Electricity Transmission Company Limited (KETRACO). The project intends to increase the power transmitted to 400 kV over time.

The power station also consists of a STATCOM and a control (or SCADA) system that regulate the voltage within safe operating limits. From Suswa the power is routed to the Nairobi Metropolitan Ring that consists of six substations, namely Suswa, Nairobi North, Dandora, Embakasi, Athi River and Isinya. Electricity is then routed from these substations through Kenya Power and Lighting Company's (KPLC) distribution infrastructure to consumers including households and businesses.<sup>8</sup> According to a Power Purchase Agreement signed by LTWP and KPLC, the company will purchase the power from the project at a fixed price over a period of 20 years.

### Rehabilitation of the C-77 road

Project reports show that LTWP constructed the 208 kms C-77 road in 2014 at a cost of EUR 10 million and was maintaining it for three years between 2014 and 2017, now the company only maintains the section between Sedar Airstrip and the Wind Farm. The road is largely promoting trade in the area with improved access to goods including vegetables and export of goods, especially fish which was initially trading at KES 30 per kilogram (kg) and is now KES 300 per kg. Initially fish traders exported dried fish for lower prices, now they export fresh fish for higher wages. Prices of goods from outside the County have also gone down due to reduced costs of transport

<sup>5</sup> Terms of Reference (10 October 2019), Socio-economic impact of Lake Turkana Wind Power in Marsabit, Finnfund

<sup>6</sup> <https://www.rapidtransition.org/stories/a-different-wind-of-change-harnessing-africas-largest-wind-project-for-climate-action/>

<sup>7</sup> Republic of Kenya and UNDP (2018). Marsabit. Second County Integrated Development Plan 2018 – 2022

<sup>8</sup> Inauguration Infographics

and time of transportation. There is also a bus that plies the route between Loiyangalani and Marsabit twice a week - a trip that used to take three days now takes one day. Finally, the road contributed to easier access to Government services including hospitals/dispensaries, schools and markets.<sup>9</sup>

### **Winds of change**

The LTWP project seeks to improve the well-being of the communities within and around the project area. The scoping and pre-identification studies carried out by LTWP indicated that the main challenges facing livelihoods in the area include high poverty rates, with a mean annual per capita income of USD 260, which does not take into account the value of livestock; low literacy rates estimated at 15% of the total population; low access to health due to limited and scarce health facilities; lack of access to water; environmental degradation, and; high levels of insecurity.<sup>10</sup> LTWP established a corporate social responsibility (CSR) arm, Winds of Change Foundation (WoC) in 2015. The foundation sought to catalyse positive sustainable development to enhance livelihoods in the areas surrounding the Wind Farm. LTWP has committed funds from its operational profits towards WoC for the duration of the 20-year operation of the Wind Farm. Before 2019 WoC was funded through the LTWP project lenders, partners and other donors such as Siemens. This has continued even after the Wind Farm became operational and LTWP made good on its commitment. In 2019 WoC re-registered as a Non-Government Organisation (NGO). The main reason was to make it tax exempt so that its donors and partners do not have to pay taxes after making their contributions like they did when it was a foundation.

Since 2015 WoC has implemented social projects worth EUR 2.5 million across Laisamis constituency (Figure 1.2). It works in partnership with several actors including the County Government, NGOs such as Mission to Heal (M2H) and Terre des Hommes, Community Based Organisations (CBOs) and Government departments to implement community development projects within the target communities. WoC is keen on hiring local contractors to implement the community projects, thereby creating further employment for the communities.

WoC has put in place a rigorous prioritisation and selection process to identify the social projects. The process encourages dialogue and consensus building in decision-making and prioritisation of development interventions together with communities. It promotes community participation in order to ensure ownership as well as cost sharing to ensure sustainability.<sup>11</sup> Members of all four communities located within the projects area of influence seem to benefit from the WoC projects. It focuses on five areas: improving health services, enhancing employability, improving access to water, livelihoods and discretionary projects.<sup>12</sup> Since its inception WoC has implemented several projects in each of these areas:

- **Water** - Construction of boreholes, livestock troughs, pump houses and water storage tanks in Lonjorin and Ntil and Illaut and Laga El Fereji; 14 kms water pipeline and two water kiosks in Arge; bore-hole, reverse osmosis system (solar powered) and livestock troughs in Sarima; 7 kms water pipeline repair in Larachi, and; installation of a desalinisation unit at El Molo Bay.<sup>13</sup>
- **Education** - Construction of laboratories at Nyiro Girls Secondary School and Korole Boys Secondary School in Kargi; construction of 60,000 litres water storage tanks and solar system at Mt. Kulal Girls Secondary School; construction of 80 people dormitory at Nyiro Boys Secondary School; classroom extensions and donation of study desks at Sarima Primary School; construction of two classrooms for new Loiyangalani Youth Polytechnic that teaches mechanics, tailoring, masonry and electric wiring, and; setting up the Korr IT Centre.

---

<sup>9</sup> Triple R Alliance (2018). Lake Turkana Wind Power. Mid-term Review of the Social Performance of the Lake Turkana Wind Power Project

<sup>10</sup> ETC East Africa Limited (May 2013). Lake Turkana Wind Power. Corporate Social Responsibility Programme. Operational Business Plan. Embedded in a 20 year Vision 2016 – 2035.

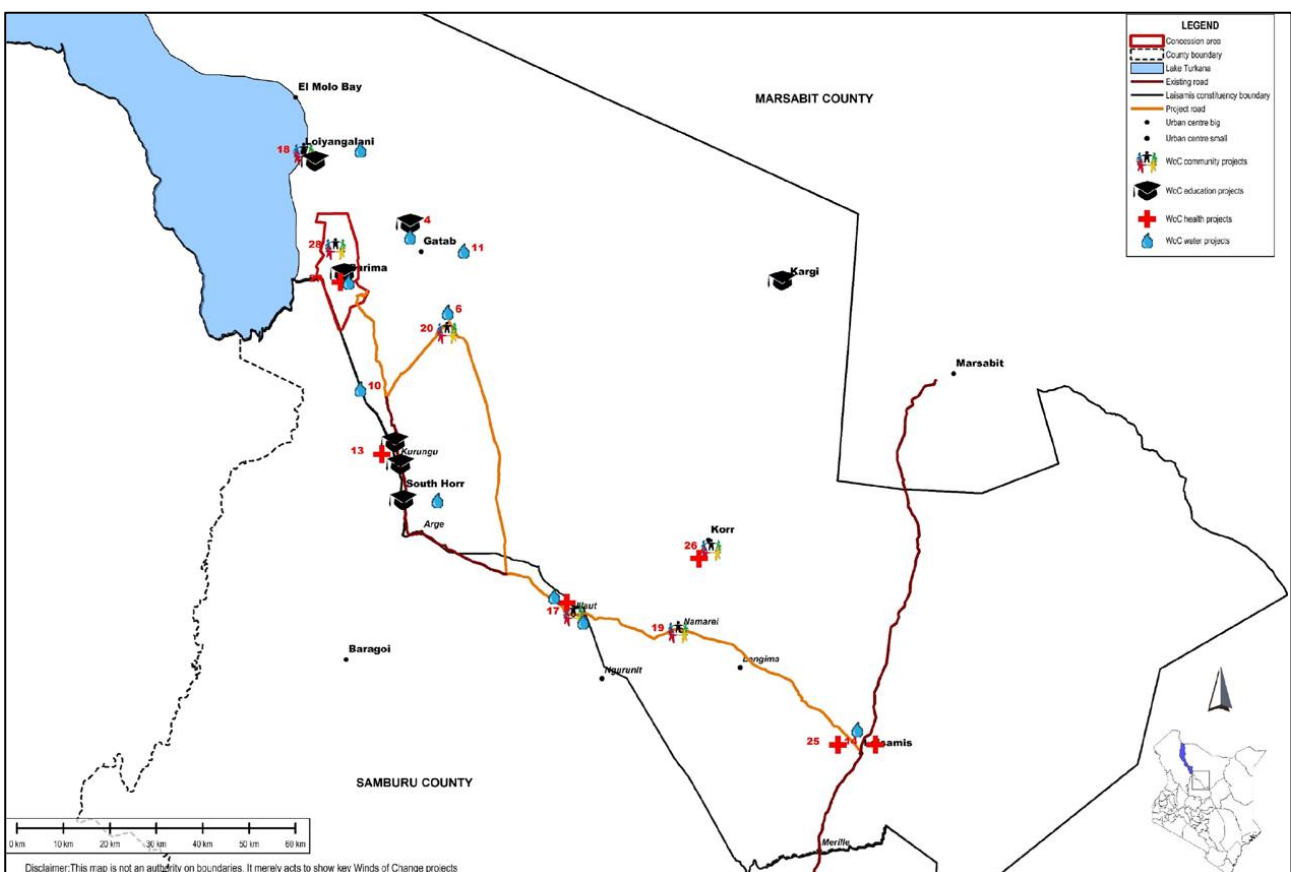
<sup>11</sup> Ibid

<sup>12</sup> Winds of Change. Activities Overview, October 2019 – PowerPoint presentation

<sup>13</sup> A Desolenator is a mobile, off-grid desalination unit, with a solar panel that uses distills water using the waste heat created in the production of electricity. That means that the device is able to create purified water from all kinds of different sources - including rain- and seawater - completely emission free. It doesn't require any kind of filter, membrane or chemical.

- Health** - Installation of solar systems at Illaut and Lontolio dispensaries that serve approximately 3,000 and 2,700 people respectively, and Mt. Kulal Girls Secondary School; installation of solar system at Laisamis Hospital - the main referral hospital for the constituency that serves approximately 75,000 people; upgrading facility and installing solar system at Buriaramia dispensary that serves about 22,000 people; rehabilitation of solar system at Lontolio dispensary; construction of dispensary in Sarima complete with toilets, a house for a nurse and kitchen, battery and medicine storage facilities and shaded waiting area; maternity building for Kurungu dispensary; 12 months HIV/AIDS and Road Safety Awareness Campaign across Laisamis Constituency, and; Health Outreach and Medical Training Programme in partnership with Mission to Heal (M2H) to provide training to doctors and nurses working in health centres in Laisamis Constituency and carry out some general surgical procedures.
- Livelihoods** - Supporting Community Based Organisations and enterprise development.
- Discretionary projects** - Supporting community peace building initiatives; 10 kms community run; Lake Turkana Cultural Festival; Rendille Heer Cultural Festival in March 2019 to celebrate rites of passage of boys to manhood; schools' sports tournaments; distribution of sports kits and equipment such as footballs, volleyballs and t-shirts for the youth sports tournament in Laisamis constituency; distribution of sanitary products, school uniforms and bags across the constituency; donation of 100 mattresses at Kurungu primary school, and; school visitation programme that commenced in July 2018.

**Figure 1.2: Selected key Winds of Change Activities in Laisamis Constituency, Marsabit County (Sept, 2018)**



Source: LTWP (2019e), "Winds of Change Newsletter no. 5"

**Community engagement**

LTWP has established a community liaison team. The team consists of 31 officers; 21 community advisors (CAs), 9 community liaison officers (CLOs) and one community liaison manager (CLM). There are seven women in the team. The officers are selected from 18 sub-locations in Laisamis constituency, namely Elmolo, Loiyangalani, Mt.

Kulal, Tuum, Anderi, Kurungu, Arge, Illaut, Ngurunit, South Horr, Namares, Laisamis, Korr, Kargi, Gatab junction, Olturat, Arapal and Losikiriachi. Some sub-locations have more than one representative. The CLOs play a critical role in facilitating engagements between LTWP and the local communities. They are employed by LTWP and perform a unique duty where on the one hand they share the LTWP project and WoC achievements and plans with the communities in a bid to garner their support, while on the other hand they represent the needs and issues of the community towards the LTWP project and WoC to enable them to understand the community and effectively plan and engage them. CLOs are largely respected amongst the communities. They are conversant with the local dialects and are knowledgeable on the interrelationships and conflicts between the tribes. They hold regular meetings with their respective communities and once every month with WoC staff to discuss updates in activities and any issues from the communities.<sup>14</sup>

### **1.3 Objectives of the socio-economic impact study**

The objective of the study was to assess how the LTWP project has impacted the lives and well-being of the population in Marsabit and determine whether the project has contributed to poverty reduction in the area.

In specific, the Socio-Economic Impact Evaluation aimed at generating the evidence on how the LTWP project has impacted the employees (direct employment benefits and contributions of WoC activities to poverty reduction), considering both the positive and negative outcomes. The detailed Terms of Reference (ToRs) is in Annex 1.

### **1.4 Scope and timing of the study**

The socio-economic impact study covered Laisamis constituency, Marsabit County. It was conducted over a period of four months between December 2019 and March 2020 with the field visit between January 29<sup>th</sup> and February 6<sup>th</sup> 2020. The study was implemented in two phases; Inception between December 2019 and January 2020 and Implementation between February and March 2020. During the Inception phase the NIRAS team held an introductory meeting with the client on 4<sup>th</sup> December 2019, kick-off meeting with the LTWP management on 13<sup>th</sup> of January 2020 and developed the Inception Report. In the second phase, the NIRAS team conducted the field visit and developed the Final Report.

---

<sup>14</sup> <https://ltwp.co.ke/public-consultation-and-engagement/>

## 2 Methodology

This section describes the different methodologies used to collect data for the socio-economic impact of LTWP. It describes the study design, survey tool design, data collection methods and data entry, cleaning and analysis process.

### 2.1 Study design

We used a mixed methods approach comprising of Contribution Analysis, Most Significant Change and Before and After Comparison.

#### 1. Contribution analysis

To better understand the outcomes achieved as a result of LTWP's interventions, we traced back the systemic constraints that existed before the project, activities implemented by LTWP both at employee level and projects implemented by the WoC and achieved outcomes, establishing the causal links between the outcomes and project's activities, whilst at the same time taking into account other exogenous factors that could have contributed to the same results.

Since there was no existing theory of change (ToC) for LTWP, we reviewed the five impact dimensions included in the LTWP impact pathway developed by QBIS during the Socio-economic study of key impacts from Lake Turkana Wind Power conducted in 2018. The pathway provides an initial overview of some of the main inputs, outputs, outcomes and impacts which can be expected from the elements of the LTWP project assessed in the study. Specifically, it identifies five impact dimensions which can be linked to the elements of the LTWP project included in the preliminary study: Traffic and Transport, Rural Economy, Health and Education, Governance and Community Cohesion and Energy Supply and Costs.<sup>15</sup> We worked backwards through the information gathered during focus group discussions (FGDs) to construct impact pathways by assessing the situation before, activities implemented by LTWP and achieved outcomes (see Figure 2.1). The information gathered through the process were triangulated with detailed individual interviews, key informant interviews (KIIs) as well as documented literature.

#### 2. Most significant change

We identified and collected success stories as well as stories of change from respondents of the survey, KIIs and participants of the FGDs. The stories are highlighted in the findings sections of the report (sections 3, 4, 5 and 6). We have used the job groups within which the respondents giving the stories were drawn to conceal their identities.

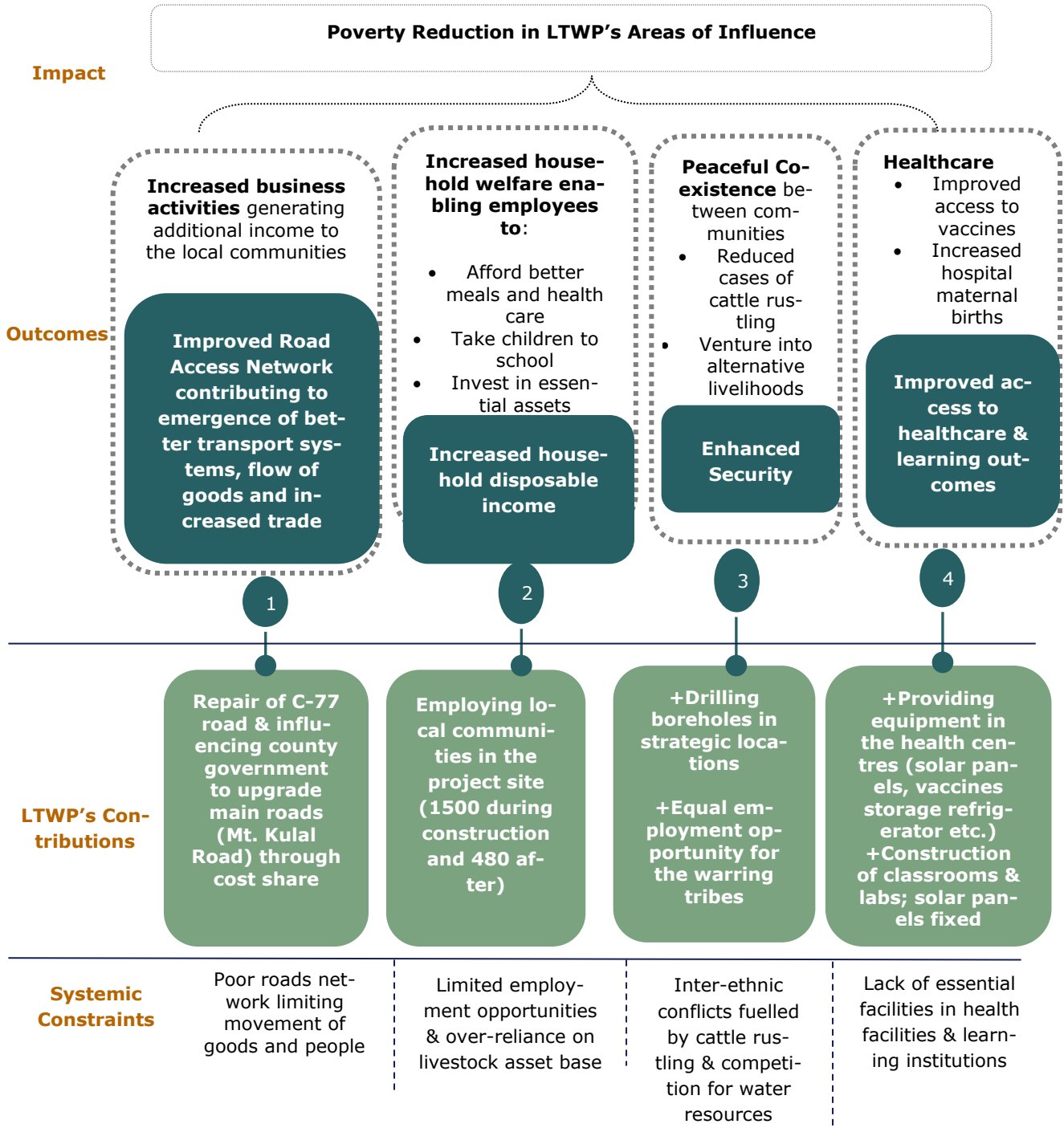
#### 3. Before and after comparison

We used a seven-year period in the study to establish what the situation of the respondents was before the LTWP project and how these compare with their current situation.

---

<sup>15</sup> Final Report (June 4<sup>th</sup> 2018) Socio economic study of key impacts from Lake Turkana Wind Power (LTWP) Preliminary observations on key impacts from the LTWP project and methodological considerations for future assessments

Figure 2.1: Constructed Impact Pathways of the LTWP project





## 2.2 Sampling

Data was collected from a sample of 47 employees who were purposively selected. The sample represented 10% of the current work force. To achieve representative views/feedback, we drew our sample from employees working in the different departments within LTWP considering ethnicity and level of expertise (skilled and semi-skilled) as shown in Table 2.1<sup>16</sup>.

**Table 2.1: Sample size distribution of the respondents**

The sample comprised of employees with origin from the project areas of coverage. The sample had 49% of employees from Samburu origin, 32% Rendille, 17% Turkana and 2% El-Molo (this is minority tribe in the project area). Also, the sample had 49% skilled employees (those with specific trainings relevant to their job descriptions) and 51% semi-skilled, who

Employment category	Count	Percent
Community Liaison Officer	9	19%
Community Advisors	8	17%
Engineer/Technician	4	9%
HR Officer	2	4%
Driver	10	21%
Security	9	19%
Administration	5	11%
<b>Total</b>	<b>47</b>	<b>100%</b>

mainly comprised of security guards and drivers. In all our analyses, we have done a comparative analysis of the situation before and after the project as reported by the respondents.

## 2.3 Survey tool design

The team finalised the data collection tools during the Inception phase with inputs from the client and LTWP management. The tools comprised of a structured questionnaire, KII, FGD and observation guides (Annex 2, 3, 4 and 5). The structured questionnaire included questions on household welfare analysis, food security, access to water, healthcare services and markets and financial services (these are the critical measures of a household's well-being). The structured questionnaire was scripted in XLS forms to allow for data collection using Mobile Based Device (Ona Collect). We collected data using hand-held tablets.

## 2.4 Data collection

Data for the survey was collected using both quantitative and qualitative methods. The structured questionnaire was administered to employees of LTWP to collect quantitative data while the KIIs and FGDs were administered to selected stakeholders and members of the community liaison team respectively, using guides to collect qualitative information. We also collected data at the WoC interventions that we visited using observation guides.

### Surveys

Data was collected over a period of nine days between Wednesday 29<sup>th</sup> January and Thursday 6<sup>th</sup> February 2020. The team conducted a total of 47 interviews with employees of LTWP from Marsabit County.

### KIIs

The team conducted seven KIIs using interview guides (Table 2.2). The key informants comprised of employees and users of the WoC interventions that we visited during the study.

<sup>16</sup> Due to a smaller sample of female employees, we haven't been able to do a gendered cross-tabulation of the variables of interest.

**Table 2.2: KIIs conducted during the field visit**

Organisation/ Ministry	Number of Participants	Titles
<b>Loiyangalani Polytechnic</b>	2 people	Board Chairman and Secretary
<b>Kulal Girls Secondary School</b>	1 person	Principal
<b>Korole Boys Secondary School</b>	1 person	Principal
<b>Burri-Aramia Dispensary</b>	2 people	Chief Medical Officer and Chairman of the board of the dispensary/community elder
<b>Ntil borehole</b>	1 person	Community member (user)

**FGDs**

Two FGDs, one with men only and another with women only, were conducted with a total of 14 members of the community liaison team comprising of both CLOs and CAs. There were a total of 10 men and four women. Members of the community liaison team were selected for the FGDs because of their role as intermediaries between LTWP and the local communities (see Section 1 above). They have adequate knowledge of the local context, before the LTWP project and how the situation has changed to date. The quantitative and qualitative data collected from the surveys and KIIs was triangulated with qualitative information gathered through the FGDs.

**Observation**

Data regarding the equipment at the facilities, personnel and area of reach of the seven interventions that were visited during the study was collected using the observation guide. The interventions include Loiyangalani Polytechnic, Kulal Girls and Korole Boys Secondary Schools, Burri-Aramia dispensary, Ntil borehole, the C-77 road and the road between Gatab junction and Mt. Kulal.

**2.5 Data entry, cleaning and analysis**

Data was analysed using Statistical Package for the Social Sciences version 23 (SPSS V23). Summaries of the quantitative findings can be found on the Ona Collect Portal using the following link: <https://ona.io/niras-africa/108245/483176#/saved-charts>.

**2.6 Limitations of the study**

Although all efforts were made to meet with and talk to as many relevant respondents as possible during the study, the team experienced some limitations in the study including:

- A number of the achieved outcomes mainly touch on the direct employees of the project thus the findings cannot be used to make generalisations across the wider population in the project area (particularly the household level outcomes).
- Due to the different work schedules of employees on-site, it was not possible to obtain a larger sample since some were on Rest and Recuperation breaks (R&R).
- Due to time constraints and the vastness of the project areas, it wasn't possible to visit all the community projects supported by WoC.
- The most recent 2019 Kenya Population and Housing Census conducted by Kenya National Bureau of Statistics (KNBS) has not been made public which makes it impossible to do a comparative analysis of the achieved outcomes against the national statistics. However, we have referenced available online secondary statistics that we have used in comparative analyses.
- The team was unable to access Sarima Village during the field visit. According to existing literature the village has had controversies and since we could not visit it, we cannot report on any impacts, positive and negative, that the LTWP has had on its residents.
- Due to the limited number of female employees contracted by the LTWP project and interviewed during the study, it has not been possible to cross-tabulate the quantitative findings by gender.

## 3 Findings

This section outlines the findings from the socio-economic impact study. Data was collected on household income sources, food security, access to water, healthcare services, market, financial services and telecommunication services. We also collected biographical details of respondents.

The subsections below are ordered in terms of the sections in the questionnaire used to conduct the surveys (Annex 1). These are as follows:

- a. Demographics
- b. Household welfare analysis
- c. Household food security analysis
- d. Access to water
- e. Access to healthcare services and markets
- f. Financial and non-financial services

### 3.1 Demographics

#### 3.1.1 Gender and age

LTWP project has a total of 339 employees with 315 based on-site and 24 in Nairobi. If we include other workers employed by contractors/service providers such as SECO and Vestas, who are also situated at the Wind Farm, then the total number of employees on-site is 453. But the additional 138 employees were not considered in the study because they are not employed by LTWP. The overall sample size for the employee survey was 9.79% of the total population (47 employees), comprising of 87% male (n=41) and 13% female (n=6) (Table 3.1). The sample was purposively drawn among the employees originally from Marsabit present at the LTWP site camp at the time of the evaluation. The sample was also fairly distributed across all the departments on-site. LTWP has 11 departments, nine on-site and two in Nairobi;

- Security,
- Site coordination,
- Civil works,
- Village management,
- Inventory,
- Workshop,
- Health, safety and environment,
- Information Technology,
- Technical,
- Finance (*Nairobi*), and
- Human Resources (*Nairobi*).

Age wise, 49% of the employees interviewed were youth aged below 35 years whereas, over half were mature adults aged 36 years and above (Table 3.1). In the sample, more than eight out of 10 employees were married and the average family size was seven people (minimum two people and maximum of 18). Within the families, on average, three children are in school. Over half (51%) of the employees had their children in boarding schools both within Marsabit County and in other Counties as far as Kiambu, over 500 kms away.

**Table 3.1: Respondents profile**

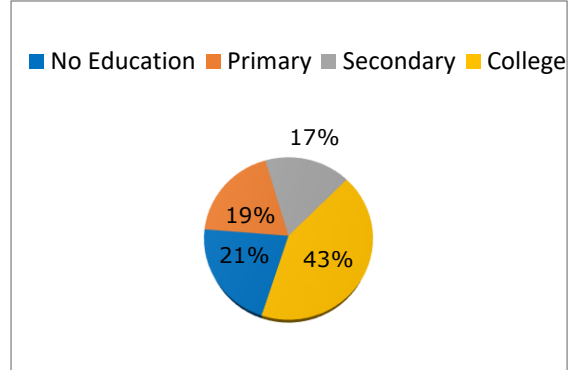
Gender	N	Percent
Male	41	87%
Female	6	12%
<b>Marital Status</b>		
Married	41	87%
Single	6	12%
<b>Age group</b>		
<25 years	2	4%
26-35 years	21	45%
36-45 years	14	30%
46 years and above	10	21%

### 3.1.2 Education

The sample consisted of both skilled and semi-skilled employees. Skilled employees comprised of technicians, managers and coordinators who had acquired university degrees, college and professional certification and semi-skilled employees included the security guards, house officers and those in maintenance who had no professional qualification.

The levels of education of employees varied between these categories. Our findings show that 21% of the employees had no education, these are mainly those aged above 36 years working as CAs, drivers and security guards; 19% have attained primary education, and; 43% have college level training ranging from diploma to degree certificates (Figure 3.1).

**Figure 3.1: Employees levels of education**



## 3.2 Household welfare analysis

In order to measure the well-being of the employee households, we looked into a number of variables ranging from income levels to living standard measures based on housing structures (roof and floor type), household assets, access to healthcare services, access to social amenities such as markets and availability and access to clean drinking water, among others. All these variables have been discussed in detail in the subsequent sections of the report.

### 3.2.1 Income

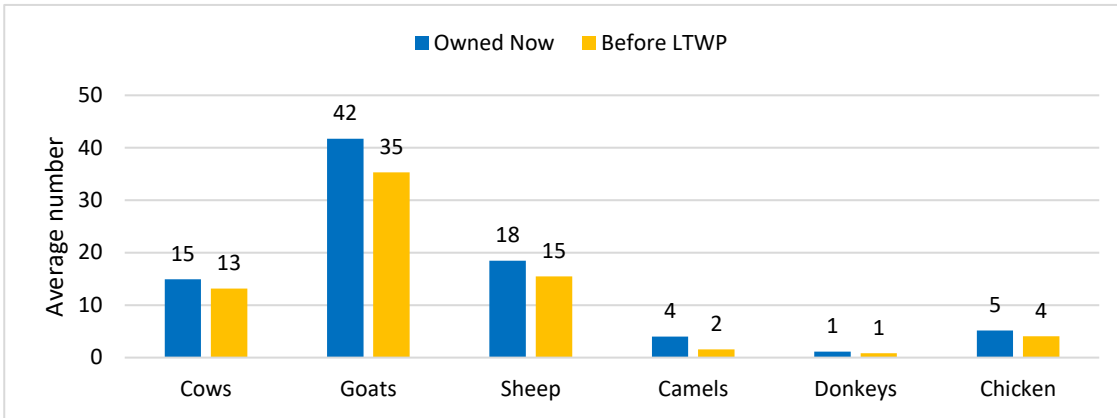
The main sources of livelihoods of the employees are: income from LTWP project (98%); sale of livestock/livestock products (26%) and small-scale retail businesses (34%). Due to political, social and economic marginalisation of the County, relief has for a long time been considered as a source of income for people living in Marsabit. However, we noticed a significant drop in relief as a livelihood source from 70% of the employees before the project to 6% after the project (Figure 3.2).

The main livestock found in the constituency are goats, sheep, cows and camels. Goats and camels are mainly found in the hotter regions in Loiyangalani and Sarima while cows and sheep are found in the higher altitude and wetter regions in South Horr and Mt. Kulal. The Turkana mainly keep goats, the Rendille camels and the Samburu cows and sheep. The average value of goats and sheep in the constituency is between KES 3,000 (EUR 27)<sup>17</sup> and 5,000 (EUR 45) depending on the age and weight; cows between KES 10,000 (EUR 91) and 50,000 (EUR 455), and; camels KES 20,000 (EUR 182) and above. Some of the employees also keep chicken but this is mainly seen as belonging to women and is kept primarily for household consumption. On average, the employees interviewed had a total of 14 livestock. The employee with the largest herd had 150 livestock and the one with the least herd having six (Figure 3.2).

The average livestock herds have slightly increased since the employees started working in the project. According to the FGD participants, the slight increments are attributed to two main factors; (1) purchases due to increased disposable income and (2) reduction in sales of livestock/ slaughter since the households can meet various needs from the salaries earned at LTWP without necessarily selling their livestock and at the same time, buy alternative foodstuffs without slaughtering their animals.

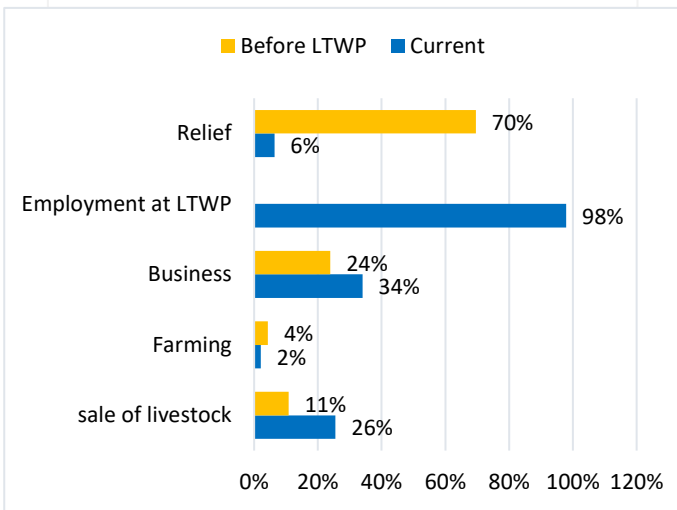
<sup>17</sup> We have used the current exchange rate derived from OANDA. <https://www1.oanda.com/currency/converter/>

**Figure 3.2: Livestock ownership**

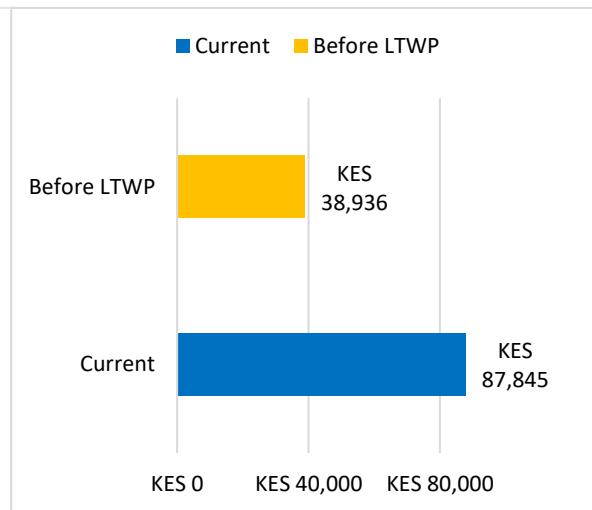


The average monthly household income from all sources was found to be KES 87,845 (EUR 800) which represented a 126% increase from KES 38,936 (EUR 354) before the project. Of all sources of income, more than 90% of the earnings is contributed by income from the LTWP project (Figure 3.4).

**Figure 3.3: Sources of livelihoods of employees at LTWP**



**Figure 3.1: Average household income (KES) of LTWP employees**



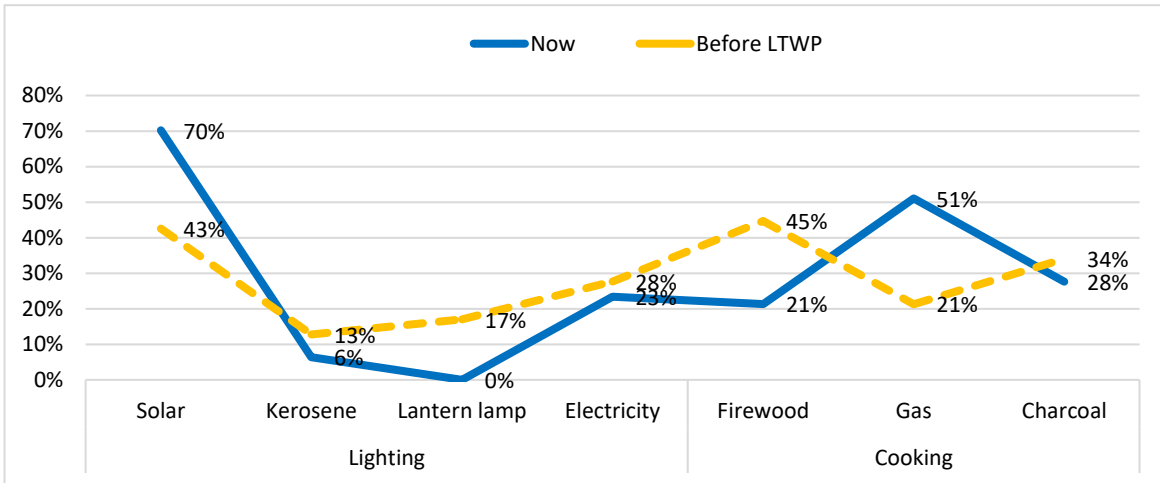
**3.2.2 Sources of lighting and cooking**

The main source of lighting across all households is solar, 70%, up from 43% before LTWP. There are several types of solar equipment being used by the households. Some have solar home systems comprising of solar panels, control units with batteries, bulbs, charging cables, television and radio sets, while others have solar home systems that do not have electronics, and yet others only have solar lanterns. Other sources of lighting are electricity, pressure lamps, kerosene lanterns and tin lamps. The use of kerosene has dropped from 13% to 6% (Figure 3.5). In areas around prominent community centres such as South Horr, Loiyangalani and Ngurunit, households have access to electricity installed by the national Government however, most of the areas still do not have electricity connectivity.

The main sources of energy across the households are gas, charcoal and firewood. Households have been able to invest in clean energy sources which has contributed to a drop-in firewood and charcoal usage from 45% to 21% and from 34% to 28% respectively before and after LTWP. There has been a significant increase in the use

of gas cookers from 21% to 51% since the employees have consistent disposable income to afford clean energy (Figure 3.5). However, a large proportion of employees using gas cookers for cooking mentioned that they use it together with firewood and charcoal, especially when cooking cereals such as beans and maize and boiling water for household use.

**Figure 3.2: Sources of lighting and cooking energy**

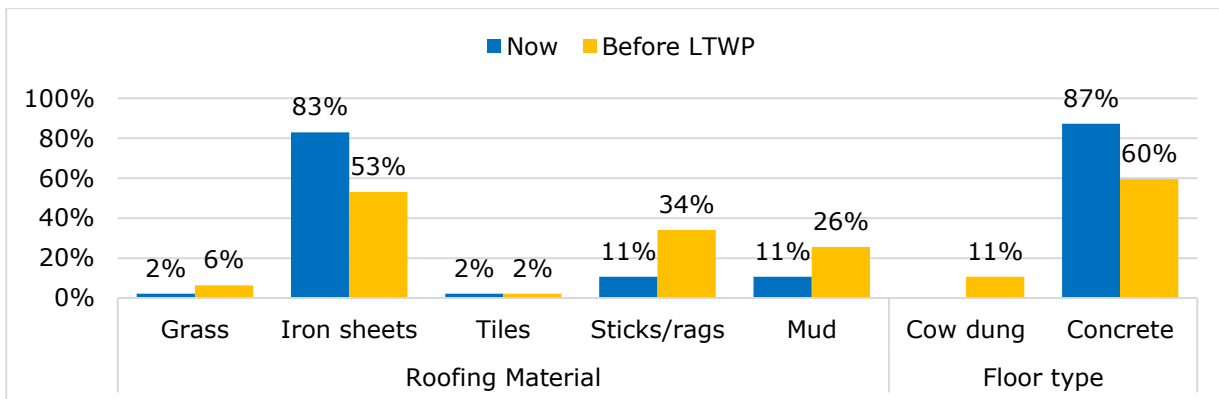


**3.2.3 Main roofing and floor material**

Our findings show that a large proportion of employees living within the constituency either live in or have a manyatta within their compound. The manyatta’s were traditionally constructed with sticks, rags, polythene and grass roofs and walls and mud floors. However, they have now been modified to individuals tastes with some having iron sheet roofs, stone and cemented walls, and tiles on the floors and walls. This is mainly because unlike in the past where all the households were moving together with their livestock in search of pasture and water, a large number of households are now sedentary and livestock is either moved around by the youth or kept in a different County altogether.

The main roofing material across the households is iron sheet. Other roofing materials include sticks, rags, polythene and grass. Most of the households with iron sheet roofs have a few gutters that they use to harvest rainwater in small and medium-sized water drums for household use. Very few households reported having tiles as their main roofing material, 2%, with a large number of those that do living outside the constituency, in Marsabit town, Isiolo and Nanyuki (360 kms South-west of Laisamis constituency). The main floor material across the households is concrete, 87%. Other floor materials include mud, clay and cow dung (Figure 3.6).

**Figure 3.3: Types of roofing and floor materials used by LTWP employees**



### 3.3 Food security

Indicators used to assess household food security were number of days in a week without food, dietary diversity and main food items consumed on a weekly basis.

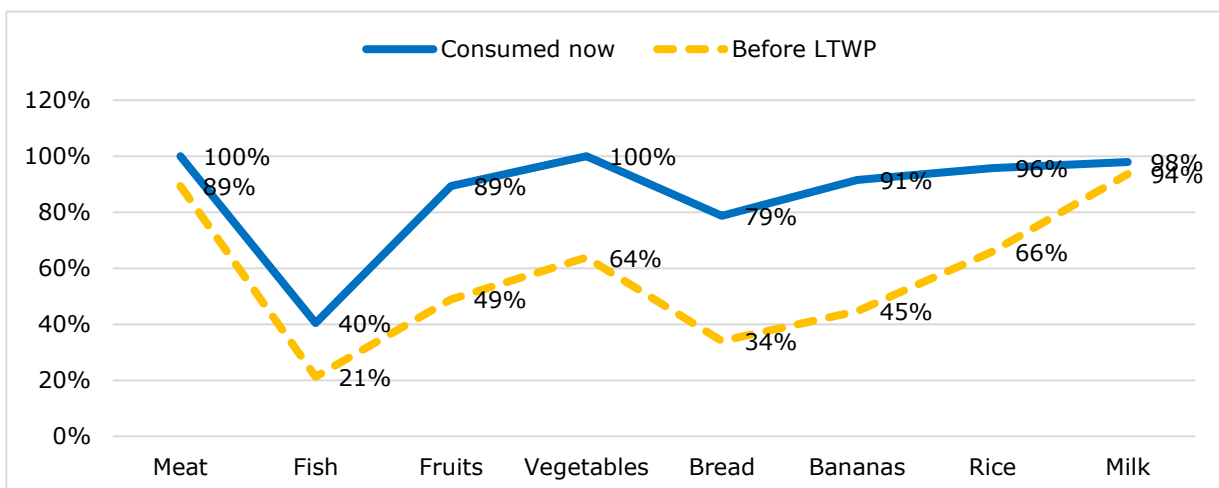
Generally, the employees at LTWP feel their households are food secure as reported by 94% respondents. Half of these households (51%) would occasionally go without food or cut down their daily food intake due to lack of money before they got employed at LTWP. With limited to nearly no income to purchase essential food stuffs before LTWP, most households largely fed on meat and milk. However, we observed a significant shift in consumption patterns where most households can now afford balanced diets from proteins, carbohydrates and vitamins. This was attributed to increased disposable income and increased availability of the food stuffs due to improved access road networks.

The main food items consumed by households are meat, fish, rice, ugali, milk and chapati with the staples being rice, chapati, meat and milk. Fish is mainly found and consumed in Loiyangalani and El Molo. Initially, it was only the Turkana and El Molo communities that consumed fish but as the constituency has opened up as a result of the improved road networks, the other communities such as the Rendille and Samburu have also started consuming fish.

The climate in South Horr is different from that in the rest of the constituency with significant amounts of rainfall (between 200 to 400 millimetres (mm)) all year round. Households from South Horr are engaged in farming, growing local vegetables, tomatoes and carrots; fruits such as lemons, watermelons, oranges, mangoes, guava, avocado, pawpaw, bananas and cereals including maize and beans. Households in Mt. Kulal are also engaged in farming, but at a smaller scale in comparison to South Horr. They grow local vegetables, maize, beans, kales, carrots, oranges and bananas. Households from these areas consume vegetables and fruit more often than those in the other villages in the constituency who are reliant on vegetables and fruits from neighbouring areas and Counties such as Marsabit town, Nanyuki and Meru which are fairly expensive. Bread, cabbage and potatoes are rare commodities across the constituency and are brought in from neighbouring Counties such as Meru. Bread is sold at an average of KES 70 (EUR 0.60) per loaf and cabbage at KES 120 (EUR 1.03) per piece. The prices of these commodities are approximately 40-60% higher in the constituency compared to the prices in Nairobi County.

All the households consume meat. They slaughter their livestock during ceremonies and extended periods of drought to feed their families. It was only in South Horr that we saw butcheries selling meat during the field visit. In all the other areas we were made aware that households rarely buy meat from butcheries, they either slaughter their own livestock or buy meat from neighbours and friends who have slaughtered their livestock. Figure 3.7 shows household consumption patterns for the food items mentioned above.

**Figure 3.4: Household food consumption patterns**

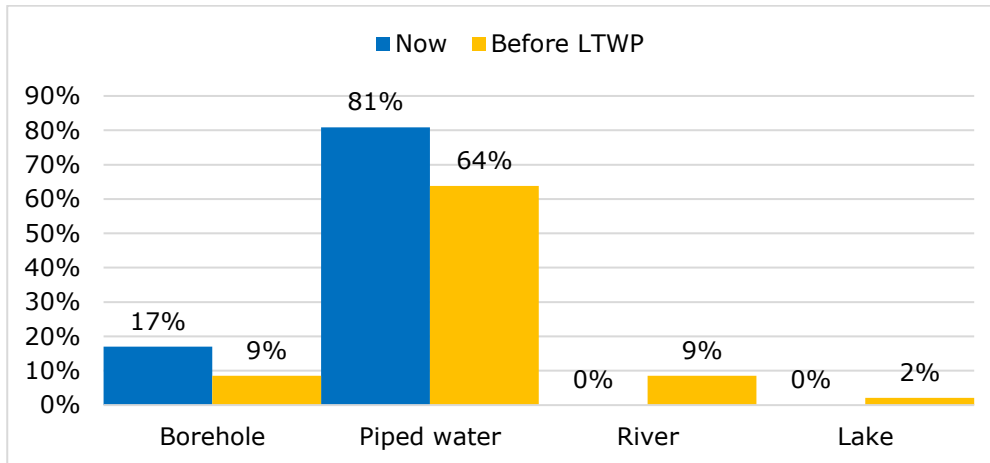


### 3.4 Access to water and healthcare

Over eight in every 10 employees have access to piped water in their households, especially in areas where there are natural springs such as South Horr and Mt. Kulal. The national and County Governments and NGOs have set up the piping systems in these areas up to a communal point. In order to get their households connected to these communal water points, individuals pay the local authorities for the connection. Besides that, there are no other charges apart from the occasional money for repairs, approximately KES 100 (EUR 0.85), which are only contributed on a needs basis. Other sources of water used by households include boreholes, rivers and the lake (Figure 3.8). Communities used to travel long distances, up to 25 kms, to access these sources in the past before all the water interventions were constructed in the constituency by the different agencies and organisations. There are still areas within the constituency where communities still walk long distances to fetch water but these are fewer now than in the past.

Harvested rainwater is minimal since the area does not experience a lot of rainfall. A few employees from South Horr and Loiyangalani mentioned that they do small-scale irrigation specifically for their vegetable gardens using piped water.

**Figure 3.5: Sources of water**



#### 3.4.1 Healthcare

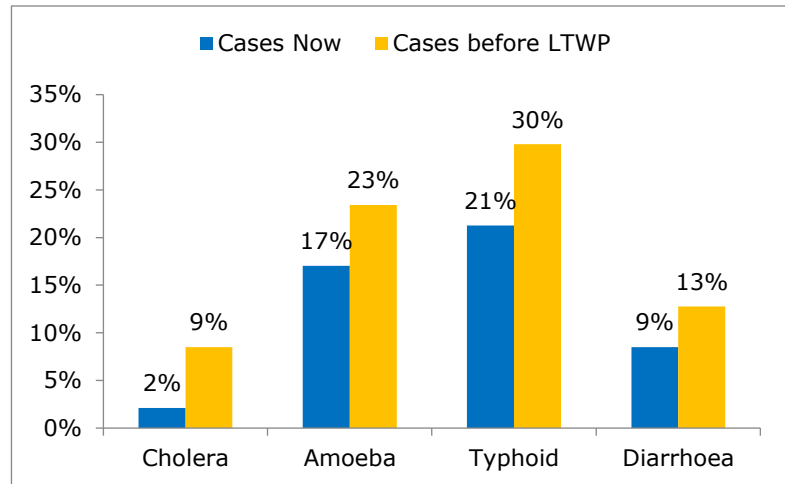
The main healthcare service providers in the constituency are private clinics and hospitals, mission hospitals mainly Catholic and Anglican Church of Kenya (ACK) and Government facilities, dispensaries and hospitals. Employees mentioned that the best services are provided in the private facilities; the personnel are efficient, services are adequate and medicine is available. But there is definitely an improvement in services being provided at the Government facilities since health became a devolved function. The improved road network has also resulted in improved availability of medicines in all facilities as they can now be delivered in a matter of hours unlike in the past.

The employees have a fully functional clinic on-site where they have access to efficient medical services. This is in addition to the medical insurance which covers employees and immediate family members. Using the company medical cover, we observe majority of the employees (64%) are accessing health services from private medical service providers; access from Government run hospitals has dropped from 57% to 32% since the employees joined LTWP. The average distance that the employees households travel to access medical services is 2 kms. A large number (87%) simply walk to the health facilities.



To better understand disease incidences in the area in relation to water access, we asked the respondents to list down the waterborne diseases experienced at household/community level in the last two years and compare the situation to seven years back, before LTWP project became operational. The main types of waterborne diseases recorded in the constituency included; amoeba, typhoid and diarrhoea. Typhoid is the most prominent and cholera the least (Figure 3.9). In our analysis, we observe a reduction in waterborne related diseases. For instance, reported cases of typhoid reduced from 30% to 21% within the seven year study period, amoeba from 23% to 17%, diarrhoea from 13% to 9% and cholera from 9% to 2%.

**Figure 3.6: Incidences of waterborne diseases**



Although the recorded outcomes in the incidents of waterborne related disease cannot be exclusively attributed to LTWPs interventions, our field visit and interactions with the community elders alongside FGDs with Community liaison team established some positive causal links. The boreholes drilled by LTWP have all been fitted with reverse osmosis system for water purification. Most of the community members fetch water from these boreholes for household use and consumption and since the water is already purified, there are strong indications that this kind of support must have contributed to reduction in incidences of waterborne disease reported in the area.

### 3.4.2 Access to markets and business

Each of the villages have market days every week where communities sell their wares including household goods such as beads, mats, brooms, clothes, food items and livestock. These are different across the constituency, for example, Kurungu has a market day every Saturday, Argi every Friday, Illaut every Tuesday and Alturat every Thursday. The markets are attended by people from the specific villages and those from surrounding areas especially when buying and selling livestock and cereals including maize, beans, millet and tef (a cereal cultivated almost exclusively in Ethiopia commonly used by the Rendille). From the FGDs, it emerged that some of these market centres recently emerged due to improved road access network and increased cash flows from the project.

There has been an emergence of businesses in the different villages over the years with a tremendous increase in the number of retail shops, restaurants (local eateries), grocery stalls, bars, M-Pesa and banking agents and hardware shops which are in operation throughout the week and therefore the more ordinary household goods and food items are available to villagers throughout the week and are not necessarily the main features of the weekly markets. One of the female traders interviewed in Mt. Kulal mentioned that about seven years ago when she first opened her shop there were very few traders in the area but now there are so many shops and she is not selling as much as she used to in the past and she has also been forced to lower the prices of commodities.

The improved road network has also resulted in rare commodities including food stuff and vegetable from neighbouring counties being brought to the villages more often making them available throughout the week and not only during the weekly markets. The goods are delivered using the small vehicles and public transport such as buses and lorries. The bus, for example, plies the route twice a week delivering goods and passengers. This has also significantly brought down the prices of such goods.

The average distance that the employees households travel to markets is 32 kms. Around a quarter of the households use motorcycles as the main means of transport to markets, paying an average fare of KES 100 (EUR 0.85) while the rest simply walk.

### 3.5 Access to financial and telecommunication services

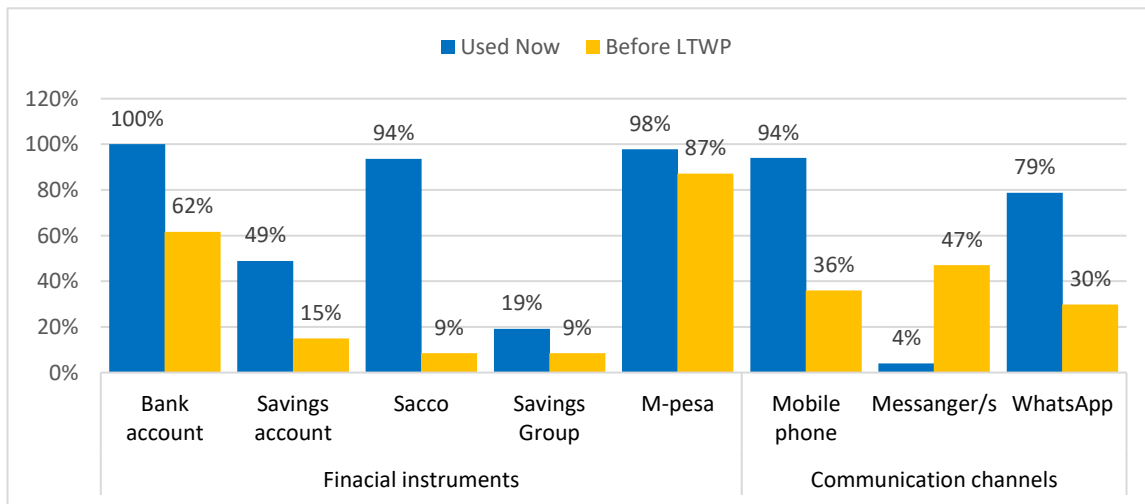
Our findings show that LTWP has instilled the culture of saving among its employees. All employees have bank accounts. This was one of the requirements for employment at LTWP, therefore, a large number opened their first bank accounts when they joined the company. Close to half of the employees have savings accounts while 94% have joined the employee SACCO<sup>18</sup> (Savings and Credit Cooperatives), Winds of Power, where they cumulatively save an average of KES 3 million (EUR 27,359) per month. All the employees have M-Pesa, a mobile money transfer service in Kenya, which they mainly use to remit money to their families and relatives with a large proportion having had M-Pesa over the seven-year period under study. M-Pesa influenced the emergence of mobile banking and agents in the areas which have become one of the major businesses in the constituency.

#### 3.5.1 Telecommunications

There have been improvements in the telecommunication network in the constituency over the years. In our study we restricted telecommunication to mobile phone use and coverage and internet. 94% of the interviewees use mobile phones to pass messages and information to one another, their families and friends as opposed to messengers who were used to convey messages in the past. The main mobile network operators in the constituency are Safaricom and Telcom. Loiyangalani was the first location to get mobile network coverage. This improved after Safaricom installed a telecommunication mast in the area in late 2013/early 2014 through LTWP’s influence. The Safaricom mast is situated in Mt. Kulal while the Telcom mast is within LTWPs site. Other areas with good mobile network coverage are Illaut and Mt. Kulal.

Through improvements in mobile network coverage and availability of 4G network in 2019, nearly 80% use WhatsApp for communication (Figure 3.10).

**Figure 3.7: Financial and communication services usage**



#### 3.5.2 Business

The main businesses in the constituency are hotels, canteens, large and small retail shops, bars, bead, mat and broom making, groceries, M-Pesa and banking agents and selling fish. 17% of the employees are engaged in businesses directly or through their households. Even though there were strong indications in our findings that

<sup>18</sup> SACCO is an acronym for Savings And Credit Co-Operative, and defined as an association of likeminded individuals, registered under the Ministry of Cooperatives (In Kenya), and authorized to take deposits from and lend to its members. SACCOs are governed by the SACCO by laws which state the objectives, membership, share capital, organisation structure, management and lending regulations.

businesses have increased in the area, we were unable to establish how the increased revenues have contributed to tax collections at the County level.

Fish is a major export commodity in the constituency. It is mainly exported to Kisumu and Busia. The fish traders are organised into a cooperative, Loiyangalani Fish Marketing Cooperative (LFMC), that has a lorry for transporting the fish as well as Beach Management Units (BMUs). The BMUs are a co-management function with the Government that seeks to regulate fishing within the lake. The BMUs are situated at each beach and fishermen and traders are expected to become members of the BMUs and pay a membership fees. Members of the cooperative pay KES 2,000 (EUR 17) for the service. They buy fish from local fishermen and sellers at KES 30 (EUR 0.25) per kg and sell it in Kisumu and Busia at KES 300 (EUR 2.57) per kg and above. The business has improved over time as a result of having less brokers, support from the County Government through the fisheries department and funding from German donor GIZ who are providing cooling facilities. The main import commodities are food items, cash crops and beverages (see section 3.3 above).

### 3.5.3 Security

The constituency has experienced a lot of conflict over the years that is mainly attributed to scarce resources including pasture and water. Some of the conflict is also historical and is described by respondents as revenge between the different communities over livestock that was stolen in the past, villages that were torched and women, children and youth that were killed. A few publications have attributed some of the recent conflicts to access to and control over the land and benefits generated from the LTWP projects.<sup>19</sup> Employees mentioned that the number of conflicts have reduced over time, however, the intensity of the destruction resulting from the conflicts has increased because of the infiltration of illegal weapons in the area.

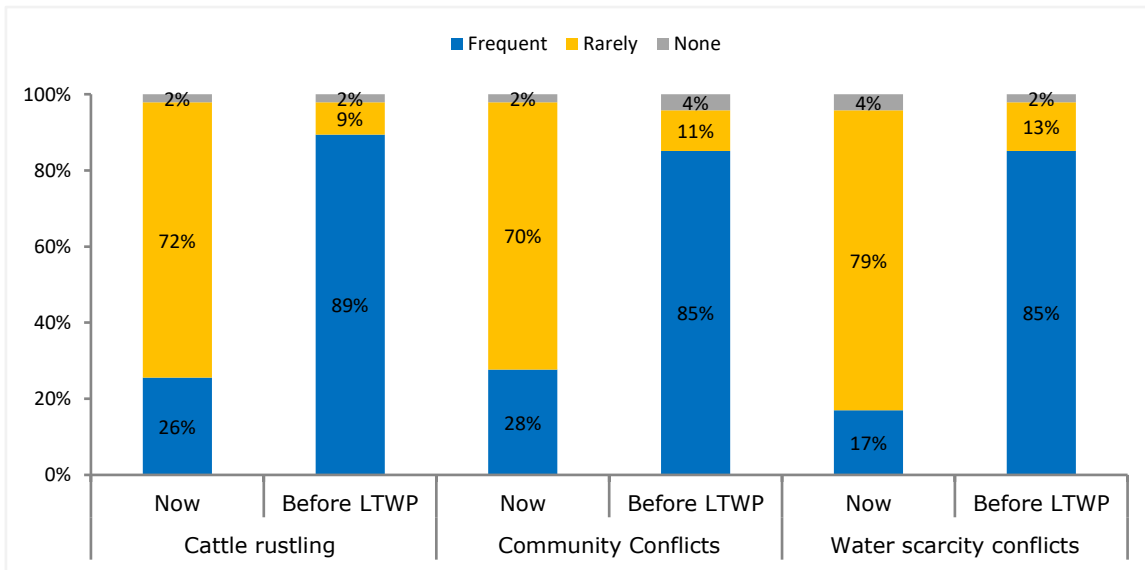
Up to last year, 2019, the Government of Kenya had provided guns to selected members of the communities known as Kenya Police Reservists (KPRs) in a bid to provide security in the area. The KPRs were nominated by the communities hence well respected and trusted. However, in a bid to combat the infiltration of illegal weapons in northern Kenya and the Country as a whole, the Government disarmed the KPRs countrywide. Despite the Governments disarmament program, the employees generally feel the security around the Wind Farm is still better than the situation before the farm was established. However, when we spoke to some of the communities living within the area during the field visit, they mentioned that they feel that the disarmament program did not result in a reduction in the number of illegal weapons in the area and that some communities are still in possession of illegal weapons leaving the others vulnerable to attacks and inter-ethnic clashes. This fear was especially expressed by the community in Mt. Kulal.

According to employees, the area where the Wind Farm is located was a cattle rustling corridor through which stolen livestock was transported and rustlers used to escape retaliatory attacks. Security in and around the Wind Farm has improved since the company was established as reported by 77% of the interviewed employees (Figure 3.11). The last major conflict experienced in the area was in a Rendille camp and Sarima village in April and May 2015 respectively, where some community members were killed and many others injured. Employees attribute the reduction in the number of conflicts in the area over the seven year period of the study to the existence of LTWP and the improved availability of and access to water across the constituency as a result of the various initiatives by the Government, development actors and LTWP.

---

<sup>19</sup> IWGIA Report 28 (December 2019). The Impacts of Renewable Energy Projects on Indigenous Communities in Kenya. The Case of lake Turkana Wind Power Project and the Olkaria Geothermal Power Plants

**Figure 3.8: Perceptions on security changes in the project area**



## 4 Impacts of the LTWP project on the lives and wellbeing of its employees

**Research Question 1:** Benefits generated by employees of the LTWP project? (Explore direct and indirect benefits)

**Research Question 2:** Challenges experienced by employees of the LTWP project?

**Research Question 4:** How were the gains from the jobs created used to enhance the well-being of the benefitting households?

**Research Question 5:** Access to food by looking at household dietary diversity score (HDDS)

Wellbeing is a concept describing the state of individual's life situation. During the 1940s, wellbeing was largely based on some measure of national income per capita such as gross domestic product (GDP). However, over time there has been a shift to using social indicators such as health, education, employment, housing, environment and basic human rights as measures of wellbeing together with income since "income is a means, not an end."<sup>20</sup> Other indicators that are used to measure wellbeing include work/life balance, social connections, civil engagement, personal security and quality of the environment.<sup>21</sup>

Our findings show that LTWP has made significant improvements in the lives and wellbeing of its employees as well as communities living around the project area. Employees have improved their wellbeing and that of their families by investing the salaries earned from the project in modern housing structures, starting new businesses, educating their children and saving in the SACCO.

According to A. Coudouel, J. S. Hentschel, and Q. T. Wodon (2002) wellbeing has two dimensions, monetary and non-monetary. The monetary dimensions of wellbeing include income and consumption and the non-monetary include health, education and assets.<sup>22</sup> We used this classification in our analysis of the impacts of the LTWP project on the wellbeing of its employees with the understanding that the first dimension, monetary wellbeing, contributes largely to the second and has a large bearing on the ability of the individual and/or household to attain the second.

In this section, we discuss outstanding impacts of the LTWP project on the lives and wellbeing of its employees in detail and where applicable, we have used case studies and verbatim statements recorded during interviews with employees. We have used the job groups within which the respondents were drawn to conceal their identity.

### 4.1 Monetary dimension of wellbeing

The impacts of LTWP on the monetary dimensions of the wellbeing of its employees are income, SACCO and consumption.

#### 4.1.1 Income

Employees at LTWP are generally on salary scales which from our assessment are way above the national labour wage rates, particularly for the semi-skilled labour. For instance, the minimum monthly salary for drivers in Kenya is KES 9,400 (EUR 80) whereas the least paid driver at LTWP receives KES 39,000 (EUR 332), which is more than 400% above the minimum wage rate for this category of workers, and the highest paid receives KES 75,000 (EUR 644).

The median salaries for all employees was KES 50,000 (EUR 429) with a minimum of KES 28,000 (EUR 240) to a maximum of KES 365,000 (EUR 3,135) and the ranges differed by job categories. For example, skilled staff working in the site coordination, technical and civil work departments are on higher salary scales compared to the semi-skilled staff mainly working in the security and village management. We also see a direct correlation

<sup>20</sup> <https://www.oecd.org/site/progresskorea/44254331.pdf>

<sup>21</sup> [https://www.globaleducation.edu.au/verve/resources/Global\\_Wellbeing\\_booklet.pdf](https://www.globaleducation.edu.au/verve/resources/Global_Wellbeing_booklet.pdf)

<sup>22</sup> [http://siteresources.worldbank.org/INTPRS1/Resources/383606-1205334112622/5467\\_chap1.pdf](http://siteresources.worldbank.org/INTPRS1/Resources/383606-1205334112622/5467_chap1.pdf)

between salary scales and education levels which follows the normal education-renumeration economics i.e. the higher the education levels, the higher the probability of higher salaries. A large proportion of the employees have used their income to buy assets including livestock, build modern houses, start businesses, pay school fees and buy food items for their families, relatives and even friends as shown below.

However, the striking feature in the salaries bandwidth is the observed wide variations within the same job categories. For instance, company drivers doing the same type of work has the lowest employee earning KES 39,000 (EUR 335) per month and the highest receiving KES 75,000 (EUR 644). This may be attributed to years of experience doing the job and working with the company as well as additional tasks assigned to the employee. In addition, LTWP paid year end performance bonus in 2019 and made salary adjustments in view of aligning pay within a group.

#### 4.1.2 SACCO

Apart from salaries earned from the project improving the living standards of employees at LTWP, the company has instilled the culture of saving among its employees. In 2017, the employees came together with the support of the company and established the Winds of Power SACCO (the first employee of the SACCO was contracted by the company). The SACCO currently has a total membership of 250 employees, more than half the total number, all based on-site. The employees save on average KES 36 million per annum at a minimum of KES 2,000 (EUR 17) per person monthly. The cumulative monthly savings in the SACCO has increased from KES 363,000 (EUR 3,118) when the SACCO began to the current KES 3 million (EUR 25,770) (Table 4.1).

**Table 4.1: Annual Wind of Power Sacco contributions and deductions**

	Total (KES)	Total (EUR)
<b>Loans Deduction</b>	6,902,950	59,742.7
<b>Admin contributions</b>	12,964,550	11,221.2
<b>Security Dept. contributions</b>	18,079,823	156,475
<b>Partner staff contributions</b>	5,879,445	50,884.6
<b>Total contribution</b>	<b>36,923,818</b>	<b>319,563</b>

*"...The SACCO has helped us access credit which is very hard to get from commercial banks.... recently, one of our colleague's mother was sick and within 2 days, he was able to get KSHS 80,000 from the SACCO which he used to take his mother to Kijabe hospital, past Nairobi for better treatment..... I personally borrowed KSHS 150,0000 to pay schools for my second degree which I'm currently pursuing. .... Official at Winds of Power SACCO*

Many of the employees attributed their personal investments to the SACCO, having taken loans on favourable terms and low interest rate of 8% per annum (p.a.). This interest rate is much lower than that of commercial banks that charge between 12-15% p.a. and other deposit taking Microfinance Institutions (MFIs) that charge flat interest rates of 12% p.a. on all loans.<sup>23</sup> The employees also do not require any collateral on the loans borrowed but mere recommendations from peers working in the company and are allowed to borrow up to three times their savings. Most of the employees have been able to buy assets especially livestock, start and/or boost family businesses, take their children to boarding schools and build modern houses.

It was interesting to note that the security department is the largest contributor to the SACCO, with an average monthly savings of KES 1.5 million (EUR 12,885) which constitutes almost 50% of the monthly totals. The security department has the largest number of employees, of which nearly all are people from the local communities. This group of employees due to limited technical experience and low levels of education come from the poorest

<sup>23</sup> Flat interest rates means that the interest is not charged on a reducing balance. Rather it is charged on the initial borrowed amount, no matter how low your principal balance has gone.

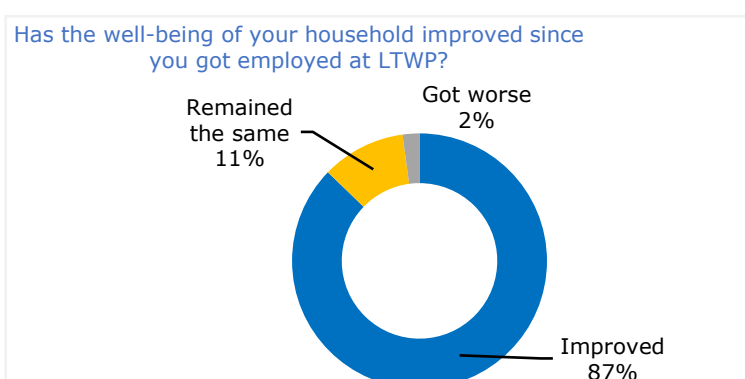
backgrounds yet they have turned to be the greatest beneficiaries of the SACCO. One female respondent from the security department mentioned with great joy and pride that through the SACCO she has been able to save and borrow over KES 500,000 (EUR 4,295) and build a three-roomed stone house for her mother.

Through the SACCO employees have also been able to attend to family emergencies. In the focus group discussion the employees mentioned that one of their colleagues was able to mobilise funds to take his mother to a hospital in another County for specialized medical care when she had a medical emergency. The participants confirmed that he would not have been able to do this so quickly had it not been for the SACCO.

### 4.1.3 Consumption

With better and consistent salaries, 87% of the interviewed employees feel that there have been improvements in their living standards (Figure 4.1); qualified by the ability to pay school fees for their children (81%) of which over 50% have their children in boarding schools (majority have their children in schools located in Nanyuki and Meru which are over 340 kms away). Besides paying school fees, 51% of the employees have been able to build permanent houses (+30% and +27% increase in using iron sheets as roofing materials and concrete for floors respectively) which costed an average of KES 430,000 (EUR 3,693). 13% of employees who reported to have not observed positive changes in the well-being were mainly fairly new employees with less than two years work experience with LTWP.

Figure 4.1: Changes in wellbeing of households



We also observe a significant drop in the use of cow dung as floor material (from 37% to 0%). 70% of the households equally used the earnings to purchase household assets costing KES 39,000 (EUR 335) and close to 60% increasing the herd sizes as summarised in Table 4.2 below.

Table 4.2: Types of investments made by LTWP employees

Investment	Percent of Hhds	Average Investment Cost (KES)	Average Investment Cost (EUR)
Build a new house	51%	430,000	3,721
Buy household assets	70%	39,000	337
Herds improvement	57%	80,000	692
Start a business	17%	100,000	865
Pay school fees (Annual)	81%	31,000	268

Despite improvements in the living standards and increased purchasing power, less than 20% of the employees have been able to invest in alternative income generating activities. From our assessment, the non-diversification of income sources is likely to plunge the employees back to vulnerable situations in case they lose their employment with the company, since they will not be able to sustain their present lifestyles. Many employees will not be able to pay school fees for their children/unprecedented school drop-outs and afford better meals and healthcare services should the current income stream come to a halt. 17% of employees who have invested in alternative businesses have been able to empower their spouses and/or parents to run the family businesses which generate additional income for the households hence achieving greater financial stability. For instance, one of the CLOs used his earnings to buy a pick-up which he uses to transport goods from Marsabit to stock his wife’s

shop in Korr. Another security guard has opened a small shop for her mother back home where she sells perishable household goods. The mother saves a percentage of the profits for her and when she travels home during her R&R break from work she assists at the shop.

The salaries earned from LTWP have had huge impacts in propelling the benefitting households from poverty with the benefits spiralling beyond the project's spheres of influence. Evidence from the study shows that most employees are currently supporting extended families and distance relatives.

## 4.2 Non-monetary dimensions of wellbeing

The impacts of LTWP on the non-monetary dimensions of the wellbeing of its employees are education, ownership of livestock and household assets, food security and health.

### 4.2.1 Education

In our analysis, we observe strong financial capabilities encompassing a combination of attitude, knowledge, skills, and self-efficacy needed to make and exercise money management decisions among LTWP's employees. Most employees, (80%) are investing in their children's education, across gender, age and salary scale. Over half have their children in boarding schools both within the constituency and in neighbouring Counties as far as Thika, which is quite unique according to the cultural norms in the pastoral communities where education is not highly regarded. Furthermore, employees are educating their male and female children alike. A number of respondents mentioned that their daughters were in high school and one CA indicated that she had a daughter in university. Amongst pastoralist communities, in most cases, male children of school going age spend their time herding while female children are engaged in household work such as fetching water, cooking and cleaning. The illiteracy levels in the project area is estimated to be above 70%. According to the latest (2015/2016) Integrated Household Budget Survey by the Kenya National Bureau of Statistics, there is a low level of education in Marsabit County, with 62.6% of people having no formal education, while 18.9% have primary and only 9.6% have secondary education or higher.<sup>24</sup> However, given the circumstances this is likely to reduce drastically in the coming years.

*" . . . . My son performed very well in his Kenya Certificate of Primary Education (KCPE) and was the only student selected from the constituency to join the Mpesa Foundation Academy in Thika on a full scholarship. I only pay for his transport and with my salary at LTWP I can afford to do that comfortably. I have hope that he will become a great leader and have gainful employment one day " .... CA*

Beyond educating their own children, several employees are also educating their siblings and relatives. Several employees mentioned that they were paying fees for their children and/or relatives for various reasons; (a) their own good will, (b) expectations from the society and community since they are earning a decent salary, and (c) the notion that education is the only way to assist their extended families to come out of poverty and break future dependence.

Findings from the study show that the project has really assisted people from the community to value education. It has created a lot of hope and optimism among them that through proper education, they can afford to live better lives. This is indeed true for the semi-skilled workers who believe that in future, their children will serve in higher positions at LTWP or other companies like it upon completing their studies. We also observed that there is a lot of pride from fellow colleagues and the communities over locals that are holding high positions at the company. Several skilled employees mentioned that they had other jobs but had been pressured by the locals to take up positions at the company when opportunities were available.

<sup>24</sup> IWGIA Report 28 (December 2019). The Impacts of Renewable Energy Projects on Indigenous Communities in Kenya. The Case of lake Turkana Wind Power Project and the Olkaria Geothermal Power Plants.



#### 4.2.2 Ownership of livestock and household assets

In both livestock and household assets ownership, the employees have been able to increase herd sizes and purchase essential household assets. For instance, the average number of goats owned by employees before the

**Figure 4.2: CLO with pick-up purchased with income generated through the LTWP project**



project was 35 and this has so far increased to 42. Even though there have been increases in livestock herd sizes, this does not translate to new purchases as the employees can now meet their day to day needs without necessarily selling or slaughtering livestock for household consumption. Livestock is a rich asset base for the pastoral communities.

Some of the employees interviewed indicated that before LTWP, they could sell part of their livestock to pay school fees, cover medical bills and slaughter goats during the dry spell to meet the household food requirements. However, with guaranteed income, they can afford to pay school fees and buy food from alternative sources without necessarily selling part of the herd. One male employee mentioned that through his employment he was able to buy enough livestock to pay bride price and marry his wife. This is a great achievement for a young man.

In terms of household asset ownership, we observe a significant shift in households investing in solar panels (ownership increased from 32% to 74%) and this correlates with the upgrade of the houses from Manyattas to modern houses. Also, we see improvements in the ownership of television sets from 30% to 66% (as mentioned in section 3 above, most tech companies such as M-Kopa promote solar panels and TV sets as a package) and investment in motorcycles from 4% to 32% due to improved road access network. Most employees use the motorcycles as a side transport business. The employees have employed riders to manage the transport businesses which is a job spill-over effect of the LTWP project.

Other household assets that employees have acquired using their income are furniture (beds, sofa sets and tables) and gas cookers (51% have bought gas cookers/meke). 51% have built new houses for themselves and/or their parents. According to the latest (2015/2016) Integrated Household Budget Survey by the Kenya National Bureau of Statistics, most residents in Marsabit County, 77.5%, live in one-room houses. Only 17.9% use electricity as their main source of lighting, 81.9% use firewood as their main source of cooking fuel, while 73.5% of residents live in homes with an earth floor. Our findings indicate that employment at the LTWP project will contribute to a significant change in these numbers.<sup>25</sup>

Other employees have moved their families to towns in neighbouring Counties such as Maralal and Nanyuki where they have access to more improved and advanced social services such as schools and hospitals compared to those within the constituency. Another asset that some of the employees have been able to acquire include land both within the constituency and in neighbouring Counties. A large proportion of these employees use the land to keep their livestock, others have built their family homes on the land, while others have obtained land as an asset base. Finally, one of the employees managed to purchase a pick-up truck that he uses in the family business (Figure 4.2, above).

#### 4.2.3 Food security

We observed that with increased purchasing power due to earnings from LTWP, there are improvements in the households' dietary consumption whereby most households can afford to meet the basic food requirements. Participants in the FGDs stated that most households depended on meat, milk and blood from livestock before the project which is the main food combination for the pastoral communities. However, with increased availability

<sup>25</sup> Ibid

of food stuffs from neighbouring Counties and ability to buy, the families can afford balanced diets ranging from proteins, carbohydrates and vitamins.

We borrowed from the Household Dietary Diversity Score (HDDS) to assess the food security of the employees' households.<sup>26</sup> HDDS provides an approach to measuring household dietary diversity as a proxy measure of household food access. The score focuses on dietary diversity as it correlates with increased quality of the households' diet with the necessary nutrients. In our assessment we therefore looked at three groups of foods consumed rather than the different types of foods consumed by the employees households, namely, protein (meat, fish and milk), vitamins (fruits and vegetables) and carbohydrates (bread and rice). Our findings show that all employees consume food from the three groups, some often and others occasionally, and this is directly attributed to their income from the LTWP project.

#### 4.2.4 Health

As indicated in section 3.4.6 above, all employees at LTWP have a medical cover which has enabled them together with their families to access better medical services in private hospitals (64% reported that they get services from private clinics). The medical cover has been very instrumental to a number of employees in dealing with emergencies that come with financial burden that they would have otherwise not been able to address had they not been employed at the company. One of the female employees who has a special medical condition mentioned that using the medical cover she was able to travel to the capital city for treatment where she received the medical care and medication that she needed. Following the treatment, her condition has considerably improved and she is able to conduct her work duties effectively. Another male employee mentioned that the cover helped him attend to his daughter who had a special medical condition.

*"...One of my daughters was seriously sick and LTWP vehicle helped me take her to Meru hospital (250 kms away) where she stayed for close to two weeks... the final medical bill was huge but I simply used my medical cover to clear the bills without paying a coin from my pocket.... honestly were it not for this company, my daughter would be no more.."* .... **CLO, LTWP**

The company also has a fully functioning medical clinic on-site where employees are able to receive medical care. On several occasions, the company has also offered their cars to take employee family members and relatives to hospitals in neighbouring Counties. One of the respondents also mentioned that the company has on some occasions provided their cars to ferry employees and their relatives to the funeral of close family members. This is viewed by the community as a very kind and respectable gesture because otherwise the employees and their older relatives would not make it to the funerals.

### 4.3 Other indicators of wellbeing

In addition to the impacts of the LTWP project on the non-monetary dimensions of wellbeing of its employees listed in section 4.3 above, we also looked at the impacts of the company on the social wellbeing of its employees as well as their security.

#### 4.3.1 Social

All the employees except for those based in Nairobi, the CAs and CLOs and security guards stay on-site at the village which is equipped with self-contained rooms, a cafeteria, club house, gym and laundry. The rooms have a television set, fridge and air conditioning. The cafeteria serves three well-balanced meals every day, breakfast, lunch and dinner, and all employees eat together during set periods. The club house has a swimming pool and table tennis equipment and the gym is fully equipped. The employees have also set up a football team and play soccer every evening. The laundry provides cleaning services with a rotating schedule for different outfits every day.

The employees have a shift of eight working hours per day. Those from Counties outside North-eastern Kenya stay at the site for six weeks and then go home for R&R for two weeks. While those that live within the County have the option of going home for weekends and are still eligible for 21 days of leave every year. The company

<sup>26</sup> [https://www.spring-nutrition.org/sites/default/files/publications/annotation/spring\\_household\\_dietary\\_diversity\\_score.pdf](https://www.spring-nutrition.org/sites/default/files/publications/annotation/spring_household_dietary_diversity_score.pdf)

offers transport every weekend to ferry employees to the nearest towns, Isiolo and Nanyuki, where they can then access public transport to their respective homes.

The age group, skill set and expertise of the employees is mixed which creates a good opportunity for them to learn from each other. The company evidently provides a good environment for the employees to sustain a good work and life balance. All employees regardless of their position and qualifications are treated equally. They eat together and use the same facilities. Our only concern was that, a large proportion of the employees at the company do not maintain the same lifestyle in their homes while those who do may not be able to sustain it in the event that they lose their employment at LTWP.

The employees comprise of both male and female workers with fewer females than males. It was interesting to note that in the past the community liaison team comprised only of men but now there are seven women in the team. This is a great achievement for the company given the culture of the community that it is working in. One of the female members of the community liaison team explained that it was a big deal for the communities to accept female CAs and CLOs since they have to sit in the community elders' meetings that consists exclusively of men. It is therefore a great achievement for a woman to attend these meeting, be heard and effectively engage in decision making. In this way the company has made some positive influence in the community's way of life.

Another way in which the company is influencing the community's way of life is in having members of the three communities, Rendille, Samburu and Turkana, living and working together. The three communities have been engaging in inter-ethnic conflicts over the years, some of which took place in the same location. This is a truly symbolic gesture as it illustrates that the three communities can co-exist peacefully despite their past.

" .... It is amazing that being a woman and at my young age I can sit in the elders meetings and contribute to the discussions and decision making. No one would have thought that this could happen in our community. But everyone has seen how the community liaison team has assisted the communities and so they are ready and open to work with them " .... **Female CA**

#### 4.3.2 Security

Security is a key element at the site. Based on the history of the location of the Wind Farm, LTWP has prioritised security. The security department is the largest across the company. It has employed 400 guards with 10% female and 90% male, largely from the constituency. In the past some of the security guards were part of the KPR and had firearms. But since the disarmament in 2019, the company has been assigned police officers from the County, a total of 20 officers are present at the site during the day and at night. Most of the employees mentioned that with the presence of the police and the large security department they feel safe on-site and are able to conduct their daily duties.

The CAs and CLOs also play a critical role in the security of the Wind Farm and constituency at large. They have a unique role where they consistently interact with community members, leaders and the youth that transverse the constituency. They are therefore able to identify any disconcerting issues before they arise, bring it to the attention of the relevant leaders and authorities and ensure that the issues are resolve before they erupt into conflict. The company facilitates these peace meetings/initiatives making them very effective with both the community liaison team and community members attesting that these efforts may not have stopped cattle rusting and inter-ethnic conflict, but they have averted quite a number of potential cases.

" .. Sarima village used to be a battle field between Samburu and Turkana...this used to be a non-occupied field where cattle rustlers found easy to cross.....since the project began, inter-community conflicts have greatly reduced... the project employs community advisors from all communities...in my community, if I hear of any potential conflicts, I engage my counterpart from the target community and promptly, we notify village elders to mediate before conflict erupts " .... **CA, LTWP**

## 5 Changes in poverty levels

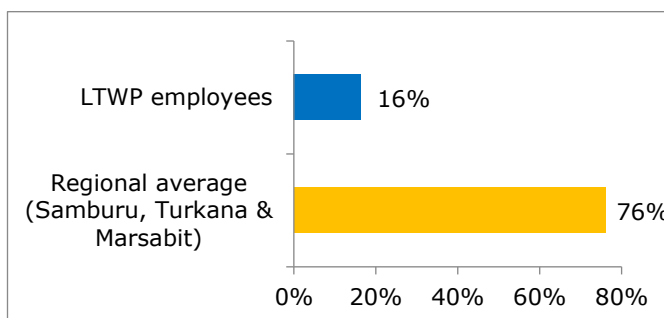
Poverty is defined as whether households or individuals possess enough resources or abilities to meet their current needs. We applied the Poverty Probability Index (PPI) to data collected from employees working at LTWP to assess their poverty levels and compare that with the poverty levels in Marsabit County. PPI is a poverty measurement methodology developed by Innovations for Poverty Action (IPA) that uses a set of 10 easy-to-answer questions about household's characteristics and asset ownership. The answers to the 10 questions are computed to provide the likelihood that the respondent's household is living below the national poverty line and other internationally recognized poverty lines. PPI is country-specific with scorecards for 60 countries.<sup>27</sup>

We asked questions on number of children in school, roofing material, floor material, sources of lighting and cooking energy and household assets including towel and thermos flask. It was very interesting to hear that some of the respondents especially from the security department, did not own a towel until they joined the company. One male CA mentioned that he used a towel for the first time when he joined the company as a security guard during the construction and when he completed his contract and went back home he stopped using it and no longer owns one.

Using PPI scores based on the household living standards (e.g. type of roofing structures and floor materials), level of education of the household head, household assets and food consumption patterns (refer to annex 6), we computed the PPI scores for each household and cross checked the scores against the Kenya PPI table developed by Innovations for Poverty Action (IPA).<sup>28</sup> The mean scores of LTWP's employee households was 64/100 of which if checked against the PPI table translates to 84% of employees having a higher likelihood of falling **above the national poverty line** and only

**16% are likely to fall below the poverty line** (the higher the scores, the lesser the likelihood of falling below the poverty line).

**Figure 5.1: Likelihood of living below the national poverty line**



The 16% are mainly semi-skilled workers with slightly lower levels of education and experience as well as those who have not upgraded their housing structures. The employees are generally better off than the average population in Marsabit, Turkana and Samburu Counties, where **76% of the population are likely to fall below the national poverty line**.<sup>29</sup> Literature shows that the general population in these Counties still live in traditional houses/manyattas, have low level of education, low purchasing power and have limited investments in household assets.<sup>30</sup>

<sup>27</sup> <https://www.povertyindex.org/new-kenya-ppi-now-available>

<sup>28</sup> Ibid

<sup>29</sup> FinAccess 2018 Survey Data

<sup>30</sup> Republic of Kenya (2018) Second Marsabit County Integrated Development Plan (2018 – 2022)

## 6 Impacts of WoC on the lives and wellbeing of the population in Marsabit

**Research Question 3:** Impacts of the WoC foundation to the local communities in Marsabit County?

**Research Question 6:** Has there been an increase in cash-flows in the local communities to stimulate the growth of new businesses/expansion of the existing ones?

**Research Question 7:** Have people in the project area diversified into alternative livelihoods as a result of the LTWP project and has this contributed to increased household incomes, if yes by how much?

**Research Question 8:** How has access to health services changed as a result of WoC support to health facilities?

**Research Question 9:** How has WoC support to education sector impacted the communities in the project area?

**Research Question 10:** How has WoC support in the water sector impacted the communities in the project area?

As mentioned in section 1 above, WoC was established as a CSR arm by LTWP in 2015 and had it formally registered as an NGO in October 2019. Since its establishment WoC has implemented social projects across Laisamis constituency worth EUR 2.5 million. The projects include building facilities for schools and hospitals, building water facilities for communities and organising community events. During the study we visited five interventions supported by WoC in five locations, Mt. Kulal, Loiyangalani, Illaut Ntil and Kargi. The area is vast and we covered about 500 kms in total. At the sites, we talked to community members and employees about the benefits that the locals are generating from the interventions.

Our general finding was that all the interventions were very useful and timely for the different target groups. This is attributed to the rigorous prioritization and selection process that WoC uses to identify the interventions as mentioned in section 1 above. WoC staff conduct a project identification and prioritisation process together with community members and leaders before deciding on the projects to fund. This process encourages participation and ownership and puts in place structures that will ensure that the projects are sustained even after completion. We observed that the projects are well maintained for this very reason. For example, the two water projects that we visited at Civicon village (Gatab junction) and Illaut had two security guards stationed on-site (one during the day and one at night). The guards do not only guard the facilities but also control access and manage the equipment (pump and taps).

We appreciate that the WoC projects across the constituency may not be solely responsible for all the positive impacts that the communities are experiencing but we acknowledge their significant contribution to the improvements in education, access into and out of and within the constituency, improved business and increased business opportunities and finally enhanced health care services.

In this section we discuss our findings on the impacts of the WoC initiatives on the lives and well-being of the population in Marsabit, specifically people living and working within Laisamis constituency. Here we have also categorised the impacts into monetary and non-monetary dimensions of wellbeing.

### 6.1 Monetary dimensions of wellbeing

The main impacts on the monetary dimensions of wellbeing of the population in Marsabit is income generated from employment at the LTWP project and businesses that are also attributed to the LTWP project.

#### 6.1.1 Income

During construction a total of 2,500 people from Laisamis constituency were employed at the Wind Farm by five different contractors, LTWP, Vestas, SECO, RXPE and G4S. These included permanent staff and casual labourers. According to national statistics there is an average of five people per household in Marsabit County, this can

therefore be translated to mean that income generated from the Wind Farm supported 12,500 people across the constituency during construction.<sup>31</sup>

We discussed the impacts of having all these people employed at the Wind Farm during construction on the lives and wellbeing of the population in Marsabit County with the focus groups, and participants mentioned that the greatest impact was income, which contributed largely to meeting the households basic needs; paying fees for school going children, providing food and building adequate shelter. Some employees even managed to invest in businesses, however, these were largely households that had more than one income or who had already been doing business. There was a lot of money circulating in the constituency during the time of construction evident by the number of operational businesses including eating joints and bars and increased purchase of assets such as solar and food items that were previously seen as luxurious such as fruits and vegetables by households. With a large percentage of income being spent within the constituency there was evidently additional value generated within the local economy.

After construction, LTWP then employed staff permanently. Over time this number has risen to the present 339 full time staff. In one move, it became the second largest employer in the County, second only to the County Government. When the need arises, LTWP still hires out casual labour from the communities around the Wind Farm.

### 6.1.2 Business

During construction a large proportion of casual labourers needed accommodation and food which was not provided by the contractors. This provided a great opportunity for residents in the constituency living along the C-77 road including Sarima village to construct rooms for rent as well as hotels and eateries. These households generated substantial income which they used in education, health, re-invested into their businesses and building homes for their families. It was interesting to note that some of those that benefited were women and the elderly who were not directly engaged in the construction. One female employee mentioned that during the construction period she was not employed by any of the contractors, however, her father cooked food and sold to the contractors and he was able to generate income to pay fees for herself and her siblings and provide food for their household. Now she is employed by LTWP.

Some of these businesses are still running to date especially those at Sarima village that still cater to some of the families of employees at LTWP and those at Civicon village. However, a large number of businesses closed down after the construction ceasing the income streams for the households.

Another income stream that the LTWP project provided for members of the community and which continues to date is purchase of livestock. The company sources all its meat locally from the community and buys goats and cows from villages across the constituency at fair prices.

## 6.2 Non-monetary dimensions of wellbeing

Our findings show that the impacts of LTWP on the non-monetary dimensions of the wellbeing of the population in Marsabit are improved access to the constituency made possible by the C-77, enhanced education and improved access to health and water. Skills acquisition and transfer was also mentioned as an impact. Finally, environmental and climate impacts.

It was also interesting to learn about Civicon village at Gatab junction. This is a village that was non-existent at the beginning of the LTWP project and only emerged during the construction. A large proportion of casual labourers engaged in the rehabilitation of the C-77 road settled at Gatab junction. Some business people set up restaurants, retail shops and rental rooms. Civicon contractors who were responsible for rehabilitating the road drilled a borehole at the junction for the construction. Over time more and more people settled into the area including families of the labourers. When the rehabilitation of the road was completed the community requested

---

<sup>31</sup> [https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/Marsabit%20Second-ary%20Data%20Review\\_pre%20and%20in-crisis.pdf](https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/Marsabit%20Second-ary%20Data%20Review_pre%20and%20in-crisis.pdf)

Civicon to drill another borehole for those that had settled there which was done by the company as CSR. This resulted in even more people settling in the area.

We visited Civicon village and spoke to women fetching water from the water point, the security personnel guarding the facility and a businesswoman who runs a retail shop. It was evident that the village had grown, people have settled in (about 300 people in total currently live in the village), and a school established therein with the County Government building some of the classrooms using funds from the County Development Fund (CDF). The respondents mentioned that another factor that is contributing to the expansion of the village is that people are moving from Mt. Kulal which they fear will be declared a national reserve by the national Government as a water catchment area. The village is also located at the centre of the constituency and is convenient for people who are travelling especially those moving with livestock in search of pasture.

As a result of the large influx of people, the water management committee responsible for managing the borehole has put in place a system to ensure that everyone has access to water for both livestock and household use without conflict. All livestock have access to water once every three days (which is the duration they require) and women and children have access to water for household use every day. There is a separate point for collecting water for household use and troughs for livestock.

**6.2.1 Improved access to the constituency**

A significant impact of LTWP project is the improved road access network in the region, particularly the rehabilitation of C-77 road connecting Loiyangalani to Marsabit town. The C-77 road was rehabilitated to allow smooth transportation of the turbines to the project site. One of the key informants mentioned that the turbines could only sustain a certain level of vibrations during transportation hence the need to rehabilitate the road. However, the spill over effect of the C-77 road has been enormous.

Findings from our interviews with key informants and discussions with residents around the constituency, show that the improved road has largely contributed to improved businesses and created new business opportunities. New businesses such as alternative transport systems like motorbikes, commonly referred to as "boda boda" for the youth, small taxi's, commonly referred to as 'probox'; sale of vegetables, fruits, bread, beverages and other cash crops and; emergence of market centres. While existing businesses such as retail and wholesale shops and exporting fish have improved. With improved access the public transport is more reliable with a bus plying the route between Loiyangalani and Marsabit town twice every week in a matter of hours unlike in the past where the trip would take two to three days. There is also increased flow of traffic with the alternative means of transport including motorbikes and "proboxes" which has reduced transport costs from KES 3,000 (EUR 25) to KES 1,200

**Figure 6.1: Road between Gatab junction and Mt. Kulal**



(EUR 10). Traders are therefore able to access goods from neighbouring Counties with more ease, prices of commodities especially household goods have reduced as a result of the reduced operational and maintenance costs of transport due to the improvements on the road, and there is availability of goods and services that may not have been available in the past such as fruits and vegetables.

One of the female traders who has been living at Civicon village at Gatab junction since 2015 and owns a retail shop (selling household items such as sugar, soap etc.) told us that she gets all her goods from Marsabit town. She has an arrangement with the bus and wholesaler in Marsabit which enables her to get all her goods without having to travel. This is not only convenient, but she also saves money on transport and time.

With increased traffic and availability of ready markets, pastoralists can now sell livestock in alternative markets at higher prices. For instance, the selling price of mature he-goat was between KES 2,000 (EUR 17) and 3,500 (EUR 30) before the roads

were fixed. Currently, a goat of the same size is sold at KES 4,500 (EUR 38) up to 7,000 (EUR 60) due to increased availability of buyers from other regions and emergence of new livestock markets within the constituency. The retail price of fish has also drastically increased with the emergence of new markets both within the constituency and in neighbouring towns. Fish which is highly perishable was only sold in El Molo and Loiyangalani in the past at low prices up to KES 30 (EUR 0.25). But now, one large fish is sold between KES 300 (EUR 2.5) to KES 400 (EUR 3.4). Respondents also mentioned that in the past only dry fish was traded which fetched lower prices but now traders are selling fresh fish for higher wages. Finally, rehabilitation of C-77 has enabled hospitals and dispensaries in the constituency access medicine from Nairobi and neighbouring Counties more reliably and with ease.

Besides the C-77 road, LTWP is also involved in the rehabilitation of 37 kms road connecting Gatab junction to Mt. Kulal. LTWP has successfully lobbied the County Government to rehabilitate the road through cost sharing arrangements. The County Government has completed a section of 30 kms as agreed and LTWP is scheduled to complete the remaining 7-8 kms. The road is projected to improve transit time from Loiyangalani to Mt. Kulal from five hours to two hours. During the field visit we used this road to travel to Mt. Kulal and we can attest to the poor state of the 7-8 kms section that is yet to be rehabilitated by LTWP (Figure 6.1). Very few vehicles ply the route, mostly 4X4's and lorries. We interviewed a business woman who owns a retail shop and restaurant (local eating joint) in Mt. Kulal, she mentioned that due to the poor state of the road she incurs a lot of costs just to get her goods from Marsabit town. When she needs to buy stock, she joins together with five other business-women and they contribute money to pay for the lorry that will take them to Marsabit and back. The trip can cost each of them up to KES 5,000 (EUR 42) and take up to 12 hours each way. It is long, treacherous and very expensive. However, she says that it was even worse before the rehabilitation of C-77 that they connect onto at Gatab junction.

### 6.2.2 Enhanced education

In our field visit, we went to three learning institutions supported by LTWP through the WoC, namely, Loiyangalani Polytechnic where LTWP built a modern classroom and installed a solar lighting system, Korole Boys Secondary

**Figure 6.2: Students during a life skills class**



School where WoC built a modern laboratory, installed solar powered systems and put up water tanks, and Mt. Kulal Girls Secondary School where WoC did solar power installations, put up water tanks and set up piping systems for the school from the main community water point at the nearest village as well as within the school. Apart from providing facilities to the learning institutions, LTWP employees also hold motivational talks with students, distribute school material including sanitary towels and beddings, and organise sports tournaments between schools.

All the support provided by WoC have had positive impacts on the communities. Students at Korole boys can now do their science practical exercises within the school laboratory instead of doing them in neighbouring schools and incurring additional costs. Before the construction of the laboratory, they would travel a distance of over 86 kms to Marsabit Boys to do laboratory experiments with the teachers having to pay up to KES 10,000 (EUR 85) for the service. During our visit staff from WoC who accompanied us held a life skills session with the boys at the school with positive response from both the students and staff (Figure 6.2).

Loiyangalani Polytechnic was started in 2018. It offers courses in masonry, dress making and mechanics. Enrolment has been very low with the first intake having admitted 37 students out of which only 11 completed the course. In our interviews with the principal and secretary, we were made aware that most students come from extremely poor backgrounds and some are forced to drop out because they are unable to raise fees despite the tuition fees being paid by the County Government through a scholarship fund and the students only required to buy uniforms and pay examination fees at a cost of KES 11,750 (EUR 100). There is also low enrolment of girls at the institution which is evidence of the low transition rates of girls from primary to secondary schools and even



further to tertiary education (most girls get married before completing their studies). Other challenges at the Polytechnic include lack of facilities such as computer lab, boarding and teachers' quarters, and placement opportunities for students' internship. However, the Polytechnic provides an opportunity for both male and female students to pursue their interests and ambitions.

WoC contribution at the Polytechnic is assisting the teachers to conduct their classes more effectively since some of the tools and equipment are powered electronically. The first intake of students at the Polytechnic graduated in 2019 with a few getting job placements. We met one of the graduates who studied masonry at the Polytechnic and is currently working in construction projects within and outside the area. Through earnings from the construction sites, he is able to support his parents and siblings who are in school.

Mt. Kulal Girls Secondary School was opened in 2015 and some of the students at the school are children of employees working at the Wind Farm. The key informants interviewed at the school mentioned that these parents are not only able to pay the fees but make the payments on time enabling the school to plan more effectively. Being a girls school hygiene is a key priority and the piping system and the six water tanks provided by WoC has ensured that the school does not run out of water during the school term (three months). Water related conflicts between the local communities (especially for livestock) and the school have reduced since the school now has piped water within their compound. With the solar system the students can now have remedial classes (at dawn and later in the evening). WoC also provided a printer for the school, and the teachers can now prepare and print the examination papers at the school unlike in the past where they used to travel to the neighbouring villages and/or the Wind Farm to print incurring a lot of costs. WoC has further provided desks for teachers and shelves.

The key informants also mentioned that WoC support has contributed to the high rates of retainment of students and teachers at the school and improved performance (the school had a mean grade of 1.89 in 2018 and 2.53 in 2019). Female participants of the FGDs also indicated that there has been remarkable improvement in the performance of girls' schools in the area following the support from WoC. Nyiro Girls Secondary School outperformed Nyiro Boys Secondary School in the science examination at the recently completed Kenya Certificate of Secondary Education (KCSE) and communities are attributing some of this success to the laboratory that was built at the school by WoC.

### 6.2.3 Improved access to health

According to the Department of Health in the County, the main gaps in the health sector are infrastructure, health management information system (HMIS), health workforce, commodity supplies, service delivery, leadership and governance. The County has one referral hospital and three sub-County hospitals, two faith based organisation (FBO) hospitals, one private hospital, 20 health centres, 63 dispensaries, four Nursing homes, 12 private clinics spread across the four sub-counties of Moyale, Saku, Laisamis and North Horr.<sup>32</sup>

WoC has supported improvements in several health facilities including hospitals and dispensaries across the constituency which has had great impacts on the health of the larger community. In our field mission, we visited Burri-Ar-ama dispensary that WoC equipped with solar powered lighting system, maternity beds, a refrigerator for vaccines storage, shelves for drugs storage, an incinerator with a burning chamber for proper medical waste disposal and toilets. The key informant mentioned that as a result of the

*"...LTWP helped us install lighting system, which has now enabled us to attend to patients 24 hours, especially emergency cases which we would otherwise fail to attend to...*

*.....with improved maternity unit, availability of water courtesy of tanks installed by the project, we have been able to record high maternal births from 2/3 to over 40 per month....since we dint have facilities in the past, most women used to give birth at home which is never safe....*

*In addition, the refrigerator the project gave us has enabled the dispensary to store vaccines which has tremendously improved our vaccination programme which the communities around failed to*

*get for a long time ".... **Chief medical Officer, Buriaramia dispensary, Marsabit.***

<sup>32</sup> Republic of Kenya (2018) Marsabit Second County Integrated Development Plan 2018 – 2022

support from WoC the dispensary can now attend to over 30 patients in a day from the village and its environs (catchment area of 4,012 people). Vaccines are administered daily, less time is required to search for medicine and equipment during procedures, and between 10 and 20 births are delivered at the dispensary every month compared to two or three in the past. All of which have great impacts on the health of the community. Women from nearby communities don't have to set aside a whole day to take their children to the hospital which was one of the most discouraging factors of accessing medical care for children especially vaccinations in the past. The key informant also mentioned that with the increased attendance the County Government has allocated more staff to the facility (nurses, nutritionist, health assistant, security guard and cleaners) further increasing their efficiency and the range of health services that they are providing for the community.

*"... Initially the dispensary did not have lights, the doctor would use a torch during delivery. There were no beds and the women were attended to on boxes on the floor. Now there are beds and room separators all of which assist the women to feel comfortable during delivery..."* Elder, **Burri-Aramia**

At Burri-Aramia we interviewed one community member who is also an elder. He indicated that in the past the only available health facilities were a mission hospital about 8 kms away in Korr location and the dispensary. Going to the mission hospital required time (one a half hour each way) and resources (up to KES 150/EUR 1.28 each way on a motorbike) and many people did not go to the dispensary as it was ill-equipped and people did not trust the services. Children fell ill and remained unattended, women gave birth at home and most alarming was that a large number of children died as a result of preventable diseases because they were not immunised. However, following the support from WoC, the community has seen remarkable change in the dispensary. The dispensary is now trusted and the most sort after health facility by members of the community who attribute the improved health facility and services to support provided by WoC.

Participants of the FGDs also mentioned that in the past the LTWP project and WoC used to provide transport for community members when they needed to be rushed to hospital during emergencies. There were no ambulances and by ferrying the sick to hospitals during emergencies, LTWP assisted very many households.

**Figure 6.3: Burri-Aramia Dispensary Supported by LTWP**



#### 6.2.4 Improved access to water

Marsabit County is water insecure with 50% of rural population and 60% of urban population accessing water from boreholes, shallow wells, water pans and lakes. During drought, availability of water decreases further with

most of the sources drying up. A large number of the water supply facilities have been set up by Government agencies and civil society organisations (CSOs), NGOs and FBOs.<sup>33</sup>

The boreholes, troughs, water storage tanks and piping systems supported by WoC have tried to address the water shortage in the area by improving access to water and reducing the distance that women and girls have to walk in search of water and contributing to reduced livestock mortalities during the dry spells as well as reduced conflicts over water. In total, WoC has drilled seven boreholes in strategic locations identified by the local communities during the elaborate Needs Assessment exercise. In each facility, users have elected a water management committee who collect monthly fees from users which is contributing largely to sustainable maintenance of the facilities. The quality of ground water in the County is poor, with many places having high concentrations of salts above permissible levels for human and livestock consumption.<sup>34</sup> Some of the boreholes supported by WoC have been fitted with solar powered pumps with reverse osmosis system for water purification making it fit for human consumption. In our analysis with the employees in section 3.4 above, we observe an average of 5% reduction in waterborne related diseases which can be partially attributed to WoC.

*"...We used to walk long distances to fetch water, sometimes 35-40 kms ... the borehole drilled by LTWP has really helped us... We can now water our animals and have access to safe drinking water. This borehole now serves over 4,000 households each pays KSHS 200 per month for maintenance."*  
**Community leader, Ntil Village.**

During our field mission, we visited Ntil community borehole which was built upon request of women from Ntil, Farakoran and Sukroi locations who blocked the road during construction requesting LTWP to drill for them a borehole (Figure 6.4). The facility serves a total population of 9,000 people. It has fresh water and is fitted with a solar system and water tanks. Before its construction in 2018, the community walked up to 7 kms to fetch water. The facility has certification from National Environment Management Authority (NEMA) and Water Resources Management Authority (WARMA) and is managed by a water management committee formed by the water users association. Each household pays KES 200 (EUR 1.7) monthly to access the facility. The money is used to pay two security guards that take care of it, one during the day and another at night, do the repairs, maintenance and replacement of the instruments. Members of the community that we spoke to during our visit mentioned that the facility has made great impacts in their lives, reducing the distance they have to travel to fetch water therefore freeing up their time to undertake other activities. Women use the extra time for cooking and cleaning, taking care of their families and property and doing petty trade generating some additional income.

---

<sup>33</sup> Republic of Kenya (2018) Marsabit Second County Integrated Development Plan 2018 – 2022

<sup>34</sup> Ibid

**Figure 6.4: Borehole drilled by LTWP in Ntil village**



### 6.2.5 Skills transfer

Participants in the FGD mentioned that one of the greatest impacts that LTWP has had on all its employees, both during and after the construction is skills transfer and exposure. A large proportion of the casual labourers that were employed during construction learned many skills and were exposed to a lot of technology and information which they can now use in other employment. This is especially true for rural women and youth. Rural women from the County have as a result of their culture been restricted to working within the household. But through the project, some women have been employed, received payment for services that they offered and in a sense become empowered. For the youth living in a County with only eight vocational centres and a teacher student ratio of 1:16, four youth polytechnics, no colleges and universities, and cultural practices that restrict first born male to take care of the family herd, the employment opportunities that a lot of them have received through the LTWP project have exposed them to skills, information and technology that they may not have otherwise received and increased their employability.<sup>35</sup>

### 6.2.6 Environmental and climate impacts

Through the shift to wind energy, the project is expected to lead to greenhouse gas emission reductions. LTWP received approval from the UN Climate Fund Secretariat's (UNFCCC) Clean Development Mechanism (CDM) 113

<sup>35</sup> Republic of Kenya (2018) Second Marsabit County Integrated Development Plan (2018 – 2022)

to earn carbon emissions credits in return for its efforts to reduce climate-warming emissions in Kenya. The project is expected to mitigate carbon dioxide (CO<sub>2</sub>) emissions equal to roughly 740,000 tonnes of CO<sub>2</sub> equivalent (tCO<sub>2</sub>eq) on average each year. Carbon credits are expected to generate up to EUR 6 million in revenue annually.<sup>36</sup> LTWP has pledged to return part of the revenue generated from carbon credits to the Government of Kenya who are in turn expected to give a certain percentage of the revenue to WoC.<sup>37</sup> These benefits will ultimately lead to the improved well-being of the community that can be measured using health, education and asset-based indices.

---

<sup>36</sup> LEDS and USAID. Pamela Cookson, Jessica Kuna and Emily Gola, ICF, USA (2017). Benefits of low emission development strategies. The Case of Kenya's Lake Turkana Wind Power Project

<sup>37</sup> IWGIA Report 28 (December 2019). The Impacts of Renewable Energy Projects on Indigenous Communities in Kenya. The Case of lake Turkana Wind Power Project and the Olkaria Geothermal Power Plants

## 7 Discussion

### 7.1 What are the implications for LTWP and WoC?

As a result of the successful lobbying by the LTWP, the communities have come to appreciate that they can demand for social services from the Government. The communities have come to the realisation that it is their right to do so and the Government has funds to provide these services. This is a great achievement given the marginalisation that the community has suffered in the past. The County Government also plays a significant role in enabling improved access to social services. The only problem is that the community is relying on LTWP to lobby for them. They feel that the company has more influence on the County Government who listen to them. Key informants at the company mentioned that this is a challenge because the community should be lobbying for these services on their own. The company is only acting as a catalyst and is bridging the gap between the community and the Government, but it expects that over time the community will be in a position to lobby on their own.

This concern is closely linked to one raised mainly by key informants at the company where they feel that the community views the company as the Government. Most of the initiatives implemented by WoC address the basic needs of the community and given their history, a large proportion of these services have been lacking. Since the company has been able to successfully provide these services, sometimes the community demands for more and more services which the company is not able to meet. It is the responsibility of the Government to provide these services and the company should not be seen to provide them in place of the Government. Hence the reason why the company is implementing more co-sharing initiatives together with the Government. The company is also creating awareness amongst the community about the role of the Government and the importance of the community to organise themselves to be able to lobby the Government. The needs assessment exercises facilitated by the company are a good starting point for community organising.

The company is also putting in place measures to manage community expectations. One good example of this effort is the Sarima hospital which was constructed through the WoC. The agreement was that WoC would construct the hospital and then Government would provide the health officers and medicine. WoC did their part but the County Government has not done theirs. However, the company has made a decision not to provide the health officers and medicine despite the need within Sarima in order to encourage the Government, on the one hand, to do their part, and community, on the other, to lobby the Government to do so.

Finally, we asked a few questions about gender during the field visit, the proportion of women employees to men and the positions held by women at the company. Our findings show that less women are employed at company compared to men. Participants in the FGDs attributed this to the type of work available at the company, expertise and skills required and working arrangements. According to female respondents, the main type of work available on-site is manual hence the reason why there are more men than women. Those opportunities that are not manual are either in hospitality or administration and evidence from the study shows that a large number of women are employed in these sectors. For instance, SECO which is responsible for hospitality has more women employees than men. However, the very specialised roles require qualifications which a lot of women in the area do not have and those women from the County that have such qualifications are working in the cities and towns and due to the location of the site and the working arrangements are not interested in the positions (six weeks on site and then R&R for two weeks with no visits from family at the village).

### 7.2 What are the implications for employees of LTWP and the population in Marsabit County?

A large proportion of employees and community members that we spoke to have come to value education and view it as an opportunity to better their lives and that of their families and communities. Some of the semi-skilled workers want to pursue higher education so that they are promoted within the company and are able to generate higher incomes. However, their routine and the facilities available to them are limiting. We spoke to the management who mentioned that they are planning to set up a library with computers that will enable the employees to enrol into online courses. They are also trying to train a community of trainer of trainers to train the employees in relevant skills including entrepreneurial and computer. Community members are educating their children so

that they are eligible for employment at the company and other similar investments in the County. While some of the skilled employees are already pursuing further education with support from the company in terms of flexible hours and payment of a proportion of the fees.

Our greatest concern as mentioned in sections 4 and 6 is that a large proportion of the employees may not be able to sustain the type of lifestyle that they are currently living if their employment at the company comes to an end. We appreciate that this may be a common concern for employees all over the country, but probably more acute in remote Counties like Marsabit. This is because many of them are the sole providers in their families and are relying entirely on their employment to meet their needs. Additionally, the salaries paid by the company are considerably higher than those paid for the same categories in other institutions and/or organisations in the County. During our field visit it was interesting to talk to some of the employees who complained that their remuneration was low, but on further probing we realised that they continue to stay at LTWP despite this because of the stability of their salaries. They are assured that they will be paid every month and they can plan effectively. A large number also mentioned that they are able to save a substantial proportion of their salaries because their meals and accommodation is catered for and they have access to the SACCO.

We also observed an overreliance on LTWP by the community. One key informant from the community mentioned that they are aware that WoC does a lot for them and that they demand a lot from WoC. However, no one else is providing these services and so WoC is the only organisation that they can request such services from and because of their marginalisation over the years they have a lot of needs and they will continue to request as much as they can for as long as they can receive the assistance they need.

The Wind Farm covers approximately 40,000 acres of the total 150,000 acre piece of land that the company has leased from the Government of Kenya for an initial period of 33 years with options for two renewals up to 99 years. An article published in the Critical African Studies journal mentions that the Wind Farm has transformed the value of land which has in turn affected the local social relationships, territoriality and connections to place.<sup>38</sup> Some factions of the community together with the County Government claim that the LTWP project was not allocated the land in accordance with the Trust Land Act and Constitution.<sup>39</sup> While the International Work Group for Indigenous Affairs (IWGIA) in its 28<sup>th</sup> Report mentioned that the community has taken the matter to court in order to determine that the land was wrongfully allocated to the company; get back the 110,000 acres of land, which are not being used by the LTWP project, and; receive compensation for the 40,000 acres of land, which are being used by the LTWP project.<sup>40</sup> There are also claims that the company did not recognise the three communities; Rendille, Turkana and Samburu as indigenous.<sup>41</sup> The matter is currently in court and despite the impacts that it may have on the community including violation of indigenous and customary land rights. We did not explore the matter during the study.<sup>42</sup>

Finally, we observed that having assisted the communities for a long time they almost feel entitled to the assistance that they are receiving from the company and this may create some tensions in the future when the company will not be in a position to provide services and/or assistance. For instance, as mentioned in section 6 above, the company provided cars to assist community members access health facilities during emergencies. However, company policies have changed and now they are not providing this service which the local communities have not been able to positively embrace.

---

<sup>38</sup> Critical African Studies journal, Cormack Z. & Kurewa A.

<https://www.tandfonline.com/doi/abs/10.1080/21681392.2018.1470017?journalCode=rcaf20>

<sup>39</sup> <https://www.nation.co.ke/business/Lake-Turkana-Wind-Power-case-resume-Monday/996-5424360-2s0h1jz/index.html>

<sup>40</sup> IWGIA Report 28 (December 2019). The Impacts of Renewable Energy Projects on Indigenous Communities in Kenya. The Case of Lake Turkana Wind Power Project and the Olkaria Geothermal Power Plants

<sup>41</sup> <https://qz.com/africa/1700925/kenyas-huge-wind-power-project-in-turkana-hurts-local-people/>

<sup>42</sup> <https://www.rapidtransition.org/stories/a-different-wind-of-change-harnessing-africas-largest-wind-project-for-climate-action/>

## 8 Conclusion

The socio-economic impact assessment provides a wealth of compelling evidence showing how LTWP has impacted the local communities, through direct employment and the projects implemented by WoC. Employees at LTWP have been financially empowered, with strong financial capabilities that provides them with the self-efficacy and freedom needed to make and exercise money management decisions. In our analysis, employees through the salaries earned at LTWP have made significant improvements to attain higher living standards outcomes evidenced by; the ability to build modern houses (an upgrade from the traditional manyattas), ability to educate their children in better schools (more than half in boarding school), improvements in the household and enhancing the livestock asset base empowering them to achieve higher food security status. 84% of the employees have a higher likelihood of falling above the national poverty line (i.e. only 16% are below the national poverty line as compared to the regional average that stands at 76%).

LTWP has provided an enabling environment for the employees to grow and save in order to meet the family and societal financial pressures. With high poverty levels in the project's areas of influence, the employees as per the current living standards can be considered to be above the average population's living standards in the area as demonstrated by; consistent cash flows, improved access to healthcare services, use of a variety of financial instruments and ability to access social amenities which the larger population do not have access to.

The company has provided equal job opportunities for the dominant communities (Samburu, Turkana, Rendile and El-Molo) and ethnic balance has equally been applied in the distribution of WoC projects. Participatory approaches through community engagement used during Needs Assessment has cultured the sense of ownership of the projects among the local communities and at the same time, improved peaceful co-existence. LTWP has entrenched sustainability plans for the implemented infrastructure assets. For example, the formation of water management committees for the drilled boreholes where the users contribute monthly fee for asset maintenance is truly commendable. Setting sustainability plans is one key step that the company should continue to inculcate in all future projects in order to achieve sustainable impact.

Finally, the company is influencing some cultural practices amongst the target communities with positive results such as educating girls and including women in decision making at community level.



# Annex 1: Terms of Reference

## Socio-economic impact of Lake Turkana Wind Power in Marsabit

### 1. Background

Finnfund is Finnish development finance institution (DFI) with a mission to build a sustainable world by investing in responsible and profitable businesses that generate measurable development impacts in developing countries. Finnfund’s priority sectors include energy, forestry, agriculture and financial services.

Finnfund makes 20-30 new investments annually with a total worth of about 150 – 200 million euros. At the end of 2018, Finnfund had made 800 million euros worth of investments and commitments in 181 projects across 45 countries.

Finnfund is signatory to Operating Principles for Impact Management and 2X Gender Finance Challenge.

At the end of 2018, Finnfund’s **renewable energy portfolio** stood at € 166 million, of which approximately half was invested in solar and one-fifth in wind power. Finnfund invested in Lake Turkana Wind Power (LTWP) in 2013 and it is still the biggest investment in Finnfund’s history.

Lake Turkana Wind Power is located in Loiyangalani District, Marsabit County, Kenya. It comprises of 365 wind turbines, each with a capacity of 850kW, and a high voltage substation that has been connected to the Kenyan national grid through an associated transmission line.

Since September 2018, the Wind Farm has provided energy to Kenya’s national grid (estimated 1,600-1,700 GWH/year), which is bought at a fixed price by Kenya Power & Lighting Company Ltd (KPLC) over a 20-year period in accordance with the Power Purchase Agreement. LTWP was officially inaugurated by H.E. President Uhuru Kenyatta in 19 July, 2019.

### 2. About Marsabit and the impact of LTWP

LTWP is located in Marsabit County, Northern Kenya. The total area of Marsabit is 71 000 km<sup>2</sup> (size of Ireland, over two times Belgium) but the population is only 316 000 of whom half are under 15 years of age.



Kenya Integrated Household Budget Survey 2015/16 defines overall poor those households whose overall consumption expenditure falls below KSh 3,252 (approximately € 30) per person per month. Marsabit is one of the poorest counties in Kenya with 64% of population living below the poverty line and 24% in extreme poverty. In Marsabit, 60% of people live in traditional manyattas, 52% have never attended a school, though now primary school attendance is close to 100%, and only 27% use improved sanitation.

Livestock keeping is the main economic activity in the County. Around 10% (15 000) of the working age population work for pay, in Laisamis and Loiyangalani slightly less. Measured with Gini coefficient, Marsabit is more equal (gini 0.365) than the national average (0.445).

According to the LTWP website, during the construction phase the LTWP project employed more than 2,500 people, of whom about 75% came from Marsabit County. During operations, the number of employees is anticipated to fluctuate between 375 and 500 people. In February 2019, the project employed 449 people, of whom:

- 341 (76%) are from Marsabit County;
- 94 (21%) are from other parts of Kenya; and

- 14 (3%) are expatriates.

Since the Project’s inception, LTWP has sought to ensure that the local communities benefit from the project. As part of this commitment, LTWP established the Winds of Change Foundation (WoC), which has been working to improve the livelihoods of the communities in the project area. To date, the Foundation has spent over USD 2.8 million on implementing projects that enhance employability through primary and secondary education and vocational training support. WoC is also working to improve access to health services by supporting health education and facilities; and improving access to water by constructing boreholes and water supply and access points.

Moreover, the WoC Foundation prioritizes hiring of local contractors to implement community development projects where possible. These local contractors in turn employ locals from Marsabit County.

An independent study found the key impacts of the construction phase to include the following:

- Rehabilitation of 208 km of rural road between Loiyangalani and Laisamis that reduced the transport time from 1-2 days to 4 hours, increased passenger transport by nine times and freight transport three times and reduced the price of transport between 16 and 37%.
- Increased traffic and lower transport prices have led to 20-30% price decrease for certain foods at local market, and three times increase in incomes for local fishermen.
- LTWP and sub-contractors provided approximately 1 800–1 900 jobs for local people during construction. The impact of the salaries paid to the local communities was beyond the scope of the study.
- In addition, there is anecdotal evidence in increased access and quality of health and education facilities.

When connected to the national grid, the study estimates that LTWP will reduce outages by 10–15% and decrease the average generation cost of electricity by 13%.

### 3. Objective and scope of the study

Given the level of poverty in Marsabit, scarcity of formal employment and the magnitude of LTWP operations in terms of improved infrastructure, jobs and paid salaries, and the Winds of Change programme, it is probable that LTWP has contributed to poverty reduction in Marsabit. **The main objective of this study is to find out 1) if the well-being has improved in the LTWP affected areas in Marsabit; and 2) if yes, what have been the main contributing factors, and 3) can some of that improvement be attributed to LTWP.**

It is suggested that the study will be conducted by administering face-to-face interviews with a number of local LTWP employees in Marsabit. Survey for a control group, inside or outside LTWP area will not be included in this study, rather the Kenya Integrated Household Budget Survey will be used as a benchmark.

The consultant is requested to outline the proposed methodology for conducting the interviews, including number of people to be interviewed, tentative questions and timetable in their proposal.

### 4. Deliverables and timeline

The work should commence in November 2019 and the final report should be ready in February 2020. Before conducting the actual survey, the Consultant will submit a methodology paper with detailed questions, sampling methodology and description of data analysis. LTWP will assist the Consultant with logistics and in contacting LTWP employees to sample.

### 5. Budget and selection criteria

The maximum available budget for this study is € 30 000 covering fees and travel expenses.

The request for proposal is sent to three companies. The selection criteria will include:

- Proposed methodology showing understanding of the assignment (40%)
- Proposed team with experience in similar studies and Kenya (40%)
- Proposed budget (20%)

The companies are requested to submit their proposals by email to [juho.uusihakala@finnfund.fi](mailto:juho.uusihakala@finnfund.fi) by 1 November 2019.

## Annex 2: Survey Questionnaire

### LAKE TURKANA WIND POWER (LTWP) PROJECT: SOCIO-ECONOMIC IMPACT EVALUATION PROJECT EMPLOYEES QUESTIONNAIRE

#### INTRODUCTION

Good morning/afternoon. My name is \_\_\_\_\_ from NIRAS Africa, based in Nairobi. NIRAS has been contracted by FinnFund to undertake Socio-Economic Impact Evaluation of the LTWP project. You have been selected to participate in the evaluation process having worked directly/indirectly in the project. We value your honest opinion in understanding whether the project has positively/negatively impacted the local communities in Marsabit County. In the interview, we'd like to know all the changes recorded over the last 7 years (before LTWP activities began). For ease of memory re-call, we may refer to key events such as the 2013 general election, severe drought occurrence or any other event that will be applicable to your context.

This interview will take not more than 40 minutes. All responses will be kept confidential and at no point will your name/personal details be mentioned in the final evaluation report.

**CONSENT:** Are you willing to participate in this interview? YES [ ] NO [ ]. If yes, proceed. If no, thank the respondent and terminate the interview.

#### DEMOGRAPHICS/ PERSONAL DATA

- 1) What is your full name? \_\_\_\_\_ include:
  - (i) gender of the employee: 1. Male [ ] 2. Female [ ]
  - (ii) marital status 1. married [ ] 2. Single [ ] 3. Widowed [ ] 4. Divorced [ ]
  - (iii) highest level of education : 1. No Education [ ] 2. Primary [ ] 3. Secondary [ ] 4. College [ ]
  - (iv) Age: 1. 18-25 years [ ] 2. 26-35 years [ ] 3. 36-45 years [ ] 4. 46 years and above [ ]
- 2) From which community do you come from? 1. Rendille [ ] 2. Samburu [ ] 3. Turkana [ ]
- 3) How many people including you live in your household? \_\_\_\_\_
- 4) How many people in your household are:
  - i. Children aged < 5 years: \_\_\_\_\_
  - ii. Going to school: \_\_\_\_\_
  - iii. Is there any of your children in boarding school? Yes/No.. If yes,(a) how many \_\_\_\_\_ and (b) in which school/s? \_\_\_\_\_
- 5) For how long have you been employed in the LTWP project? \_\_\_\_\_
- 6) What would you say is your role in the project? 1. *Community liaison person* [ ], 2. *Technician* [ ], 3. *operations person* [ ] 4. *Other... specify*
- 7) What is your monthly income from LTWP project? \_\_\_\_\_

#### HOUSEHOLD WELFARE ANALYSIS

- 8) At the moment, what would you say are the main sources of income to your household? 1. *sale of livestock* [ ], 2. *Farming* [ ], 3. *selling of livestock products* [ ], 4. *Business* [ ] 5. *Employment at LTWP* [ ] 6. *Other casual employment* [ ]
- 9) Before the start of LTWP project, what would you say were the main sources of income to your household? 1. *sale of livestock* [ ], 2. *Farming* [ ], 3. *selling of livestock products* [ ], 4. *Business* [ ] 5. *Cattle rustling* [ ] 6. *Other casual employment* [ ] 7. *Hawking* [ ] 8. *Other... specify*
- 10) What would you say is the CURRENT average monthly household income from all sources of livelihoods? \_\_\_\_\_ Kshs
- 11) What would you say was the average household monthly income from all sources of livelihoods BEFORE LTWP Project? \_\_\_\_\_ Kshs

- 12)** Among all sources of income listed above, which one would you say gives you the highest income? 1. *sale of livestock* [ ], 2. *Farming* [ ], 3. *selling of livestock products* [ ], 4. *Business* [ ] 5. *Employment at LTWP* [ ] 6. *Other casual employment* [ ] (state the estimated amount from this source)
- 13)** Looking back at your household between now and 7 years back, would you say the well-being of your household has: 1. Improved [ ], 2. remained the same [ ] or 3. got worse [ ]?
- 14)** (i) If there are improvements in your life/household, what would you say got better? 1. Ability to take children to school [ ] 2. Afford better meals [ ] 3. Build better house [ ], 4. afford better health care [ ] 5. Other [ ]
- (ii) What would you say were the greatest contributors to the improvements in your life? 1. Income from LTWP project [ ], 2. jobs from other sources [ ], 3. new sources of income [ ], 4. donations from NGOs [ ] 5. Other [ ]
- 15)** (i) If your life got worse/or remained the same, what would you say has changed?
- (ii) What do you say were the greatest contributors/factors that made your life worse? 1. community conflicts [ ] 2. loss of livelihood [ ], 3. drought [ ] 4. Illness of family member [ ]
- 16)** Over the last 7 years (Since you got employed on the LTWP project), were you able to;
- i. Build a new house? *Yes/No... if yes,*
    - How much did it cost you
    - What was the source of funds 1. *Income from LTWP* [ ], 2. *Business* [ ], 3. *savings* [ ], 4. *Donations* [ ] 5. *Support from other NGOs* [ ] 6. *County Government* [ ] 7. *Other* [ ]
  - ii. Buy household assets i.e TV, radio etc? *Yes/No... if yes,*
    - Which assets
    - How much did it cost you?
    - What was the source of funds 1. *Income from LTWP* [ ], 2. *Business* [ ], 3. *savings* [ ], 4. *Donations* [ ] 5. *Support from other NGOs* [ ] 6. *County Government* [ ] 7. *Other* [ ]
  - iii. Buy livestock? *Yes/No... if yes,*
    - Specify the livestock and number purchased
    - How much did it cost you
    - What was the source of funds 1. *Income from LTWP* [ ], 2. *Business* [ ], 3. *savings* [ ], 4. *Donations* [ ] 5. *Support from other NGOs* [ ] 6. *County Government* [ ] 7. *Other* [ ]
  - iv. Start a business? *Yes/No... if yes,*
    - Specify the type of business
    - How much did it cost you
    - What was the source of funds 1. *Income from LTWP* [ ], 2. *Business* [ ], 3. *savings* [ ], 4. *Donations* [ ] 5. *Support from other NGOs* [ ] 6. *County Government* [ ] 7. *Other* [ ]
  - v. Take your children to school? *Yes/No... if yes,*
    - How many children
    - How much is the school fees
    - What was the source of funds: 1. *Income from LTWP* [ ], 2. *Business* [ ], 3. *savings* [ ], 4. *Donations* [ ] 5. *Support from other NGOs* [ ] 6. *County Government* [ ] 7. *Other* [ ]
- 17)** Are/were there days your children used not to go to school or were sent out of school due to school fees? *Yes/No.* Specify how many times;
- Now: \_\_\_\_\_
  - Before you got employed on LTWP project: \_\_\_\_\_

**18)** How many of these animals do you own now and how many did you own before getting employed by LTWP?

<i>Animals</i>	<i>Num. Owned now</i>	<i>Num. Owned before employed by LTWP</i>
Cows		
Goats		
Sheep		
Camels		
Donkeys		
Chicken		

**19)** Which of these household assets do you own now and which ones did you own before getting employed by LTWP?

<i>Animals</i>	<i>Owned now</i>	<i>Owned before employed by LTWP</i>
Mobile phone		
TV		
Radio		
Bicycle		
Motorcycle		
Vehicle		
Solar panel		
Gas cooker		
Cooking Stove		
Towel		
Thermos flask		

- 20)** What is the main source of lighting in your household? Specify what you use now and the situation before the LTWP project?

<i>Source of lighting</i>	<i>Used now</i>	<i>Used before LTWP</i>
Solar		
Electricity		
Lantern lamp		
Kerosene		
Other....specify		

- 21)** What is the main source of cooking energy in your household? Specify what you use now and the situation before the LTWP project?

<i>Source of cooking energy</i>	<i>Used now</i>	<i>Used before LTWP</i>
Firewood		
Gas		
Bio-gas		
Charcoal		
Kerosene		
Other....specify		

- 22)** How much in a month do you spend to buy kerosene now and how much did you spend before LTWP project?

- Now: \_\_\_\_\_
- 7 years back: \_\_\_\_\_

- 23)** How much in a month do you spend to pay electricity now and how much did you spend before LTWP project?

- Now: \_\_\_\_\_
- 7 years back: \_\_\_\_\_

- 24)** What is the main roofing material of your house now/ 7 years ago?

<i>Roofing material</i>	<i>Used now</i>	<i>Used 7 years ago (before LTWP)</i>
Grass		
Iron sheets		
Tiles		
Sticks/rags		
Other....specify		

- 25)** What is the main floor material of your house now/ 7 years ago?

<i>Floor material</i>	<i>Used now</i>	<i>Used 7 years ago (before LTWP)</i>
Mud		
Cow dung		

Concrete		
Other....specify		

**HOUSEHOLD FOOD SECURITY ANALYSIS**

- 26) Do you sometimes/or your household go without food due to lack of money? *Yes/No...*
- 27) Looking back 7 years (before you got employed with LTWP), were there days in a week that your household slept hungry due to lack of money? *Yes/No...*
- 28) How many days in a week does/did your household go without food due to lack of money? *Specify number of days*
  - Now: \_\_\_\_\_
  - Before you got employed on LTWP project: \_\_\_\_\_
- 29) Looking back between now and 7 years back (before you got employed on the LTWP project), would you consider your household to be food secure/insecure?
  - Now: \_\_\_\_\_ (*Food secure/ Insecure*)
  - Before you got employed on LTWP project: \_\_\_\_\_ (*Food secure/ Insecure*)
- 30) Which of these meals do you consume now/ before you got employed by LTWP on a weekly basis?

<i>Meals</i>	<i>Consumed now</i>	<i>Consumed before employed by LTWP</i>
Meat		
Fish		
Fruits		
Vegetables		
Bread		
Bananas		
Rice		
Milk		

**ACCESS TO WATER**

- 31) What is the main source of water used in your household? Specify the source now and the situation before the LTWP project?

<i>Source of water</i>	<i>Source-NOW</i>	<i>Source before LTWP</i>
Borehole		
River		
Dam		
Piped water		
Rain water		
Flood waters		
Lake		
Other.... Specify		

- 32) How far away (kms) is the nearest water point around your community and how does that compare with the situation 7 years back?
  - Now: \_\_\_\_\_ kms
  - 7 years back: \_\_\_\_\_ kms
- 33) How long (hours) does it take you to reach the nearest water point and how does that compare with the situation 7 years back?
  - Now: \_\_\_\_\_
  - 7 years back: \_\_\_\_\_

**ACCESS TO HEALTH CARE SERVICES & MARKETS**

- 34) From where do you / or your family get medical services now and how does that compare with the situation back 7 years ago?

- Now \_\_\_\_\_ ( Government hospital, private clinic/s, hospital built by LTWP, herbalist/traditional health service providers)
- 7 years back: \_\_\_\_\_ (Government hospital, private clinic/s, hospital built by LTWP, herbalist/traditional health service providers)

**35)** How far away (kms) is the nearest health facility around your community and how does that compare with the situation 7 years back?

- Now: \_\_\_\_\_ kms
- 7 years back: \_\_\_\_\_ kms

**36)** How long does it take you to reach the nearest health facility (hours)? How does that compare with the situation 7 years back?

- Now
- 7 years back

**37)** What means do you use to access the nearest health facility and how does that compare with the situation 7 years back?

- Now \_\_\_\_\_ (walk, motorcycle, public transport etc)
- 7 years back \_\_\_\_\_

**38)** How **much do you pay on transport** to reach the nearest health facility? How does that compare with the situation 7 years back?

- Now
- 7 years back

**39)** Has any of your family members/or those around your community suffered water borne-related diseases in the last 2 years? *Yes/No*

**40)** Before LTWP project began (7 years back), did any of your family members/or community around your area ever suffered from water-borne related diseases? *Yes/No*

**41)** Which of these diseases has/did you or any of your household member/s suffered from in the recent 2 years/ 7 years back before LTWP project?

<i>Diseases</i>	<i>Attack in the last 2 yrs</i>	<i>Attacks before LTWP</i>
Cholera		
Amoeba		
Typhoid		
Malaria		
Other...specify		
None		

**42)** How long does it take you to reach the nearest market center? How does that compare with the situation 7 years back?

- Now
- 7 years back

**43)** How **much do you pay on transport** to reach the nearest market center? How does that compare with the situation 7 years back?

- Now
- 7 years back

**44)** In your opinion, do you feel the conditions of the road/s has improved, remained the same or got worse over the last 7 years? *Improved/remained the same/got worse.... Explain your answer*

**45)** Looking back between now and 7 years back, how easy or difficult is it to move from one area to the other within the constituency?

- Now \_\_\_\_\_ (Very easy/ Very difficult)..explain
- 7 years back \_\_\_\_\_ (Very easy/ Very difficult)..explain

**FINANCIAL/ NON-FINANCIAL SERVICES USAGE/ GENERAL OPINIONS**

**46)** Which of these financial instruments/ services do you use now and which ones did you use 7 years back?

<i>Instrument</i>	<i>Used-NOW</i>	<i>Used 7 years back</i>
Bank Account		

Savings account		
Sacco		
M-Pesa		
Savings group		
Use internet		
WhatsApp		

- 47) What is the main mode of communication of the community around your area and how does that compare with the situation 7 years back?

<i>Communication mode</i>	<i>Used-NOW</i>	<i>Used 7 years back</i>
Mobile phone		
Barazas		
Community elders		
Messenger/s		
WhatsApp		
Other..specify		

- 48) In your view, do you feel business activities around your area have increased over the last 7 years? Yes/ No...  
*Explain your response*
- 49) In your own opinion/view, do you feel security around your community has improved ? Yes/No.
- 50) Between now and 7 years, how frequent in a month did the communities around your area experience; (*Very frequent, frequent, rarely, none*)

<i>Event</i>	<i>Frequency NOW</i>	<i>Frequency 7 years back</i>
Cattle rustling		
Inter-ethnic conflicts		
Killings between different communities		
Conflicts caused by water scarcity		

- 51) In your own opinion/view, what do you feel LTWP project has been able to do well, particularly those that touch on the communities around you? *Explore; employment, digging boreholes, constructing schools/hospitals etc*
- 52) In your own opinion/view, what do you feel LTWP project has NOT been able to do well, particularly those that touch on the communities around you?

---

**END**

*Thank you for your time and all responses provided. Once again, we assure you that all the answers provided shall be kept confidential.*

---



## Annex 3: KII Guide

### KEY INFORMANTS INTERVIEW GUIDE

#### **INTRODUCTION**

NIRAS Africa has been contracted by FinnFund to undertake Socio-Economic Impact Evaluation of the LTWP project. You have been selected to participate in the evaluation process as a key informant, having worked/resided in the area for a while. We value your honest opinion on what you feel have been the most significant changes in the region and what you feel have been the contributing factors. All information provided by you shall be kept confidential. THANK YOU.

Name: \_\_\_\_\_ Position: \_\_\_\_\_ Tel: \_\_\_\_\_

**KII Education Sector: Name** \_\_\_\_\_ **Position:** \_\_\_\_\_ **Institution** \_\_\_\_\_

1. How has access to education evolved over time in the County?
2. Has there been an increase in school enrolment since 2013?
3. How many pupils/ students are currently enrolled in the school and how does that compare with the enrolment rates back in 2013?
4. If there has been an increase in school enrolment, what would you say are the main factors that have contributed to this?
5. Has there been an increase in girls' enrolment in the schools around the area? Explain the contributing factors to the increased enrolment
6. Since 2013, has there been a change in the student' enrolment and completion rates? Explain how many students are enrolled in the school and how many complete the final level/ examination?
7. How has the academic performance of the school changed since 2013? Explain the mean grades in the most result results and the year 2013. Has there been a change in the performance of science courses? Explain
8. What has been the role of LTWP /WoC project towards enhancing the education sector in the region?
9. What would you say have been the impacts of LTWP's/ WoC's contributions to the education sector in the region?

**KII Health Sector (and water): Name** \_\_\_\_\_ **Position:** \_\_\_\_\_ **Institution** \_\_\_\_\_

1. How has access to health services in the County evolved over time?
2. Do we see many people attending hospitals as opposed to traditional health care service providers?
3. Has there been a *reduction* in child mortalities/ maternal deaths since 2013; (Give examples of the significant changes)?
4. Has there been a change in hospital deliveries as opposed to home deliveries? Explain
5. What has been the role of LTWP /WoC project towards enhancing the health sector in the region?
6. What would you say have been the impacts of LTWP's/ WoC's contributions to the health sector in the region?
7. How has access to water changed over time? From where did the communities get water 7 years back and how has that changed over time?
8. Have you recorded cases/ incidences of water borne related diseases at the health facility in the last 2 years? How were the disease incidences 7 years back? Explain
9. What has been the role of LTWP /WoC project towards enhancing water access in the region?
10. What would you say have been the impacts of LTWP's/ WoC's contributions to the water sector in the region?

**End**

Thank you for your time and responses

## Annex 4: FGD Guide

### FGD Questions

---

1. What are the main economic activities of the communities around Marsabit area?
2. How have the economic activities within the County evolved over time? i.e have we seen people diversifying into other livelihood options over the last 7 years? *Yes/ No. If there has been diversification in livelihood options, which ones and what would you say have been the contributing factors?*
3. Comparing the area between now and 7 years back, would you say there has been improvement in the road network and general accessibility of the area? *Explain conditions of the roads before (provide examples how hard or easy it was/ has been to move from one location to the other)...which development partners have been key in the roads improvement initiatives?*
4. What have been the major changes in the transport system in the area? *Explain (what were the main means of transport 7 years back, were the transport systems reliable, how many vehicles could access the town(s), how much was the bus fare and how has that changed over time?*
5. Have we seen emergence of new/expansion of existing business activities in the area *(Explain the main contributing factors to the new business activities)*
6. Has there been any shifts in the prices of commodities, particularly livestock over the last 7 years? *Explain the price shifts and the possible causes.*
7. How has the telecommunication network evolved in the area over the last 7 years? *(Do we see many people using mobile phones, Mpesa services etc). What would you say are the contributing factors?*
8. How has the banking industry evolved in the area over the last 7 years? *Do we see banks opening branches, people using bank accounts etc...What would you say are the contributing factors?*
9. How has the security in the area changed over time? *(Give examples of inter-ethnic conflicts, conflicts due to access to water points, cattle rustling etc.)*
10. In your view, what do you think have been the greatest contributions of LTWP project to the communities around the area? *Provide relevant examples*
11. In your view, do you feel there have been negatives consequences of LTWP project to the communities around your area? *Provide examples*

## Annex 5: Observation Checklist

### 1. Education

- Name of the school visited
- Buildings constructed by WoC
- Equipment and facilities provided by WoC
- Number of students attending the school
- Areas that the students come from
- Number of teachers in the school

### 2. Health facilities

- Name of health facility visited
- Buildings constructed by WoC
- Equipment and facilities provided by WoC
- Number of patients served by the facility
- Area served by the facility
- Number of nurses and medical staff at the facility

### 3. Infrastructure

#### i. Roads

- Name of road visited
- Type of support provided by LTWP
- Benefits generated by affected communities from the roads

#### ii. Water

- Water facility visited
- Type of support provided by LTWP
- Area that is served by the facility
- Benefits generated by affected communities

## Annex 6: PPI scoring checklist

Question	Code	Response	National Poverty Line
In which County does the household reside?	1A	Mombasa	6
	1B	Kwale	6
	1C	Kilifi	5
	1D	Tana River	4
	1E	Lamu	10
	1F	Taita Taveta	6
	1G	Garissa	5
	1H	Wajir	9
	1I	Mandera	0
	1J	Marsabit	7
	1K	Isiolo	7
	1L	Meru	12
	1M	Tharaka Nithi	12
	1N	Embu	9
	1O	Kitui	7
	1P	Machakos	10
	1Q	Makueni	9
	1R	Nyandarua	9
	1S	Nyeri	11
	1T	Kirinyaga	11
	1U	Muranga	13
	1V	Kiambu	9
	1M	Turkana	2
	1X	West Pokot	7
	1Y	Samburu	3
	1Z	Trans Nzoia	8
	1AA	Uasin Gishu	6
	1BB	Elgeyo Marakwet	9
	1CC	Nandi	9
	1DD	Baringo	8
	1EE	Laikipia	7
	1FF	Nakuru	10
1GG	Narok	14	
1HH	Kajiado	4	
1II	Kericho	9	
1JJ	Bomet	9	
1KK	Kakamega	7	
1LL	Vihiga	6	

	1MM	Bungoma	9
	1NN	Busia	0
	1OO	Siaya	8
	1PP	Kisumu	5
	1QQ	Homa Bay	9
	1RR	Migori	8
	1SS	Kisii	6
	1TT	Nyamira	10
	1UU	Nairobi	8
What is the highest educational level that the female household head/spouse reached?	2A	Pre-primary, none, or other	0
	2B	Primary	7
	2C	Secondary or post-primary, vocational	10
	2D	College level or higher	15
	2E	There is no female household head/spouse	16
What is the highest educational level that any member of the household reached?	3A	Pre-primary, none, or other	0
	3B	Primary	3
	3C	Secondary or post-primary, vocational	1
	3D	College level or higher	5
Over the past 7 days, did the household either purchase/consume/acquire any bread?	4A	Yes	10
	4B	No	0
Over the past 7 days, did the household either purchase/consume/acquire any meat or fish?	5A	Yes	12
	5B	No	0
Over the past 7 days, did the household either purchase/consume/acquire any ripe bananas?	6A	Yes	9
	6B	No	0
Does your household own any towels?	7A	Yes	10
	7B	No	0
Does your household own any thermos flasks?	8A	Yes	9
	8B	No	0
What is the predominant wall material of the main dwelling unit?	9A	Finished walls (cement, stone with lime/cement, bricks, cement blocks, covered adobe, or wood planks/shingles)	8
	9B	Uncovered adobe, plywood, cardboard, reused wood, or corrugated iron sheets	6
	9C	Natural walls (cane/palm/trunks, grass/reeds, or mud/cow dung), no walls, bamboo with mud, stone with mud, or other	0
What is the predominant floor material of the main dwelling unit?	10A	Natural floor (earth/sand or dung) or palm/bamboo	0
	10B	Other (including wood planks/shingles, parquet or polished wood, vinyl or asphalt strips, ceramic tiles, cement, or carpet)	7

## Annex 7: List of documents reviewed during implementation

- Business Daily (13th February 2019). Lake Turkana Wind Farm opens up dry Marsabit. Page 3.
- Business Daily (3rd July 2017). Report cites Turkana Wind Plant as model investment. Page 13.
- ETC East Africa Limited (May 2013). Lake Turkana Wind Power. Corporate Social Responsibility Programme. Operational Business Plan. Embedded in a 20 year Vision 2016 – 2035.
- FinAccess 2018 Survey Data.
- [https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/Marsabit%20Secondary%20Data%20Review\\_pre%20and%20in-crisis.pdf](https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/Marsabit%20Secondary%20Data%20Review_pre%20and%20in-crisis.pdf)
- <https://www.povertyindex.org/new-kenya-ppi-now-available>
- [https://www.spring-nutrition.org/sites/default/files/publications/annotation/spring\\_household\\_dietary\\_diversity\\_score.pdf](https://www.spring-nutrition.org/sites/default/files/publications/annotation/spring_household_dietary_diversity_score.pdf)
- <https://www.oecd.org/site/progresskorea/44254331.pdf>
- [https://www.globaleducation.edu.au/verve/resources/Global\\_Wellbeing\\_booklet.pdf](https://www.globaleducation.edu.au/verve/resources/Global_Wellbeing_booklet.pdf)
- [http://siteresources.worldbank.org/INTPRS1/Resources/383606-1205334112622/5467\\_chap1.pdf](http://siteresources.worldbank.org/INTPRS1/Resources/383606-1205334112622/5467_chap1.pdf)
- <https://www.rapidtransition.org/stories/a-different-wind-of-change-harnessing-africas-largest-wind-project-for-climate-action/>
- IWGIA Report 28 (December 2019). The Impacts of Renewable Energy Projects on Indigenous Communities in Kenya. The Case of lake Turkana Wind Power Project and the Olkaria Geothermal Power Plants.
- Lake Turkana Wind Power (August 2017). Sarima Village Re-settlement Process Information Document.
- Lake Turkana Wind Power (May 2013). Corporate Social Responsibility Programme. Operational Business Plan. Embedded in a 20-year Vision 2016-2035.
- Lake Turkana Wind Power Project (13th January 2020). Power-point - NIRAS Kick-off meeting.
- LEDS in Practice (January 2017). Benefits of low emission development strategies. The case of Kenya's Lake Turkana Wind Power Project. Pamela Cookson, Jessica Kuna, and Emily Golla, ICF, USA.
- Republic of Kenya (2018) Second Marsabit County Integrated Development Plan (2018 – 2022)
- Republic of Kenya and UNDP (2018). Marsabit. Second County Integrated Development Plan 2018 – 2022
- Terms of Reference (10 October 2019), Socio-economic impact of Lake Turkana Wind Power in Marsabit, Finnfund.
- Triple R Alliance (May 2018). Lake Turkana Wind Power. Mid-Term Review of the Social Performance of the Lake Turkana Wind Power Project.
- Winds of Change a Lake Turkana Wind Power Foundation (2019). Power-point - Overview of selected WoC projects.
- QBIS (4th June 2018). Final Report. Socio-economic study of key impacts from Lake Turkana Wind Power (LTWP). Preliminary observations on key impacts from the LTWP project and methodological considerations for future assessments.