

UGANDA & NORWAY

# 30 Years of Energy Sector Cooperation with Uganda



2023

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# 1 Preface

Uganda is rich in fossil and renewable energy resources, as hydropower, biomass, solar energy, petroleum and gas. One main challenge is to transform these vast resources into electricity, as a key enabler to support economic growth and development in a modern society. Another, to build structures for the Ugandan energy sector to become a reliable export income earner.

Norway has a long history in efficient development of the hydropower, oil and gas resources, and to build transmission lines to provide electricity to every part of our long, sometime inaccessible country.

The energy cooperation between Uganda and Norway started in the 1990s and has since then been one of the most important parts of the cooperation between our two countries. Based on our more than 100 years' experience in hydro-power production, Norway continues to support Uganda by funding feasibility studies, investment subsidies to hydropower plants, improving qualities of generation facilities, capacity building, etc. Hydropower plants are at present providing around 80% of the electricity to the country.

As of today, Uganda is self-sufficient in power production. One main challenge is transmission. The ambition of Uganda is to reach electricity access for the entire population by 2040. Since 2000 around 4 million more people gained access to electricity, to a national electricity access rate of about 31% in 2022. This is a huge achievement, still with challenges ahead. Electricity access is highly relevant, also from an environmental and health point of view. With charcoal as the main and most affordable source of energy in many areas of the country, deforestation is a rapidly increasing challenge. Norway supports Uganda in a substantial number of fields to mitigate these challenges.

Following the discovery of oil reserves in Western Uganda, the cooperation between our two countries from the mid-90s also included petroleum-related activities, mainly through institution building. After the discovery of onshore commercial oil reserves in the Lake Albert area in 2006, this cooperation shifted gear. Based on the successful Norwegian experience, support is provided to Uganda through the Oil for Development program. This cooperation is not focused on oil exploration. The objective has been to assist Uganda in building competence and structures which are crucial for a newcomer, in order to ensure sustainable management at home and the ability to promote and defend national interests on a highly professional international arena abroad.

The export of oil and electricity could provide large revenues to the Ugandan economy. To that effect, the Norwegian support has also been focused on establishing financial rules and regulations for the management of this new wealth, including the development of a fiscal rule, measures to combat corruption and capacity building on investment, tax and audit.

To provide the Ugandan Government with a reliable and comprehensive basis for strategy development and decision making in the energy sector, Norway is funding a situation analysis of Uganda's Energy Policy. The analysis is carried out by the International Energy Agency (IEA). For Uganda, reputable, accurate and reliable energy data from a globally trusted source, might be a first step for reorganizing its energy sector, as well as providing a stepping-stone for accessing investment.

The development of sustainable management systems, environment protection, sound fiscal policies, investment strategies and financial regulations are crucial elements of the Norwegian success story. Furthermore, wise and courageous policy decisions have ensured that the earnings from our energy adventure benefits the Norwegian population, now and in the future. We are happy to share our experience in this important area, and wish Uganda all the best in its continued development of the energy sector. As for Norway, we hope it will become a vehicle for transformation of this beautiful country into a modern, prosperous and inclusive economy, to the benefit of all Ugandans.



Elin Østebø Johansen,  
Ambassador of Norway to Uganda

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## 1.1 Introduction to the Report

This report has been prepared on behalf of the Royal Norwegian Embassy in Kampala. The purpose is to provide a summarized overview of the Norwegian energy cooperation with Uganda, to communicate the main results and experience, and to serve as historical documentation.

This report is not a formal review nor an evaluation. It presents a condensed fact-based summary of selected parts of the entire energy-related cooperation between Uganda and Norway, a cooperation that is covering many separate agreements.

Regarding activities within renewable energy and electrification, this report serves as an update of achievements after the results well documented in the 2016 Norad-report "25 Years of Energy Sector Cooperation". For Oil for Development and other petroleum-related initiatives, this report covers the cooperation since the mid-1990s.

A listing of persons met and consulted is included. Key reference documents and weblinks as background for this report are listed in the annex.

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L-R: Kjersti Lindoe, Elin Østebø Johansen, Samuel Kajoba

## 2 Executive Summary

The development cooperation between Uganda and Norway scaled up in mid-1990s when the Norwegian Embassy in Kampala was established. The energy sector has been an important part of the cooperation, alongside initiatives on good governance, health, environment, and education.

Norway – Uganda Energy cooperation, since mid-90s has focused on supporting Uganda to reach its policy objectives of increasing power production and increasing access to modern energy services on one hand; and supporting Uganda to achieve the goal of its National Oil and Gas Policy by use of the Norwegian petroleum sector knowledge to develop the capacities of the full range of institutions needed for national management of the petroleum resources. The cooperation is based on Norwegian competence with emphasis on specific areas where Norway could add value.

Overall, Norway has made financial contributions of more than NOK 850 million (close to USD 100 million) towards the development of Uganda's hydropower sector, while the accumulated support to the Petroleum sector over the years is about NOK 385 million (close to USD 40 million).

The cooperation within electricity generation and transmission has focused on improving the regulatory framework, hydropower generation and construction of electricity transmission and distribution lines.

The successful institutional cooperation and peer- to- peer twinning between the Norwegian Water Resource and Energy Directorate (NVE) and Uganda's Electricity Regulation Authority (ERA) made proper use of the Norwegian electricity sector expertise and knowledge. This has resulted in substantial improvements, with an independent Regulator, improved sector planning, and predictability and transparency particularly in licensing and PPA negotiations.

Hydro-power generation support has included the financing of the Feasibility Study for Isimba HPP, support towards accelerated investments in renewable power production through GET FiT (facility guarantees and subsidies to Independent Power Producers), and financial/ technical support to Uganda Electricity Generation Company (UEGCL) to strengthen its capacity to manage its two large dams, Isimba and Karuma.

Electricity transmission and distribution infrastructure is one of Uganda's main challenges and Norway has provided grants for the construction of 225 km Nkenda – Fort Portal - Hoima high voltage transmission line, as well as Feasibility Studies for Hoima – Kafu, and Mirama – Kikagati – Nsongezi transmission lines. Norway has also worked with NELSAP on regional power transmission infrastructure such as the Uganda - DRC regional transmission line. For rural electrification, Norway has provided financing for the construction of more than 2000 km of low and medium voltage power distribution lines as well as at least 35000 connections covering rural households, small businesses and public facilities.

To increase power production substantially both Norway and Uganda acknowledge the important role the private sector will play. Norway has supported Uganda to ensure the best possible investment climate in the power sector, both through policy dialogue and capacity building initiatives. As a result, private investments have contributed towards increasing power production, bringing much needed investment capital, technology and competence. Norway's Scatec is a majority investor in Bujagali Hydro Power Plant, leading the way for other Norwegian smaller Independent Power Producers. Norway has also contributed to amplify the visibility of Uganda's energy sector through participation at international fora and global energy arenas, such as the ONS in Conference in Stavanger, Norway and IEA organized events.

The cooperation in the petroleum sector also started from the mid-90s. With the discovery of commercial oil reserves in 2006 in the Albertine Graben the Norway/Uganda energy cooperation increased substantially with the launch of the "Oil for Development Programme" (OfD). The aim of the OfD is sharing Norwegian expertise, as well as promoting responsible management of petroleum resources, with focus on transparency and accountability.

The Embassy has coordinated the petroleum cooperation activities, closely interacting with Ugandan partners, including Civil Society Organizations (CSOs).

The objective of the OfD Programme in Uganda was to support Uganda in achieving its National Oil and Gas Policy Objective which is stated as: "to use the country's oil and gas resources to contribute to early achievement of poverty eradication and creating lasting value to society". This was elaborated further to mean that petroleum resources are used in an economic, socially and environmentally sustainable manner to meet the needs of the present and future generations. The program targeted specific interventions towards environment management, management of petroleum revenues, management of the petroleum resources and capacity building on safety.

The long-term Norwegian commitment to support Uganda has been important in developing the institutional framework and capacities of the full range of institutions and personnel needed for national management of the petroleum sector. The approach used has made extensive use of the Norwegian petroleum sector knowledge, and the flexibility in the assistance has allowed the Programme to respond to Uganda specific demands.

Achievements, besides capacity development for state institutions and personnel relevant for the petroleum sector, include a full range of policy, legal and regulatory instruments necessary for sustainable management of the petroleum sector. These include the National Oil and Gas Policy; the Petroleum upstream and midstream laws; Public Finance Management Act 2015; the Environment Management Act; as well as a Model Production Sharing Agreement, and a Model Joint Operating Agreements.

Other tools or instruments developed for sustainable management of the petroleum sector include: the Strategic Environmental Assessment for the Albertine Graben; Standards and Regulations relating to environment and biodiversity protection; Environmental Baseline Studies and Management Plans for protected areas; Sensitivity Atlas for the Albertine Graben; and a Framework for Management of Hazardous Waste from oil and gas activities.

Other areas of energy cooperation have included higher education and research. The cooperation has supported many Ugandans with education up to PhD-level in energy, both from a technological, financial, environmental or human angle. Documentation is available, as research papers and other presentations.

As Uganda strives to achieve its policy goals on energy production, including access to affordable energy for all, quality data is increasingly becoming important for evidence-based policy making. This is also the case for attracting private capital to the energy sector. To this end, the International Energy Agency (IEA) with support from Norway is currently working with the Government of Uganda to prepare a country specific report and reputable energy baseline data. This will provide stakeholders including potential investors with the first port of call for all national energy data.

### 3 Energy Status & Norwegian Support

The below table summarizes key elements of the energy situation of Uganda in 2023 compared to 1990s, and the key Norwegian contribution for each topic.

| Uganda 1990s – 2023  | Norwegian support & contribution   |
|--|--|
| The regulation of the energy sector is professionalized, and more attractive to private investors in energy production. ERA 2018–2022 awarded Africa's best electricity regulator by African Development Bank. | GoU with RNE-support in 2022 engaged IEA to establish a reliable fact-based energy overview of Uganda, as basis for the coming integrated energy resource master plan. Twinning between ERA & NVE from 1997-2004 & 2021-2024 supported the making of the legal framework for ERA, and for ERA to reach its aim "Safe, efficient, reliable & sustainable electricity supply in Uganda". |
| 2023 Petroleum Authority of Uganda (PAU) awarded best petroleum regulator in Sub-Saharan Africa, at the Annual Sub-Saharan Africa International Petroleum Exhibition and Conference (SAIPEC).                  | PAU is a statutory body established in 2015. OfD has supported the establishment and development of PAU, mandated to monitor and regulate exploration, development, production, refining, gas conversion, transportation and storage of petroleum in Uganda.   |
| Electricity Production increased from 600 GWh/y to 5000 GWh/y, (+6,3 % p.a.). This includes hydropower (82% of the mix), bagasse, and thermal  | Feasibility studies, planning and investment subsidies to large and small powerplants, improving technical, environmental and social quality of the generation facilities, and UEGCL capacity building   |
| Energy Access increased from 5% to 31% of the population   | Supported household's and refugee settlement's electrification, providing more than 30000 end-users (families & SMEs) with grid electricity. Supported Rural Electrification Agency (now Rural Electrification Programme). Recently electrified 555 families in refugee settlements and host communities in Northern Uganda in 2023.   |
| Construction of more than 57000 km of transmission and distribution power lines, of which 94% are distribution.  | Supported feasibility studies and construction of more than 2000 km power lines – notably the 226 km Hoima Nkenda 220kV transmission line bringing stable power to Hoima and Rwenzori sub-regions and evacuating power from 4 IPPs in the area.  |
| Grid network losses reduced from 50% to 20%  | Twinning arrangement between UETCL & Statnett from 2006-2014, supported UETCL to be more efficient, ready to fill role as single buyer of electricity, and Transmission System Operator (TSO).   |
| Oil explorations completed in 1990s showing very promising indications of oil reserves in Albertine Graben   | Petroleum cooperation with Petrad since the mid-90s, provided capacity building on relevant topics, such as exploration analyses, planning, safety, contractual agreements and good governance.  |

| Uganda 1990s – 2023   | Norwegian support & contribution   |
|---|--|
| In 2006, Uganda discovered commercial oil and gas reserves in Albertine Graben, proven oil and gas reserves estimated at 6.5 billion barrels with recoverable reserves estimated at 1.1 to 1.4 billion barrels. | In 2005 the support to petroleum sector intensified with the aim of strengthening the upstream petroleum sector in Uganda. In 2009, the Oil for Development programme in Uganda started, with the aim of reducing poverty by building capacity for responsible management of petroleum resources, with the focus on transparency and measures to combat corruption.                        |
| The Government is developing a 60,000 barrels per day oil refinery at Kabaale Industrial Park, Hoima. FID for refinery expected this year with a view to commission the refinery in 2027                        | Supported a feasibility study which confirmed the viability of the development of a 60,000 barrels per day refinery.   |
| Uganda is getting ready to produce and export oil from 2025   | Norway has supported Uganda with the development of its petroleum sector. The support has been targeted towards resource management, environmental management, revenue management and safety in the sector. CSOs have also been systematically involved and supported to improve transparency and good governance.   |
| Construction of onshore oil production facilities are planned and ongoing, including the Kingfisher and Tilenga oilfields, the 1400 km EACOP crude oil pipeline to Tanzania and a 60000 bpd oil refinery        | OfD has supported a range of environmental preparedness activities and training for relevant public institutions and CSOs. A National Oil Spill Contingency Plan (NOSCP) completed and operationalized. GoU with OfD support established a strong legal, regulatory framework for health & safety in the petroleum sector. Norway supported the feasibility study for the oil refinery.    |
| The Ministry of Energy and Mineral Development plans to develop an integrated energy resource master plan that shall guide developments in Uganda's energy sector.  | IEA, with funding from Norad (2022) is supporting the Government of Uganda to create a data baseline that will be the first port of call for all national energy data and evidence-based policy making. Norway is also supporting the IEA to work with the Ministry of Energy to develop a national energy transition plan that will feed into the integrated energy resource master plan. |

Sources; ERA, IEA, World Bank, UETCL, UEGCL, MEMD PAU, OFD

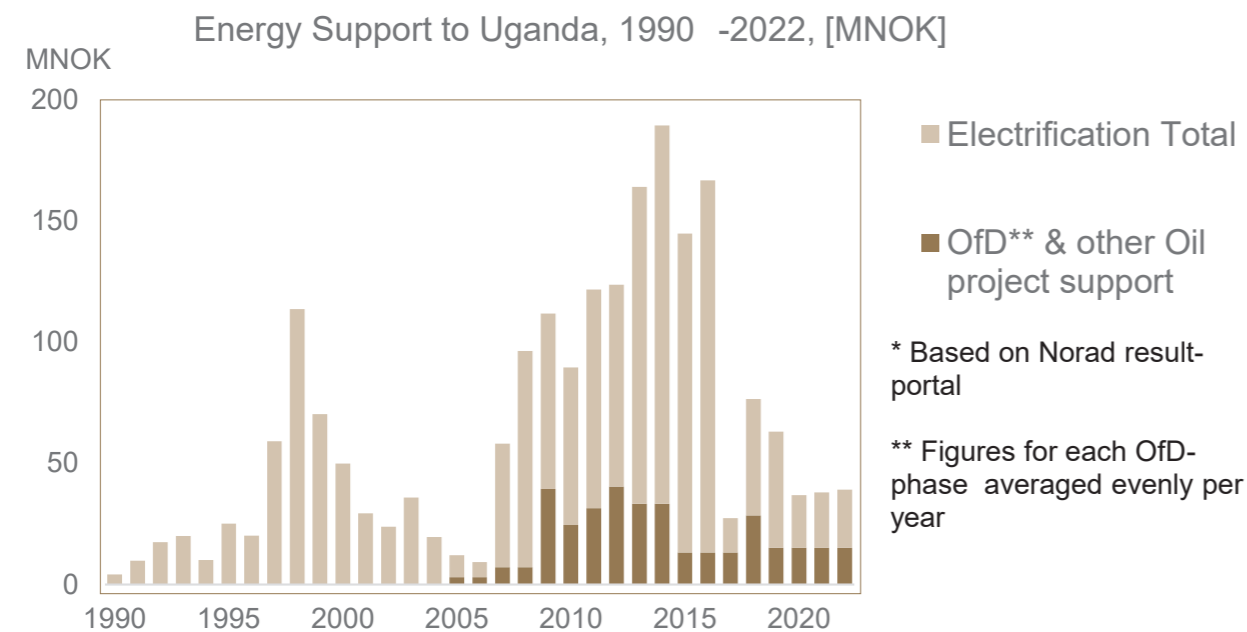
## 4 Norwegian energy funding overview

Norwegian energy topics covered in this report are foremost

- Capacity Building within Energy
- Generation (hydropower), Transmission and Distribution support
- Other energy projects
- Oil & gas related activities
- Oil for Development programme

Total Norwegian funding to Uganda for energy across the above topics amount to almost 1,6 BNOK during 1990 to 2022. Of this the OfD-support, and other oil-related project support was 352 MNOK during 2005 to 2022, i.e. 22% of the total energy support.

The approximate distribution timewise is shown in the below figure.

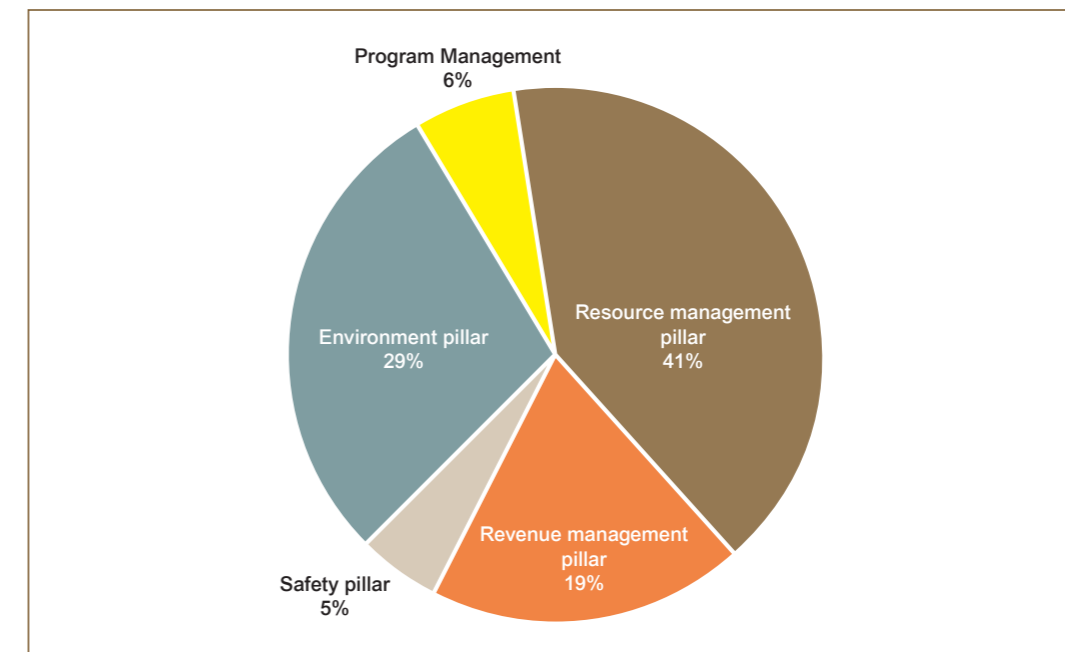


Energy funding overview, Sources: Norad & Norwegian Embassy in Kampala.

Electrification total in the above figure includes Norway's support to generation (mainly hydropower), transmission and distribution of electricity in Uganda and includes our capacity building programmes within the sector as well as other energy projects.

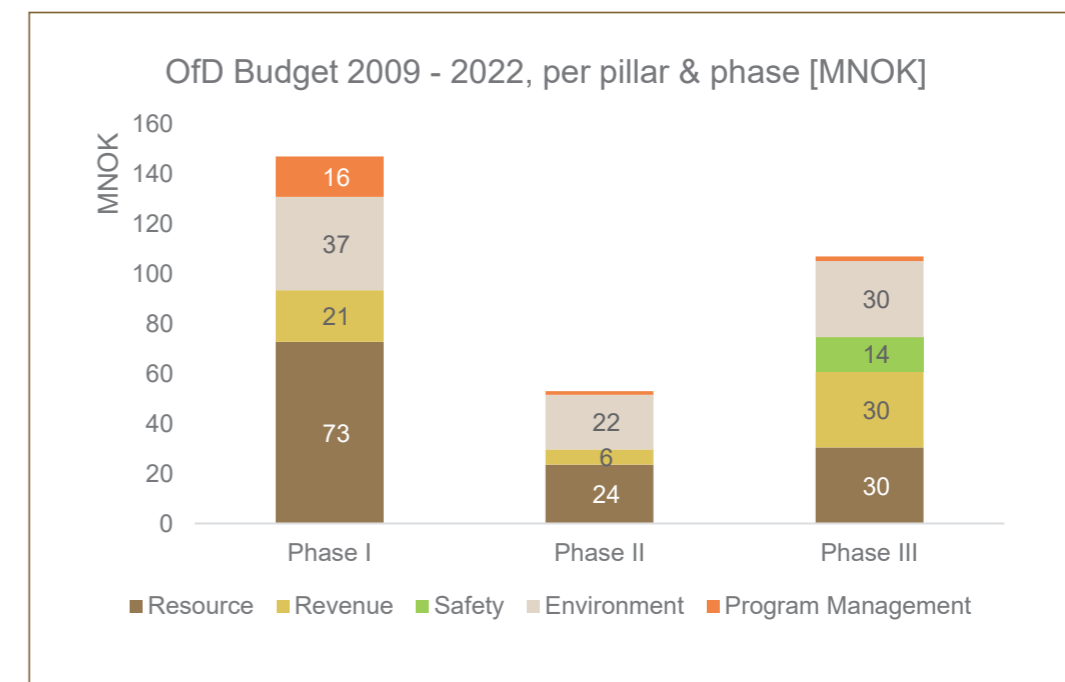
As further described in this report, the Oil for Development programme has defined four distinctive pillars (sub-projects), respectively within the themes of petroleum resource management, revenue management, environment management and (since 2015) safety.

For the overall period 2009 – 2022 the (budgeted) distribution (%) between the pillars has been as shown in the figure below. The pillars of petroleum resource management and environment represent 70% of the total OfD-budget. More information about the achievements of each pillar is provided later in this report.



Source OfD-reports

The progress for petroleum sector in Uganda has taken longer than what was anticipated since 2009. Oil for Development has since 2009 been completed in three phases, with continuity of the 3 first pillars, and addition of the Safety Pillar in phase III.



Source OfD-reports

## 5 Hydropower and Electrification

This chapter summarizes key Norwegian involvement in projects within generation, transmission and distribution of electricity, in addition to capacity building within the key Ugandan energy entities such as ERA, UETCL, UEGCL and REP. Some selected project examples are presented. For further information and details, the reader is referred to the sources referenced.

### 5.1 Electricity Regulation

The cooperation within electricity regulation has been in two separated periods, respectively during 1997-2004 and onward from 2021. The Norwegian partner since 1997 has been the Norwegian regulator, Norwegian Water Resources and Energy Directorate (NVE). ERA was established in 2001, among the Ugandan achievements supported by Norway.

#### Regulatory Cooperation 1997-2004

Ministry of Energy and Mineral Development (MEMD) and NVE in July of 1997 signed an agreement for assistance related to the preparation of enabling legislation, appropriate regulations and recommendations for a suitable institutional set-up. Drafting of an Electricity Act was among the first aims of this programme.

A Government Task Force (GTF) with members from relevant Ministries and institutions was established for the project. An important element in this phase was to balance the attraction for foreign investments in the energy sector while taking care of the interests of the population of Uganda.

An integral part of the first phase was capacity building for the GTF, including interexchange of experiences from energy policy making in other countries including i.a. South Africa, Namibia and Zambia, as well as Nepal.

In 1999, the emphasis of the cooperation was assisting Uganda in implementation of the new Electricity Act which was approved by Ugandan Parliament November 1999.

In 2000, MEMD and NVE initiated institutional cooperation to establish the Electricity Regulatory Authority (ERA) of Uganda to be an efficient and credible regulator.

The cooperation lasted for 3 years, and involved substantial support in addition to a NVE resident adviser to Uganda under this project. The project included assessment of the regulatory framework and needs, training of ERA-personnel and development of legal instruments.

NVE in 2003 also cooperated with Directorate for Water Development (DWD) under the Ministry for Water, Lands and Environment. DWD was establishing an entity to provide licensing of water works. NVE supported with the making of guidelines, good practices and monitoring routines.

By 2004, ERA had developed substantially with a staff of 15-20, and was performing its duties regarding licensing and tariff settings. ERA had also completed i.a. a Primary Grid Code, Quality of Service-code, and Electricity Safety Code.

#### Regulatory Cooperation 2021 – ongoing

A new technical assistance programme was signed in 2021 between ERA and NVE and due to the pandemic, the programme has been extended until 2024.

The cooperation areas are

- **Economical Regulation**
  - Assets register, evaluation and management
  - Economical data, reporting to ERA
- **Technical regulation**
  - Grid Code
  - Technical data, reporting to ERA
- **Environmental and social issues**
  - Environmental Flow
  - Power sector environmental status report
- **Safety of hydropower dams and waterways**
- **Benchmarking, quality and compliance**

#### ERA fact-box

In 2021 ERA, on behalf Uganda's electricity sector, was for the fourth consecutive year awarded as Africa's best regulator, across a number of key metrics, according to the African Development Bank's 2021 Electricity Regulatory Index. The Electricity Regulatory Index is an annual AfDB report, covering 43 African countries, assessing their impact on the performance of electricity sectors.

Among the 2021 report's key highlights are that regulatory independence is one sub-indicator where African countries have room to improve: in 93% of sampled countries, governments, and stakeholders exercise influence over regulatory authorities. In terms of regulatory substance, participating countries scored lowest on adequacy of their tariff setting and frameworks, as well as licensing frameworks when compared with best practice.

Wale Shonibare, African Development Bank Director for Energy Financial Solutions, Policy and Regulation, commended the top-performing country.

***“Uganda topping the rankings consecutively for four years comes as no surprise to many, as the regulator spends significant time on consultation and analysis, including regulatory impact assessments of key interventions and follow-through to ensure full implementation.”***

Wale Shonibare, African Development Bank Director



## 5.2 Energy Generation

Uganda Electricity Generation Company Limited (UEGCL) was incorporated in March 2001 as a public limited liability company, owned by GoU.

From 2002, the main role of UEGCL was to oversee the concession of two government-owned hydropower plants, Nalubaale and Kiira, which have now been returned to the company upon expiry of the concession in 2022. Today, UEGCL's mandate has been expanded to include establishment, acquisition, maintenance and operation of electricity generation facilities, including Isimba HPP (183 MW) and Karuma HPP (600 MW) near completion.

In 2016, the Embassy and UEGCL entered an agreement of about 14.9 MNOK for capacity building of UEGCL staff. The key topics included in the training (2016-2018) were

- Hydropower & Environmental issues
- Dam Safety Principles
- Financing modelling, PPA structuring & Negotiations
- Contract negotiations and management
- Safety, health and environmental aspects during development and operation of hydropower plants
- Benchmarking hydropower

In 2018 the Embassy and UEGCL signed another agreement, worth 84.4 MNOK support to UEGCL Hydropower Operation and Maintenance Excellence (HOME) Programme, with International Centre for Hydropower (ICH) of Norway as a partner.

The expected impact of this initiative is improved socio-economic development in Uganda through higher availability and access to electricity. The expected effects are having UEGCL established as a professional operator of its large hydropower plants, and increased competence level of UEGCL operation and maintenance staff.



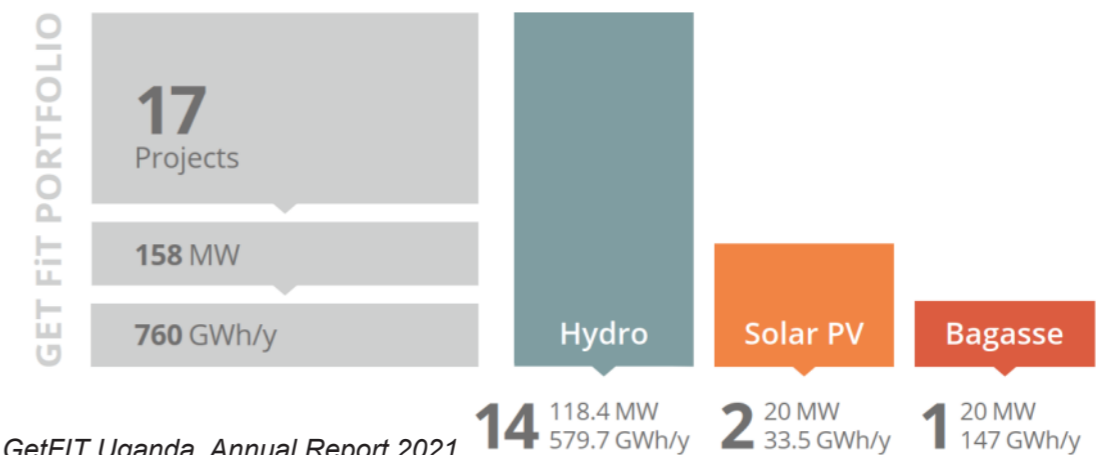
The UEGCL training centre supported by Norway

## 5.3 Independent Power Producers

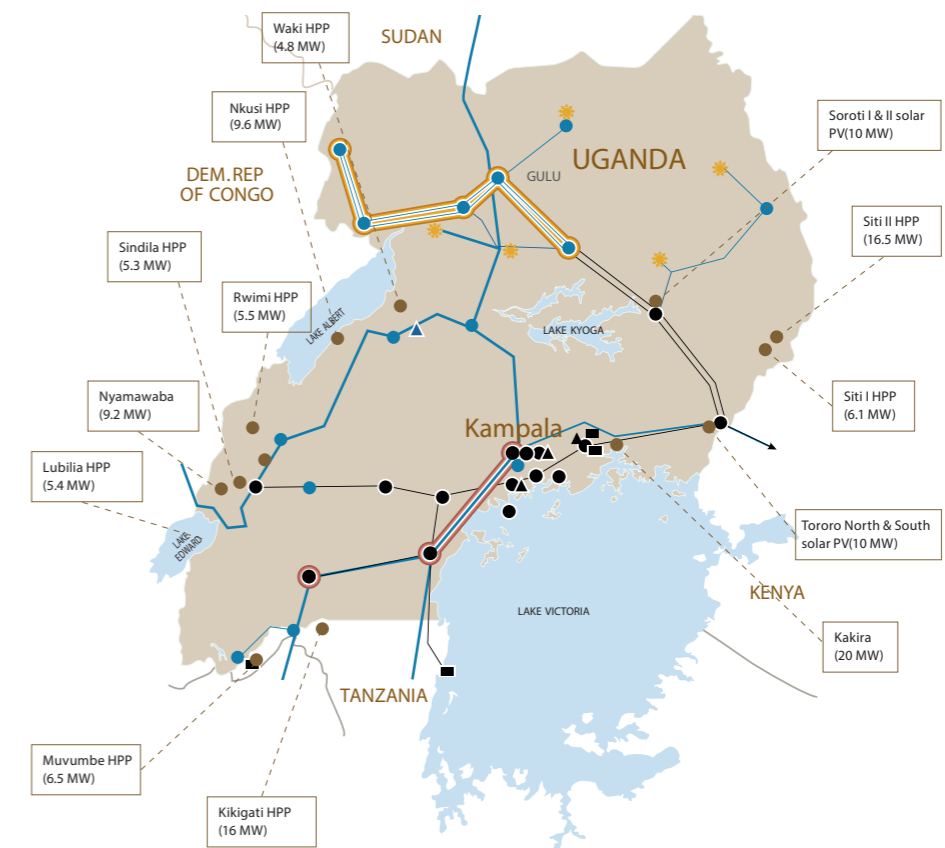
Norway has since 1990 supported a range of independent power producers (IPPs), as documented in the 2016 Norad-report "25 Years of Energy Sector Cooperation". A key element in these initiatives is to attract private investments into the electricity sector of Uganda.

Since 2013, an important program supporting IPPs funded by Norway is the GET FiT programme, which provides subsidies in order to attract foreign investors to invest in the sector. Norway is a joint donor together with the UK and Germany, and Norway contributed 17% to the total GET FiT budget of \$100m.

The key portfolio figures of GET FiT Uganda to date are shown below.



Source: GetFIT Uganda, Annual Report 2021



GET FiT is supporting the development of multiple small power projects throughout Uganda

### 5.3.1 Nkusi Small Hydropower

The Norwegian company Flowpower AS planned, developed and implemented the 9,6 MW Nkusi small hydropower plant (SHP), a run-of-river hydropower plant in the Kibaale and Hoima Districts in Western Uganda. It was successfully commissioned in 2018, and in 2020 and 2021 consistently produced 77 GWh/yr, the largest contribution from a single small hydropower project within the portfolio of GetFIT.

The project has contributed to the increased availability of energy in the Hoima and Fort Portal regions. The project also included a well-solved challenge of the first rock tunnel in Uganda.

### 5.3.2 Waki Small Hydropower

This 4,8 MW run-off-river hydropower plant in Hoima and Buliisa Districts in Western Uganda is owned by Hydromaxx, and has been operational since December 2018. Despite 99% availability for the SHP in 2021 the grid availability was only 77%. Still the project delivered 18,3 GWh electricity to the grid in 2021.

Nkusi Small Hydropower Plant

## 5.4 Transmission

Norway has financed multiple studies, design and construction of electricity lines and substations since the early 2000s, working with Uganda Electricity Transmission Company (UETCL). Some of the major achievements include the financing of the construction of 225 km Nkenda - Fort Portal - Hoima high voltage transmission line, which was commissioned in 2019/2020. Support to other major projects critical for strengthening Uganda's national grid include financing of feasibility studies for Hoima – Kafu transmission line (90 km) and Karuma – Kampala Transmission line (300 km).

Technical cooperation has also been an important component of Norway's support to Uganda's electricity grid, and as part of Norway's assistance, experts from the Norwegian grid operator Statnett had a long standing capacity building partnership with UETCL until 2014. This twinning and technical cooperation enabled UETCL to fulfill its role as the Ugandan Single Buyer and Transmission System Operator (TSO). Norwegian financial contributions in this regard amounted to at least NOK 350 million (approximately USD 50 million).



Nkenda - Fort Portal - Hoima high voltage transmission line

## 5.5 Rural Electrification

Norway has since 2010 supported 8 completed electrification projects, as documented in the 2016 Norad-report “25 Years of Energy Sector Cooperation”.

The key Ugandan entity has been Rural Electrification Agency (REA), recently re-organized to Rural Electrification Programme (REP), within the Ministry of Energy and Mineral Development (MEMD).

The most recent project relates to financing the electrification of refugee settlements & refugee hosting communities in Northern Uganda – Lobule in Koboko, Bidibidi in Yumbe & Pagirinya in Adjumani districts & nodding disease treatment centre in Kitgum district. The project is being undertaken with a total budget of 42.5 MNOK from 2018 – 2023.

Highlights of the project are presented below.

| Expected Results   | Target Indicator  | Achievements   |
|--|---|--|
| Increased electricity access for people living in & around refugee settlements in Koboko, Yumbe & Adjumani districts | 300 connections   | 555 connections  |
| Electrification of refugee settlements in Koboko, Yumbe & Adjumani districts   | 87 km MV power lines<br>15 km LV networks<br>15 distribution transformers | 75.09 km MV power lines<br>93.4 km LV networks<br>38 distribution transformers |
| Electrification of Nodding disease treatment centre in Kitgum district   | 1 distribution transformer installed                                      | 1 distribution transformer installed   |



Photo Credit: Rural Electrification Program

## 5.6 Norfund Investments in Uganda's Energy sector

Norfund is the Norwegian Investment Fund for developing countries, which is owned and funded by the Norwegian Government. Their role is to assist in building sustainable businesses and industries in developing countries by providing equity capital and other risk capital.

In Uganda, Norfund's portfolio is approximately USD 185 million, with USD 60 million invested in renewable energy. The table below highlights the investments that make up this portfolio in Uganda.

### Norfund Investments in Uganda at a Glance (USD)

| Project   | Sector                | Instrument | Committed Portfolio |
|---|-----------------------|------------|---------------------|
| Bujagali Energy Limited (through Klinchenberg)                              | Hydropower            | Equity     | 47 074 794          |
| Serengeti Energy (Mpanga, Nyamwamba 1 & Nyamwamba 2 mini-hydropower plants) | Hydropower            | Loans      | 10 765 459          |
| Rwimi (5.5MW mini-hydropower project)                                       | Hydropower            | Loans      | 1 152 492           |
| Evolution Fund II (support to D.light Uganda)                               | Energy                | Funds      | 136 305             |
| responsAbility ACPF   | Renewable energy fund | Funds      | 744 990             |

Norfund data, 2023

To date, Norfund's largest investment in Uganda is in the Bujagali Hydropower Plant, providing an equity investment worth over USD 47 million. Other mini-hydropower plants in their portfolio include Mpanga, Nyamwamba 1, Nyamwamba 2 and Rwimi, all of which were supported through the provision of debt.

Grants have also been provided to private sector companies like d.light and M-Kopa, who distribute solar home systems to clients using the pay-as-you-go model.



Source : <https://www.bujagali-energy.com/>

### 5.6.1 Bujagali Hydropower Plant

Bujagali's 250 MW power plant is Uganda's second largest electricity generation facility managed by Bujagali Energy Limited, a unique public-private partnership owned by Scatec ASA Norway, Bujagali Holdings Power Company Ltd (Aga Khan Fund for Economic Development) and the Government of Uganda.

When Bujagali was commissioned in October 2012, it resolved an electricity generation crisis and was widely hailed as a successful example of a public-private partnership power project.

Norway's interest in this power plant came from the SN Power acquisition in 2018 of the project shareholdings of Sithe Global US, the initial project developer. SN Power was at that time fully owned by Norfund, the Government-owned Norwegian Investment Fund for developing countries.

In 2020, Scatec ASA Norway acquired SN Power.

***“Based on our more than 100 years’ experience in hydro-power production, Norway continues to support Uganda by funding feasibility studies, investment subsidies to hydropower plants, improving qualities of generation facilities and capacity building. Hydropower plants are at present providing around 80% of the electricity to the country.”***

Elin Østebø Johansen, Ambassador of Norway to Uganda



Oil rig at Kingfisher development project

## 6 Management of Oil Resources

This chapter summarizes key Norwegian involvement in projects within the Petroleum sector of Uganda.

The first cooperation related to petroleum was initiated in the 1980s, through Norad scholarships within geoscience engineering, both for studying at NTH (now NTNU) in Trondheim, and elsewhere.

Petrad started as part of the Norwegian Petroleum Directorate in 1989, and was in 1994 transformed to a foundation, with the aim to provide activities to build competence in petroleum management, primarily for participants from developing countries.

In 2006 the discovery of large onshore oil reserves in the Lake Albert area in Western Uganda was a rational basis for further expansion of the energy cooperation, to broaden the sharing of Norwegian petroleum-sector experiences.

Norwegian support to the petroleum sector of Uganda was intensified in the period 2006 - 2009, with a range of extensive initiatives supporting resource exploration.

The Oil for Development program was launched in Uganda in 2009, as described in the sub-chapter below.

### 6.1 Production Status

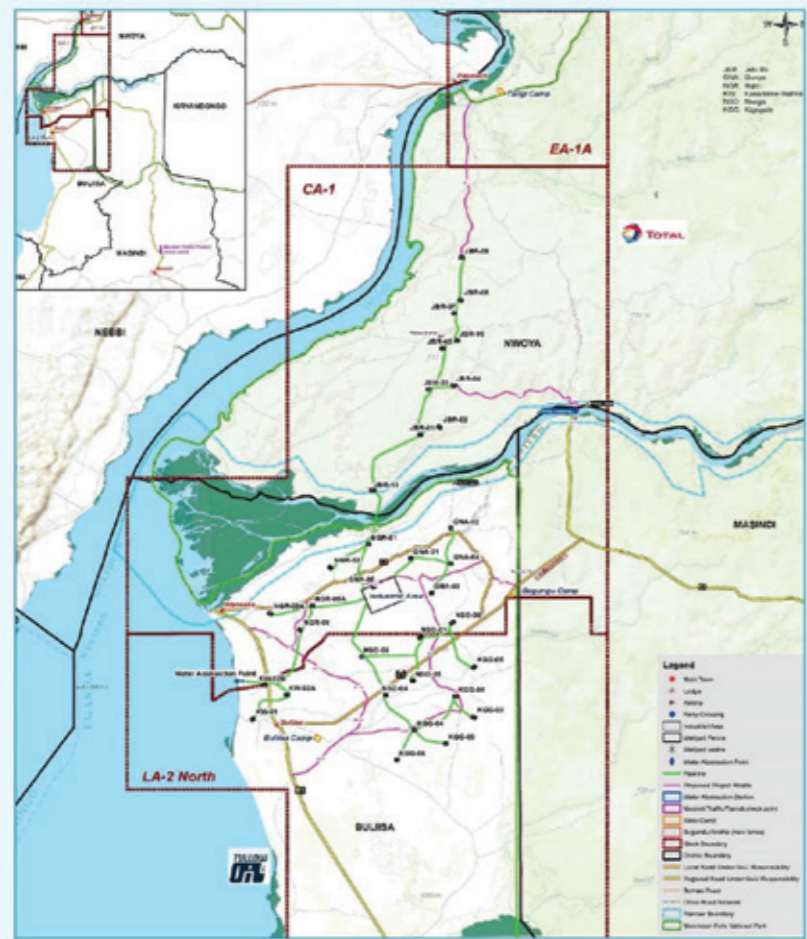
The oil production from Lake Albert area is planned for 2025 from the fields Tilenga and Kingfisher, both along Lake Albert. Estimated production capacities are 190000 and 40000 barrels of oil per day, respectively.

The oil exports will be through the 1400 km EACOP pipeline via Tanzania.

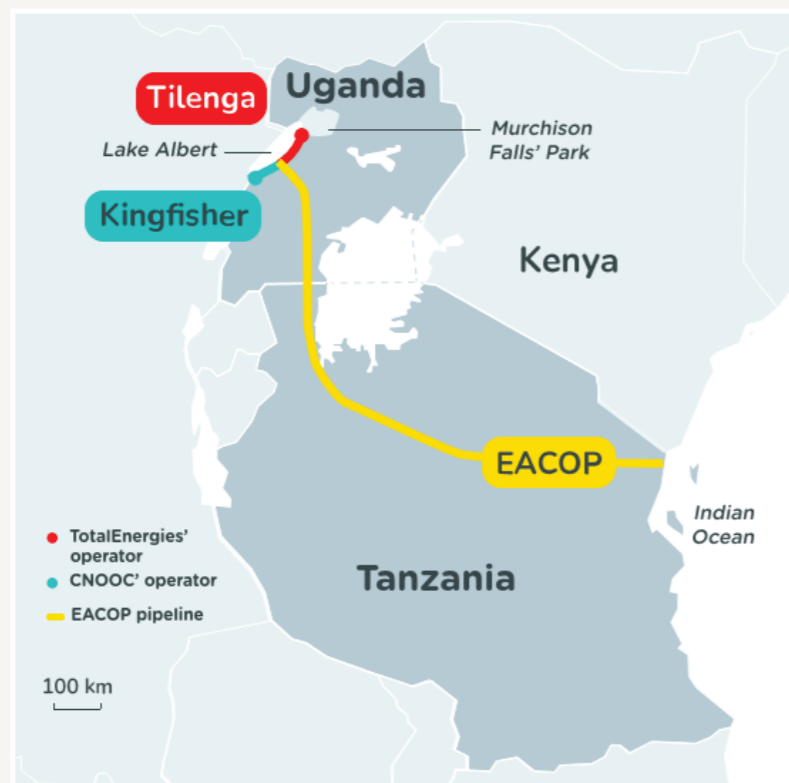
Overview-maps of Kingfisher and Tilenga are shown below.



Kingfisher development project



Tilenga Development Area



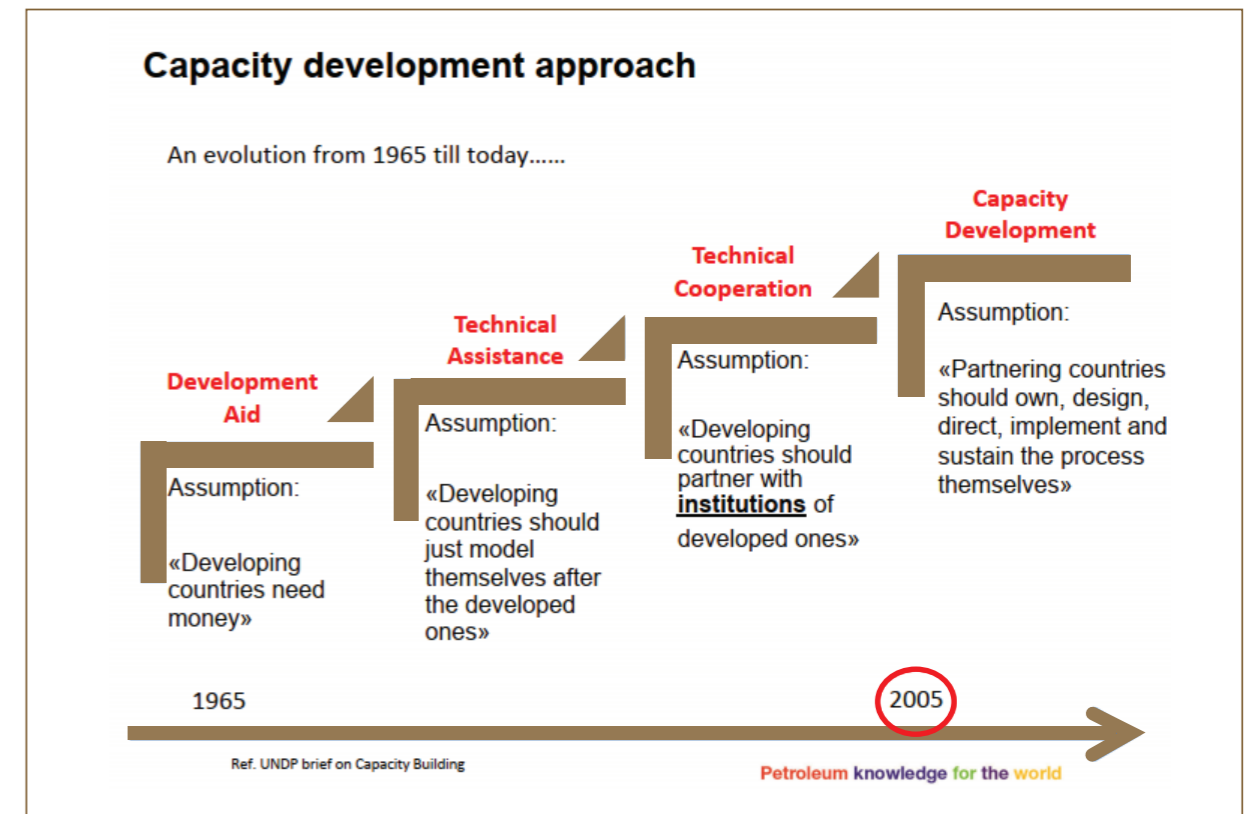
The EACOP-pipeline of 1400 km is planned along the route between Hoima to Tanga

## 6.2 Capacity Building in the Oil Sector

The cooperation from the mid-90s included petroleum-related activities, foremost via capacity-building through Petrad, a Norwegian foundation with the aim to provide activities to build competence in petroleum management, primarily for participants from developing countries.

One of the first challenges supported by Petrad was training in contract negotiations, which is very useful for Uganda to terminate an unfortunate contract related to Albertine Graben.

Through financing from Norad since the mid-1990s, Petrad was central in coordination of professional training programs, across a range of training themes related to petroleum. The principles behind the Petrad involvement in capacity development is visualized in the chart below, in which the partnering countries should be fully in charge of their own processes.



Ugandan professionals within petroleum-relevant subjects were among early participants to Petrad training, both in Norway, Uganda and elsewhere.

In 1995 Petrad held the first seminar in Uganda for Government institutions, to inform about the ongoing work to assess the petroleum potential of Albertine Graben.

The seminar sparked a close and long cooperation, and was followed by a range of various specialist support within themes as geoscientific techniques in seismic data acquisition, processing and interpretation, monitoring compliance, contract negotiations, petroleum legislation, operations management, economics and accounting, and institutional organizational developments.

Since 1991, at least 40 participants from Uganda joined Petrad for their various 8-week courses in Stavanger, Norway.

## 6.3 Oil for Development Programme

The Ugandan oil discoveries coincided perfectly with the 2005 Norwegian establishment of the global programme “Oil for Development” (OfD), launched with the aim to reduce poverty by promoting responsible management of petroleum resources, including a focus on transparency and accountability.

### The objectives of the OfD programme are:

- To support the establishment of a legal and regulatory framework for the petroleum sector in Uganda
- To support Ugandan Ministries, Departments and Agencies to manage the petroleum sector according to their mandate.
- To ensure transparency and accountability in the management of the petroleum sector.

Since 2006 the Norwegian Embassy in Kampala has been coordinating the Ugandan Oil for Development activities, in close interaction with key Ugandan partners, foremost:

- Ministry of Energy and Mineral Development (MEMD),
- Ministry of Finance, Planning and Economic Development (MFPED),
- Ministry of Justice and Constitutional Affairs (MJCA),
- Ministry of Gender, Labour and Social Development, (MGLSD),
- Ministry of Lands Housing and Urban Development (MLHUD),
- Ministry of Water and Environment (MWE),
- Associated Directorates and Authorities such as Uganda Revenue Authority, Uganda Bureau of Statistics, National Environment Management Authority, Uganda Wildlife Authority among others.

The Norwegian Institutions involved are:

- Norwegian Ministry of Foreign Affairs/ Royal Norwegian Embassy in Kampala/ Norwegian Agency for Development Cooperation (Norad)
- Ministry of Petroleum and Energy/Norwegian Petroleum Directorate (NPD)
- Petroleum Safety Authority, (PSA) Norway
- Ministry of Climate and Environment/Norwegian Environment Agency (NEA)
- Ministry of Transportation and Communication/Norwegian Coastal Administration (NCA)
- Ministry of Finance/Statistics Norway (SSB)/Oil Taxation Office (OTO) Norway

The OfD-programme was to be based on a coherent organization and a framework for the petroleum sector. The period of 2006 to 2009 was an inception period of OfD, assessing the needs and preparing for the cooperation. Since 2009 there have been three phases of OfD to date. The total budget for Norway’s support to the petroleum sector in Uganda is NOK 385 million.

The Programme included pillars, covering the topics of:

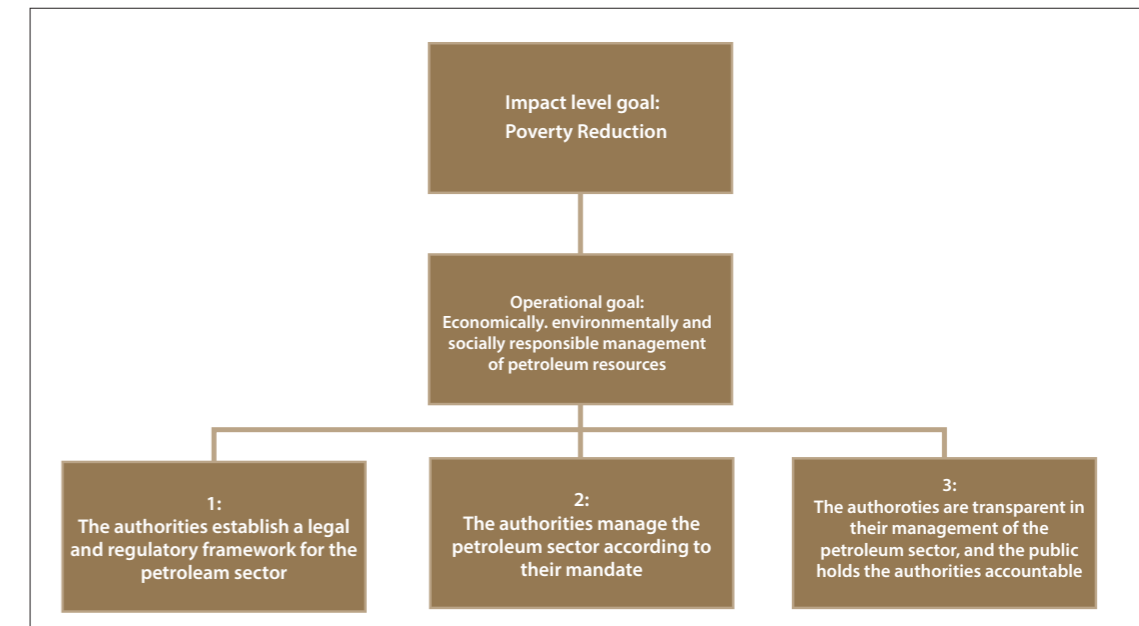
- Petroleum Resources management
- Revenues management
- Environment management
- Safety (introduced in 2015)

In addition, the OfD programme has involved accountability actors such as civil society organizations, parliamentarians and the media. The OfD programme supported Uganda in its preparations to join the Extractive Industries Transparency Initiative (EITI), with the cabinet approving the proposal for Uganda to join the EITI in 2019. Uganda applied and got accepted as an EITI-member in 2020.

The programme model of OfD includes long-term collaboration between the relevant ministries in Norway and Uganda.

The below Theory of Change explains the logic of the OfD Programme in Uganda, i.e the relationship between Programme outcomes and its long-term goal, which is poverty reduction.

Recognizing the limitations of the programme, the purpose of this theory of change is to establish a probable chain of development ultimately leading to the desired results.

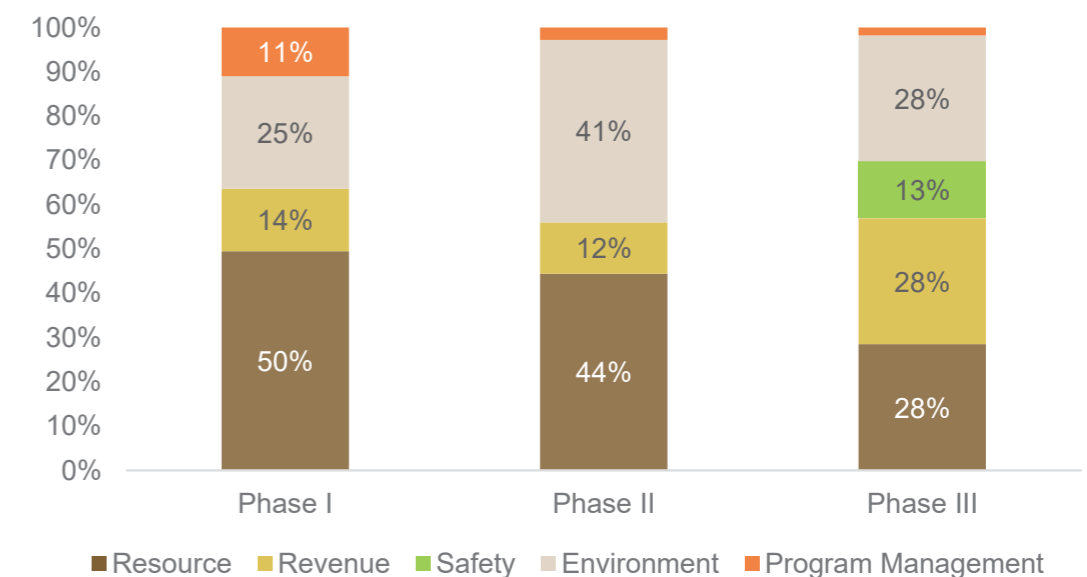


Source, Programme Document OfD, 2018

For each of the three phases of OfD since 2009 there were adjustments in priorities and focus, to maximise the added value of the cooperation according to the needs of Uganda. This transition across phases is visualized in the figure below, showing the relative size (%) of each pillar per phase.

- The Resource pillar was logically the largest pillar in the two first phases.
- The Revenue pillar intensified in the third phase, getting ready for oil production
- The Environment pillar was consistently focused on across the phases
- The Safety pillar was added in third phase, preparing for production
- The Program management was decreasing across the phases

OfD Budget 2009 - 2022, % per pillar per phase



### 6.3.1 Resource Management Pillar

The Resource Management Pillar Programme objective intended “To establish and effectively manage the country’s oil and gas resource potential”. This was one of the earliest Pillars with work starting as early as 2009.

The supported public agencies as participating partners include the Directorate of Petroleum and the Petroleum Authority of Uganda.

The pillar (across phases I-III) identified key components including:

- Pillar Management
- Legal and Regulatory Framework
- Licensing Strategy and Plan
- Monitoring and Supervision
- Institutional Development and Capacity Building
- Data and Record Management
- Resource Assessment
- Midstream Development
- Transparency and Accountability
- Implementation of the Communication Strategy.

#### The Resource Management outcomes have been:

- The Petroleum, Exploration, Development and Production Act 2013.
- The Petroleum Refining, Conversion, Transmission and Midstream Storage Act 2013.
- Review of the Model Production Sharing Agreement and Joint Operating Agreements
- Capacity building of key staff in the key institutions towards the undertaking of the first licensing round and the production phase.
- The first licensing round completed.
- East African Crude Oil Pipeline (EACOP) agreements reviewed.
- A model Joint Operating Agreement (JOA)/Joint Venture Agreement (JVA) finalized.

### 6.3.2 Revenue Management Pillar

The Revenue Management Pillar Programme objective intended “To ensure collection of the right revenues and use them to create lasting value for the entire nation”. Work under the Revenue Pillar started in 2009, and was intensified since 2018.

The Revenue Management Pillar has four public agencies as participating partners including the Ministry of Finance, Planning and Economic Development (MFPED) as the lead institution, the Uganda Revenue Authority (URA), the Bank of Uganda (BoU) and the Uganda Bureau of Statistics (UBOS).

The Programme document identified three components under this pillar including:

- the Economic and Legal Framework component,
- the Data and Statistics component and,
- the Pillar Management component.

In 2018 (phase III), the working relationship and coordination under the Revenue Management Pillar was strengthened with cooperation on tax capacity building and collection and usage of oil statistics.

#### The Revenue Management outcomes have been:

- The Public Finance Management Act, 2015.
- A Petroleum Sector Economic Model (PSE Model) developed.
- National Accounts to capture oil and gas investments developed as a first step to establish a GDP that includes the petroleum sector.
- A fiscal framework that is sustainable, credible and consistent with macroeconomic stability amidst oil revenue flows including the Fiscal Rule and the updated Charter of Fiscal Responsibility.
- Strong capacity in monitoring and assessing the impact of the petroleum sector on the economy.
- MFPED and Bank of Uganda (BoU) improved ability to monitor and manage the Petroleum Revenue Investment Reserve (PRIR) in line with the Public Finance Management (PFM) Act, 2015.
- Improved capacity of URA to conduct tax audits of upstream oil & gas companies.
- A substantive Statistical Business Register that includes Oil and Gas activities managed by UBOS.
- National published Oil and Gas related Statistics.
- An improved UBOS system of National Accounts capturing the Oil and Gas industry, including accounting for environmental impacts of the Oil and Gas economic activities.
- Enhanced transparency within MFPED regarding Oil Revenue Management.



*Launch of the Charter of Fiscal Responsibility.*



### 6.3.3 Environment Management Pillar

The Environment Management Pillar Programme objective intended “To develop, produce and transport petroleum resources in a way that minimizes the negative effects on the environment and climate, on human health and welfare”.

The Environment Management Pillar started in 2009, in the first phase of Oil for Development and has been a major part since then.

#### The Environment Management Pillar outcomes have been:

- The National Environment Act.
- Updates on standards and regulations relating to environment and biodiversity protection.
- Completed and operational National Oil Spills Contingency Plan (NOSCP).
- Environmental baseline studies and management plans for protected areas and monitoring plans.
- A Strategic Environmental Assessment (SEA) for the Albertine Graben conducted and recommendations adopted by Cabinet.
- Institution of the Albertine Graben Environmental Monitoring Plan (AGEMP) Steering Committee.
- The revised National Environment Bill submitted to the Parliament.
- A framework for management of hazardous waste from oil and gas activities established.
- Regular collection, analysis and dissemination of environmental data and information to enable monitoring of environmental impact.
- A clear and effective communication plan sharing relevant environmental information on the petroleum sector shared to concerned Local Governments and the public.



*Training in Norway*

### 6.3.4 Safety Pillar

The Safety Pillar Programme objective intends “To ensure that the safety of those working in the sector, as well as others affected, is not compromised”.

The Safety Pillar was introduced in 2015 upon the recommendation of the near end review of the ‘Strengthening Management of the Oil & Gas Sector in Uganda Programme’ (SMOGP). It was finally decided that the Safety Pillar is best housed within PAU rather than Ministry of Gender, Labour and Social Development (MoGLSD).

#### The Safety Pillar outcomes have been:

- An adequate legal and regulatory framework for management of health and safety in the oil and gas sector.
- Relevant institutions responsible for health and safety management of Uganda’s oil and gas sector.
- A framework for national emergency preparedness and response against hazards in the oil and gas sector such as fire/explosion, toxic releases, oil spill, terrorism/sabotage, epidemic, conflict, earthquakes, floods, etc.
- A strategy and methodology for efficient supervision and monitoring of health and safety aspects of oil and gas activities recognizing applicable laws, regulations, standards and industry best practices
- Collection, analysis and systematic storage of technical, operational and occupational health and safety information on the oil and gas sector, and relevant sharing internally and externally.
- Enhanced institutional capacity in management of petroleum related disasters.



*Group work Oil spill preparedness workshop local government*

### 6.3.5 Civil Society

Norway has a long tradition for cooperation with civil society organizations (CSOs), and has played a nurturing role in the civil society dialogue in Uganda since before 2012.

Civil Society plays a strong role in holding Governments to account, fostering transparency and good governance. Uganda now has increasing civil society visibility with a few constructive actors directly funded by the OfD programme including Natural Resources Governance Institute (NRGI), Wildlife Conservation Society (WCS), World Wildlife Fund (WWF) and Oxfam Uganda. However, this was not always the case. Historically, Government and CSOs would not see eye-to-eye owing to insufficient information access and limited background knowledge about oil and gas and its related processes.

NRGI was one of the actors that was instrumental in showcasing the value of civil society at different levels of government while also empowering CSOs through the Civil Society Coalition on Oil & Gas (CSCO) to improve their knowledge, sharpen their advocacy and present a unified approach to cross-cutting issues across environment, gender equality, transparency and women's rights. NRGI also played a shepherding role providing training and capacity building to nascent and lesser developed CSOs in Uganda.

Joint advocacy by the Civil Society Coalition on Oil & Gas (CSCO) was an important part of Government of Uganda's decision to join the Extractive Industry Transparency Initiative (EITI) in 2020. This landmark decision helped to turn the tide in favour of CSOs, and in particular the Government attitude towards their participation in the wider civic debate. After joining EITI, the Democratic Governance Facility (DGF) noticed a significant improvement in Government's responsiveness towards civil society participation in the analysis of management of extractives in Uganda. Civil society representation was encouraged and invited to participate in the EITI Multi-stakeholder Group (MSG). This has provided CSOs with more access to information on various developments in the extractives sector, including oil and gas.

Out of the four CSOs supported, WWF and WCS are heavily involved in biodiversity and nature related initiatives while Oxfam is more focused on governance and human rights. NRGI plays an umbrella role, facilitating the capacity development and training for other CSOs, fostering advocacy at international, regional and national levels while taking leadership through the Civil Society Coalition on Oil & Gas (CSCO).

The sections below present snapshots of the CSOs' current activities (including budget) and their recent achievements.

#### 6.3.5.1 NRGI – National Resource Governance Institute

NRGI empowers, supports and strengthens CSOs with resource-specific training and related capacitybuilding. NRGI has had a long engagement with Norway since 2014 and received a total cumulative budget to Uganda (2014 – 2025) of 15.5 MNOK. Some of NRGI's achievements include:

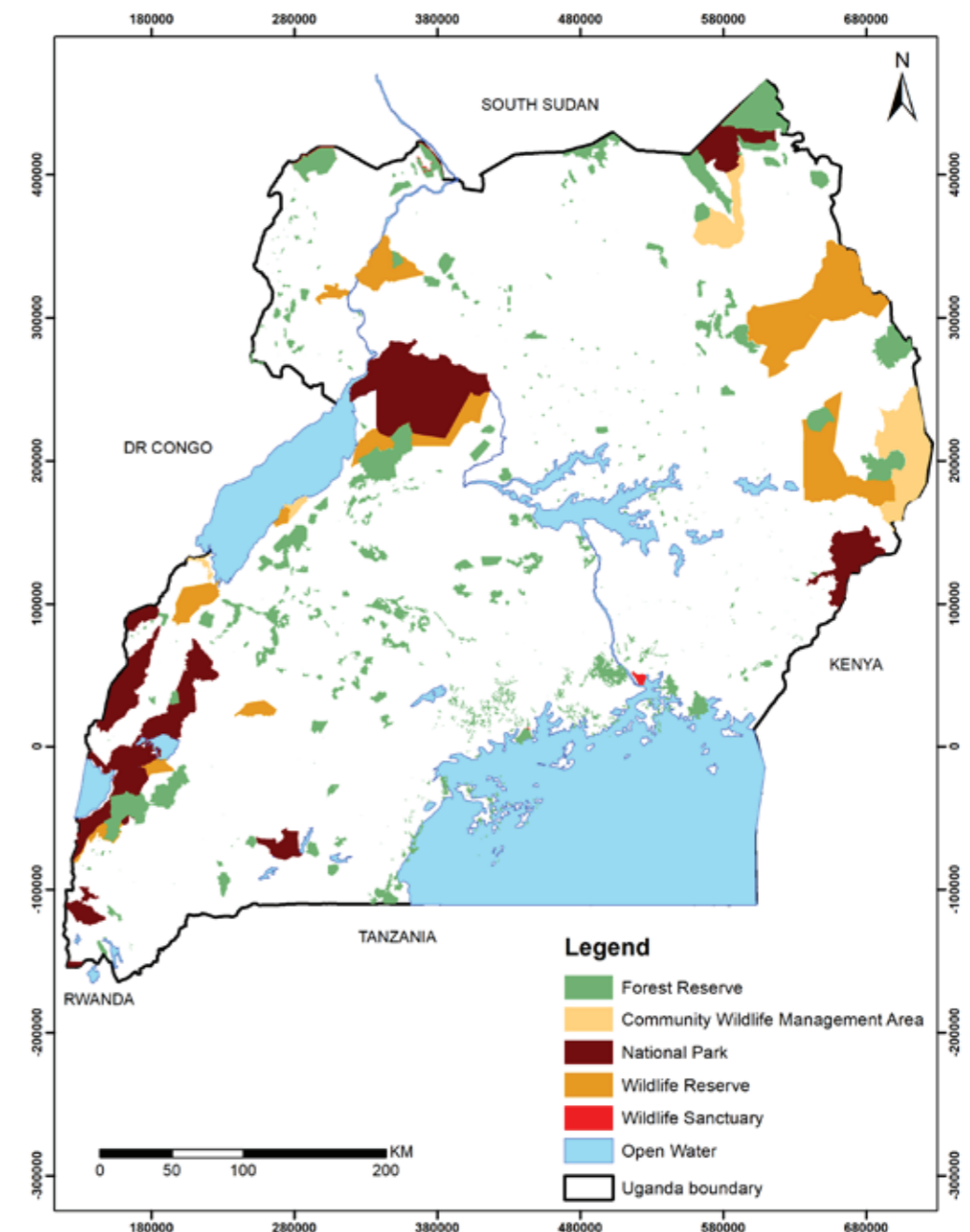
- 41 civil society and media organisations trained including 5 in Uganda.
- Despite being in the 'weak' Resource Governance Index (RGI) band, Uganda has increased value realization and revenue management thus slightly improving governance of the sector.
- An increase of 5 percentage points from 2017 RGI driven by improvements in revenue transparency, Uganda National Oil Company (UNOC) governance and reporting on the performance of the Petroleum Fund.
- Public documents now set out information on royalty rates and production sharing agreements.
- Improvement in the governance of UNOC from 13 points in 2017 to 53 points in 2021.

### 6.3.5.2 WCS – Wildlife Conservation Society

WCS's work in Uganda focuses on integrating biodiversity into policy, planning and regulatory processes. Their budget for this project was 3.5 MNOK. Some of their achievements included:

- Robust application of their applied mitigation hierarchy, mainstreaming offsetting alongside avoidance, minimization and restoration strategies.
- Biodiversity and environment mainstreamed into policy and regulatory processes.
- Strong engagement of both political and technical arms of Government.

In 2022, WCS has been able to undertake some forest restoration activities in Gangu where UETCL had cleared a small portion of the forest to pave way for a high voltage transmission line.



Graphics of protected areas of Uganda, WCS

### 6.3.5.3 Oxfam

Oxfam in Uganda undertakes advocacy on good governance through its strategic (international) and community grassroots partners like Civic Response on Environment and Development (CRED), CotFun and NAVODA. Their budget (2018 – 2022) was 7.7 MNOK.

Some of their achievements have been:

- Mentoring refresher training on their mobile application.
- Providing a monthly stipend for community monitors.
- Writing (and completing) the 2022 Extractive Industries Human Rights report.
- Holding two subnational Human Rights Forums in communities affected by extractive industries.
- Providing legal support to communities suffering human rights violations due to petroleum industry activities.

### 6.3.5.3 WWF – World Wide Fund for Nature (Uganda Country Office)

WWF Uganda Country Office focuses on the environment, natural resources and the human rights of the embedded communities. The country budget was 48.6 MNOK allocation from OfD programme, 2012- 2022. Some of the achievements from the 2020 – 2022 project period include:

- At least 30 parliamentarians more aware of environmental and social impacts.
- 4 policies and regulations advocated for and approved by Parliament including National Oil Spill Contingency Plan, and Regulations on Hazardous Waste among others.
- Increase in routine environmental inspections in the Albertine Graben region.
- At least 74 compliance monitoring exercises conducted by the inter-agency compliance monitoring committee.
- At least 8 districts routinely monitoring company compliance using district monitoring tools developed by WWF.
- Approval and publishing of Albertine Graben Environmental Monitoring Plan (AGEMP) is a big plus for WWF advocacy efforts.
- At least 5 data collection visits coordinated by NEMA.
- In addition to the Lake Albert Environmental Sensitivity Map, a draft of the Semliki Environmental Sensitivity Map has been produced though not published.

An extensive listing of more CSOs in Uganda receiving Norwegian support can be obtained through Norad (<https://resultater.norad.no/en>).

## 7 University Energy Education

Uganda and Norway have long worked together in the field of higher education, across multiple disciplines and institutions in both countries.

One such cooperation was a partnership between Uganda's leading university, Makerere (Kampala), NTNU (Trondheim) and the University of Bergen, Norway.

More information about the cooperation with Makerere University can be found in the 2016 Norad-report "25 Years of Energy Sector Cooperation".

Below are brief introductions to the cooperations within energy-related research funded under Norhed and ENPE, respectively.

### 7.1 Norhed I

Makerere University Business School executed a NORHED project titled "Capacity Building in Education and Research for Economic Governance in Uganda", 2016 –2021 with the aim of increasing knowledge, skills and research capacity for efficient energy resources management and governance in Uganda.

Some of the achievements include:

- Growing number of graduates with PhD and Masters in Energy Economics and Governance.
- Promotion of staff to higher ranks (Professor, Associate Professor, Senior Lecturer) basing on NORHED I publications.
- First female Professor appointed at Makerere University Business School.
- New Department of Energy Science and Technology headed by female Dean, Dr. Ruth Atuhaire.
- Enabled collaborations and partnerships with the Government and private sector.
- Effective knowledge transfer among partners.
- Influencing the establishment of the Uganda Association of Energy Economics (UAEE) at Makerere University Business School.

**Makerere University Business School executed a NORHED project titled "Capacity Building in Education and Research for Economic Governance in Uganda", 2016 –2021 with the aim of increasing knowledge, skills and research capacity for efficient energy resources management and governance in Uganda.**



Source NORHED

### 7.2 EnPe

EnPe, The Norwegian Programme for Capacity Development in Higher Education and Research for Development within the Fields of Energy and Petroleum (2013-2020) was a programme aiming to contribute to education of staff in the energy and petroleum sectors in Norway's selected partner countries, through building capacity at Masters level in higher education institutions in the South.

The objectives of the EnPe programme were:

- Support development of Masters programmes through close collaboration with Norway
- Sustainable capacity of institutions to provide the national work force with relevant qualifications to the energy and petroleum sectors
- Stimulate South-South-North cooperation through support to the development of regional Masters programmes and research
- Enhance gender equality in all programme activities

#### Projects funded under EnPe involving Uganda

##### Capacity 5, Renewable energy

- Capacity 5 project was a collaborative project between NTNU (Norway) and Makerere University (Kampala) including universities in Ethiopia, Tanzania and Mozambique. The project aimed at capacity building in human resources development, research and networking within the thematic area of renewable energy technologies.

##### Pelibigo

- Pelibigo focused on environment, governance and livelihood impacts of the oil and gas sector, cooperation between NTNU & NMBU (Norway), Makerere University (Kampala), and the University of Dodoma (Tanzania). The vision of this project was to achieve sustainable economic, social and environmental development of the oil and gas sectors in East Africa through an expanded and better qualified workforce, increased knowledge, evidence-based policy and decision making and enhanced gender equality.

##### Petroleum GeoScience Collaboration

- The project was a Petroleum Geoscience cooperation between Makerere University (Uganda), University of Juba (South Sudan), and with the University of Bergen (Norway). The vision for the project was to deliver a highly competent geoscience work-force and applied geoscience research to the higher education institutions, governmental bodies and young petroleum industries of Uganda and South Sudan.



## 8 Planning for the Future

IEA, with funding from Norad (2022) is supporting the Government of Uganda to create a reputable, consistent and accurate energy data baseline that will be the first port of call for all national energy data and evidence-based policy making.

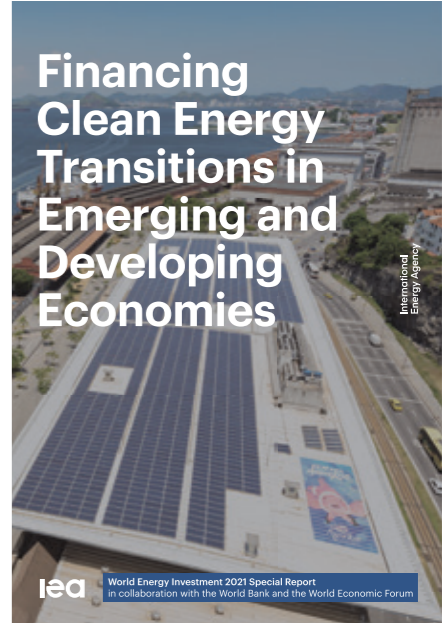
This 'Situational Analysis of Uganda's Energy Policy' is not only a useful first step to reorganizing the energy sector but rather a stepping stone to accessing new investments and further development opportunities. At this stage in Uganda's energy development, it is no longer a question of additional generation capacity but rather proper utilization of the surplus, present and future energy security.

The creation of a national energy transition plan and the integrated energy resource master plan will be two subsequent steps in this process.

The Situational analysis will cover:

- Executive Summary
- General Energy Policy
- Electricity
- Renewable Energy
- Access to Electricity
- Access to Clean Cooking
- Oil and Gas
- Critical Minerals
- Energy Efficiency
- Environment and Climate Change

The overall aim is to help Uganda achieve the stated objective in 'Vision 2040' of 'transforming into a modern and prosperous country', ensuring a better future for its citizens through developing its considerable energy and mineral resources while promoting economic development, ending energy poverty and leading the country into a just energy transition.



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## 11. Acronyms

|               |   |
|---------------|---|
| <b>BEL</b>    | Bujagali Energy Ltd   |
| <b>CPF</b>    | Central Processing Facility   |
| <b>CRED</b>   | Civic Response on Environment and Development                             |
| <b>CSOs</b>   | Civil Society Organizations   |
| <b>CSCO</b>   | Civil Society Coalition   |
| <b>EIA</b>    | Environmental Impact Assessments  |
| <b>EITI</b>   | Extractive Industries Transparency Initiative                             |
| <b>ERA</b>    | Electricity Regulatory Authority  |
| <b>GOU</b>    | Government of Uganda  |
| <b>GWh</b>    | GigaWatt-hour (1 million kWh or 1 million units of energy or electricity) |
| <b>HPP</b>    | Hydroelectric Power Plant   |
| <b>ICH</b>    | International Centre for Hydropower                                       |
| <b>IPP</b>    | Independent Power Producer  |
| <b>kWh</b>    | KiloWatt-hour (1000 Watt-hours), unit of energy amount                    |
| <b>MEMD</b>   | Ministry of Energy and Mineral Development                                |
| <b>MFA</b>    | Norwegian Ministry of Foreign Affairs                                     |
| <b>MFPED</b>  | Ministry of Finance, Planning and Economic Development                    |
| <b>MGLSD</b>  | Ministry of Gender, Labour and Social Development                         |
| <b>MJCA</b>   | Ministry of Justice and Constitutional Affairs                            |
| <b>MLHUD</b>  | Ministry of Lands Housing and Urban Development                           |
| <b>MOFPED</b> | Ministry of Finance, Planning and Economic Development                    |
| <b>MPE</b>    | Norwegian Ministry of Petroleum and Energy                                |
| <b>MW</b>     | Megawatt (one million watts)  |
| <b>MSG</b>    | Multi-stakeholder Group   |
| <b>NCA</b>    | Norwegian Coastal Administration  |
| <b>NEA</b>    | Norwegian Environment Agency  |
| <b>NEMA</b>   | National Environment Management Authority                                 |
| <b>NOK</b>    | Norwegian Kroner (Currency)   |
| <b>NORAD</b>  | Norwegian Directorate for Development Cooperation                         |
| <b>NOSCP</b>  | National Oil Spills Contingency Plan                                      |
| <b>NPD</b>    | Norwegian Petroleum Directorate   |
| <b>NRGI</b>   | Natural Resources Governance Institute                                    |
| <b>NTNU</b>   | Norwegian University of Science and Technology                            |

|              |  |
|--------------|--|
| <b>NVE</b>   | Norwegian Water Resources and Energy Directorate                     |
| <b>OfD</b>   | Oil for Development  |
| <b>PD</b>    | Project Document   |
| <b>PSA</b>   | Petroleum Safety Authority   |
| <b>PV</b>    | Photovoltaic Systems (solar cells)                                   |
| <b>RE</b>    | Rural Electrification  |
| <b>REA</b>   | (former) Rural Electrification Agency                                |
| <b>REP</b>   | Rural Electrification Programme                                      |
| <b>RGI</b>   | Resource Governance Index  |
| <b>RNE</b>   | Royal Norwegian Embassy Kampala                                      |
| <b>SEA</b>   | Strategic Environmental Assessments                                  |
| <b>SHP</b>   | Small Hydropower Plant   |
| <b>SMOGP</b> | Strengthening Management of the Oil & Gas Sector in Uganda Programme |
| <b>TA</b>    | Technical Assistance   |
| <b>TSO</b>   | Transmission System Operator   |
| <b>UAEE</b>  | Uganda Association of Energy Economics                               |
| <b>UBOS</b>  | Uganda Bureau of Statistics  |
| <b>UEGCL</b> | Uganda Electricity Generation Company                                |
| <b>UETCL</b> | Uganda Electricity Transmission Company                              |
| <b>UGX</b>   | Uganda Shilling  |
| <b>UNOC</b>  | Uganda National Oil Company  |
| <b>USD</b>   | US Dollar  |
| <b>UWA</b>   | Uganda Wildlife Authority  |
| <b>WCS</b>   | Wildlife Conservation Society  |
| <b>WWF</b>   | World Wide Fund for Nature   |





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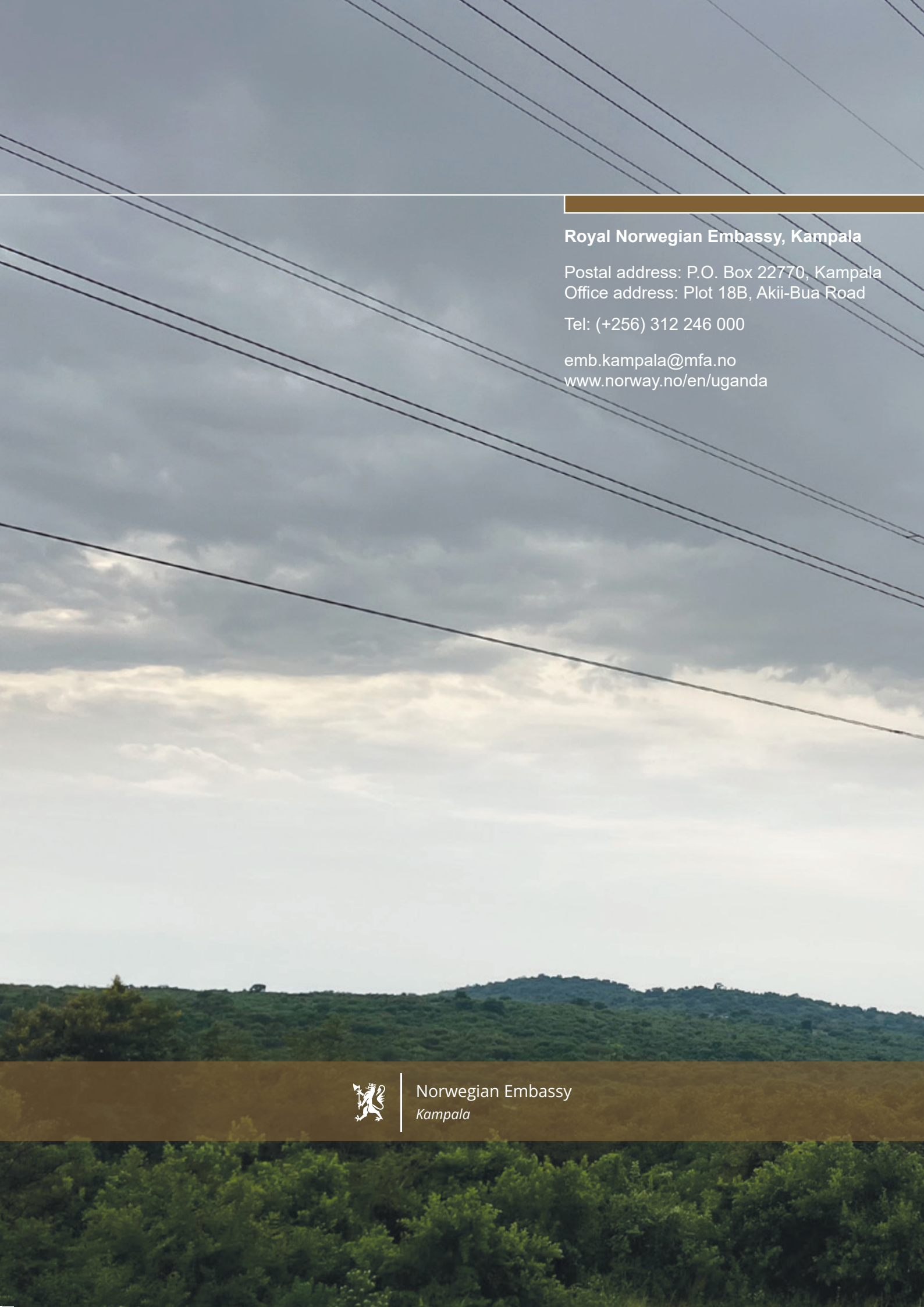
## From the Authors

Harald Birkeland and Joel Essien, senior advisers of Sweco Norway, are authors of this report. The key learnings, interpretations and other views in this report represent the perspectives of the authors, and do not necessarily reflect the views of the Embassy. Any errors herein are the sole responsibility of the authors, and should not be attributed to individuals or institutions referred to.

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