



# **RUFIJI HYDROPOWER PROJECT**

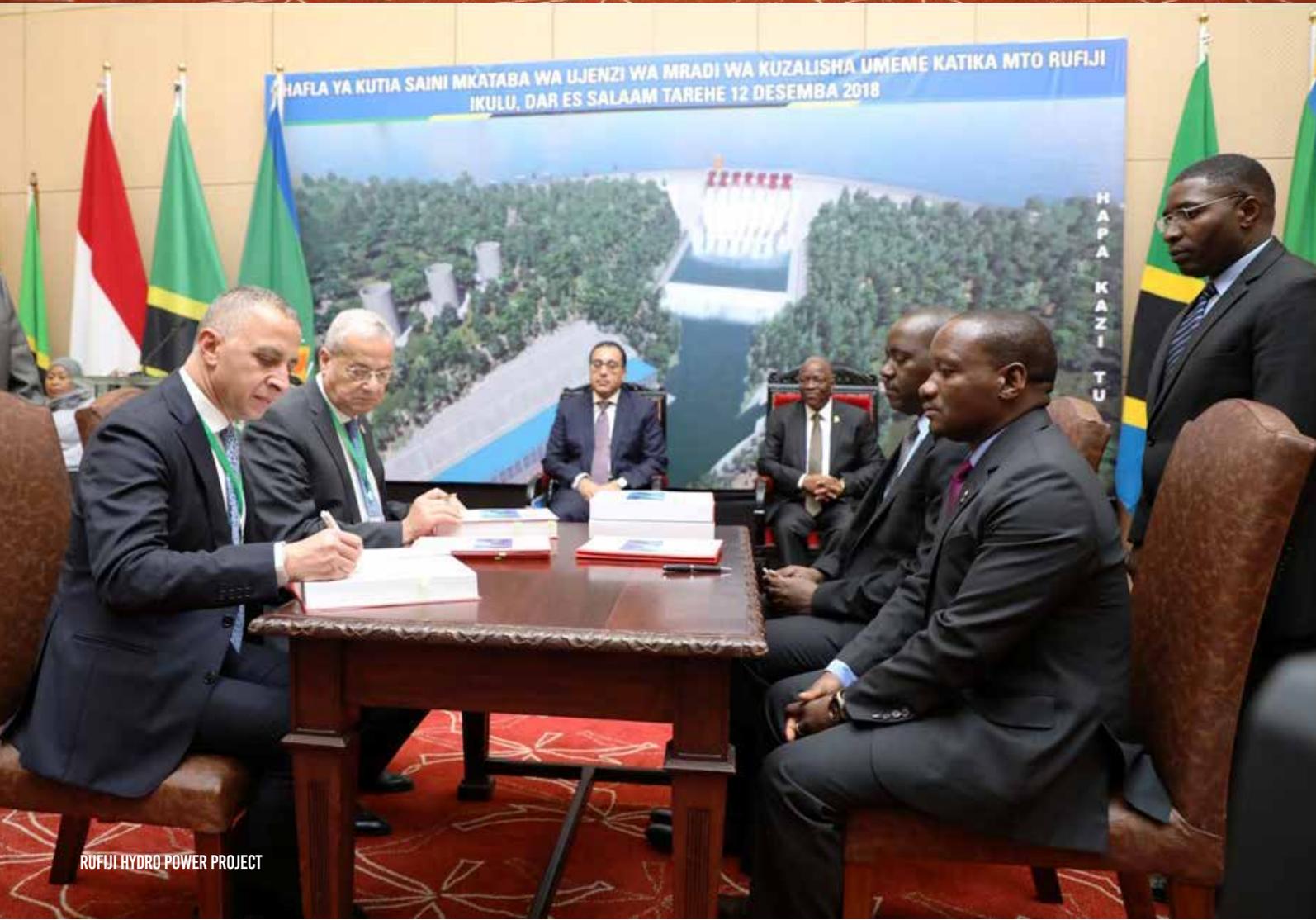
# **PIONEERING THE FUTURE**

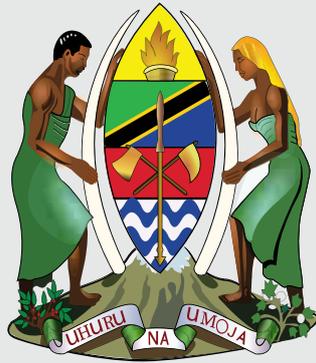
# **THROUGH BOLD DECISIONS**

**THE UNTOLD STORY OF THE SOCIO-ECONOMIC BENEFITS**  
**OF THE PROJECT IN TRANSFORMING LIVES**  
**TO GENERATIONS OF TANZANIANS.**

**JULY 2019.**

**HAFLA YA KUTIA SAINI MKATABA WA UJENZI WA MRADI WA KUZALISHA UMEME KATIKA MTO RUFJI IKULU, DAR ES SALAAM TAREHE 12 DESEMBA 2018**





THE UNITED REPUBLIC OF TANZANIA

**MINISTRY OF ENERGY**  
**TANZANIA ELECTRIC SUPPLY COMPANY LIMITED**



## 1.0 INTRODUCTION

*The Rufiji Hydropower Project (RHPP), formerly known as the Stiegler's Gorge Dam, is a 2,115 Megawatts Power Plant, expected to spur Social and Economic growth in the East Africa's fastest growing economy, the United Republic of Tanzania. The Project is a restored Will of the current Government to deliver the 1980 designed plan that could not take off until after 39 years owing to resource constraints. The project is located South-East of the country's largest Game Reserve, The Selous, measuring 50,000 square kilometers. It borders the Coast and Morogoro Regions.*

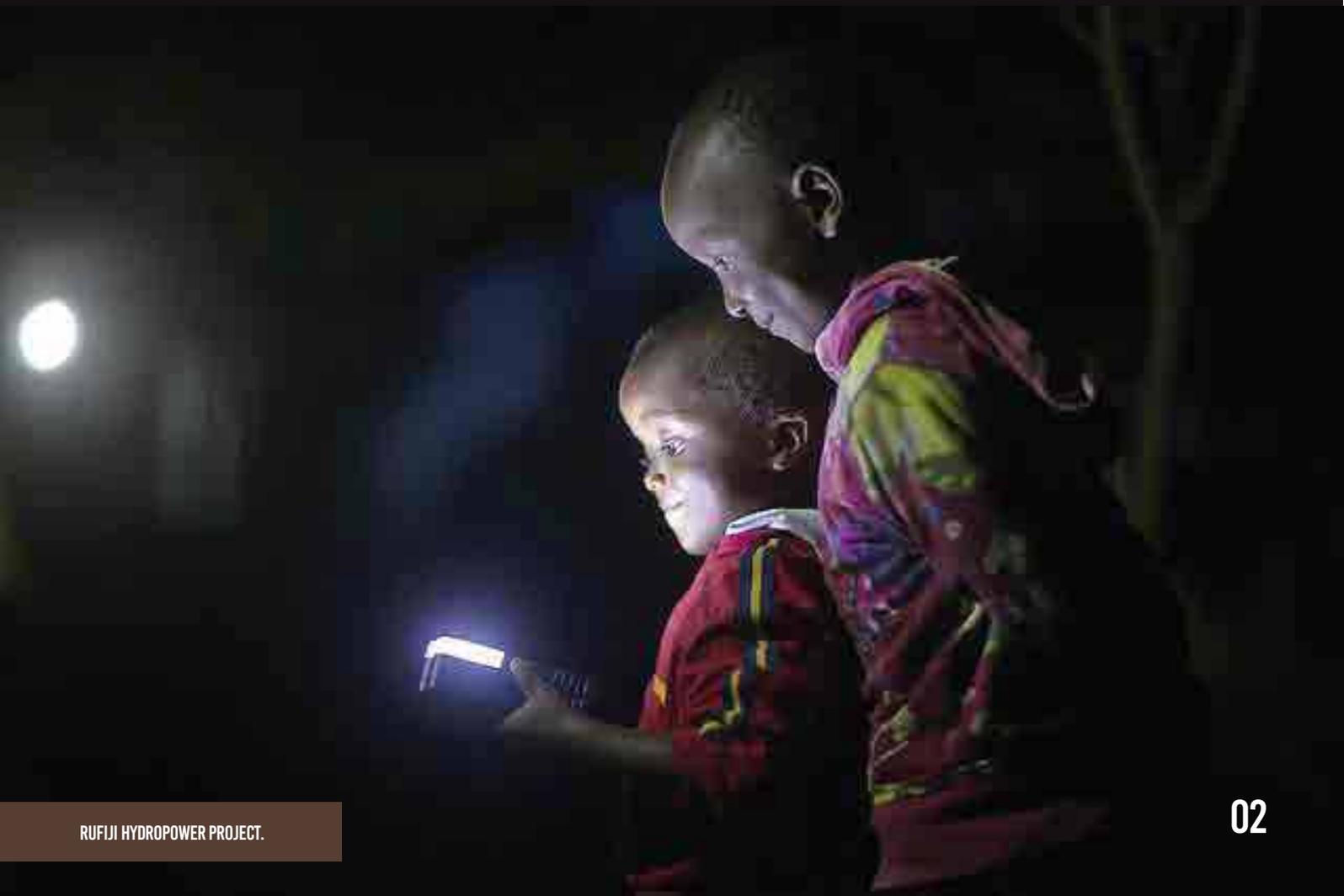
*The entire project comprises 914 sq/km out of which the project area (Offices, sub-stations, Switch Yard, Power House and other operation areas) covers only 61.13 sq/km.*

*In terms of the percentage, a tiny bit of land to accommodate the project in the entire area housing Selous Game reserve is structured thus:-*

- **Total forestry area to be cleared for the project is 1.8%; TANESCO's operation area (Operations) 0.122%; Total area for water reservoir 1.7%.**
- **It is Only 1.3 sq/km out of the entire 8 km of the Gorge will be used.**

## Sources of Rufiji River

*The main tributaries of the Rufiji River, the main source of the RHPP, are Kilombero River which contributes 65% of total flow, the Great Ruaha River contributing 15 % of total flow and the Luwegu River which supplies 19% of the total flow. The remaining 1% flows into Rufiji River from assorted minor sources. The RHPP site can be easily accessed by road, air and railway. Accessibility by road from Dar es Salaam through Ubena Zomozi along Morogoro road is 340 km.*



# 2.0

## OBJECTIVES OF THE PROJECT

### **Main Objectives**

*The main objective of the project is to develop the Rufiji Hydropower Plant in order to generate electricity that will contribute to the national power grid in Tanzania's increasing industrialized economy, creation of employment opportunities, boosting tourism, controlling floods and transforming lives through marine and land-based economic developments.*

### **Specific objectives**

*The following are the project's specific objectives:*

- 1. Hydropower Plant with a capacity of 2,115MW commissioned;*
- 2. Floods downstream the project area controlled;*
- 3. Agriculture Irrigation Schemes down-stream the project created;*
- 4. Domestic water supply downstream of the project enhanced;*
- 5. Tourism industry through sports fishing, boat rides and photographic safaris in the reservoir introduced; and*
- 6. Conservation and anti-poaching activities in and around project area reinforced.*

# 3.0 PROJECT POLICY ALIGNMENT

*The development of the RHPP is aligned with the Energy Policy of 2015. The policy aims at achieving 75 % electricity supply for the whole population by 2025. With ongoing electrification projects including the Rufiji Hydropower and REA III will surpass the goal.*

*In fact, with the new vigour and zeal of the Fifth Phase Government under President Dr. John Pombe Magufuli it is expected to achieve a higher target of powering the entire population by 2022.*

*The country's ultimate goal is to attain universal access to modern energy services. The RHPP is the main highway onwards Tanzania's cherished dream.*

*Moreover, the National Power System Master Plan also guides development of the power system in Tanzania for the next 25 years. It aims to expedite economic growth by means of the revival and renovation of industries which will potentially be realized through power generation. It will also help to attain the United Nations (UN) Sustainable Development goals, particularly the following:*

**Goal 1: No Poverty;**

**Goal 7: Affordable and Clean Energy,**

**Goal 9: Industry, Innovation and Infrastructure.**

# 4.0 PROJECT COMPONENTS

*Based on the 1980 Feasibility Study which was commissioned by the Government of Tanzania through Nor consult, Hafslund and Norplan Norway Consultants, and the 2017 update of the previous designs, the in progress project will develop the RHPP to a capacity of 2,115MW.*

*Currently, the project consists of five main components:*

- 1. Main dam and Saddle dams;**
- 2. Power and Diversion Tunnels;**
- 3. Spillways;**
- 4. Power House and switchyard;**
- 5. Buildings, Roads and Social Facilities including other Utilities.**



## BENEFITS OF THE PROJECT

The main significant impact of the project is to develop the Hydropower Plant to spur socio-economic growth.

Some of the major benefits are summarized hereunder: Currently, there is no single available energy source in the country that is cost effective and has high potential for power production than the designed RHPP.

**1. The 2,115MW will increase power supply in Tanzania's rapidly industrializing economy;**

In that regard, the project is expected to unleash a myriad of untold benefits to the hardworking people of Tanzania.

**2. Creation of employment opportunities to Tanzanians. It is estimated that 12,000 people will be directly employed during the three years of the project. Some employments will continue on permanent and pensionable basis after the project;**

**3. Boosting tourism industry through sports fishing, boat rides and photographic safaris**

**4. Changing lives of the people within and outside the Project area through various economic and social activities such as agriculture, aquaculture and fishing;**

**5. The construction of the dam and reservoir will control floods in the downstream of the project area where its inhabitants used to suffer from untamed water floors;**

**6. Conservation and anti-poaching activities in and around the Selous will be reinforced. For instance, according to 2018 survey, apart from other conservation efforts during the initial project preparation, the number of elephants had increased significantly in the Selous Game Reserve; and**

**7. Significant direct benefits to Government would accrue from various taxes and duties collected during project implementation.**



## 03 PROJECT ISSUES, CONCERNS AND RESPONSES.

*Despite the notable benefits of the project, there have been some concerns that need to be clarified. Most of the concerns relate to presumptive fear that the flora and fauna in the Selous ecology will be affected. This paper concludes with a response to each of the issues:*

S/N	ISSUE	RESPONSES
1.	<i>The ecology around Selous as the World Heritage Site and livelihoods beyond the protected area will be affected by the implementation of the project (UNESCO and WWF).</i>	<p><i>Tanzania takes note of the World Wildlife Fund (WWF) report published in 2017 in which the Fund recognized the Selous area as the driver for sustainable development giving long-term benefits to Tanzania and its people, and that Tanzania needs to increase energy to help drive its development (1st paragraph, page 6);</i></p> <p><i>However, in the report, WWF recommended to Tanzania to carry out an Environmental Impact Assessment. The Government of Tanzania commissioned The Environmental and Social Impact Assessment (ESIA) as per Legal and International Standards. The report was completed in May, 2018 and updated in October 2018;</i></p> <p><i>The ESIA report has confirmed that the RHPP is economically viable and the action plan is in place to address some identified environmental concerns. The Government of Tanzania is also engaging with UNESCO to work on the requested Strategic Environmental Assessment (SEA).</i></p> <p><i>It should also be noted that the project area to be utilized by the RHPP is merely 3.62% of the entire Selous Game Reserve. Therefore, geographically, the majority of the Selous Game Reserve remains ecologically conserved to maintain its status quo as a World Heritage Site.</i></p>

S/N	ISSUE	RESPONSES
2.	<p><i>WWF concerns as per statement made on 13th December, 2018 in which they insisted on legal process to be followed and thorough examination of available alternative sources to be considered.</i></p>	<p><i>On the legal aspects, the Government of Tanzania has complied with section 86 (1) of the Environmental Management Act of 2004 which requires ESIA to be conducted. Furthermore, the Government has also complied with section 104(1) of the same Act that requires SEA to be conducted.</i></p> <p><i>Moreover, the Government has conducted a thorough analysis on why the RHPP is important for a wider development of the country. The project is also aligned to the Energy Policy of 2015, and is listed among highly prioritized national strategic projects in the Five Year Development Plan-II (2016/17-2020/21, FYDP-II);</i></p> <p><i>In addition, the RHPP has been chosen for its cost effectiveness as Hydropower production is the cheapest and also the project has high potential for power production (2,115MW). Cost comparisons among different powers sources is detailed hereunder.</i></p>
3.	<p><i>Deforestation of reservoir and other project development areas.</i></p>	<p><i>The Government reiterates that the ESIA report has confirmed that the RHPP is environmentally viable and an action plan is in place to address the identified concerns.</i></p> <p><i>Regarding deforestation, the ESIA report recommended Tanzania Forest Services (TFS) to coordinate harvesting woody biomass, while ensuring minimum damage to the reservoir environments based on a clear Harvesting Management Plan.</i></p> <p><i>However, it should be noted that the total forestry area to be cleared for the RHPP is barely 1.8%</i></p>
4.	<p><i>UNESCO World Heritage Committee requests Tanzania to fully assess the cumulative impacts of the Stiegler's Gorge hydropower project on the property and its wider landscape through a Strategic Environmental Assessment (SEA).</i></p>	<p><i>The Government of Tanzania insists that the designs for constructing the Dam were completed in 1980 before the Selous Game Reserve was declared World's Heritage Site; It was two years later, in 1982 the declaration was made;</i></p> <p><i>Meanwhile, Tanzania adopted UNESCO's recommendations and has already initiated a Strategic Environmental Assessment (SEA), the move has been commended by World Wildlife Fund (WWF).</i></p> <p><i>The Government of Tanzania has already submitted ESIA report to UNESCO.</i></p>

## 4.0 CONCLUSION

*The facts stated above, surmises one simple truth; there will be a range of accrued benefits if the project is implemented than not. The envisaged multiplier effects include:*

*Increasing electricity supply to power up Tanzania's rapidly industrialized economy, creating employment opportunities, boosting tourism industry and changing lives of the people within and outside the project especially downstream the project.*

*Irrigated farming schemes, fishing, aqua-culture and assorted economic activities would sustainably reduce the vulnerabilities of most surrounding villagers, helping them to negate poverty by creating wealth.*

*The RHPP is not potential for Tanzanians alone; the neighboring countries are likely to benefit from the surplus power that will be shared with them.*

*While it is accepted that all human development across history affected environment and mitigations were implemented to reduce the level of impact, this project has greatly considered stern measures to minimize any negative effects. It has installed a commitment to sustain the ecology of the tiny bit of land that is dedicated for human development.*

*Upon completion and commissioning, the project is expected to lower power tariffs especially in the households. Power production analytics shown herein below favours the RHPP.:*



# Comparative Analysis for Unit Costs of Electricity Production



**36** TZS

Electricity production cost using **Water.**



**65** TZS

Electricity production cost using **Nuclear**



**103.05** TZS

Electricity production cost using **Wind**



**103.05** TZS

Electricity production cost using **Solar system**



**118** TZS

Electricity production cost using **Coal**



**114.50** TZS

Electricity production cost using **Geo-thermal**



**147** TZS

Electricity production cost using **Thermal**



**546** TZS

Electricity production cost using **Fuel**



THE JOURNEY HAS STARTED

# RUFIJI HYDROPOWER PROJECT

2019.

