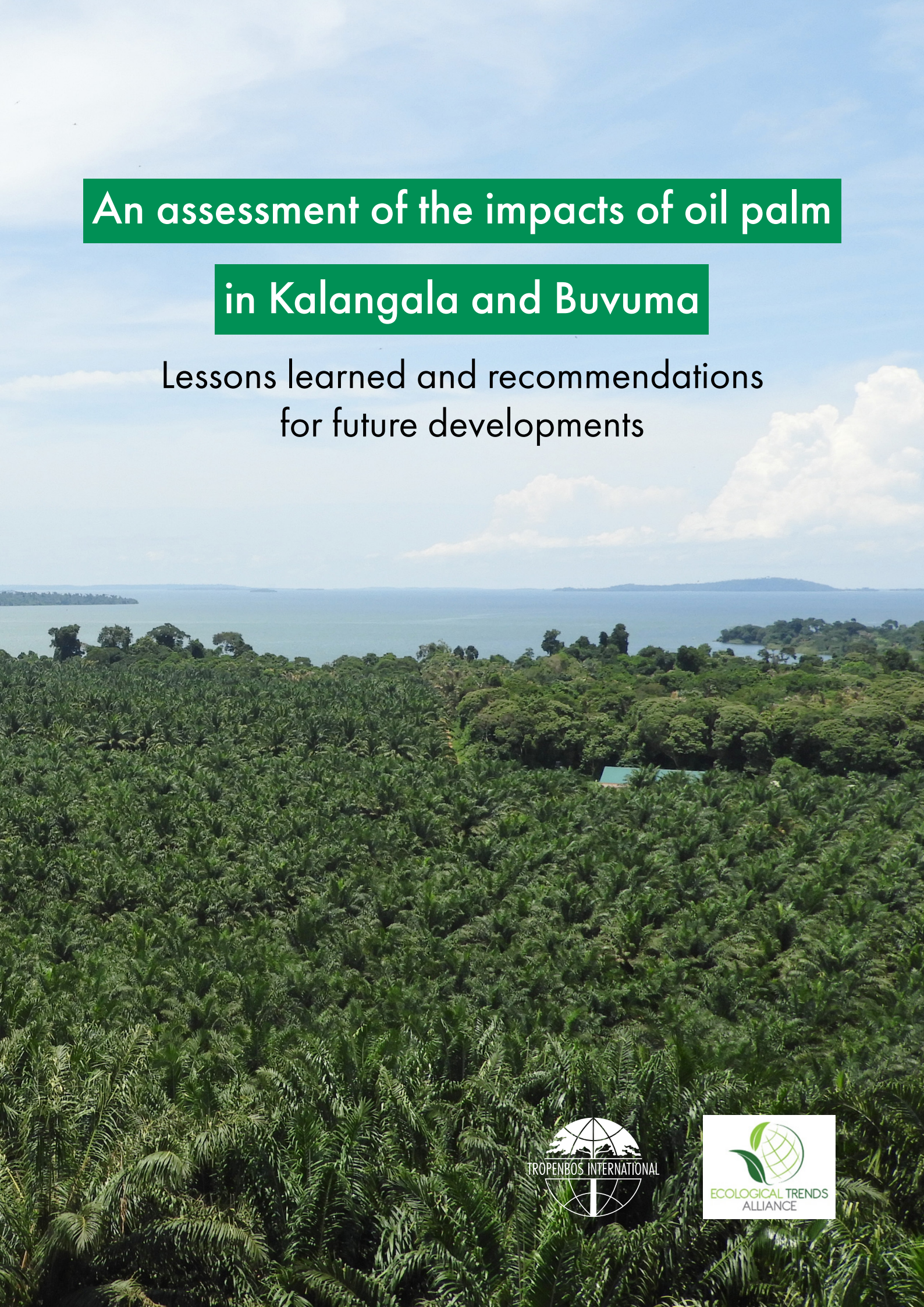
An assessment of the impacts of oil palm in Kalangala and Buvuma

Lessons learned and recommendations for future developments



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An assessment of the impacts of oil palm in Kalangala and Buvuma

Lessons learned and recommendations for future developments

Richard Ssemmanda and Michael Opige (eds.)

This publication has been produced under the framework of the Green Livelihoods Alliance.

The Green Livelihoods Alliance (GLA) 'Forested landscapes for equity; a strong civil society for inclusive and sustainable development' programme seeks to strengthen the abilities and effectiveness of Southern civil society organizations (CSOs) to influence related policies and practices to achieve inclusive and sustainable governance of forested landscapes. The core of the Alliance's strategy is to (i) join CSOs in lobbying for and advocating inclusive and sustainable governance of forested landscapes, and (ii) strengthen capacities of partner CSOs to technically, politically and economically empower and represent local communities. The global 2016-2020 programme is implemented in nine countries around the world.

The GLA is a Strategic Partnership funded by the Netherlands Ministry of Foreign Affairs within their Dialogue and Dissent Programme, with three Dutch partners, Milieudefensie (partner of Friends of the Earth), IUCN NL, and Tropenbos International (TBI). The Ugandan-based NGO, the National Association of Professional Environmentalists (NAPE), is the GLA partner of Milieudefensie and acts as the national focus point. Ecological Trends Alliance (ETA) is the Ugandan partner of TBI and leads the contact for this research. TBI applies an approach that combines action research and capacity building towards effective and informed dialogue related to the priorities and outcomes in Uganda. TBI applies its approach to address complex problems in multi-actor and multi-sector landscapes. The absence of 'simple' technical solutions requires collaboration between stakeholders to discuss, negotiate and agree on acceptable ways forward. In such contexts, it is important to bring independent, validated knowledge into the dialogue.

TBI's starting point is the recognition that, to improve the governance of forest and tree resources, public, private and civic actors will need to make their decisions based on reliable knowledge. TBI understands that, although knowledge may be available, it does not automatically lead to change. To address this, TBI functions as a knowledge broker at the interface of local, national and international policies and practices. Together with other GLA partners, TBI facilitates and informs multi-stakeholder dialogues, supported with underlying and evidence-based research. The landscape approach, a central concept in the GLA, deals with the interaction between forests, trees, agriculture and external drivers at a landscape scale.

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Overview

Impacts and implications of oil palm on landscapes and livelihoods in Uganda's Lake Victoria islands – an overview of recent research

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Introduction

The Government of Uganda had the best intentions when oil palm was established. The aim was to reduce poverty among the Lake Victoria island populations of Kalangala and Buvuma districts, and contribute to import substitution through domestic production of palm oil. The project established plantations in Kalangala in 2002 with crude palm oil production starting in 2010, and plantations will begin to be established in Buvuma from 2019. The benefits are readily reported by the main donor IFAD and the sole company BIDCO, part of Oil Palm Uganda Ltd. partly owned by Wilmar. However, the project implementation strategy fell short on a number of aspects, leading to multiple negative impacts on the intended project beneficiaries as well as on the environment. It is thus crucial to acknowledge and better understand these impacts, mitigate them, and prevent their reoccurrence in the other suggested oil palm expansion hubs. This section summarizes detailed interdisciplinary research undertaken in 2017 and 2018 (Ssemmanda and Opige 2018, 2019) on the negative impacts of oil palm development, and makes solid recommendation to the government and its implementing partners, based on the findings and lessons learned. The five research papers that this is based on are included in full in the following setions, and are each summarized in separate policy briefs (Bigirwa et al., 2019; Kakungula-Mayambala and Tibugwisa., 2019; Masiga et al., 2019; Mwima et al., 2019; Nangendo et al., 2019).

Negative impacts of oil palm development

From the time oil palm harvests started in 2010, experiences showed that increased production of oil palm benefited the national economy through import substitution and associated foreign exchange savings, with many associated local economic benefits. However, another side of the story also became apparent, of negative impacts, that must also be told. Cognisant of the requirements of land and the nature of oil palm plantations, it is important to note that social conflicts, issues of local land ownership and negative

impacts on the local ecology have occurred. Overall, the results of these research studies bring out the following negative impacts, organised into eight areas, below.

Poverty and food insecurity

The project set out to bring sustainable poverty reduction by raising rural incomes, but is far from achieving its goal. The establishment of oil palm plantations puts pressure on other land uses including food crop production. Two sectors negatively impacted are agriculture and fisheries which were (in Kalangala) or still are (in Buvuma) the backbone of rural livelihoods. This has had serious implications on local communities and consequences for sensitive ecosystems, and resulting in food insecurity, for example in Kalangala where food is now imported from the mainland. If Buvuma is to meet the projected land requirements, the current area under agriculture will be reduced by 50%. The half that will remain includes rocky outcrops, marginal grassland, wetlands and protected forests with hardly any land left for food production. Negative indirect impacts on fisheries by unintended pollution from fertilizer run-off and sedimentation of the lake further compound the problem of food insecurity.

Deforestation and land degradation

Rapid land use changes accelerate biodiversity loss and negative impacts of associated ecosystem services, leave the very communities who are the intended project beneficiaries vulnerable to the effects of environmental stresses. On Bugala island in Kalangala, the area of fully stocked tropical high forests declined from 58% to 20% since the year 2000, while oil palm increased from 0% to 28% over the same period. In Buvuma the situation is different, with mainly subsistence farmland acquired for oil palm plantations. Furthermore, the Ministry of Water and Environment 2003 statutory instrument requires a 200 metre buffer strip between such plantations and major water bodies. However, in this oil palm project, this regulatory requirement was either compromised or disregarded entirely. About 32% of the required Lake Victoria buffer zone in Kalangala is either oil palm or subsistence farmland, while in Buvuma, 54% is already subsistence farmland.

Land rights and tenure inequalities

The process of implementation associated with such large investments has a high risk of social injustice from the outset, such as from inadequate land acquisition processes. At least 80% of landlords in Kalangala who sold their land did not do so under conditions of free, prior and informed consent, while in Buvuma, the Uganda Land Commission skipped some required processes in land acquisition, and compensated squatters on public land without first taking the necessary steps. Generally, discussions about the pros and cons of the project were not rigorous enough and mostly too positive, with some stakeholders missing out completely, either by commission or omission. In addition, some of those who sold their land only did so at the end of the process when almost all relevant decisions had already been made, and so had not received important information for making such decisions.

From VODP to NOPP

Kalangala and Buvuma districts are comprised entirely of islands in Lake Victoria, and were formerly (before 2000) covered largely by a mosaic of tropical high forest and grassland. Developing oil palm to help meet national demand became part of the Government of Uganda's Vision 2030 strategy. Through the Ministry of Agriculture Animal Industry and Fisheries (MAAIF) and with support from the International Fund for Agricultural Development (IFAD), the Vegetable Oil Development Project (VODP) aims to contribute to sustainable poverty reduction in the project area by increasing domestic production of vegetable oil and by-products, raising rural incomes for smallholder producers and ensuring the supply of vegetable oil products to Ugandan consumers and neighboring regional markets. The first phase in Kalangala developed domestic oil palm production and expanded smallholder production, and closed in June 2012. The second phase of VODP built upon this and was approved by IFAD's Executive Board in April 2010 and by the Ugandan parliament in September 2010 with a completion date of December 2018. As a follow-up, the National Oil Palm Project (NOPP) under the Ministry of Agriculture, Animal Industries and Fisheries (MAAIF) was designed to consolidate investments under VODP, and support oil palm producing communities with activities complementary to oil palm investments. NOPP is a 10-year project that started in January 2019, with the goal to 'create inclusive rural transformation through oil palm investment'.

Migration

While some movement of people is expected in development initiatives, large agrarian projects are characterised by high levels of migration in a search of new employment opportunities. In the case of the oil palm project in Kalangala, the mis-match between the provision of social services such as health, water and sanitation and the increasing population became obvious. Furthermore, migration of mainly men between the islands and the mainland and increased income, and the parallel increase in prostitution, are increasing the levels of and hampering efforts to manage HIV/AIDS, compounding its impacts. In Buvuma there have already been major changes in the population due to land acquisition, even before any plantations have been established. Half of the island's subsistence farming land is to be replaced by oil palm, and large out-migrations have already happened, while newcomers arrive in search of new opportunities, in total contrast to the project's objective of improving the livelihood of local people.

Indigenous peoples and gender inequalities

The project design targeted local poor and vulnerable communities and the participation of women and youth in all activities as key beneficiaries. However, many in these groups were actually displaced by the project during land acquisition, or were further marginalised during implementation. Currently, Oil Palm Uganda Limited (OPUL) employs about 1300 staff (35% female) in Kalangala but only 7% are natives to the district, and of the registered 1,810 oil palm outgrowers, only 37% are female and they have smaller landholdings compared to men.

Selective financing priorities

Local communities complain about low prices for fresh fruit bunches due to the lack of alternative players in the market needed for healthy competition. So contrary to what the project promotes, oil palm is not always the best or only option to improve household incomes for the majority of farmers. Gross margin analysis for crop enterprises showed that cassava, beans, sweet potatoes, rice and coffee would also be viable alternatives in Buvuma, while in Kalangala, oil palm competes with passion fruit, tomato and coffee as high value alternatives. Additionally, the provision of government finance through short term loans makes smallholder farmers more vulnerable to the sole private sector player.

Skewed communication and education

Given the skewed positive impressions presented regarding the benefits of oil palm as shared by project proponents, the adoption of oil palm by smallholder farmers has happened swiftly, and the project promoters have not given enough time for proper planning, learning and decision making at both community and household levels. The risks of associated social and economic disparities caused during implementation are therefore not communicated. However, despite the positive 'news', this research shows that only 30% of the Buvuma population are optimistic about the project while 70% had mixed feelings about its benefits.

Limited livelihood options

The National Oil Palm Project (NOPP) aims to ensure that benefits of oil palm are shared by the communities in which investments take place, to be realized by empowering community members to also seize emerging economic opportunities by developing non-oil palm farming and non-farming livelihood activities as well as those presented by oil palm development. However, the current outgrower model does not allow for alternative food crops and intercropping, making it difficult to diversify farming options.

Future forecasting

Economic forecasts show that oil palm is profitable to both the single company and the smallholder, but only in the short term. Projections in the medium and long-term reveal declines in economic returns to smallholder farmers as ecosystem services are lost, alongside growing demands to ensure food security as the area of land available for growing food crops becomes limiting.

Key recommendations

1. Strict adherence to Environmental and Social Impact Assessment (ESIA) recommendations, to avert negative impacts

The ESIA clearly brings out anticipated project impacts on social and environmental issues within and around the project area as well as residual impacts. The project should therefore ensure that mitigation measures are applied and strictly implement the Environmental and Social Management and Monitoring Plan (ESMMP) prior to any further developments. Clear evaluation indicators should be embedded in respective district evaluation frameworks and supported by publicly available audit and monitoring reports to achieve desired outcomes.

2. Implement effective land use plans

Interventions should reciprocate major impacts such as those on food security, deforestation and land rights in equal measure as an offset, by prioritizing support to actions that ensure improved protection of remaining forests, and effective land use plans that enhance food production and resettlement of persons affected by the project. Furthermore, in anticipation of the expected population influx, the project makes prior arrangement with the government to ensure that local health, education and water services can meet the expected demand.

3. Implement financing investment options that emphasize diversity of alternatives

With agro-commodities, financing investment options that emphasize a diversity of alternative food crops alongside the intended agro-commodity should be prioritized. Interested farming communities should be supported by such projects to maintain livelihood diversification, curb food insecurity and increase the resilience of local communities. To supplement these options, competition among private sector players is healthy, leading (hopefully) to increased prices for the communities supplying raw materials. The government therefore needs to consider breaking the BIDCO/OPUL monopsony by inviting other private sector players to the new hubs.

4. Ensure legal representation to those living on the land, and prompt issuance of certificates of occupancy by relevant government agencies

The rights to legal representation of communities should be observed at all time and be made mandatory to abate conflict. Certificate issuance will solve major issues arising due to confusion in land ownership. Subsequently, land should then only be acquired on a 'willing buyer' and 'willing seller' basis and proceed according to nationally and internationally recognized best practices like Free Prior and Informed Consent (FPIC). This will help reduce conflict over land which is the most precious resource when dealing with such large agro-commodity projects

5. Implement an effective communication strategy

To effect balanced communication about the project and its intentions to stakeholders, an effective and unbiased communication, strategy must support the communication of both positive and negative impacts of projects using appropriate channels so that the communities can make informed decisions. It should also ensure that communication of project activities, outcomes and outputs are made in a timely and effective manner, and for this, support and partnerships are always very well appreciated.

6. Conducting a comprehensive Gender Impact Assessment

A Gender Impact Assessment (GIA) is undertaken in anticipation of gender disequilibrium that often arise in labour-intensive projects, especially regarding issues of child labour and women disparities. The inadequacies in gender under the current oil palm project are visible, even with the lack of GIA baseline data. Any further expansion of oil palm should therefore prioritize undertaking a Gender Impact Assessment.

Conclusions

The project implementation plan envisaged a reduction in forest resources, human migration and reduced land available for food production as major impacts. However, to ensure that oil palm activities meet global standards of sustainability and inclusiveness, and with donors increasingly aware and critical of bad practices in commodity production and trade with a need for environmental and social protection, it is important for the government and its partners to consider recommendations from independent research.

In the 17 years since inception, the experience from the various projects now allows this independent assessment, evaluation, analysis, and subsequent recommendations. The Government of Uganda had the best intentions when oil palm was established in Kalangala in 2002, with an aim to reduce poverty among the Lake Victoria island populations and contribute to import substitution through domestic production of palm oil. Crude palm oil production started in 2010, and plantations will begin to be established in Buvuma from 2019, with benefits readily reported by the main donor IFAD and the sole company BIDCO, part of Oil Palm Uganda Ltd. partly owned by Wilmar.

However, project implementation fell short on a number of aspects, leading to multiple negative impacts on the intended project beneficiaries as well as on the environment. It is thus crucial to acknowledge and better understand these impacts, mitigate them, and prevent or at least reduce their reoccurrence in other suggested oil palm expansion hubs. This policy brief summarizes detailed interdisciplinary research undertaken in 2017 and 2018 (Ssemmanda and Opige 2018, 2019), and makes solid recommendations to the government and its implementing partners (see box), based on the findings and lessons learned.

Research methodology

This research was commissioned by Ecological Trends Alliance in collaboration with Tropenbos International, as part of research initiatives undertaken through the Green Livelihood Alliance (GLA) programme. In Uganda, work focuses on assessing the impacts of oil palm plantations in the landscapes of Kalangala and Buvuma districts. The research reported here aimed to build knowledge and provide an increased understanding regarding the impacts of oil palm expansion on the environment and local livelihoods, and from this, draw out the implications and offer recommendations for future developments. Eight desk studies were undertaken in 2017 (Ssemmanda and Opige, 2018), followed by a coherent and comprehensive set of five follow up studies in 2018 that involved detailed field work in the landscapes. Research methods included descriptive and quantitative assessments including questionnaires, interviews and GPS and satellite imagery to obtain information at household and community level. Land cover analyses used 2015 Landsat images as the base maps with land use/cover maps for 1990, 2000, 2005 and 2010 obtained from the National Forestry Authority, supported by stratified purposive sampling. Parallel research targeted oil palm farmers and business stakeholders with more than seven years of sector experience for in-depth interviews. Focus group discussions were conducted with representatives of subsistence farmers, oil palm producers, fishing and business communities. Employment opportunities were segregated by gender and whether the person was a native of the islands or not. Research analyzed land ownership and land deals related to the National Oil Palm Project, with a detailed assessment of land ownership, mapping of land contracts, conditions, compensation, and application of free, prior and informed consent (FPIC) in decision making. Finally, the study considered ex-ante factors of future prospects of livelihoods and socio-economic and environmental factors related to oil palm production with projections to 2030.

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Analysis of oil palm projects in Uganda (2002-2018) – impacts and implications for future development

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Summary

This assessment undertaken in July-August 2018 involved a review of available documentations, key informant interviews and focus group discussions in project sites, with supplemental field observations. It contributes to our understanding of the socio-economic and environmental impacts of oil palm development in Kalangala, and in particular on local livelihoods. It also provides insights on whether these experiences and lessons learned are being used to reduce risks of negative impacts in the new hubs to be opened for oil palm extension, specifically in Buvuma district. Subsequently, the report serves to provide recommendation for the proposed implementation of the ten-year National Oil Palm Project (NOPP).

The Vegetable Oil Development Project (VODP) oil palm sub-project was promoted by Oil Palm Uganda Ltd. (OPUL) through a public-private partnership with BIDCO Uganda Ltd. Arrangements were made to build a new industry, establishing a nucleus estate of 6500 ha with 3500 ha for out growers in Kalangala district. Since the inception of the VODP project through its second phase, focus and emphasis has been on achieving of

the set objectives of the project. International Fund for Agricultural Development (IFAD) supervision reports show that this has been achieved considerably but with reports skewed towards; land acquisition, acreage of oil palm planting, achievements in operations of OPUL and KOPGT, agronomy and agrochemicals, price of Fresh Fruit Bunches (FFB) and infrastructure development. These socio-economic aspects are important to enhance community buy in, hence the necessary support for scaling up the new interventions.

While delving into project achievements, there is need to evaluate other primary and secondary impacts of oil palm introduction in these hubs, and provide a clear path to have them improved. Court cases of fraudulent land acquisition in Kalangala that had the involvement of the Compliance Ombudsman Advisor should have served as benchmarks prior to commencement of acquisition in Buvuma, but rather, complaints of skewed and inadequate community sensitization, inadequate and delayed compensation are rife. In addition, Environment and Social Impact Assessments (ESIAs) undertaken concentrated on immediate project impacts within and around the project area, without including a comprehensive mix of other development factors beyond Bugala island. Issues of health, particularly HIV prevalence, pollution of lake waters, migration, environmental issues, and food and fuel security among others, all stretch beyond the project area. Migration between the islands and the mainland are also hampering efforts to manage HIV/AIDS, compounding the impacts. Furthermore, no by-laws on food production were enacted as recommended in the ESIAs, with now, the food consumed on Bugala island imported from the mainland.

The effects of oil palm on cumulative pollution of Lake Victoria, adding to that from fish factories, industry and urban areas, also have far reaching impacts. This requires water management and catchment area protection plans, including comprehensive pesticide management, preservation of lakeshore vegetation, and conservation of key habitats to enhance wildlife conservation and ecosystem services. Also, a planned phased approach to mitigate loss of natural forest was not implemented due to time constraints as stated by the company. Now, pressure on protected areas and remaining forests and the resources they provide to local communities is inevitable, as populations grow.

Introducing vegetable oil developments in Uganda

Uganda imports about 65% of its edible oil and soap needs, but with population growth and rising incomes continuing to fuel an annual growth rate of 9% in domestic and regional demand for vegetable oil and its by-products (Daily Monitor, 2018). Uganda's annual demand for edible oil is currently 120,000 tonnes, against a production capacity of 40,000 tonnes (Manishimwe, 2018). As such, there is growing interest by the Government of Uganda in developing palm oil for import substitution, and the fact that production from even poor yielding oil palm substantially exceeds that from a similar area of annual oilseed crops. The best area for cultivation of oil palm in Uganda was found to be the Lake Victoria islands, notably the Ssese Islands (IFAD, 1997).

The Vegetable Oil Development Project (VODP)

Since 1998, the Government of Uganda has invested in domestic production and processing of vegetable oils to meet the increasing national demand. The Vegetable Oil Development Project (VODP), implemented by the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), is the government's selected strategic effort to increase domestic vegetable oil production, while also addressing rural poverty by involving farmers, and improving the health of the population through increased vegetable oil intake. The broader project (not just palm oil) was implemented in Kalangala, Buvuma, and 51 other districts across eastern, northern and north-western Uganda. Regarding the palm oil component, the VODP implementation strategy was to be delivered through a public-private partnership arrangement where the government took sole responsibility for acquiring land for oil palm development, and the private sector partner, M/S BIDCO Uganda Ltd., committed to providing investment, resources and technology for oil palm development and value addition.

Phase I (VODP I)

The first phase of VODP started in 2002, completed on 31 December 2011 and closed on 30 June 2012. VODP negotiated a tripartite collaboration between the government, BIDCO (and its joint venture partners), and smallholder farmers, to establish plantations and processing units for production of palm oil on Bugala Island in Kalangala district. The BIDCO conglomerate set up the nucleus estate, the palm oil mill and refinery, and established Oil Palm Uganda Limited (OPUL) to manage the plantations and processing units. The first 10,000 ha were developed on

Bugala Island, with a nucleus estate of 6500 ha, plus 3500 ha of smallholder production, and the building of a mill to process 30-60 t of fresh fruit bunches per day.

The government provided leasehold land free from encumbrances for the nucleus estate for a 99-year period (with renewal options). The tripartite agreement was signed between the government, OPUL and smallholders represented by the Kalangala Oil Palm Growers' Trust (KOPGT). This stipulated that KOPGT would hold 10% of all OPUL shares, and 800 smallholders were targeted to participate in the first phase (Ssemmanda et al., 2018). The International Fund for Agricultural Development (IFAD) interim evaluation of VODP I highlighted its success in reducing dependency on imports (IFAD, 2011). The VODP I report indicated that by the end of this phase, 1286 smallholders had benefitted from the oil palm component of the project, of which 34% were women. Other beneficiaries from the sub-project included 3000 employees at the nucleus estate, the palm oil mill, and the refinery in Jinja (Barbanente et al., 2018).

Phase II (VODP II)

The second phase of the Vegetable Oil Development Project (VODP II) was approved by IFAD's Executive Board in April 2010, and by the Uganda Parliament on 29 September 2010 (IFAD, 2012). It was funded by IFAD under a loan agreement (No. 806-UG) signed on 21 October 2010, with a total project cost of US$146,175 million. Of this, US$70.38 million was from Oil Palm Uganda Limited (OPUL), US$52 million was a loan from IFAD, a GoU contribution of US$14.14 million, US$5.48 million from Kalangala Oil Palm Growers Trust (KOPGT), farmers' contribution estimated at US$3.89 million, and US$0.285 million from SNV (the Netherlands Development Organization).

VODP II was an 8-year project with one year devoted to start-up work, and seven years of full implementation due to end on 30 June 2019 (IFAD, 2012). The project had three components; the Oil Palm Development Component, the Oil Seeds Development Component, and Project Management. Under the oil palm development component, the project partnered with BIDCO to establish 10,800 ha of oil palm in phase one and two through a nucleus estate of 6500 ha and a smallholder scheme of up to 4300 ha. As of 2018, the nucleus estate was 6440 ha (99% of VODP target), and smallholder plantations at 4424 ha (94%), of which 3020 ha had reached maturity. A VODP II supervisory report (4812-UG, November 2018) indicated that the project was on target with respect to its major outputs and outcomes.

VODP II had also projected to have established a 2500 ha smallholder oil palm scheme in Buvuma district by December 2018, and to have expanded oil palm smallholder scheme in Kalangala District to other islands, including Bunyama (207 ha) and Bubembe (119 ha). In Buvuma district, the government had so far purchased 7591 ha of land, of which 5114 ha were free of encumbrances and had been offered to BIDCO. Clearing of encumbrances on the remaining 2477 ha already purchased was taking longer than planned and was expected to be completed by December 2018, to be offered to BIDCO by March 2019 (VODP II Report no. 4812-UG). Following the closure of VODP II, the National Oil Palm Project (NOPP) was to take over under a revised arrangement.

The National Oil Palm Project (NOPP)

The National Oil Palm Project (NOPP) under the Ministry of Agriculture, Animal Industries and Fisheries (MAAIF), is designed to consolidate investments undertaken under VODP I and II to support communities producing oil palm. It is a 10-year project with the goal of 'inclusive rural transformation through oil palm investment'. Now in transition, NOPP is to invest in a number of oil palm investment hubs, defined as agroclimatically suitable areas within a radius of approximately 30 km around a crude palm oil mill where at least 3000 ha of oil palm production can be assured. Three hubs have been identified, Buvuma island, Mayuge, and Masaka/Rakai, with a fourth hub to be identified during project implementation, in agreement with IFAD. The development objective of NOPP is to 'Sustainably increase rural incomes through opportunities generated by the establishment of an efficient oil palm industry, that complies with modern environmental and social standards' (IFAD, 2017). NOPP proposes to empower communities to seize the emerging economic opportunities by developing both non-oil palm farming and non-farming livelihood activities, and to further mitigate potentially negative effects of oil palm investments in areas such as land tenure security, food security, environment and management of natural resources, and HIV/AIDS.

Rationale of the assessment

Acknowledging the government's strategic plan of expanding oil palm growing and production, it is imperative to improve the understanding of oil palm development based on experiences from implementation in Kalangala. This is in respect to the associated socio-economic and environmental impacts and safeguards in particular, on the livelihoods of people inhabiting the island. This will help to ensure that successful practices are replicated in Buvuma and other identified oil palm hubs, whilst practices with predicted major negative impacts on the environment and livelihoods are avoided.

Insights from both the first and second phases of VODP allow further analysis of possible impacts of proposed NOPP interventions on the environment and livelihoods. Ecological Trends Alliance (ETA) and partners, supported by Tropenbos International (TBI) and the Green Livelihoods Alliance (the Netherlands) is providing such detail of NOPP and IFAD proposals, as the basis for interventions. This is leading to concrete recommendations on selected issues and assumptions, to inform implementation and strategic direction of NOPP and thereby contribute to inclusive and sustainable management of forested landscapes in Uganda. The objectives of this assessment were fourfold namely to: (i) understand the preconditions, implementation and lesson learnt in VODP I, (ii) understand what changed in VODP II, (iii) assess the environmental impact assessments and how preconditions have been addressed, such as mitigation measures and monitoring compliance, and (iv) generate recommendations that IFAD must consider.

The origins of oil palm in Kalangala

The Government of Uganda's interest in the development of palm oil partly originates from the Comprehensive African Agriculture Development Programme (CAADP), and the government's Vision 2040, National Development Plans, the National Agriculture Policy (NAP), and the Agriculture Sector Strategic Plan (ASSP). CAADP, endorsed in 2003 (Maputo Decision, 2003), was formulated to stimulate reforms in the agricultural sector that would impact on socio-economic growth and sustainable development. It is Africa's policy framework for agriculture and agriculture-led development, and an integral part of the New Partnership for Africa's Development (NEPAD). Through CAADP, Africa believes that agriculture and the food industry can be the engine for growth in Africa's largely agrarian economies, with tangible and sustainable impact on improving food security and nutrition, contributing to wealth and job creation, empowering women and enabling the expansion of exports.

Agriculture is the most important sector in Uganda's economy in terms of food and nutrition security, employment, income, raw materials for industry, and exports to regional and international markets. It employs over 70% of the working population, and contributes 24% to GDP (UBOS, 2016). The Constitution of the Republic of Uganda commits under Objective XI (ii), to 'stimulate agricultural, industrial, technological and scientific development by adopting appropriate policies and enactment of enabling legislation'; and under Objective XXII (a) to 'take appropriate steps to encourage people to grow and store adequate food.'

The agricultural sector has the potential to sustain its historical reputation as the primary driver of economic growth and poverty reduction, and has been given the highest degree of attention in national development planning processes as reflected in the ambitious goals of Uganda's Vision 2040 being 'a transformed Uganda society from a peasant to a modern and prosperous country within 30 years, and subsequent plans and policies. Amongst the Vision 2040 strategies, the government aspires to transform agriculture from subsistence to commercial agriculture, provide food and income security, and create employment along the commodity value chain. The goal of the National Development Plan (NDPII) is to propel the country towards middle income status by 2020 (NPA, 2015). It recognizes agriculture as the backbone of Uganda's economy and one of the priority development areas, emphasizing commercialization of agriculture, agro-processing and marketing as a path to industrialization (NPA, 2015).

The 5-year Agriculture Sector Strategic Plan defines the priorities and interventions guiding its implementation, articulating the national agricultural development priorities in the National Development Plan (NDP II) and the National Agriculture Policy (NAP) 2013. It prioritizes 12 commodities (bananas, beans, maize, rice, cassava, potato, tea, coffee, fruit and vegetables, dairy, fish, and livestock) and four strategic commodities (cocoa, cotton, oil seeds, and oil palm) based on their contribution to household income and food security among others. Investment

over the medium term will focus on: research; extension; pest, vector and disease control; provision of quality inputs; post-harvest handling; improving markets access and value addition.

The Agriculture Sector Strategic Plan observes that production of oil palm requires economies of scale and that it is currently dominated by nucleus estates. But due to the interest shown by smallholder farmers, there is significant potential for improvement of household incomes by integrating smallholders into the scheme. The plan also highlights that despite its considerable potential, oil palm production faces productivity, processing and marketing challenges. Investments to address these were planned to cover land identification and acquisition, plantation establishment and development, with a total of 40,000 ha of land targeted in 14 trial districts.

At district level, development strategies provide an opportunity for local governments to decide what they want, and how development will be influenced over time. In Uganda, five-year district development plans are hinged on the National Development Plan, creating a link to the country's strategic direction and the Vision 2040, thus ensuring the adoption of national sectoral highlighted priorities. Under the Buvuma District Development Plan (DDP II) 2015/2016-2020/2021, the production and marketing services sector's broad objective is 'a competitive profitable and sustainable agricultural sector' (BDLG, 2015) that aims to improve rural incomes and household livelihoods and food and nutrition security. The start of the vegetable oil project is one strategy to achieve their objectives within this planning period. The Kalangala District Development plan recognizes that many more people have adopted crop farming as a livelihood compared to five years ago. Oil palm is now produced at commercial level, and the plan proposed to extend oil palm growing to outlying islands of Bunyama and Bubembe (KDLG, 2015) as one of the investment options for realizing the district's vision.

Lessons learnt from implementing VOPD

VODP aimed to establish a new oil palm industry with heavy dependence on a single private-sector partner. Phase I operated in a small geographic area with new forms of land use, a plantation/smallholder mode of production (MAAIF, 2003). A nucleus estate of 1000 ha was initially planned on Bugala Island, Kalangala district, together with 3500 ha of smallholder development for a total planted area of 4500 ha. After failed negotiations with the original private sector investor, it was redesigned in 2000-2003 and in the new negotiations with BIDCO Oil Refineries Limited (Kenya), the nucleus estate was increased to 6500ha, with 3500ha for smallholder development, bringing the total area planted to 10,000 ha. The inception phase of VODP in Bugala island was to address high poverty levels in Kalangala district (FAO, 2013; Nsamba-Gyaviira and Kamusiime, 2015), with the first phase ending in June 2012 (FAO, 2011).

Socio-economic perspectives

Since the inception of VODP through to the end of its second phase, the emphasis was on meeting project objectives, and a series of reviews and supervision reports note that this has been achieved. The focus of these reports was skewed towards the area of land acquisition and planting (nucleus and smallholder estates), achievements in operations of OPUL, KOPGT, agronomy and agrochemicals (where use of paraquat was observed in VODP), price of fresh fruit bunches (FFBs), and infrastructure development. All of these socio-economic aspects are important to enhance community buy-in, hence the necessary support for scaling up new interventions. In the November 2018 VODP supervision report, for example, it was indicated that planting targets in Kalangala were 99% achieved for the nucleus estate and 94% for smallholders, while the target of 2500 ha of smallholder plantings in Buvuma had been moved to NOPP. The strengthening of institutional framework in Kalangala, with registration of the growers' association as a primary cooperative, the completion of the first corporate audit for KOPGT, as well as concerns for the oil palm supporting infrastructure, were well captured.

However, while delving into the achievements regarding tons of crude oil produced, the establishment of the nucleus estate, and the financial sufficiency of KOPGT, there is also need to evaluate other impacts, primary and secondary, resulting from the introduction of oil palm in these hubs, in order to provide a clear path towards improvement. For example, government land acquisition in Kalangala led to contestations, with a court case against BIDCO and the involvement of the IFC ombudsman (CAO assessment report, 2017). Yet similar stories are rife in Buvuma under VODP II, with cases of inadequate community sensitization prior to compensation, and inadequate and delayed compensation. There were also third parties that extended scrupulous loans to cash-constrained community members who had vacated their land while compensation was delayed. These in turn led to a complex of socio-

economic ills, creating landless and hopeless communities, and abandoned women and children as husbands took off with compensation cash. While the project is hinged on improving the livelihoods of island people, a report on economic trajectories (Masiga et.al., 2019) shows that most beneficiaries are migrants, with 40% and 70% of settlers in Kalangala and Buvuma respectively being new settlers, while out-migrations of indigenous people due to the oil palm project have been highlighted (Bigirwa et.al., 2019).

Being a monocrop with a closed canopy, mature oil palm does not allow for intercropping with traditional food crops such as banana, beans and maize. With expanses of land under oil palm and other hubs targeted, there is a need to highlight issues of food security. The growing nucleus estates, coupled with inadequate knowledge of food insecurity among smallholder farmers, may escalate to the 'sugar-industry levels' in eastern Uganda, where farmers were encouraged to plant sugarcane leading to malnutrition in the region. In addition, there is need to further highlight labour rights and wage levels, the balance of trade (where the nucleus estate is much bigger than combined smallholder enterprises), and price regulation that benefits smallholder farmers in a situation with a single buyer (monopsony). While the reporting on such projects focuses on encouraging economic success, aspects such as those highlighted require urgent attention and the notice of all stakeholders, especially those who fund and support them.

Environmental perspectives

In VODP I and II there have been commendable endeavours to establish the nucleus estate and land for smallholder production outside national protected forest reserves. However, respect for the 200 m buffer along the Lake Victoria shore as stipulated by law has been under contention with regards to oil palm development, and contraventions have been clearly mapped (Nangendo et al., 2019), with 694 ha of oil palm plantations falling within the Bugala island buffer zone. Issues of pollution have been reported by NAPE and Friends of the Earth, but require justification with measurements against a baseline. Extensive use of agrochemicals, including the earlier use of paraquat in oil palm plantations known for its negative effects on human and environmental health, and gross disrespect of buffer zones including by smallholders lead to increased pollution of the lake, but this needs to be quantified.

In a recent VODP supervision report (IFAD, 2018), palm oil investment in Kalangala is considered to have been carried out in an environmentally sustainable way, and that the project has adopted a high standard of environmental norms that minimizes environment impacts. It is further envisaged that with NOPP, both social and environment officers will be hired to improve the social and environmental aspects of the project. VODP supervision reports tend to mention environment aspects in short paragraphs, while climate change has been reflected as affecting oil seed areas in northern Uganda.

> "The problem we have in this country is that the politicians only focus on economic benefits of the project, forgetting that replacing natural trees with oil palm '*trees*' will have fundamental environment implications."
>
> David Kureeba, Programmes Officer, National Association of Professional Environmentalists (NAPE), (Daily Monitor, 7 August 2017).

Prior to oil palm plantations, vegetation in Bugala island included 70% secondary forest cover, less than 10% cultivated land, the remainder being undulating grassland and swamp (Nangendo et al., 2018; 2019). Trends in land cover change in Kalangala indicated that the dominant land use in 1990 was fully stocked tropical high forest, but by 2015, this had been reduced to less than half (from 52% to 22%) while subsistence farmland stayed relatively similar, but uniform farmland (i.e. oil palm) increased by 8231 ha, while fully stocked tropical high forest decreased by 15,215 ha. In Buvuma, fully stocked tropical high forest had been reduced from 45% to 6% between 2000 and 2005 (Nangendo, 2018). Prior to oil palm development aspirations in Buvuma, upland rice coupled with charcoal burning were key drivers of rapid forest degradation. However, with the start of land acquisition in the 2000s, this degradation was accelerated on pretext that after all, BIDCO will have to clear the forests anyway.

The impact of oil palm development on the environment and specifically on biodiversity was already described by Wambi (2009) as destroying rich habitats and as a threat to biological diversity in Bugala island. The pressure on forests and key ecosystem services and the loss of forest resources can either be direct, through clearance

by the project or associated outgrowers, or indirect where communities loose immediate forest resources through land acquisition and then have to turn to remaining protected reserves for provisioning, regulating, supporting and cultural services. At the extreme, encroachment is visible, e.g. Towa forest in Bugala island, or complete takeover of gazetted reserves by communities. A classic case in Buvuma is where several forest reserves are only 'land reserved for forest' but are completely occupied by subsistence farming and homesteads. This land pressure exerted by the project without due consideration of community mobility and migration, extending pressure to other fragile ecosystems such as wetlands, watercourses and rangelands. For example, subsistence farmland already occupies 1936 ha in the lake buffer zone, representing 54% of Buvuma island (Nangendo et al., 2019).

Buvuma has considerable grassland on thin or very thin soils over rock beds that is not suitable for agriculture, but only for low quality grazing land. This covers 19% of the district and 9% of Buvuma island (Nangendo et al., 2019). The VODP land acquisition map in Buvuma excludes such areas as they are not productive even for oil palm. However, when trying to fit the projected 10,000 ha oil palm planting capacity on Buvuma island (Nangendo et al., 2018; 2019), only these rocky grasslands, protected areas and fragile ecosystems will be left for the project beneficiaries (indigenous communities) to occupy, and which are entirely unsuitable for subsistence farming. So where are inhabitants expected to grow their food crops?

> "BIDCO has been allowed to devastate the district. It has destroyed 40% of the natural forest cover on Bugala, the main island."
>
> Harriet Saawo, Kalangala district natural resources officer (International Press Service, 2 November 2009)

Assessment of implementation of ESIA recommendations

In undertaking oil palm development under VODP I and II, environment and social impact assessments were undertaken and the following is an analysis of the implementation of their recommendations. The project successfully achieved the planned 10,000 ha as projected with a complete nucleus estate of 6500 ha and smallholder estate of 3500 ha, even after delays in starting the project. This has helped grow project implementation experience in partnership management. It must also be taken into account when considering the costs and benefits on a broader scale, that only 250 km of the projected 310 km of road (81%) was constructed during the project timeframe, and only 22,662 t of crude palm oil was produced against a projected 34,865 t (65%) (MAAIF 2016).

Environmental impacts

The loss of existing natural forest was to be mitigated by setting up of woodlots, phasing of vegetation clearance, avoiding the clearing of gazetted forests and planting of cover crops. However, the phased clearance was negated due to time constraints while catching up with lost time of project implementation, and whereas gazetted forests were avoided, woodlots and cover crops have only recently been planted in some areas. The ESIAs ought to have emphasized the need for native cover crop and establishment of native woodlots or leaving patches of forest for biodiversity retention.

For sensitive ecosystems such as riverbanks and lake shores, the ESIA proposed avoiding them, and recommended suitable location of the mill and treatment of effluent to avoid pollution. However, direct and indirect impacts of the oil palm project have impacted sensitive areas as land for other community activities has gradually reduced. The disrespect for lake and river buffers has been noted more directly through the smallholder schemes coupled with the use of fertilizers that potentially find their way into the lake. The ESIA recommended project support to the district to enact desired ordinances, but their implementation is yet to be achieved. The ESIA ought to have recommended support to the district to enforce existing policy and regulations, and that project management undertakes regular audits following well described baselines on issues such as pollution.

Under disposal of wood debris from forest clearance and the decline in timber production, this would lead to reduced availability of forest products. Hardwood species would be converted to timber while other wood products would be converted into compost. It was further anticipated that gazetted forest reserves would continue to supply timber through production zones, while private forests would continue to supply other products. The ESIA also

encouraged retaining trees in farmland, agroforestry and afforestation programmes. However, illegal timber harvesting remained high, with some gazetted forests completely turned into community land as in Buvuma, while private forests continue to dwindle with the expanding network of smallholder plantations in Bugala. The ESIA should have guarded against complete clear felling of large forest areas, and retaining corridors of native forest along with the oil palm estate. With further expansion of oil palm, afforestation is a dream while agroforestry faces stiff competition from the small areas left for food production.

Regarding degradation of soil from erosion and removal of vegetation cover, the ESIA proposed erosion-prone areas to be planted with Paspalum notatum along tracks and roadsides, planting cover crop such as Calliandra or Pueraria also useful as mulch and fodder, while the closed canopy was expected to reduce erosion. Erosion continues to be a challenge in some areas however, with none of the recommended cover crops used, leading to the need for continued use of fertilizers to improve yields, increasing farmer expenses and contributing to pollution.

Key aspects under mammals and reptiles in the ESIA centered on loss of habitat, behavioral change (species turning into pests) and impacts of pesticides. The proposed mitigations included phased vegetation clearance to allow for adaption, preservation of lakeshore vegetation, integrated pest management and protection of key habitats from pesticides. All these have however been either completely negated, or as in the case of rapid vegetation clearance to catch up with lost project time, were only partially implemented. Major aspects by the ESIA included impacts on birds by loss of habitat, soil erosion and siltation. Mitigation was centered on avoiding 'important bird areas' and protection of the mandatory 200 m lake buffer. Although such areas were avoided, the pressure of the project on land and forests did not spare them from indirect encroachment.

It is essential to retain vegetation cover along streams, rivers and lake shores, and use of good mechanical and agronomic soil and water conservation systems. But in some cases, buffers have been grossly disrespected, sometimes by smallholder farmers because oil palm has occupied all other land. ESIAs must also recognize that climate change is not just a factor of changing vegetation cover and soil and water conservation. Other pollution control measures and protection of carbon sinks within fragile ecosystems among others are important climate change control factors. Climate variability and extremes, together with conflict and economic downturns, have been sighted as threatening to erode and reverse gains made in ending hunger and malnutrition (SOFI, 2018).

Socio-economic factors

With increased pressure on food and energy, development of by-laws on food production and increasing agricultural extension services were proposed as remedial measures. Where land is an increasingly scarce resource with expanding oil palm, efforts geared towards food production and security seem not to match, and no by-laws on food production have been enacted as recommended. Although importation of food from the mainland to Bugala in particular was previously not an option for the people of Kalangala, currently, most food consumed on the island is imported from Masaka and beyond through the Bukakata landing site. For Buvuma, though land acquisition is still ongoing, it already has a low food security score and dietary diversity as compared to Kalangala (Masiga et.al., 2019).

Spring wells were lost during clear felling of forest, and lowering of water tables was noted as a potential impact. Provision of boreholes and use of lake water were proposed as remedial measures, but the average distance of communities to existing water sources has increased for many, with some walking up to 3 km to collect water. Where boreholes exist, maintenance is a problem with some broken and not in full use. Safety of lake water for home use should also be scrutinized as levels of pollution, sedimentation and eutrophication increase, with a need for continuous monitoring through periodic laboratory analyses needed as an element of the project.

Under the strain on social services, the ESIA proposed construction of a fully-fledged hospital to handle serious cases, a healthy facility within the nucleus estate, and provision of additional safe water sources. Temporary housing during start-up phases was also recommended. This was justified especially with an increasing population away from mobile fishing communities. The state of health services on islands where oil palm development is currently undertaken still requires a revisit of this recommendation and water sources need improving. However, housing at least has been adequately addressed especially within BIDCO estates for their staff.

With regards to HIV prevalence, programmes were to be initiated and existing ones improved. However, HIV prevalence on the islands continues to soar with the current prevalence in Kalangala district almost ten times the national average. This is partly as a result of migration, including prostitution in a quest for financial gains as the project expands.

Cumulative project impacts

Overall, ESIAs concentrate on immediate project impacts within the surrounding and immediate project sites and ecosystems, without a comprehensive mix of other development factors beyond the islands and on the waters of Lake Victoria. Issues of health and particularly HIV prevalence, pollution of lake waters, migration, climate and environmental stresses, energy and food insecurity among others all stretch beyond the project area and manifest differently over the project period especially in combination with other competing developments.

Examples include increasing pressure on forests and their resources as populations grow while private forests disappear, leaving added burden to the protected forests. Lake Victoria is already under pollution stress from surrounding fish factories, processing industries, and urban area. This cumulative pollution has far reaching impacts and should be acknowledged, with remedial measures that go beyond project areas and timeframes into integrated water management and protection of catchment area plans. Another example is the spillover effects of HIV/AIDS as migrations between the islands and the mainland continue. This has a tendency of eroding and undermining affective programmes to manage the epidemic beyond the project area, which will have overreaching impacts on general health services.

> "How sure are we that we shall gain from this financially? Won't it become a failure like so many other agricultural projects the government has come up with? Won't it take us to total poverty since we shall have already sold off our land?"
>
> Bukaayo village member, Busamuzi sub-county; Kanyerera-Namuziru, Buvuma (NOPP ESIA, 2015)

Addressing of VODP ESIA issues in NOPP

The NOPP ESIA (2015) is a comprehensive document addressing most of the missing links within the earlier VODP ESIAs, and includes mitigation measures, which if followed meticulously, may yield positive results. It included a wide range of stakeholders from line ministries, departments, fisheries organizations and district technical staff, but with almost no engagement of civil society. Cumulative and residual impact issues are now well captured and they emphasize the severity of land conflict and the shift in community structure due to increased pressure on remnant forest. But the cumulative impact assessment (CIA) is only focused on Buvuma, and does not extend to the broader Lake Victoria area that surrounds the project area.

The ESIA highlights the possible dangers of the current development of oil palm to the loss of species diversity, and focuses on the need to use biodegradable agrochemicals and to allocate only 10 acres (2.5 ha) per smallholder to allow for crop diversity and food security. The Buvuma scenario is premised on the potential unreliability for smallholder farmers to produce fresh fruit bunches, hence the larger size of the nucleus estate. The following points are considered crucial to supplement the ESIA.

- Clear and concrete plans for alternative livelihoods, with by-laws, types of needed food crops and gazetted land for food production, as stipulated for oil palm, to respond to anticipated food insecurity and malnutrition.
- Oil palm being a labour intensive crop and generally a male activity, means that there is a need to strengthen gender balances in the oil palm production chain.
- Use of local labour should be acknowledged, to benefit intended beneficiaries in Buvuma, rather than to import more than 75% of the labour needs as it has happened in Kalangala.
- Government development of social structures and infrastructure should occur in tandem with the speed of oil palm development, to prevent scenarios of high populations with very low social services.

In moving forward, such positive criticism of the project is intended to streamline future activities for improved inclusivity, sustainability and success, and should be a welcome move in a bid to build partnerships to provide linear support or auxiliary and alternative positions.

Overreaching factors in oil palm development

The development of NOPP for import substitution because of the high dependency of Uganda on edible oil imports is an applaudable venture, and VODP has contributed to an increase in national vegetable oil self-sufficiency from 30% in 2008 to 60% in 2018 (NOPP, 2018). The adopted nucleus estate and smallholder farmer model aimed at inclusiveness and the balancing of socioeconomic development and was a key component in the initiation and establishment of the oil palm industry in Uganda. However, a more desirable model must include more land for smallholder farmers than for the nucleus estate, and that smallholders are well facilitated and trained in sustainable oil palm growing. Expansive nucleus estates come with the need for land acquisition, but this does not improve rural incomes as people meant to benefit from oil palm have to leave the land for nucleus estate establishment.

Land acquisitions have been a source of delay and conflict, in as much as it was envisaged that by December 2018, phase II of the project would have established 2500 ha of oil palm in Buvuma, but this has not been achieved. Rather, the government has so far purchased 7591 hectares of land, of which 5114 ha are free of encumbrances and have been offered to BIDCO while clearing of encumbrances continues on 2477 ha and was to be offered to BIDCO by end of March 2019. Although expansion is expected under NOPP, it is advisable to put more emphasis in resolving existing challenges before thinking of expansion. Exploring the organization of smallholder farmers without displacement of communities in the process of expansion of oil palm growing to new hubs should be the focus as noted in the NOPP final project design.

Benchmarking of project targets and successes has been well done in terms of land acquisition, targeted planting and development of both nucleus and smallholder estates, infrastructure such as roads, ferries and docking sites with clear figures along project and supervision reporting. The monitoring, verification and reporting framework being implemented by the project is however, silent or usually makes only passing mention of other socioeconomic issues such as water scarcity, protection of water catchments, pollution, health (including HIV/AIDS), food insecurity, areas of tree planting, and expectation management, of which no data is presented. These along with the lack of clear benchmarks, hamper the socioeconomic welfare of the communities that are the intended project beneficiaries. NOPP, if well implemented, proposes to hire and equip a social and environmental team to empower community members to seize the emerging economic opportunities, by developing both non-oil palm farming and non-farming livelihood activities, and mitigate the potentially negative effects of oil palm investments in areas such as land tenure security, food security, social and HIV/AIDS issues, environmental protection, and management of natural resources (NOPP, 2018).

Within the monitoring plan outlining potential impacts and proposed mitigation measures, there are anomalies in defining some mitigation measures. One example is under loss of existing natural vegetation, where it was misconceived that establishment of oil palm will add to forest cover. However, plantations like oil palm are low biodiversity areas and cannot compare with natural forest. As much as 50% of all deforestation with related loss of biodiversity on Borneo between 2005 and 2015, for example, was driven by oil palm development (Meijaard et al., 2018). While focusing on oil palm establishment and development, there is need to develop land use plans to harmonize development and conservation, promote enrichment planting in forests and other degraded habitats, and promote natural ground cover rather than introducing alien cover crops (Namaganda, 2018).

Policy is an integral part of sustainable development. Conflicting policies can be used as a conduit to undermine the success and sustainability of projects. The Uganda agriculture modernization policy implicitly encourages monocultures and agrochemical-intensive farming systems that contribute to loss of genetic diversity through over-specialization and pollution of subsoil ecosystems (NEMA, 2016). The National Biodiversity Strategy and Action Plan II (NBSAP II) (2015-2025) recognizes the implied negative impacts of encouraging such farming systems, and recommends integrating environmental concerns in all development-oriented policies, planning and activities at national, district and local government levels, with full participation of the people (NEMA, 2016). In order for line ministries, project management and intended beneficiaries to achieve the goals together, harmonizing of such policies will be crucial.

Current status of NOPP and IFAD proposals

The National Oil Palm Project (NOPP) was proposed to start in the financial year 2018/19. NOPP will draw on the experiences from the oil palm investment in Kalangala under VODP and VODP II and is to build on the opportunities generated by a growing domestic palm oil industry. It is focused on transformation of the economy by developeing areas suitable for oil palm production to sustainably improve the incomes and livelihoods of rural communities. The project targets to establish 15,000 ha of oil palm, of which 12,000 ha are to be planted on individual smallholder plantations in areas of 2ha or less, supported by NOPP development loans that will be rolled out over a maximum of 2 years. The ten-year project will start with smallholder development on Buvuma Island in 2019/20 followed by the Mayuge Hub in 2020/21, Masaka Hub in 2021/22, and the fourth hub in 2023/24. The project's due end is 2027/28. (IFAD, 2017; NOPP, 2018).

The total cost of the pending oil palm programme is US$210 million, one third paid from global aid (the International Fund for International Development, IFAD), part of the World Bank Group, i.e. from public (tax payers) funds/ pockets. The total cost of NOPP inclusive of taxes and duties is estimated at US$210 million (UGX 815 billion), with US$76 million (or 36%) financed by an IFAD loan and grant, US$91 (43%) from the private sector, US$14 million from reflows of development loans disbursed under VODPII, and US$17 million (8%) by the farmers themselves in various forms, and US$11 million (5% from the government).

The Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) is the lead implementing agency for the NOPP and works with other government agencies as needed to ensure effective programme implementation. A multi-agency Project Steering Committee (PSC) chaired by MAAIF, and meeting twice every year, will provide strategic guidance to programme implementation, review the Annual Work Plans and Budgets, and review implementation progress and impact. It will also provide high level advice on key issues raised by programme management on which it requires guidance.

The NOPP has three components namely; scaling-up smallholder oil palm development, livelihoods diversification and resilience and oil Palm Sector Development Framework that will establish the enabling conditions for the sustainable scaling-up and long-term development of the sector. The NOPP design is characterized by key features encompassing scaling up and replicating the successful elements of the Kalangala experience, increasing total area under smallholder production from the current 40% to around 67%, mitigate the risks associated with rapid economic development, ensuring compliance with social and environmental safeguards for GoU, IFAD and the Roundtable on Sustainable Palm Oil (RSPO) and supporting the development of national policy framework to guide the long-term development of the sector. The NOPP approach revolves on individual smallholder engagements (80%) than nucleus estate establishments (20%) with an estimated 30,800 households (154,000 individuals) directly benefiting from the NOPP activities. Of these, 11,000 households will benefit as smallholder oil palm growers and 19,800 from the alternative economic livelihoods (IFAD, 2017; NOPP, 2018).

The NOPP will strengthen existing VODP Project Management Unit Monitoring and Evaluation (M&E) team by including a Monitoring and Evaluation and Learning Manager supported by a Knowledge Management and Communication Officer. The national office will have a Monitoring and Evaluation Officer and assistant for each oil palm development hub in addition to Social and Environment officers. NOPP will further undertake ESIAs and related studies for NEMA and IFAD approval with additional High Conservation Value (HCV) assessments for smallholder areas done by the private sector partner. To address increased pressure on the environment caused by the increased economic activity associated with oil palm cultivation, the NOPP plans to support Environmental Management Campaigns in each hub.

Uganda has good and well-thought out policies and plans but these fail at the implementation stage. The NOPP has a wealth of good ideas that could uplift community livelihoods as well as sustain the environment. However, there are gaps in assessing cumulative impacts of the project that will pile over other existing impacts from both social and economic perspectives. The pressure caused by the project on existing health facilities, economic dynamism, environment and ecosystem services and the plight of indigenous communities require in-depth analyses. Focus should therefore go beyond campaigns to include rehabilitation of the degraded habitats as a result of project implementation (extended pressure) and in addition, compliance to national environmental policy instruments,

including the implementation of mitigation measures outlined in the project monitoring and evaluation frameworks or further extend to IFC compliance given the origin of funding from IFAD.

Assessment framework to appraise NOPP implementation

Sustainable management, ecosystem conservation or restoration is key to adaptation strategies that take into account the multiple social, economic and cultural co-benefits for local communities. Local livelihoods and food security depend on equitable, continuous and environmentally sound access to the benefits that sustainable agricultural lands, forests, savannas, wetlands and waters provide. An assessment framework for NOPP would contribute to the benefits to be accrued from oil palm development if there is a real interest in deploying cost-effective adaptation approaches, and is presented below.

Objective	Actions	Goal outcomes
Characterization of target populations in scaling out oil palm development	• Analysis of demographic characteristics of the target communities	Understand population dynamics in target landscapes for effective engagement in oil palm development
Assess vulnerability to land use changes in target oil palm development landscapes	• Assess land tenure and availability for oil palm development without compromising food security • Assess current livelihood options and how these have changed over time • Assess community perceptions towards the nucleus model approach in oil palm	Understand prospects of livelihood improvement and resilience in target oil palm development landscapes, and the vulnerability profile of target communities
Determine enabling conditions for sustainable scaling up of oil palm developments	• Assess level of consultation in design of NOPP • Assess the different probable opportunities and approaches in upscaling NOPP • Assess NOPP governance arrangements that ensure transparency, efficiency, and responsibility	Enabling conditions established for sustainable scaling-up and long-term oil palm development sector
Define adaptation priorities for oil palm, considering analysis of the context, vulnerability profile and ecosystem services	• Assess essential landscape and ecosystem components to increase adaptive capacity in the face of oil palm development • Map the most vulnerable ecosystem components and hot spots in target landscapes for current and future climate/livelihood impacts • Increase future adaptive capacity according to trends under different scenarios • Perform a cost-benefit analysis of adaptive measures that best fit the socio-economic context	Adaptive priorities assessed and measures put in place

Recommendations

Oil palm has been produced in Kalangala for over 12 years, with many lessons learned. But to ensure mistakes are not repeated in Buvuma when planting begins, actions are needed by the government, donors and BIDCO.

1. IFAD and the government should establish socio-economic and environmental benchmarks to better assess future reporting, and they should also ensure reporting formats remain consistent.
2. IFAD and the government should support local governments to include environmental and social monitoring and evaluation indicators of oil palm projects in District evaluation frameworks.
3. The government should include instruments in NOPP that oblige BIDCO/OPUL to support smallholder inclusivity in oil palm production, e.g. Creating Shared Value (CSV), allowing OPUL to maximize revenues whilst offering benefits that add to the local community livelihoods.
4. BIDCO/OPUL should better support outgrowers to help in their compliance with environmental considerations such as respecting lake buffer zones and wetlands.
5. The national regulator (NEMA and MAAIF) should strengthen environmental and social compliance, including residual and cumulative impacts, through regular and publicly-available audits and monitoring reports.

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The impact of oil palm on land cover and land use in Kalangala and Buvuma: trends and future predictions

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Summary

This assessment undertaken in July-August 2018 involved the collation of Landsat satellite images obtained from the National Forestry Authority, verified by extensive ground-truthing in both districts, and other field observations. The CLUMondo model using logistic regression was used to make predictions on future land use changes. This contributes to our understanding of the impacts of oil palm development in Kalangala, and especially on conversion of natural forests and non-compliance regarding respect for the 200 m lake buffer zone. Projections should be used to guide further developments, especially regarding the proposed implementation of the new ten-year National Oil Palm Project (NOPP).

Kalangala – Fully stocked tropical high forests have been significantly displaced by oil palm on Bugala Island since year 2000, declining from 58% to 20%, while oil palm increased from 0 to 28%. Grasslands were also significantly reduced by more than half. Modelling future changes to year 2030 predicted an increase in oil palm from 28% to 36%, with losses in all other land uses. In addition, oil palm plantations surround most remaining tropical high forests, creating hard boundaries without buffers that make the forests more vulnerable to edge disturbance.

Buvuma – Conversion of land cover from natural vegetation has been indiscriminate on Buvuma Island resulting in complete obliteration of some forest reserves, with some now entirely under subsistence agriculture and settlement. The obliteration was accelerated by the announcement of the new oil palm project in 2005. Evictions of communities previously occupying Mabira and Butamira Forest Reserves on the mainland also led to a population influx that decimated natural vegetation and riparian/buffer zones, converting them to subsistence farmland. Actualization of the oil palm project to the proposed scale will reduce agricultural land by 50% with serious implications on the supply of food and the general livelihoods of local communities.

Comparison – There is more riparian/buffer zone vegetation in Kalangala than in Buvuma. Whereas 68% of the buffer zones in Kalangala consisted of natural vegetation including tropical high forest, woodland, bushland, impediments and grassland, Buvuma had only 39% of the lake buffer zone with natural vegetation with the rest being subsistence farmland. Additionally, remaining forest reserves are generally better protected in Kalangala than in Buvuma, but however, with increasing pressure. Protected forests in Kalangala have relatively fully stocked tropical high forest whereas the few remaining forest reserves in Buvuma are all degraded. Prediction models illustrate that most of the remaining forest in Buvuma would be lost by 2030 even in the event of no oil palm with major implications on ecosystem services. However, the model projects minimal agriculture in the event of full-scale implementation of oil palm, bringing doubts of strained food security and livelihoods.

Implications – To improve the living standards of communities without compromising the natural resource base or hindering implementation of planned projects, an integrated approach is required that factors in food security and ecosystem services through participatory land use planning including all stakeholders. Rehabilitation of degraded forest reserves and riparian buffers through restoration efforts can also further enhance community buy-in.

Methodology

The main aims of this research were fourfold. These were to: (i) use current land use maps produced in earlier studies in 2017 and 2018, and existing oil palm investments maps (nursery sites, nucleus estate sites, recreation facilities etc.) to model impacts of oil palm, (ii) collect ground truthing data for the analyses and update the land cover/use map of Kalangala, (iii) project scenarios in line with the time frame of NOPP, and (iv) map the forests and buffer zones and identify whether these are sufficiently and effectively protected.

The study covered the Kalangala landscape, which includes Kalangala and Buvuma districts (Appendix 1). Focus was on the main islands of both districts i.e. Bugala island in Kalangala district and Buvuma island in Buvuma district. An earlier study carried out in this landscape (Nangendo, 2018; Ssemmanda and Opige, 2018) showed that land cover changes in the two districts did not follow the same trajectory and the major drivers of cover change varied significantly. To fully explore these differences, the report will be presented in separate sections for each district.

Challenges encountered when undertaking fieldwork included inaccessibility of some areas due to problems of access with poor or no road infrastructure over large parts, especially in Buvuma district. Also, planned collection of additional ground truth data on smaller islands was not possible due to high water levels during the period of study. There was also some hostility from communities especially those living inside protected areas, and others who feared losing their land to the oil palm company.

Mapping the extent of oil palm

The most recent land use/land cover maps were produced by National Forestry Authority based on 2015 Landsat images used as the base maps to guide the ground truthing. Land use/land cover maps for 1990, 2000, 2005 and 2010 were also obtained from the National Forestry Authority. This was supported by stratified purposive sampling to collect ground truth data. Selection of data collection sites was guided by the 2015 land cover/land use map, protected area boundaries, identified land cover/use changes within the landscape, and knowledge gained from interaction with the district officers, palm oil company officials and other local government officers. In all, 87 data collection points were identified in Kalangela district (Appendix 2) and 61 points were identified in Buvuma district (Appendix 3). GPS points were also collected for other features which had not been identified on the 2015 map, including the location of markets and trading centers.

The 2015 land cover/use map and the map of the collected ground truth points were over laid on the most recent, and cloudless, Landsat image in December 2017 to identify areas of misclassification and areas that had changed since the preparation of the 2015 map, i.e. those that had been converted to other land cover/use or that had regenerated. Areas that had been misclassified were renamed, and areas that had changed from one land cover/use to another were delineated and assigned the correct name.

To complement land cover change maps generated in the earlier study (Nangendo, 2018), data on existing infrastructure including nursery sites, nucleus estate sites and recreation facilities was collected during fieldwork. This involved consultations, and field visits with district officers (planners, environment, agriculture and forestry officers) or local government officers who could show the fieldwork team the location of existing and planned infrastructure, provide information on agricultural development plans, and on nature protection and conservation sites. Personnel from the palm oil company were also consulted to obtain better knowledge of current and planned oil palm related infrastructure and nursery locations. In addition, GPS coordinates of infrastructure and agricultural enterprises were taken, and incorporated into land cover/use maps where features or facilities were large enough to be mapped.

Using the forest reserve boundary map, areas within gazetted forest estates were extracted from the updated land cover/use maps of Kalangala and Buvuma districts. Area and percentage under each vegetation cover class was calculated. To evaluate the integrity of the forest reserves, the identified land cover/use classes and their percentage coverage within the protected area were related to the vegetation types expected to occur within a forest reserve. For the lake buffer zone, the area covering the recommended 200 m buffer distance was clipped, and land cover/use within it was assessed for appropriateness as a buffer area cover.

The CLUMondo model

This is a dynamic and spatially explicit land-use model which simulates land use and land cover changes, based on land-use change drivers (Verburg, 2015). The CLUMondo model is a continuation of CLUE models that simulate diverse land-use types, and at the same time also assess options of simulating different scenarios which can be used to evaluate the impact of land cover changes on local level conditions (Verburg et al., 2002). Figure 1 shows the lay out of the model. The CLUMondo model is free to use, from www.environmentalgeography.nl/site/data-models/models/clumondo-model/

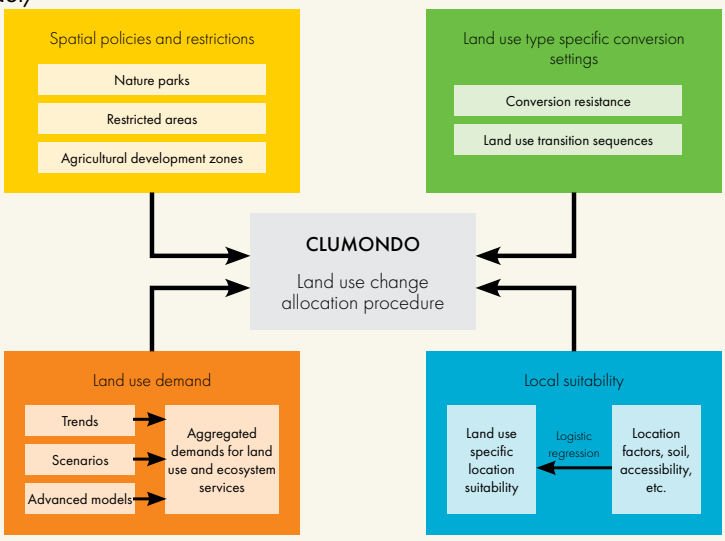

Figure 1: Structure of the information flow in the CLUMondo model (Adapted from Verburg, 2015).

The CLUMondo model uses logistic regression to make predictions. Since the company that established oil palm on Bugala island is the same one that will lead the introduction of oil palm on Buvuma island, it was assumed that they will use the same development model. The logistic regression of oil palm location developed for Bugala island in Kalangala district was, therefore, also used for Buvuma island. The variables used in the logistic regression included soil clay content, protection status (not protected areas), distance to a road, distance to the lake, slope, and elevation. Wetlands were not included amongst the predicting variables since they are already protected by the laws of Uganda (section 107 of the National Environmental Act Cap 153).

Project scenarios to meet the time frame of the NOPP

The agreement to start growing oil palm was signed in 2002 between the Government of Uganda and Oil Palm Uganda Limited (OPUL), a BIDCO subsidiary based on Kalangala island, marking the start of plantation establishment (See Figure 3), currently covering 28% of the area of the island. The Government of Uganda plans to have 10,000 ha of Bugala island under oil palm by 2030.

In Buvuma district, no oil palm plantations have so far been established, except for trial plots. The government plans to have 10,000 ha of oil palm in Buvuma island by 2030 (Abonyo et al., 2007). Given that land cover/land use is evolving, it is important to assess what the landscape may look like by 2030, to guide development plans. Scenario modelling using CLUMondo predicted how the landscape will change under two scenarios, i.e. if no oil palm was established on Buvuma island, referred to as the business as usual scenario, and a second that assumed that all of the planned 10,000 ha of oil palm were established by 2030.

The land cover maps of 2017 were clipped to Bugala island from Kalangala district and Buvuma island from Buvuma district. These were then converted from shapefile to raster format and resampled to 100 m resolution. For modelling purposes, some of the land cover classes (e.g. wetlands, open water, and built up areas) were grouped and assigned a single class called 'others', as compared to other classes, these were considered as not suitable for conversion to oil palm plantations.

Kalangala district

Kalangala district has a land mass area of 46,830 ha, more than half of which in on main island of Bugala (27,000 ha). Whereas all islands in the district were mapped, ground truth data collection was only carried out on the main island, which is the main focus of this study. Figure 2-2017 shows the district's land cover/use status in 2017. Oil palm plantations is now the dominant land cover on the main island. Most of the areas that are not under oil palm plantation are either protected tropical high forests or subsistence farmland. On the smaller islands, there still exists fully stocked tropical high forest outside of protected areas.

Land use mapping and oil palm extent

A total of 86 land cover/use points and 31 facilities and infrastructure sites were mapped in Kalangala (see Figures 3-1 and 3-2 in Appendix). Both the land cover/use, and the facilities and infrastructure ground truth maps were used to update the land cover/use maps. All facilities and infrastructure that was big enough to be mapped and was spectrally separable on the Landsat image was delineated and included in the land cover/use map.

The land cover/use change analysis carried out in an earlier study (Figure 2) show that land cover/use has changed significantly over the years (see also Nangendo, 2018).

Land cover has changed from being predominantly covered with tropical high forest in 1990 to a higher diversification (Figure 2). Oil palm was first mapped in 2005 covering a small area of Bugala but by 2017, it had the highest coverage within the island (Figure 2). Most of the areas that are not protected are either oil palm or subsistence farmland. Although smaller islands still have fully stocked tropical high forest outside protected areas, it is beginning to be converted to subsistence agriculture and depleted tropical high forest. Islands to the far east are dominated by a combination of depleted tropical high forest, grassland and subsistence farmland.

Considering the whole Kalangala district landscape, fully stocked tropical high forest had the highest percentage area coverage (22%), followed by oil palm plantations (16%, synonymous with 'uniform farmland') and subsistence farmland (15%) (Table 1). On the other hand, when only Bugala island was considered, oil palm plantation had the highest coverage (28%) followed by tropical high forest, fully stocked and subsistence farmland with 20 and 17 percent respectively. This means direct oil palm impact is mainly on Bugala island and not yet on the surrounding smaller islands.

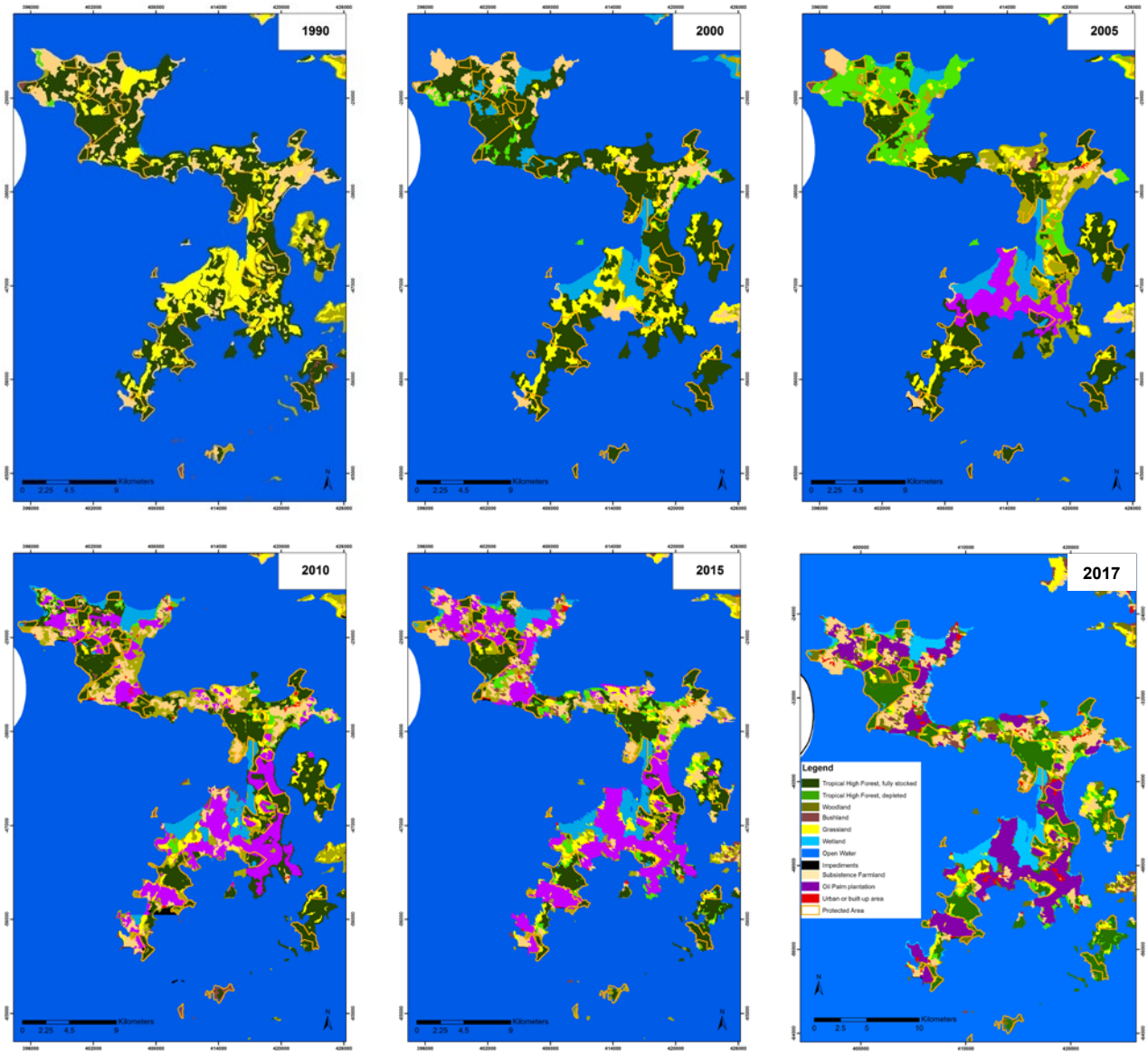

Figure 2: Changes in land cover/use between 1990 and 2017. The 1990 to 2005 maps were obtained from the mapping department of National Forestry Authority (NFA). The 2017 map was the result of ground truthing and updating the 2015 NFA map.

Table 1: Percentage land cover/land use in Kalangala district as a whole, and Bugala island specifically, 2018.

Land cover/use	Kalangala district (%)	Bugala Island (%)
Bushland	2	1
Grassland	13	6
Impediments	0	0
Subsistence farmland	15	17
Tropical high forest, depleted	9	5
Tropical high forest, fully stocked	22	20
Uniform farmland	16	28
Urban or built-up areas	2	2
Wetland	7	11
Woodland	14	10

Forest reserves and water buffer zones

Integrity of forest reserves

Most protected areas are still about half covered by fully stocked tropical high forest (see Figure 2-2017). Extraction of land cover/use of protected areas from the district map showed that within forest reserves, fully stocked tropical high forest had the highest percentage (53%), followed by woodland (14%) and grassland (12%) (Table 2). Oil palm growing in Kalangala district has, therefore, had low impact on land reserved for forest, and which has remained relatively unchanged since 1990.

Table 2: Coverage of each land cover/use type within protected areas in Kalangala district

Land cover/use	Area (ha)	%
Bushland	61	1
Grassland	1027	12
Impediments	1	0
Open water	515	6
Subsistence farmland	225	2
Tropical high forest, depleted	621	7
Tropical high forest, fully stocked	4627	53
Uniform farmland	185	2
Urban or built-up areas	86	1
Wetland	213	2
Woodland	1227	14

Integrity of buffer zone protection

Information about the acceptable buffer zone for the lake and rivers was obtained from the Ministry of Water and Environment 2003 statutory instrument, and a 200 m buffer was applied. To evaluate the integrity of the buffer zones, the identified land cover/use classes and their percentage coverage within the buffer area were related to the vegetation types expected to occur within a buffer zone.

Table 3: Land use/cover types within the 200 m lake buffer zone on Bugala island

Land cover/use	Area (ha)	%
Bushland	127	3
Grassland	166	3
Impediments	29	1
Subsistence farmland	656	14
Tropical high forest, depleted	395	8
Tropical high forest, fully stocked	946	20
Uniform farmland	694	13
Urban or built-up areas	170	4
Wetland	1026	21
Woodland	609	13

Wetland (21%) and fully stocked tropical high forest (20%) have the largest percentage covers, followed by subsistence farmland (14%) and oil palm plantations (14%) (Table 3). Overall, natural vegetation composed of tropical high forest, woodland, bushland, impediments and grassland constitutes 68% of the lake buffer in Bugala island. Of this, areas within the depleted tropical high forest, a transitional forest status, constitute 8% of the buffer, and these may be converted to subsistence farmland if protection of the buffer is not improved. It needs to be noted, however, that two land cover/use types that take third place in percentage coverage are both a conversion from natural cover. Also, urban or built-up areas covered 4%. Overall, converted land cover constitutes 32% (see Figure 3).

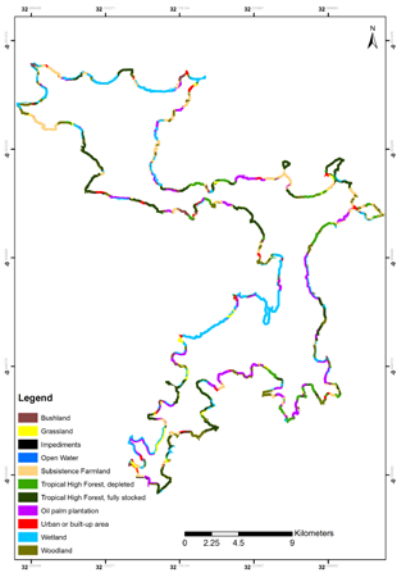

Figure 3: Distribution of land cover/use classes within the buffer area of Bugala island, 2018

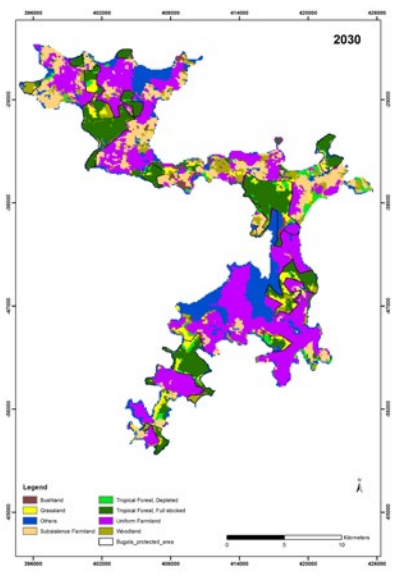

Figure 4: Predicted land cover/use of Bugala island by 2030

Projected scenarios to 2030

The Government of Uganda plans to have a total of 10,000 hectares of oil palm planted in Bugala island by 2030, with 7290 ha having already been planted. Based on the land cover trends (Figure 2 and Table 4a), oil palm has been the major driver of land cover/use change on Bugala island, percentage coverage having consistently increased over the years, and by 2017 had the highest percentage cover (28%) on Bugala island. It was therefore found necessary to explore only one plausible scenario, i.e. how land cover/use of Bugala island will have changed by 2030 when all the planned 10,000 ha of oil palm have been planted.

Land cover/use in 2017 was used as the starting point for the scenario modelling. In 2030, the area on Bugala island that would have not been converted to oil palm plantation would be mainly covered by tropical high forest within the protected areas, or subsistence farmland. The increase in oil palm coverage between 2018 and 2030 will lead to a reduction in almost all land cover/use classes, except the fully stocked forest and 'others' which will increase in size (Table 4b).

Table 4a: Land cover/use percentage of Bugala island between 1990 and 2017

Name	1990	2000	2005	2010	2017
Tropical high forest, fully stocked	57	58	27	26	20
Tropical high forest, depleted	0	3	19	3	5
Woodland	1	2	16	16	10
Bushland	0	0	1	2	2
Grassland	27	14	10	5	6
Wetland	0	11	9	9	10
Subsistence farmland	15	12	6	15	17
Oil palm plantations	0	0	11	24	28
Urban or built-up areas	0	0	0.1	1	2
Impediments	0	0	0	1	0

Table 4b: Land cover/use percentage of Bugala island between 2017 and 2030

	2017	2030
Tropical forest, fully stocked	20	17
Tropical forest, depleted	5	3
Woodland	10	7
Bushland	2	1
Grassland	6	5
Subsistence farmland	17	15
Oil palm plantations	28	36
Others	12	16

Key observations from Kalangala district

1. Land cover of Kalangala district has changed significantly, especially since 2005 on Bugala island where oil palm has displaced other vegetation, especially fully stocked tropical high forest.
2. Some parts of the lake buffer zone had been converted from naturally occurring vegetation to other land cover types such as subsistence farmland and oil palm plantations. Such areas will need to be restored.
3. Between 2000 and 2017, 38% of the fully stocked tropical high forest has been converted to other uses, mainly oil palm plantations, subsistence farmland, and urban or built-up areas.
4. Forest reserves have hard boundaries, i.e. have no buffer areas of similar vegetation outside the forest reserve boundary. So, if any further disturbance ever occurs along the forest edge, it will be within the forest reserve. Most forest reserves are surrounded by oil palm plantations.

Buvuma district

Buvuma district has a total land area of 29,889 km^2 with more than two thirds being the Buvuma island (21,692 km^2). Whereas all islands in the district were mapped, ground truth data collection was only carried out on the main island, Buvuma. Subsistence farmland is the dominant land use on Buvuma island. Most protected areas have also been converted to subsistence farmland except on the western and southern part of the island where a number of forest reserves are still covered by depleted forest or a woodland-grassland mosaic. The smaller islands are manly covered by depleted tropical high forest or grassland (Figure 5).

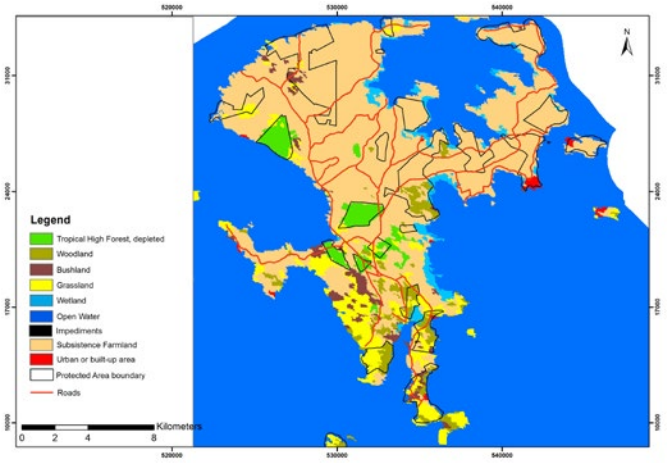

Figure 5: Land cover/use map of the study area based on 2017 Landsat satellite images

Land acquisition for oil palm

The government plans to have planted 10,000 ha of oil palm in Buvuma by 2030. Of this, BIDCO has expressed a commitment to establish a nucleus estate of 5000 ha, with the remaining 5000 ha to be mainly established by smallholder growers. Figure 6 shows all areas that have been or are being acquired for oil palm cultivation. They

are all outside the protected area estate and the main land use outside protected areas is subsistence farmland. It is, therefore, mainly subsistence farmland that has been acquired for oil palm cultivation. The area for oil palm cultivation is well distributed over the whole island.

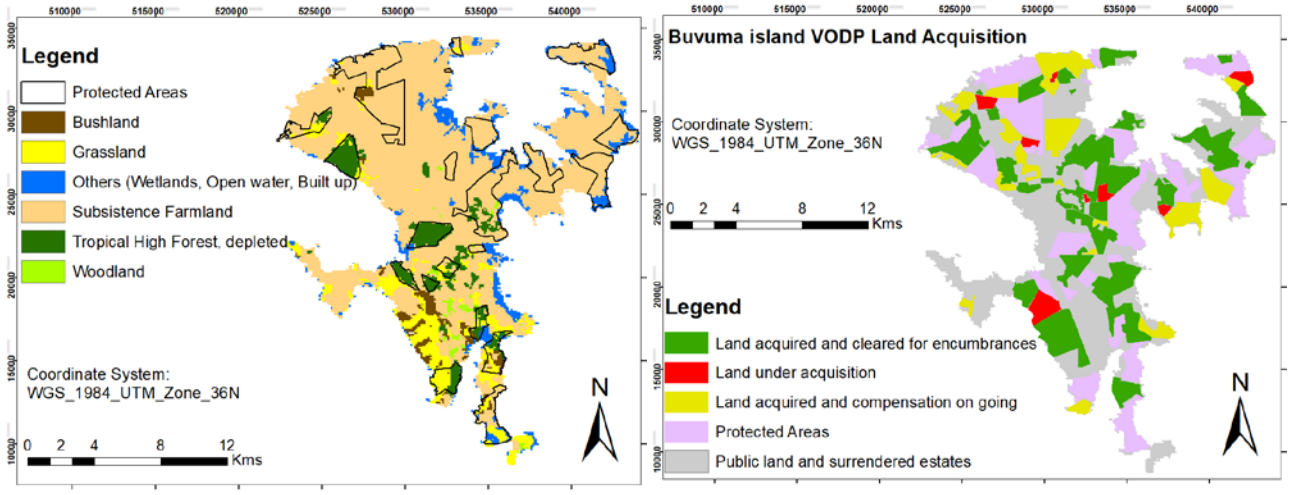

Figure 6: The 2017 land cover map of Buvuma island (left) and the VODP land acquisition status map (right)

Land use mapping and oil palm

For Buvuma district, a total of 65 land cover/use points and 34 facilities and infrastructure sites were mapped (Appendix 5). Both the land cover/use, and the facilities and infrastructure ground truth maps were used to update the land cover/use maps. All facilities and infrastructure that was big enough to be mapped and was spectrally separable on the Landsat image was delineated and included in the land cover/use map.

Subsistence farmland land use is the dominant class, especially on the main island. Whereas the northern and central parts of the main island is dominated by subsistence farmland, the south most part is dominated by a grassland-woodland mosaic. The smaller islands are dominated by depleted tropical High forest and grassland. Landing sites and urban or built-up areas were the main developments mapped. There was also a large expanse in the northern part of Buvuma island that had been cleared for setting up an oil palm nursery. The land cover change maps generated in the earlier study (Nangendo et al., 2018), and Figure 10 below, show that land cover/use in Buvuma has changed drastically over the years. The main driver of land cover/use was subsistence agriculture expansion.

Comparing the 1990 land cover map (Figure 7) where the dominant cover was fully stocked tropical high forest, and the 2017 land cover map (Figure 5) where the dominant land cover/use is subsistence farmland, shows that most of the area has been converted to subsistence farmland, even within protected areas. Forest reserves that have not been cleared for agriculture, however, have been significantly degraded (Plate 1). Most drastic changes in land cover/use were first mapped in 2005. There is a large expanse of grassland on the south western part of the main island which has survived being degraded (Figure 5), perhaps because there are large expanses of rocky areas (Plate 2).

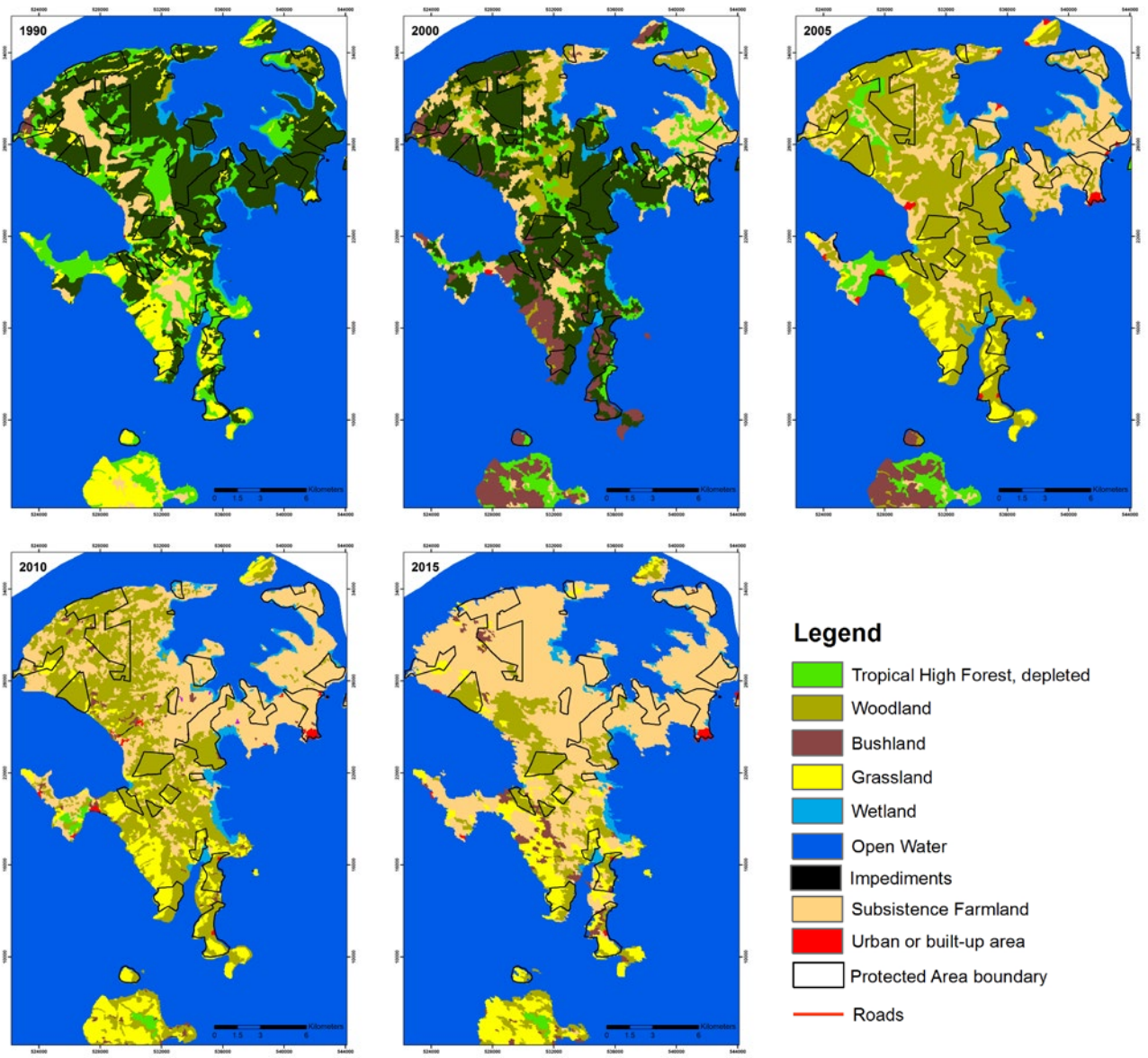

Figure 7: Land cover variation between 1990 and 2015 in Buvuma district (1990 to 2005 maps from the National Forestry Authority, the 2017 map results from ground truthing and updating the 2015 map.

Plate 1: A recently cleared forested area (left); and a cleared area within a forest reserve (right)

Plate 2: A rocky area in the southern part of Buvuma island covered by grassland

Considering land cover for the whole district and then for Buvuma island alone, subsistence farmland had the highest percentage in both. The percentage was, however, higher for Buvuma island (72.5%) than for the whole district (55.5%). This was followed by the same classes. i.e. grassland (19%) and depleted tropical high forest (12%) for the whole district and 9% and 7% respectively for Buvuma island alone (Table 5).

Table 5: Percentage land cover/use of Buvuma district and Buvuma island

Land cover/use	Buvuma district (%)	Buvuma island (%)
Bushland	3	3
Grassland	19	9
Impediments	0	0
Subsistence farmland	56	72
Tropical high forest, depleted	12	7
Urban or built-up areas	2	3
Wetland	4	5
Woodland	4	1

Although areas have already been acquired for oil palm growing (Figure 8) and as evidenced by Vegetable Oil Development Project (VODP) boundary markers encountered during ground truthing (Plate 3a), most land is still partially used for agriculture. Areas that have been abandoned are overgrown with weeds. There is also an oil palm growing trial site on Buvuma island and its crop had already started fruiting (Plate 3b).

Plate 3a: An area acquired for planting oil palm growing (left).

Plate 3b: Oil palm at a trial plot site on Buvuma island (right).

Forest reserves and water buffer zones

Integrity of forest reserves

Whereas in 1990 most of the forest reserves were covered by fully stocked tropical high forest, by 2005 they had been greatly depleted to the extent that they were mapped as woodlands (Figure 7). By 2017, all forest reserves in the north and north-east of Buvuma main island, which hosts the largest number of forest reserves, had been converted to agriculture. Forests in the central and southern part of Buvuma main island, if not converted to subsistence agriculture, were either depleted or a mosaic of woodland and grassland. Extraction of land cover/use from forest reserve areas as included in the district map showed the dominant land use within reserves as subsistence agriculture (58%) followed by depleted tropical high forest (12%) and grassland (10%). There were also some urban or built-up areas (settlements) within forest reserves (Table 6). In Buvuma district, there is much land reserved for forests, but it is not necessarily covered by forest.

Table 6: Coverage of each land cover/use class within the protected area of Buvuma district

Land cover/use	Area (ha)	%
Bushland	139	2
Grassland	644	10
Open water	360	6
Subsistence farmland	3683	58
Tropical high forest, depleted	754	12
Urban or built-up areas	73	1
Wetland	90	2
Woodland	585	9

Integrity of Buvuma island lake buffer zone

Information about the acceptable buffer zone for the lake and rivers was obtained from the Ministry of Water and Environment 2003 statutory instrument, and a 200 m buffer was applied. To evaluate the integrity of the buffer zone, an assessment of the percentage coverage of each land cover/use classes within the buffer area was carried out (Figure 8), showing subsistence farmland had the highest cover (54%) followed by wetland (21%) and grassland (10%) (Table 7). Overall, natural vegetation composed of tropical high forest, woodland, wetland, bushland and grassland constitutes only 39% of the buffer zone, the other 61% being subsistence farmland and urban or built-up area.

Table 7: Land cover/use that occur within the 200m buffer zone to the lake for Buvuma island

Land cover/use	Area (ha)	%
Bushland	128	4
Grassland	374	10
Subsistence farmland	1936	53
Tropical high forest, depleted	137	4
Urban or built-up areas	271	7
Wetland	751	21
Woodland	22	1

Plate 4: Crops established within the lake buffer zone, leaving no natural vegetation buffer at all

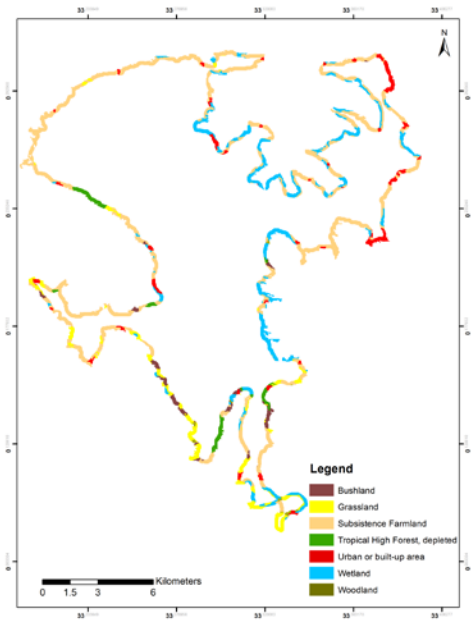

Figure 8: Land cover/use distribution within the lake buffer zone of Buvuma island, 2018

Projected scenarios to 2030

Land over/use of Buvuma island has been consistently changing. The main driver as shown in Figure 7 and Table 8 is subsistence farmland. Predicting project scenarios for Buvuma island would, therefore, necessitate exploring what the land would have looked like by 2030 if no oil palm is established on the island (referred to as 'business as usual'), and if all the planned 10,000 hectares of oil palm plantation were established.

Table 8: Percentage land cover change on Buvuma island

Land cover/use	1990	2000	2005	2010	2017
Tropical high forest, fully stocked	53	50	0	0	0
Tropical high forest, depleted	19	9	4	1	7
Woodland	1	10	54	43	1
Bushland	0	8	0	2	3
Grassland	12	0.4	10	10	9
Wetland	6	4	4	5	5
Subsistence farmland	8	18	28	42	72
Uniform farmland	0	0	0	0	0
Urban or built-up areas	0	0.1	1	1	3

The 10,000 ha oil palm coverage scenario

In Buvuma island, oil palm trial plots are doing well and were used as the 2017 land cover/use starting points for the oil palm scenario modelling. The assumption is that by 2030, all the 10,000 ha of oil palm will have been established as proposed in the government plan (Abonyo et al., 2007, KADINGO, 2009). It will mainly cover the western side of the island and generally avoids protected areas, even those that are already under subsistence farmland (Figure 9), and by 2030, oil palm would cover 46% of the island Table 9).

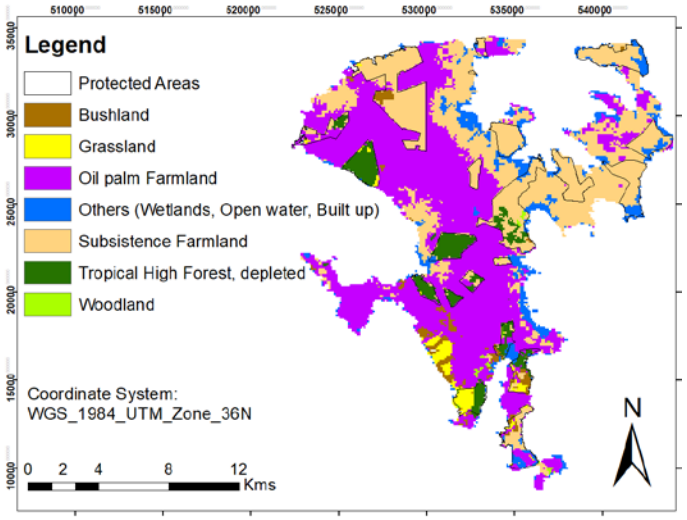

Figure 9: Oil palm distribution on Buvuma island with a total area of 10,000 ha by 2030

Business as usual, no oil palm established

The business as usual scenario indicates how land cover/use would have changed by 2030 if no oil palm is introduced on the island. The scenario was guided by land cover/use trends between 1990 and 2015, which already show that subsistence farmland increased the most over these years (Table 9). The scenario modelling revealed that subsistence farmland will increase from 67% in 2017 to 85% by 2030.

Table 9: Trend of expansion of subsistence farmland of Buvuma island, and projected to 2030 if no oil palm is planted.

Year	Area (ha)	%
1990	1785	8
2000	3767	18
2005	6035	28
2010	9052	42
2015	14566	68
2030	18145	85

Figure 10 shows that subsistence agriculture expansion would not only occupy unprotected areas, but also lead to clearing of a number of protected areas that in 2017 still had forest cover. Also, all the woodland would be lost. Grassland would mainly remain in one area which had also been observed during the ground truthing fieldwork to have a lot of rock outcrops (Plate 2).

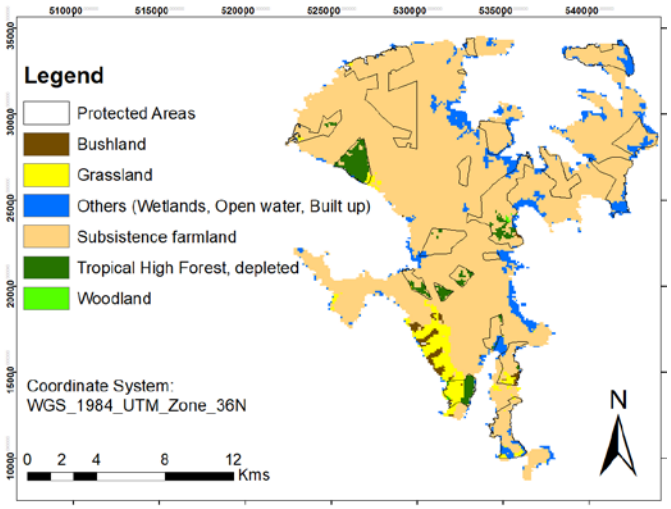

Figure 10: Business as usual scenario map for 2030

Comparing land cover/use changes under the two scenarios shows that if all the planned oil palm was planted, all land cover types would lose part of their coverage to oil palm, but subsistence farmland would lose the most (Table 10). Percentage coverage of subsistence farmland under the 10,000 ha scenario would be reduced from 72% to 36%. On the other hand, under the business as usual scenario, it would have been the opposite, and subsistence would have increased from 72% to 85%.

Table 10: Comparison of area cover change between 2017and 2030 under two scanarios

Land cover class	Land cover 2017 ha (%)	Business-as-usual (no oil palm) by 2030 ha (%)	10,000 ha of oil palm scenario by 2030 ha (%)
Bushland	589 (3%)	187 (1%)	466 (2%)
Grassland	1884 (9%)	768 (4%)	406 (2%)
Oil palm farmland	0 (0%)	0 (0%)	9956 (46%)
Subsistence farmland	15548 (72%)	18146 (85%)	7655 (36%)
Tropical high forest -depleted	1462 (7%)	579 (3%)	1136 (5%)
Woodland	211 (1%)	15 (0%)	75 (0%)
Others	1761 (8%)	1761 (8%)	1761 (8%)

The scenario assessment shows that there is still high demand for agricultural land in Buvuma island. Unlike in Bugala island where there was still much uncultivated land at the time of introduction of oil palm, oil palm will displace communities from established agricultural land, with significant food security implications, and options of how to sustain the livelihoods of displaced communities will need to be explored.

Key observations from Buvuma district

1. Land cover of Buvuma district has significantly changed. The greatest change is on the main Buvuma island, where most land has been converted to subsistence farmland by the large resident population.
2. A large part of the lake buffer zone has been converted from the natural vegetation to other land cover types such as subsistence farmland. Such areas will need to be restored.
3. Conversion of land cover from natural vegetation includes protected areas, most of which were converted to subsistence farmland. Where tropical high forest still exists, it has been depleted.
4. Should oil palm be planted at the proposed scale, it will reduce the area for agriculture by 50%, with serious implications on the supply of food and on the livelihoods of local communities.

Conclusions

Whereas most of Kalangala district used to be covered by fully stocked tropical high forest before oil palm growing began, Buvuma district was and still is dominated by subsistence agriculture. On Buvuma, oil palm will therefore, mainly replace subsistence agriculture rather than forests or other natural vegetation. And where much of the high forest in Kalangala has been replaced with oil palm, remaining forests are generally better protected than in Buvuma district. But in Kalangala, all the areas around forest reserves have been converted to other land uses, especially agriculture, with no boundary buffer of forest vegetation. Scenario modelling showed that even if oil palm was not cultivated on Buvuma island, most of the remaining forest would be lost by 2030, being converted to subsistence farmland. But with the growing of oil palm, there would be much less land available for agriculture.

Despite some lake buffer zone areas on Bugala island, Kalangala district being under uniform agriculture, the buffer area is better protected on Bugala than along lake shores of Buvuma island, where most of the buffer zone has been converted to subsistence farmland. Overall, there is more natural buffer zone vegetation in Kalangala district, where 68% of the buffer zones consisted of natural vegetation composed of tropical high forest, woodland, bushland, impediments and grassland, while Buvuma district had only 39% of its buffer zone with natural vegetation.

Recommendations

Oil palm has been produced in Kalangala for over 12 years, with many lessons learned. But to ensure mistakes are not repeated in Buvuma where planting is yet to begin, actions are needed by the government, donors and BIDCO.

1. Enforce the 200 m lakeside buffer zone and undertake sensitization of what is/isn't allowed in this area. Demarcate with marker stones, especially in Buvuma where plantations are yet to be established, and monitor closely to ensure compliance.
2. Enforce existing laws on protecting wetlands (section 107 of the National Environmental Act, Cap 153), and sensitive areas included in National Environment Act (Wetlands, River Banks Shore Lines) No. 3/2000.
3. Ensure that remaining protected forests are better conserved, and/or that sustainable forest management practices are implemented.
4. Rehabilitate degraded gazetted protected forests and riparian/ buffer zones through enrichment planting, and consider re-planting of forest buffer zones where they have been erased to avoid hard boundaries.
5. Develop effective land-use planning at landscape level in close consultation with communities and local government, and implement so that remaining land is optimally used for food and fuel security and alternative livelihoods (agriculture, community woodlots, tourism, forestry, etc.).

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Appendices

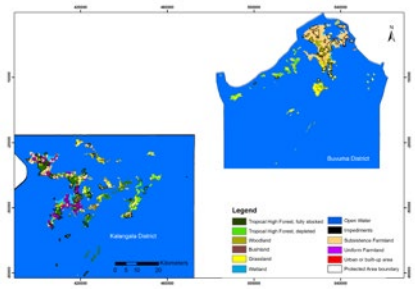

Figure 1-1: The Kalangala landscape districts displayed in their spatial location context.

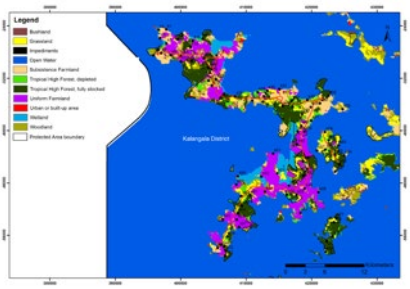

Figure 2-1: Kalangala fieldwork map showing the sites selected for ground truth data collection.

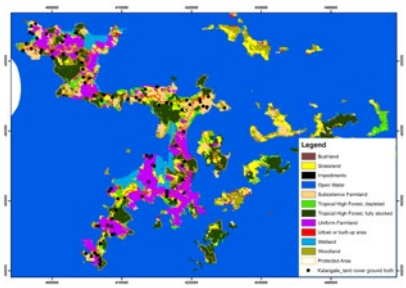

Figure 3-1: Land cover/use ground truth points collected in Kalangala. The 2015 land cover map was used as the base map.

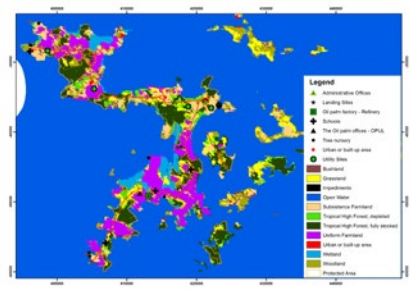

Figure 3-2: Facilities and infrastructure ground truth points collected in Kalangala. The 2015 land cover map was used as the base map.

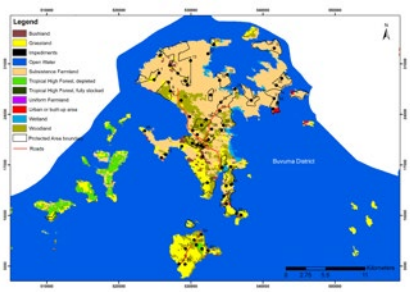

Figure 4-1: Sites in Buvuma district which were selected for ground truth data collection

Figure 5-1: Land cover/use ground truth points collected in Buvuma. The 2015 land cover map was used as the base map.

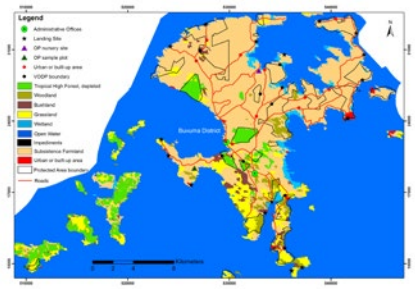

Figure 5-2: Facilities and infrastructure ground truth points collected on Buvuma island. The 2015 land cover map was used as the base map.

Changes in demographic and employment in Kalangala since the arrival of oil palm

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Summary

This study was undertaken in Kalangala and Buvuma in July-August 2018, using a mix of qualitative and quantitative data collection and analysis. Statistical data was obtained from published reports. Qualitative data was cross-sectional, using focus group discussions with oil palm outgrowers, coffee and subsistence farmers, fishing communities, and Oil Palm Uganda Limited (OPUL) staff in Bwendero and Beeta, with key informant interviews including with district officials, banking institutions, Kalanagla Oil Palm Growers Trust (KOPGT), and selected hotels and other businesses in Kalangala and Buvuma towns. Results should feed into proposed implementation of the new ten-year National Oil Palm Project (NOPP).

Kalangala – Major activities were lumbering, fishing and subsistence farming, but introduction of oil palm alongside the depletion of natural forest and fish stocks led to a shift in employment, attracting a massive influx of people. In formal employment, only 15% are locals, in low and poorly paying positions, and only 18% are women. In the informal sector, including fishing, more than 85% are men. More businesses have opened to meet the demands of the growing population, and oil palm is now a

major employer in the district. The increasing income has also resulted in a rise of social evils including prostitution, HIV and domestic violence. The government and other key actors have focused on creating employment, but with no specific programmes to address social problems. The National Gender Policy 2007 obliges the government to undertake gender analysis for any programme, but none was conducted in Kalangala. Oil palm has created employment but exacerbated gender inequality, with only 30% of outgrowers being women and having smaller holdings compared to men. Also, women hold only 18% of jobs in OPUL and very few at management level. OPUL employs more than 1000 casual labourers, but information on salaries was not made available.

Buvuma – Some 70% of the population are not original inhabitants, most engaged in fishing and subsistence agriculture. The recent mass acquisition of land for oil palm has resulted in displacement and less land for farming, leading to some people moving to wetland areas to grow rice with at least 100 hectares already converted. With further loss of farmland, it is expected that levels of malnutrition will increase. Social impacts are seen with reports of family breakdowns and neglect as men sold land without involving their spouses, and some leaving to the mainland with the proceeds and never coming back, while others came back with nothing left. Oil palm will create employment opportunities, but the extent to which the local population will benefit from this project is questionable. In addition, a population surge is expected once oil palm is established, and mitigating associated negative impacts must be planned for. Many local communities are sceptical about what the project holds for them, and the government has made no effort to ensure that people are resettled properly and that money paid has been put to good use.

Methodology

The study aimed to understand the socio-economic and environmental impacts of oil palm developments on Kalangala, in particular on local livelihoods, to help ensure that good practices are replicated in Buvuma, while negative impacts are avoided. There were four key objectives, to: (i) understand the demographics, i.e. population structure, origin and migration, (ii) qualify direct and indirect employment from oil palm, (iii) quantifying in economic terms, and (iv) describe the labour force in oil palm in relation to other sectors.

A cross-sectional, participatory, and mainly qualitative approach mixed with quantitative methods of data collection and analysis were used. Participatory approaches were used to collect data from oil palm outgrowers, coffee farmers, fishing communities, small scale business operators, hotel owners/managers, OPUL, KOPGT, Kalangala Infrastructure Services (KIS), banks, and civil leaders. There were 17 in-depth interviews with outgrowers (10 women, 7 men), and 17 covering agriculture, businesses, transport, trade and tourism. In addition, 17 focus group discussions of 6-10 participants each were conducted (four, all women, nine, all men, four mixed), clustered around oil palm outgrowers (4), fishing communities (10), business communities (1) and mixed farmers (2), to obtain collective views on benefits derived, trends, opportunities, estimated population in each of subsector disaggregated by gender and origin, sources of support, and suggestions for improvement. There were 24 key informant interviews with staff of Buvuma and Kalangala district local governments, banks and tourism stakeholders among others, to get a deeper understanding of the demographic and migration issues and the economic value of growing oil palm and related employment opportunities.

Kalangala district

Demographics and population movement

Kalangala district comprises 84 islands on Lake Victoria with a total land area of 432 km^2. Main access is by the Bukakata-Luku ferry through Masaka district, via Nakiwogo, or from Entebbe via Kitubulu in Wakiso district to the Lutoboka landing site in Kalangala town. The district is administratively divided into two counties, with six sub-counties and one town council, 15 parishes and two town wards, and a total of 92 villages. Most of lower local governments are made up of islands demarcated on the basis of proximity to the respective local government headquarters. The main island Bugala where the district headquarters is located occupies three lower local governments.

The 1991 National Population Census estimated the population at 16,400, increasing to 34,800 by 2002, with an annual population growth rate of 6.8%. According to the National Housing and Population Census 2014 (UBOS, 2016), the population of Kalangala was 54,293 making it the least populated district in Uganda, including a 'non-household' ('floating population') population of 3121. There were 22,944 females (42%); and 31,349 (58%) males. The male population has always exceeded the female population in Kalangala due in part because the

major economic activity is fishing which is male dominated. According to the District Fisheries Officer, over 80% of the population are not from Kalangala district, with a mix from neighbouring districts of Masaka, Buikwe, Mayuge, Gomba and Bukomansimbi and a few from Tanzania, mostly men, with a few women mainly involved in processing of silver fish (*mukene*) and other businesses such as hotels at the landing sites.

Table 1: Kalangala district population trends with gender disaggregation

	1969	1980	1991	2002	2014
Male	4,682	5,072	9,929	20,849	31,349
Female	2,517	3,503	6,442	14,917	22,944
Total	7,199	8,575	16,371	35,766	54,293

Source: Kalangala District DDP 2015/16-2019/2020

Recruitment for oil palm started in late 2000, but in 2004-2009 there was only little work needed and therefore few staff. Most casual workers were recruited from outside the district because native people were more interested and familiar with fishing than farming, which was considered as hard labour. At the same time, lumbering was at its peak, and subsequently, most employed in this sector took to either working in oil palm plantations or bought land and started growing their own. At the outset, it was said that if someone chose to grow oil palm, then the company will take over their land. In most cases, land owners did not engage and 80% sold off their land altogether, in such a way that plots were sub-divided and sold to many individuals, increasing the number of people at the island. Most people who bought land were non-natives and they entered into agreements as outgrowers.

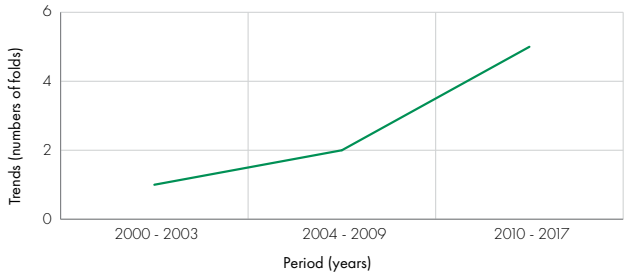


Figure 1: Employment trends in the oil palm sector

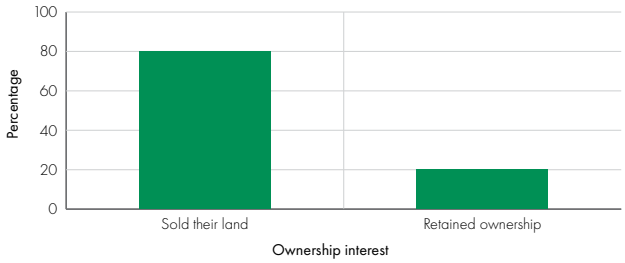


Figure 2: Proportion of landlords and land ownership

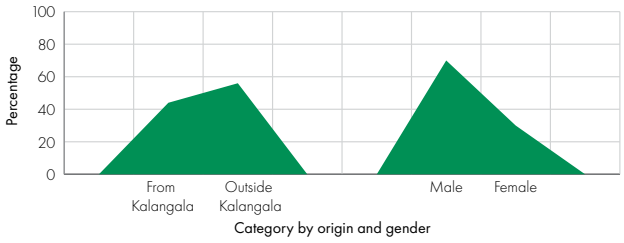


Figure 3: Proportion of employees by origin and gender in Kalangala district local government

In Kalangala district local government, more than 55% of staff come from outside Kalangala, and 70% are men. Other than local government, a number of other institutions have developed in the past decade, including banking and finance (micro credit and savings), hotels, lodges and beach resorts that are also employing mostly non-native men.

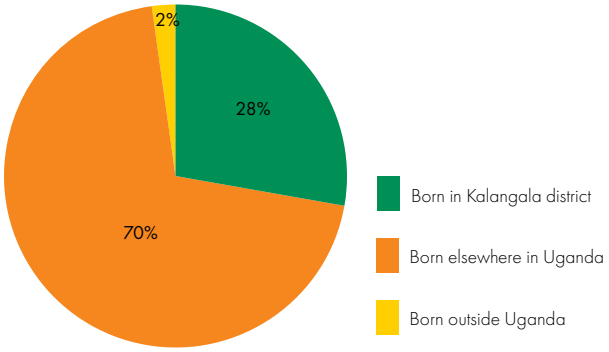


Figure 4: Population by Birth in Kalangala district

According to the national census report, 30% of the population in Kalangala is non-native, with 2% born outside Uganda, and interviews revealed that more than 70% of outgrowers are non-native. People have also moved from one sub-county to another in search of better employment opportunities. Currently, Mugoye sub-county in Bugala island has the highest number of outgrowers since a fishing ban was imposed, the census showing a shift to sub-counties with high concentrations of oil palm, with Mugoye sub-county having the highest population, followed by Bujumba.

Table 2: Population in Kalangala by sub-district

	Population 2002		Population 2014	
Sub county	Total	%	Total	%
Bujumba	6574	19	11556	21
Kalangala TC	2943	8	4980	9
Mugoye	7818	22	12224	23
Bufumira	8301	24	10292	19
Kyamuswa	2841	8	4731	9
Bubeke	2873	8	5133	9
Mazinga	3416	10	5379	10

Source: Kalangala DDP 2015/16-2019/2020

Employment

The 2014 national census (UBOS, 2016) indicates that 62% of the population in Kalangala is of working age (15-60 years old). Findings revealed that the people are employed in different subsectors including fishing, oil palm, subsistence agriculture, and various other businesses. Fishing was one of the biggest employers with more than 60% involved in different value chain activities. But according to fisheries data, this has greatly dropped by 20% due to the banning on illegal fishing. The 2014 census (UBOS, 2016) was not explicit on numbers of people involved in oil palm and therefore this was not captured as a major source of livelihood in Kalangala.

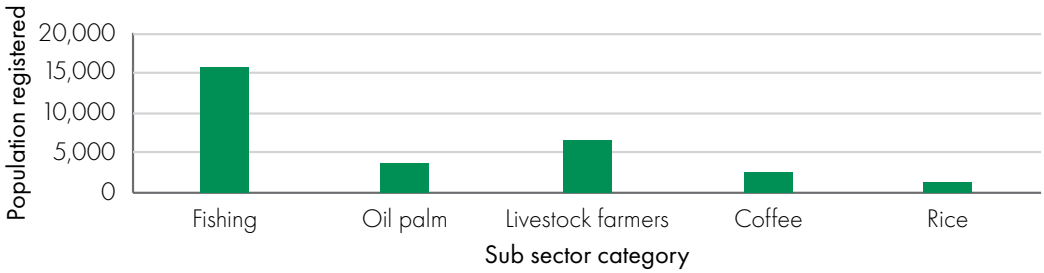


Figure 5: Major income generating sectors in Kalangala

Fishing

With over 15,800 people, fishing is the biggest employer, more than 95% men. Most women were engaged in small scale trading of silver fish, and over 60% have no other source of income. An average of UGX 14 billion is earned monthly from fishery compared to UGX 1.85 billion earned by outgrowers. The district has 64 landing sites, with about 3500 boats and 1800 boat owners of which only 5% are women. Fishing has been the major source of livelihood and income in Kalangala, however due to over fishing, fishermen resorted to other income-generating activities including oil palm and small businesses.

In the entire district, there are five big fish processing plants, one owned by a woman at Nakatiba landing site who employees over 100 workers. The peak fishing season is August–February, when each boat can catch about 50 kgs/day, earning UGX 300,000-500,000/day. Off peak season is March–July when a boat can fetch UGX 200,000-300,000/day. The fishing crew gets about 15-20% commission and each can earn UGX 25,000/day.

Table 3: Catch data by species, weight and value, 2011-2017

	Nile perch		Tilapia		Mukene		Other spp		Total	
	Total catch (t)	Beach value (mill.sh)	Total catch (t)	Beach value (mill.sh)	Total catch (t)	Beach value (mill.sh)	Total catch (t)	Beach value (mill.sh)	Total catch (t)	Beach value (mill.sh)
2011	9,918	69,426	4,325	12,975	16,117	24,176	226	362	30,586	106,938
2012	8,618	43,090	3,825	15,300	17,412	26,118	317	380	30,172	94,888
2013	8,214	69,819	3,516	17,580	18,002	54,006	321	803	30,053	142,208
2014	7,556	68,011	3,867	19,335	15,841	47,523	337	843	27,601	135,712
2015	6,223	74,676	4,421	26,526	18,608	74,432	411	945	29,663	176,599
2016	5,008	65,104	3,902	23,412	19,711	59,133	308	616	28,929	176,578
2017	4,891	68,474	4,507	31,549	15,213	60,852	256	640	24,867	161,515

Source: District fisheries data, Kalangala. July 2018

Table 4: Summary economic value for the fishing sector in Kalangala

Type of individuals	Estimated number	Estimated number of boats	Average income per boat (UGX/day)	Average income per boat (UGX/month)
Boat owners	1,500	3,500	350,000	10,500,000
Fishing crew	14,000	-	25,000	750,000
Cage farmers	124	-	-	-

Source: Interviews, July 2018

Oil palm production, employment and income

There is growing trend of people engaging in oil palm and this is now the second biggest employer for both waged and casual labourers. Oil palm consolidation and expansion activities have continued in Kalangala with a total of 10,924 ha planted, 6500 hectares as a nucleus estate managed by OPUL and 4424 ha managed by outgrowers in seven blocks of Bugala and outlying islands of Bunyama and Butembe, increasing from 3498 ha in 2012 (KOPGT, 2018) as a result of mass mobilization by KOPGT and the perceived improved livelihoods among initial outgrowers. This implies that on average, each outgrower owns about 2.4 ha.

According to outgrowers, some land that was reserved for food crop has been converted to oil palm and more land may be converted if no regulation is put in place to reserve land for food production. Meaning the remaining land will not be sufficient to produce enough food to meet local demands, with the likelihood that hunger and malnutrition might arise in households that may not earn enough to purchase nutritious foods. Of the 1810 registered outgrowers, 37% are female. Of the 1200 outgrowers that have started harvesting, each earns more than UGX 1 million a month after loan repayments and other fees have been deducted (Table 5). Harvesting started in 2010 and currently 65% of farmers are harvesting, of which 37% are women, mostly heads of households, and all farmers are expected to be harvesting by 2021.

Table 5: Farmers harvesting by block and cash payment to oil palm farmers, June 2018

Block	Male	Female	Institution	Total	Amount paid	Average per farmer
Butembe	34	15	0	49	51,119,851	1,064,996
Beeta East	155	108	4	267	335,246,037	1,255,603
Bujumba	59	27	1	87	129,855,318	1,509,945
Beeta West	152	102	1	255	431,987,807	1,700,739
Bunyama	23	11	2	36	50,922,379	1.340,062
Kagulube	121	61	4	186	370,653,954	2,014,423
Kalangala	50	22	5	77	114,206,107	1,464,180
Kayunga	146	94	3	243	362,880,795	1,499,507
Total	740	440	20	1200	1,846,872,248	11,849,455

Source: KOPGT Credit Report June 2018

BIDCO established a palm oil refinery in Jinja, processing crude palm oil from Kalangala into a range of final products. But due to insufficient supply, BIDCO also imports crude palm oil (World Bank, 2015). An interview with the OPUL Manager revealed that production is still insufficient; with Kalangala's oil palm only able to meet two days of an average month's processing capacity of 3000 t. The country requires 547,500 t of oil palm per year to meet the national demands, implying that BIDCO imports oil from other countries to meet this, and as such oil palm will be extended to other districts to increase production.

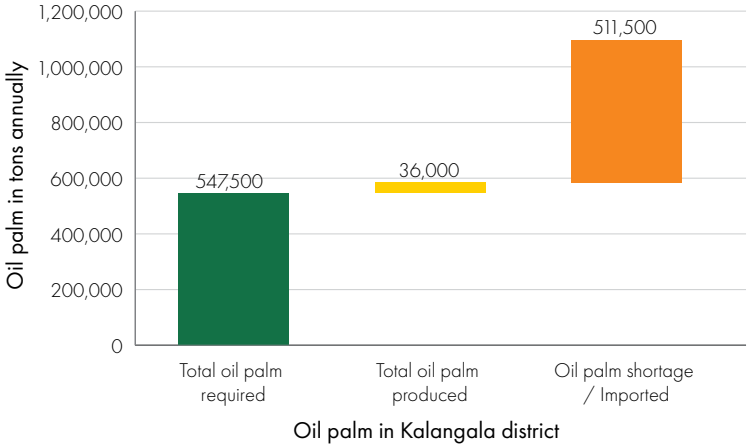


Figure 6: Oil palm production and consumption in Kalangala

The study showed the sectors with the highest labour force living in Kalangala as of July 2018. A large population is employed in oil palm as outgrowers with those that have started harvesting already earning monthly incomes. Others are employed on contractual bases by OPUL and KOPGT, with direct employment estimated at 3700 workers at various levels of production and processing. OPUL operates the nucleus estate, whereas outgrowers manage individual farms. In July 2018, the nucleus estate employed at least 1030 casual workers, while outgrowers use family labour and casual labour. Outgrowers constitute the biggest group that has directly benefited 2353 people, 1810 outgrowers and 543 casual workers in outgrower plantations. The nucleus estate employs the second highest number of people with 1302 staff including casual workers and officers.

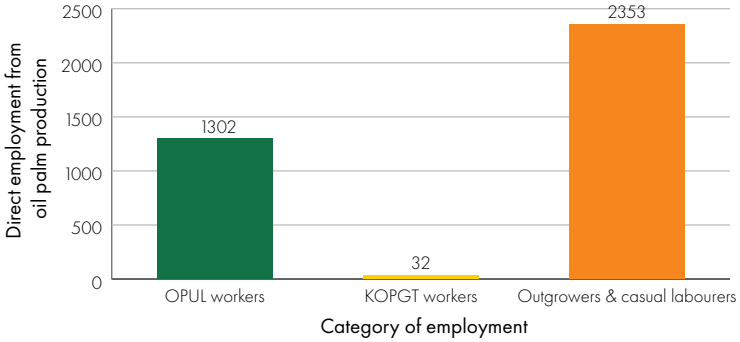


Figure 7: Direct employment from oil palm production in Kalangala

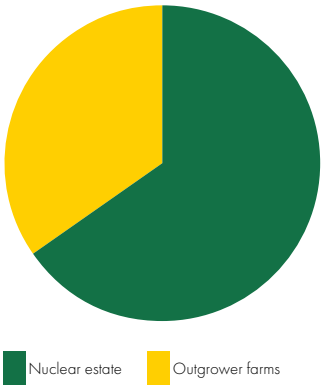


Figure 8: Casual workers for nuclear estate and out-grower farms in Kalangala

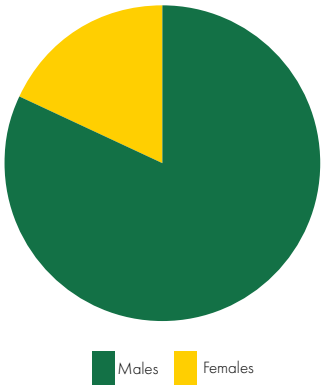


Figure 9: Segregation of OPUL staff by gender in Kalangala

The increase in income is mainly due to increase in harvests per year due to varying planting and harvesting times. Although the actual population numbers involved as outgrowers is small compared to fishing, it provides consistent income. Farming in Uganda is family based, with family size in Kalangala being 3-4 people. This provides a good picture on the biggest employment sector in Kalangala.

Table 6: Harvested oil palm income over years in UGX

	2010-2012	2013	2014	2015	2016	2017	2018	Totals
Jan	252,265,953	209,219,000	377,848,323	442,833,680	433,507,570	1,301,007,604	1,622,390,175	4,639,072,305
Feb	316,390,537	257,85,2403	283,793,565	534,046,853	380,027,295	1,247,956,540	1,705,555,925	4,725,623,118
Mar	381,309,647	362,912,130	344,976,984	557046853	880,199,628	1,354,468,115	2,967,104,736	6,848,839,911
Apr	480,563,722	431,143,923	390,381,698	684848072	1485,543,696	1,306,402,605	2,907,101,280	7,685,984,996
May	508,726,124	425,381,328	371,553,963	680158957	1,438046208	1,468,127,650	2,489,161,592	7,381,155,822
Jun	395,320,428	384,221,265	309,366,992	537301140	1,100,863,400	1,117,716,278	1,830,054,692	5,674,844,195
July	346,464,440	315,866,780	281,676,330	474694010	786,943,668	967,230,975	0	3,172,876,203
Aug	381,804,510	281,868,993	309,306,720	468160722	679,540,320	1.034,598,576	0	3,155,279,841
Sep	430,075,868	335,794,277	284,677,695	480240667	757,619,226	986,801,812	0	3,275,209,545
Oct	422,286,735	402,779,860	379.966,082	547671264	998,410,070	1,463,687,414	0	4,214,801,425
Nov	475,549,090	429,716,264	404,926,206	612664148	1,287,840,750	1,872,008,211	0	5,082,740,669
Dec	440,153,535	394,408,846	364,472,847	479038680	1,076,032,330	1,597,906,296	0	4,352.013,534
Tot.	4,830,910,589	4,231,165,069	4,102,983,405	6,499,527,864	11,304,574,161	15,717,912,076	13,521,368,400	60,208,441,564

Source: KOPGT Credit Report, June 2018

According to the OPUL manager, oil palm maturity in Kalangala is at 50% and so far 1.85 billion UGX is paid to outgrowers monthly, this implies that at full maturity, outgrowers will earn more than 3.5 billion per month. Next to outgrowers, casual workers for OPUL and outgrowers comprise the second largest population of over 1500 people that has directly benefited from the oil palm project on Bugala island. Outgrowers and OPUL were not willing to reveal estimate monthly earnings for this group but focus group discussions revealed that OPUL casual workers earn between UGX 15,000-20,000 per day which amounts to a maximum of UGX 600,000 per month. What also was not clear is whether female and male casual workers are paid equally and if the amount paid is fair and commensurate to the work done. This is one area of research that needs to be further investigated.

Kalangala Oil Palm Growers Trust (KOPGT) employs 32 people, mostly from outside Kalangala, and most male with the few women occupying only lower positions. Salaries scales for KOPGT are shown in table 9 below. However, most natives are support staff at the lowest level of the organisation and have not derived economic benefit from oil palm as much as those in higher positions who are paid fairly well.

Table 7: Staff levels, origin and economic value

Levels	Non natives	Natives	Average monthly salary (UGX)
General manager	1		6,000,000 – 7,000,000
Departmental manager	3	1	4,000,000 – 4,500,000
Senior officers	10	4	1,700,000 – 2,000,000
Support/systems staff	2	3	1,100,000 – 1,300,000
Drivers	2	6	900,000 – 1,000,000
Total numbers	**18**	**14**	

Source: Interviews with KOPGT, July 2018

Indirect employment is related to services and goods that may have become established because of oil palm. Interviews with a range of stakeholders including farmers, business community, government officials and fishing communities revealed that there has certainly been increased service provision in the island since the introduction of oil palm.

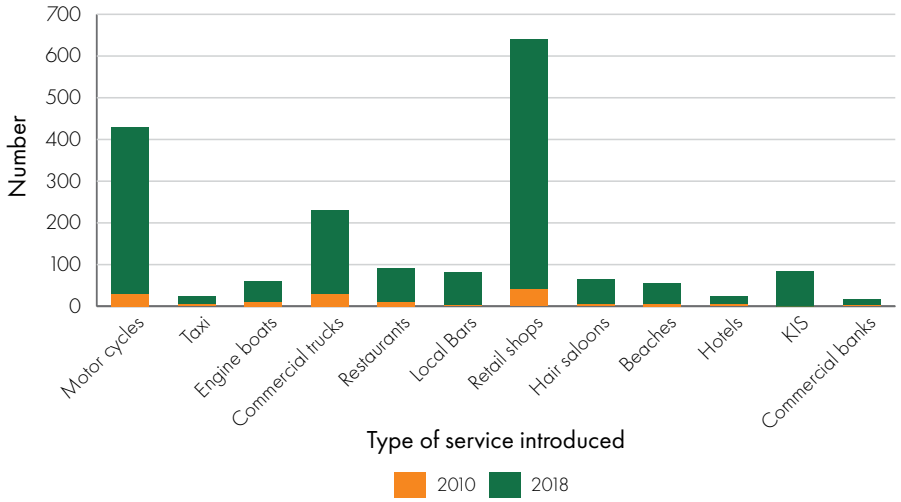


Figure 10: Informal and formal sector growth over 8-year period

Agricultural activities (excluding oil palm)

The major cash crops grown in the island are coffee and rice. According to the Chairperson Coffee Cooperative Company Limited, 2130 are involved in coffee growing but only 899 are registered with the cooperative. According to coffee farmers, an acre of coffee can produce about 3 bags of 100 kgs. Other crops grown include potato, cassava, maize, beans, tomato and pineapple among others. These are mostly grown on a subsistence scale by nearly all farmers including oil pam outgrowers. However, amounts produced depend on family and land size, with most households producing for consumption while a small section less than 20% produce for consumption and sale.

Table 8: Average incomes from oil palm and coffee

	No. of individuals	Monthly income/acre (UGX)	Monthly value per crop (UGX)
Oil palm farmers	1200	300,000	360,000,000
Coffee farmers	2130	125,000	266,250,000

Source: Interviews July 2018, Kalangala

Table 9: Population involved in rice and coffee production in Kalangala

Sub-county	No. of rice farmers	No. of coffee farmers
Mugoye	91	453
Bujumba	66	510
Kalangala Town Council	13	97
Bufumira	259	406
Kyamuswa	155	444
Bubeke	104	205
Mazinga	42	15
Totals	730	2130

Source: interviews with District Production Officer and Reports, July 2018

From the 2014 census (UBOS, 2016), there was a total of 6481 farmers keeping livestock in Kalangala. There has been growing number of livestock as a result of the clearing trees and oil palm growing. Many farmers have started rearing goats and cows that graze in oil palm farms which help maintain the grass, weeds or cover crops down. Other livestock include cattle, pigs, chicken and ducks.

Transportation

Transportation particularly the commercial motor cycles are major beneficiaries of oil palm activities. In Kalangala town council alone, it was estimated that over 400 people are directly employed as motorcyclists and on a daily basis earn UGX 20,000-25,000. In this sector majority are male youth who are riding motorcycles on loans and

only about 35% own the motorcycles. In addition, some oil palm outgrowers have purchased motorbikes to ease transport. Also, there has been increase in number of taxis running two routes from Luuku ferry station to different locations on the main island.

Trade and tourism

Kalangala town council is the central business area for Kalangala and therefore hosts majority of business operating in the districts. There are number of service providers including hotel, beaches, transport groups, fuel stations among others. Interviews indicated that there has been growing trends especially in the transport subsector and small scale business. The growth of this sector has also employed large numbers of women in very small informal business including roadside businesses of all kinds.

Small scale businesses are regarded as key beneficiaries of oil palm. According to Kalangala district commercial officers, at least 400 small scale businesses are indirectly linked to oil palm activities. Small scale operators have greatly increased due to increased population and demand of supplies by OPUL staff and farmers who receive monthly income from oil palm. In Kalangala town council alone, there are 20 small restaurants and 20 hair saloons opened since oil palm began, employing an average of 3-4 workers, 70% being 18-22 year-old women.

There are more than 10 fully operational beaches in Bugala island. The cost of starting beach in Kalangala is quite high and requires a good marketing strategy for beaches to attract clients. There are two types of beaches, high class beaches including Ssese beach, Brovad and Victoria beach that attract more income compared to low class beaches. For example, Ssese island beach employs about 25 full time workers while other beaches employ 3-10 employees some as casual workers. Besides beaches that provide services mainly to foreigners and some Ugandans, the number of small restaurants has grown in Bugala due to the higher population. Most are in Kalangala town centre, but some are in trading centres close to OPUL stations and offices, serving OPUL staff but also other visitors or business operators.

Table 10: Average income earned from beaches

Beach type	Estimated monthly income
High class	30- 50+ million
Lower class	7-20 million

Table 11: Population employed and income earned from restaurants in and around Kalangala town

Type of business	No. of businesses	No. of workers	Monthly income per worker (UGX)
Local restaurants	20	60	100,000
Hotels	7	21	150,000

Information obtained from restaurant owners shows that workers are paid UGX 3000-4000 per day, while for hotels, workers are paid UGX 150,000-200,000 monthly depending on the business size.

Banking

At the time of the study, two commercial banks had physical presence in Kalangala, with one more (Centenary bank) in the process of opening a new branch. Stanbic Bank was the first commercial bank to operate in Kalangala. According to the manager, it established before the oil palm project started, mainly serving district civil servants, then KIS, KOPGT and now farmers. From the outset it was not favourable for farmers and the reason when Finance trust came, most farmers registered with them. Currently, the bank serves 549 farmers. In April 2018, the bank introduced a loan facility for farmers and so far 80 farmers have borrowed UGX 600 million repayable in one year, implying that on average each farmer borrows UGX 7.5 million. Finance Trust Bank has a team of ten workers (5 female, 5 male), with only two employees from Kalangala, the rest from outside the district. As of June 2018, the bank had registered about 600 outgrowers saving with the bank, 30-40% are women. According to the manager, women save UGX 30,000-100,000 per month, whereas men save UGX 150,000-500,000 per month.

Infrastructure related employment

At the time of the study, Kalangala Infrastructure Services (KIS) employs 85 employees of whom 38% are natives, 62% and from other districts. Overall, 25% are women. This study revealed that most informal business operators are non-natives, and 70% of those in the business sector are not from Kalangala. However, a few locals are now operating in the outskirts of Kalangala town and other trading centres but with limited capital.

Negative social impacts – issues of in-migration

Oil palm in Kalangala has directly and indirectly created employment for people, but contrary to what was anticipated, that project would benefit the local population, results showed that most employment benefitted those from outside the district. Information obtained from OPUL showed that they employed 1302 staff, 65% men and 35% women, but only less than 10% were native to Kalangala. All top management are men from outside Kalangala, including six non-Ugandan top managers and six senior managers from Uganda but from outside Kalangala. Whereas recruitment is based on merit as per the discussions with OPUL staff and management, measures need to be put in place to at least attract qualified natives into senior management roles to ensure that decisions take into account the concerns and voices of the host community. Of the natives, they are mainly employed in lower positions as casual workers. OPUL employs 115 staff on open-ended contracts but only 7% of natives have such contracts and moreover in lower positions. No natives are in management positions to influence decision making and only 18% of employees are female, whereas empirical evidence that having women in leadership positions is very critical to women empowerment. Having female leaders would be important for promoting specific interests of female employees as well as demanding for favourable gender to benefit not only female employees but also promote equality among outgrower communities.

In all formal employment, results revealed that 86% of formal workers employed are from outside the district. Given challenges that affect the island there were few individuals qualified for the jobs hence most of the employees are recruited from outside the district. In addition, most staff employed is in lower positions and therefore earn less money. Kalangala District Local Government employs about 165 staff at both higher and lower Local governments and about 30% positions are vacant. Currently over 55% of the employees are not natives of Kalangala and only 32% are women. Reason for this varies from lack of technical skills due to the fact that Kalangala has in the past been characterized with poor education performance at all levels. For the case of OPUL, the available literature indicated that at the start of the project, there were too few qualified islanders to meet the demand for labourers (Piacenza, 2012) and there was difficulty in attracting qualified natives who were willing to work and live on the island as most of them preferred working outside the island. According to OPUL and KOPGT, attempts have been made to advertise nationally, but a few natives usually apply and those who apply don't meet the requirements.

Even in non-formal employment activities like fishing and agriculture, small scale trade data from the district departmental heads reveal that majority of the participating individuals are non-native in the fishing business, over 80% are non-native. Meanwhile, of the 1810 oil palm outgrowers, most are from western Uganda. Most who were working as labourers on timber cutting and charcoal burning, bought land since and established families. This also partly explains the population upsurges for 2002 and 2014 accordingly. Therefore, deliberate efforts and strategies ought to be put in place by government and other actors to specifically attract natives into white collar jobs in the district, which are mainly offered by OPUL and a few institutions including banks and other service institutions. Additionally, incentives should be provided to natives with intentions to invest in the district to encourage an equitable share of oil palm revenues.

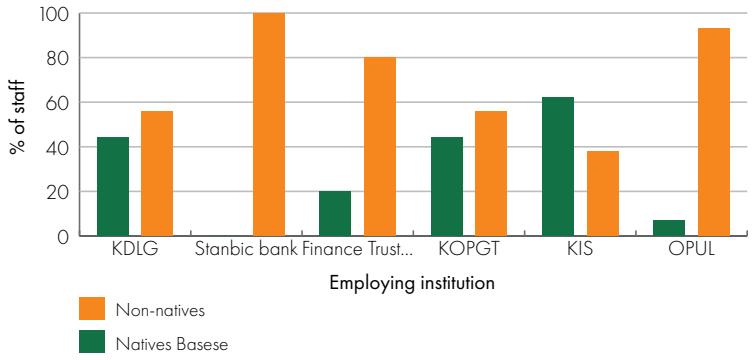


Figure 11: Summary of employing institutions and their staff in Kalangala district

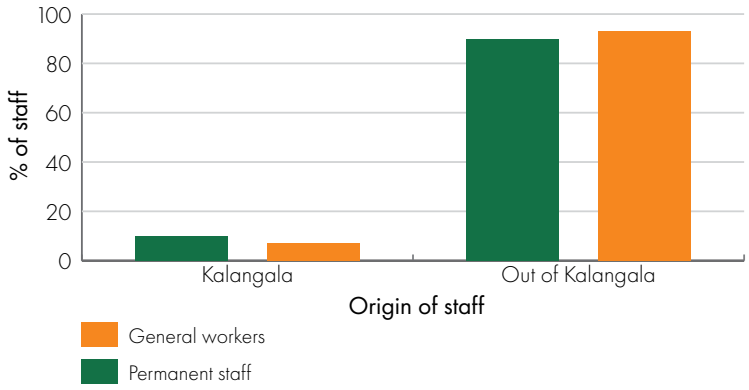


Figure 12: Category of staff in oil palm production by origin in Kalangala

Negative social impacts

HIV - The Central Region where most oil palm investments are occurring has a higher HIV prevalence, estimated at 11% in 2011, with Kalangala having the highest rate in the country at 18%. With growing income in the hands of the farmers, HIV prevalence is likely to increase, affecting the entire district and not only fishing communities. There is therefore a need for concerted efforts from different stakeholders including OPUL, KOPGT and district to design interventions to address this situation. The company does however run internal HIV mainstreaming programmes for staff and OPUL also provides free ARVS to affected staff.

Prostitution - Known to be high in fishing communities, this has also been accelerated by increased incomes from oil palm. Anecdotal reports reveal that the district registered the influx of prostitutes around the same time when KOPGT outgrowers and OPUL workers are paid each month. A number of lodges have come up due to booming business and prostitution is a big issue now. There is need for further research on this so that concrete data is obtained on the magnitude of the problem.

Domestic violence - Whereas poverty is considered the major cause of domestic violence elsewhere in the country, in Kalangala the situation is different. According to the KOPGT manager, domestic violence has increased in many areas because of increased incomes. Men are marrying more wives and have more concubines with family neglect as a result. This is a big problem to the extent that it is likely to impact oil palm production for outgrowers and smallholder farmers who rely on family labour. It was also found that separating couples are demanding a share of oil palm plantations on which they have been working for years.

Land conflicts - These are common in Uganda and tend to increase in areas of economic development and increasing land values, as is the case in oil palm areas (IFAD, 2017). Besides disputes arising from the land acquisition for establishing nucleus estates in Kalangala, there have been a number of cases of land disputes involving outgrowers or intra-family inheritance disputes, especially involving widows and children, further exacerbated by the prevalence of HIV/AIDS. Also, some farmers are growing oil palm on land boundaries, and due to the size of the plants, they shade neighbouring land which then cannot be used to grow other crops.

Buvuma district

Demographics

The district comprises eight sub-counties and one town council which is faced with challenges including the lack of a comprehensive physical plan that results in unplanned settlements, scarcity of safe and clean water, low latrine coverage, and lack of a reliable and sustainable energy supply. In 1991, the national population census estimated the population of Buvuma district at 18,500, increasing to 42,500 in 2002, and 89,890 in the 2014 population and housing census (UBOS, 2016), with 42,476 female and 48,414 male. Similar to Kalangala, more than 70 - 80% of the population is not native to the district, coming to work in fishing and so most do not come with their families (Buvuma DLG, 2013). The steady population growth of 6.25% is one of the highest in the country. On average there are 3-4 people per household. Over 60% of the total population is on the main Buvuma island as it is more conducive for agriculture than the small islands. The main economic activities in the district include fishing, logging and charcoal burning. Livestock farming is also practiced, with most consumed locally. A high percentage

of the population is illiterate with high levels of child labour in fishing. The emerging economic activity is oil palm that was expected to start in early 2019.

Table 12: Segregated population distribution of Buvuma district by sub-county

Sub-county	No. of households	Population 2014			
		Male	Female	Total	%
Bugaya	1,534	2,685	2,185	4,870	5
Busamuzi	3,946	8,305	7,911	16,216	18
Buwooya	2,578	6,549	6,379	12,928	14
Buvuma town council	2,586	5,149	4,713	9,862	11
Bweema	2,808	4,781	3,926	8,707	10
Lubya	2,334	3,483	3,066	6,549	7
Lwajje	1,632	2,580	1,856	4,436	5
Lyabaana	2,608	4,446	2,464	6,910	8
Nairambi	5,155	9,968	9,209	19,177	21
Total	**25,181**	**47,946**	**41,709**	**89,655**	**100**

Source: 2014 Population and Housing Census (Uganda Bureau of Statistics; UBOS, 2016)

The oil palm project is planned to occupy almost half of the 22,000 ha of the main island, with 7500 ha of nucleus estates and 3500 ha to be cultivated by outgrowers. The massive population movement that occurred since 2015 has greatly affected the demographics, and the population in the main island has greatly reduced.

About 30% of households on the main island have sold their land and moved, some settling elsewhere on the island but most appear to have purchased land in nearby mainland districts (e.g. Mayuge, Mukono, Buikwe, Jinja and Bugiri Kamuli) or on other islands in the district (IFAD, 2017). Many have apparently indicated their interest in growing oil palm. Others continue to commute to Buvuma and work on land there, and at least some have indicated expectations that they would benefit from employment on the nucleus estate. It is estimated that about 5% of tenants have returned to their areas of origin in districts such as Luwero, Mbale, Soroti, Katakwi and Masindi. Not only has VODP displaced people, but also the livestock kept in the district. In 2017 alone, the district lost more than 13,000 domestic animals due to displacement of farmers.

Employment

Formal and informal employment

Being a new district, there are few institutions providing formal employment, besides local government and related government departments and agencies. The district has a total of 548 staff on the payroll, including local government staff, teachers and health officers. At district level, of the 12 departments, nine are headed by male staff, three by women, and female staff make up only 29% of district workforce.

Table 13: Buvuma district local government staff and origins

Sector	Filled positions	Gender		Origin	
		Male	Female	Buvuma	Out of Buvuma
District local government	90	60	30	26	64
Town council	22	14	8	—	—
Sub counties	84	65	19	—	—
Totals	**165**	**116**	**49**	—	—

Source: Interview with Buvuma District Human Resource officer, July 2018

Besides subsistence agriculture, the availability of tropical rain forests supports timber logging and charcoal production which employs about 5% of the population (Buvuma DLG, 2013). Another growing sector is small scale trade including shops, restaurants, salons, taxis and trucks, salaried employment for civil service and construction, employing 15% of the population in Buvuma. Information from the town council reveals that there are now 150 licensed businesses.

Table 14: Average incomes by job type

Job type	Number of people employed	Average monthly income UGX
Subsistence agriculture	17,978	120,000
Commercial agriculture	5420	420000
Fishing (boat owner)	5298	7,500,000
Fishing crew	53,934	500,000
Fish cage farmers	105	300,000
Small scale businesses	700	70,000
Buvuma DLG	548	300000- 1.500,000

Fishing

Of the adult population, 60% are involved in fishing, and in supporting businesses and services at or around landing sites including bars, restaurants, lodging services, general merchandise shops, drug shops, butchers, food commodity stalls among others. There are 5298 boats in all, but women make up only about 9% of boat owners. Each boat employs a maximum of four people on a regular basis responsible for catching fish and fish net preparation. In addition, over 80% of those involved in fishing in Buvuma are from Busoga, Teso and Bugwere.

Table 15: Number of boats and ownership by gender in Buvuma

Boat ownership	Number of boats	Number of people employed
Fishing boats	5298	21,192
Female boat owners	254	1,016
Male boat owners	2139	8,556
Total owners	2393	

Source: District Fisheries Officer, August 2018

In Buvuma, three main types of fish are commonly caught. Most male boat owners catch Nile perch and most women boat owners concentrate on silver fish. Incomes from fish have reduced by almost 40% in the past five years. Poor fishing habits have greatly contributed to this, and improved transport facilities have caused massive migration of fishermen into Buvuma especially after it was granted district status.

Table 16: Fish types and estimated monthly income

Fish type	Monthly income per boat, 2012 (UGX)	Monthly income per boat, 2018 (UGX)
Nile perch	2,300,000	1,235,150
Tilapia	153,0000	795,400
Silverfish	2,020,500	1,050,000

Source: District Fisheries Officer and production officer reports

As in Kalangala, there is large income inequality between boat owners and fishing crew who operate on a commission basis of between 10-12% per day. On average, a crew member earns a profit of UGX 70,000 per month, and due to the low incomes earned many engage in other economic activities such as farming to supplement their incomes. Cage farming is a fish farming method recently introduced in Uganda. Here a group can harvest 1,500 fish (about 330 kg) which can fetch UGX 1.8 million after nine months.

Agriculture

Subsistence agricultural employs 17,978 people (20%) of the population, with most engaged in fishing (Buvuma DLG, 2013). The growing of perennial, annual and cereal crops is evident on the mainland in addition to subsistence poultry and animal rearing. Originally, people reported they were mainly farmers with the major crop in Buvuma being bananas, but the influx of people from Mayuge and Busoga have introduced maize and upland rice, also livestock farming being done very minimally. Concerning livestock, there has been a significant decline in the number of animals in Buvuma in less than one year due to displacement of people as land is purchased for oil palm.

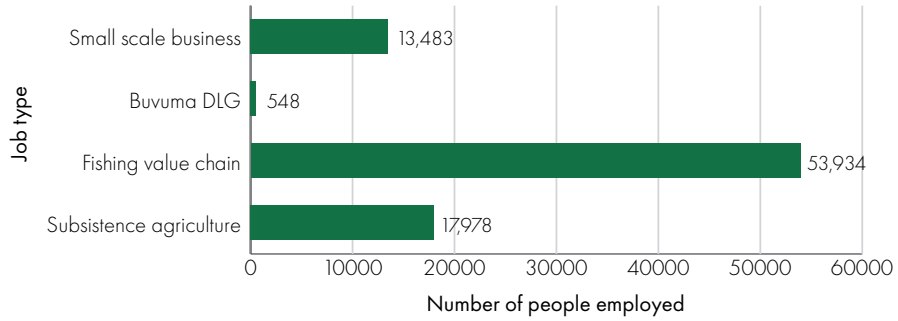
Learning from Kalangala's experience it is anticipated that commencement of NOPP in 2019 will see a population surge in Buvuma as occurred in Bugala, increasing the demand for animal products and food crops.

Table 17: Estimated numbers of livestock kept and displaced by land acquisition by VODPII in 2017

Type of livestock	Animals in season 1, 2017	Animals in season 2, 2017	No. of animals lost in 6 months
Cows	5000	3000	2000
Bulls	450	400	50
Sheep	500	300	200
Goats	15000	10000	5000
Pigs	19500	13500	6000
Total loss			**13,250**

Source: MAAIF information system for food and nutrition security, Second season 2017. VAM Assessment

Figure 13: Major formal and informal employment sectors in Buvuma



The major cash crop in the island is coffee, harvested twice a year giving farmers an average of UGX 420,000 per month. Other crops such as potato, banana, beans, sweet potato and cassava are grown on a subsistence scale. Due to the price fluctuations especially of maize, farmer incomes are very low, averaging UGX 120,000/ acre/month. Between 2011 and 2014, rice was introduced and is now being grown in lowlands. In 2017, about 11,700 ha was being used for small subsistence agriculture, however with 7500 ha bought by VODP and 3500 ha dedicated by registered outgrowers, this leaves less than 2000 ha for food production, so some people have started planting rice in wetlands.

Table 18: Crops grown in Buvuma and their utilization

Crop	Area planted (ha)	Yield (t)	% consumed as food	% sold outside the district
Maize	4,000	8,000	30	70
Rice	1,200	1,920	5	95
Cassava	5,000	20,000	5	90
Banana	1,500	1,800	80	20
Total acreage	11,700			

Source: MAAIF information system for food and nutrition security, Second season 2017. VAM Assessment

Anticipated impacts in Buvuma

The government has secured 6500 ha for a nucleus estate on the main island for oil palm, with about 800 outgrowers having expressed interest, mostly men because women do not usually own land. The project also intends to attract outgrowers from other islands in Buvuma district as well as from neighbouring districts. Of the 22,000 ha, about 4500 ha have been reserved for forest reserve and the remaining land will be used for other crops and roads. It is proposed there will be one oil processing mill plant in Buvuma and another one in Mayuge, where according to the VOPD contact person, 2000 ha has also been set aside for oil palm. According to the district planning unit, the project is expected to lead to improvements in local livelihoods and contribute to the local district economy. Interviews with the Planning Unit reveal that the district should be able to earn about UGX 50 billion annually once

the project takes off, dwarfing the UGX 10 billion the district receives from the central government. The project is expected to begin in 2019, but may be delayed as not all land has been secured as expected.

At the time of the study, VOPD had two full time and one part-time staff to facilitate land clearing and processing in Buvuma before it can be handed over to OPUL. VODP staff work closely with a private security company which is helping to enforce compliance amongst those who refuse to leave after selling their land. In addition, OPUL recruited two agriculture extension officers from Buvuma district and are currently in Kalangala for project orientation and familiarization.

Only 30% of interviewees in Buvuma were very optimistic about the oil palm project and the expected increased employment and incomes, with 70% having mixed feelings as to what extent the project will benefit the communities and the district itself. In contrast, most district technocrats and political officials were optimistic about the impending project. Throughout the interviews, it was evident that the communities feel that those who sold their land did not benefit as was expected and they had to figure out a new life amidst meagre resources that were paid to them as compensation. In addition, there were reports of high level of family breakdowns and neglect. Men sold off land and concluded all negotiations without involving their spouses. Money paid to them was spent, some went to Mukono where the money was paid from and never came back, while others came back empty handed. This alone became a source of family conflicts and family breakdown. At the moment, there is also massive opening of land, which has been vacated due to anticipated oil palm, and the district food security report also reports decline in production not only for food but also animal production.

General conclusion and recommendations

The introduction of oil palm in Kalangala contributed to a growing population in a formerly underpopulated and undeveloped area, rising by more than 40% between 2002 and 2014, with non-natives comprising more than 70% of the total labour force, more than 80% of oil palm outgrowers, and more than 90% of OPUL staff. Amongst outgrowers 37% are women, there being a gradual increase over time, but they have smaller plots compared to men. Economic benefits began when harvesting started in 2010, but participation was entirely facilitated by loans from IFAD which enabled them to clear land, hire labour and purchase inputs.

Reports from KOPGT show that oil palm growing provides a stable income of about UGX 1.2 million a month to outgrowers if plantations are well maintained. IFAD will withdraw support for outgrowers on Kalangala in 2019 as it directs attention to the new Buvuma oil palm project, but that only 50% of oil palm in Bugala has reached harvesting stage means that there is likelihood that output for outgrowers will decline and outgrowers will not realize the intended benefits. This is likely to disproportionally affect women given their low economic status, so KOPGT should be supported to exercise their mandate including developing a clear monitoring mechanism to see that outgrowers continue to benefit from oil palm.

The introduction of oil palm in the short term has increased incomes for farmers who now earn monthly income but this has aggravated gender-based violence and destabilized homes. It's most likely that the 'do no harm' approach and responsive interventions were not considered in the project design. The high population influx also creates competition for resources and aggravates land-related conflicts as there is limited land for crop production also causing over cultivation and poor yields that cannot meet local demand for food.

Also visible is high income inequality. Both in the fishing and oil palm sectors, there are two categories; those that are earning well and those earning poorly. There is high wage difference between boat owners and fishing crew. There is capital outflow, that the populations that earns more in Kalangala comes from outside the district and therefore do not investment in the area where the income is earned. Similarly, with many absentee oil palm outgrowers, incomes are being invested in areas other than Kalangala, creating further poverty as services are not readily provided.

In Buvuma, it is likely that oil palm will become the largest revenue source. But lessons from Kalangala point to the fact that with reduced land for subsistence agriculture, the quantity of food crops produced will reduce, and expected incomes from oil palm may be spent on food. Displacement of people has contributed to an increase in domestic violence and family neglect, with women and children often the victims since land belongs to men. This has resulted in many cases of family abandonment.

The study explored a number of issues regarding population dynamics employment levels and economic value of each employment sector. The information obtained is useful for the oil palm industry to take appropriate action to respond to the existing gaps.

Recommendations

Oil palm has been produced in Kalangala for over 12 years, with many lessons learned. But to ensure mistakes are not repeated in Buvuma where planting is yet to begin, actions are needed by the government, donors and BIDCO.

1. The government and donors must commit to gender issues, and undertake gender impact assessments prior to introducing oil palm. The National Oil Palm Project should engage the Ministry of Gender and the Equal Opportunities Commission to advise on appropriate gender mainstreaming actions and ensure related mitigation actions are developed, implemented and monitored.
2. The government should make clear to communities the unintended consequences of oil palm development, including positive/ negative aspects of in-migration, and try to minimize the impacts. This must be done prior to starting projects, with women, men and youth part of sensitization programmes.
3. The government should put in place a quota system for the employment of local people, to ensure that there is good representation of locals (Islanders) in different work opportunities that are/will be created.
4. Undertake further studies to assess growing inequalities regarding plantation ownership, and make recommendations on how to limit elite and corporate capture in oil palm landscapes. The government should also recommend minimum areas for smallholder oil palm plantations to be viable.
5. The government should develop a comprehensive plan including land-use law and resettlement action plans, in advance of the now expected population movements into new oil palm growing districts.
6. The government should fast track implementation of the recently passed minimum wage law, and develop tracking and compliance mechanisms to address worker exploitation and wage inequalities.

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An assessment of land deals undertaken by the National Oil Palm Project in Kalangala and Buvuma districts

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Summary

The research analyzed land ownership and land deals related to the National Oil Palm Project in Kalangala and Buvuma districts. It included a detailed assessment of land ownership, mapping of land contracts, the conditions, compensation, and the application of free, prior and informed consent (FPIC) in decision making. Of 180 respondents, 95% were *bibanja* holders and others were licensees. Results should feed into proposed implementation of further land acquisitions in the new ten-year National Oil Palm Project (NOPP). Regarding the mapping land ownership system, there are four main tenure systems in Uganda; customary, mailo, leasehold and freehold, and various sub tenure systems. The main system in the project area is *mailo* ownership, with associated tenancy and occupation subsystems, with traditional customary tenure in some areas. Most land holdings are not formally registered and disputes over ownership and use are high.

Kalangala – At project inception, there were allegations that some public lands were forest reserves under the National Forestry Authority. A suit was filed by civil society organizations challenging the degazetting of

reserves for oil palm but the government and BIDCO/OPUL refuted this and the suit was dismissed on the grounds of there being no proof that the forest reserves had been degazetted. *Bibanja* holders' interests as occupants are recognized under Ugandan law and were upheld in the case of *Kassim Ssempebwa vs. Ssewaga Godfrey* where Justice Masalu Musene recognized the interests of *bona fide* occupants, referring to S. 29(2) of the Land Act. It was also highlighted during this study that because Kalangala district gave up so much of its land for the project, future development plans for amenities and utilities are now constrained. There is also further ongoing suit where the ombudsman has intervened.

Buvuma – This research found that Uganda Land Commission skipped processes in land acquisition, and compensated squatters on public land without first taking the necessary steps. Regarding private mailo land, all rights of *bibanja* holders (*bona fide* occupants) and licensees must be recognized, but the Uganda Land Commission created leaseholds in favour of OPUL. Also, legal documents together with case law indicated that free, prior informed consent was not strictly adhered to during land acquisition in Buvuma, while it was expected that lessons learned from Kalangala should have informed better implementation in Buvuma.

Differences in land tenure systems presented challenges in successfully and equitably applying the principles of free, prior and informed consent, and some were obscure, making proper land acquisition hard to manage. Awareness-raising prior to land acquisition was skewed towards potential benefits, and failed to transmit information in the right forums, formats and languages. Valuation and compensation processes leading to land acquisition were not clear, leading to high numbers of very disgruntled *bibanja* holders and licensees. Those involved in land sales had no access to legal representation, and therefore could not get legal advice to aid decision-making during the sale process. Discussions regarding the project were not rigorous enough, with some stakeholders missing out completely, either by commission or omission. Some of those selling land therefore only joined at the end, when almost all relevant decisions had already been made.

Introduction

The Economic Growth and Development Policy for Uganda is included in 'Vision 2040'[1], that aims at "creating a transformed Ugandan society from a peasant to a modern and prosperous country within 30 years." Several sectors including oil and gas, tourism, minerals, ICT business, an abundant labour force, water resources, industrialization and agriculture have been earmarked as key priority and strategic areas of focus. Agriculture has been identified as one of the priority sectors for the attainment of the policy. It is estimated that it contributes up to 69% of the labour force, and 26% of the gross domestic product (GDP).[2] It is believed that these figures could even get better if the agricultural sector is transformed from being predominantly subsistence to commercial.

In that regard, the Government of Uganda through Ministry of Agriculture Animal Industry and Fisheries (MAAIF) with support from the International Fund for Agricultural Development (IFAD) is implementing the Vegetable Oil Development Project (VODP). The goal of VODP is 'To contribute to Sustainable poverty reduction in the project area'.[3] The development objective is "to increase the domestic production of vegetable oil and its by-products, thus raising rural incomes for small holder producers and ensuring the supply of vegetable oil products to Ugandan consumers and neighboring regional markets."

The VODP operated under two phases, now transforming into the National Oil Palm Project (NOPP) which is being implemented in the districts of Kalangala and Buvuma. This project requires a large land area for its implementation and therefore raises several land issues. In that respect, the goal of this research was to carry out an assessment of land ownership, and land deals undertaken as part of the oil palm project in Kalangala and Buvuma districts taking a detailed assessment of land contracts, conditions, compensation and the application of free prior and informed consent (FPIC) in decision making. Specific research objectives were to (i) describe and map the different types of land ownership, (ii) describe and map the land deals made as part of the NOPP, and (iii) collect detailed information on the land deals made and whether FPIC has been applied.

As already stated, the NOPP requires a large portion of land for its effective implementation. In Kalangala, 10,924 ha were secured for the project whilst 10,000 ha are required in Buvuma. To be able to acquire this amount of land, negotiation was needed and contracts were entered into with relevant stakeholders, especially with community members likely to be affected by the project. This process has to be done diligently and prudently taking heed of

policies, principles and laws relating to such projects. If the process of land acquisition is not well handled, the whole project could be frustrated or bear serious legal consequences for the parties involved.

Legal framework for land acquisition and related contracts

The guiding principles for land acquisition (compulsory or voluntary) stem from Article 26 of the Constitution of the Republic of Uganda, from which the following is an extract.

Protection from deprivation of property.

1. Every person has a right to own property either individually or in association with others.
2. No person shall be compulsorily deprived of property or any interest in or right over property of any description except where the following conditions are satisfied; the taking of possession or acquisition is necessary for public use or in the interest of defence, public safety, public order, public morality or public health; and the compulsory taking of possession or acquisition of property is made under a law which makes provision for (i) prompt payment of fair and adequate compensation, prior to the taking possession or acquisition of the property; and (ii) a right of access to a court of law by any person who has an interest or right over the property.'

The effect of this provision has been tested in several cases including the case of *Uganda National Roads Authority vs. Irumba Asumani and Peter Magelah.*[4] The facts of this case are that the Government of Uganda compulsorily acquired land for upgrading the Hoima-Kaiso Tonya Road leading to oil fields in the Albertine Graben, prior to compensating land owners. The Supreme Court reaffirmed the decision of the Constitutional Court and confirmed that Section 7 of the Land Acquisition Act (Cap 226, Laws of Uganda) which allowed the government to compulsorily acquire land without prior and adequate compensation is in fact unconstitutional.

As a result of Article 26 and the above case, the government tabled the highly contested Constitutional Amendment Bill 2017 to enable it to acquire land before compensation. In justifying the amendment, the Ministry of Lands, Housing and Urban Development said that ''many projects have stalled due to few individuals objecting unreasonably to the value awarded, many file cases in Court, obtain court injunctions to stop Government work in their land. This has led to Government incurring unnecessary costs being charged by contractors for the time their equipment remain idle while a resolution of dispute on compensation value is ongoing.''[5] This Bill has not yet become law, and until then, law requires that any land acquisition must be preceded by adequate and prior compensation.

The issue of aggrieved parties going to Court for redress has not been avoided in respect of VODP. There is currently a suit pending before the High Court of Mukono, filed in March 2018, by more than 205 residents of Buvuma district represented by *Yiga Godfrey and 4 others vs. The Manager Vegetable OIL Development Project (VODP2), Kalangala Oil Palm Growers Trust, Oil Palm Uganda Ltd, BIDCO (U) Ltd and The Attorney General (High Court Civil Suit No. 227 of 2018).*[6]

In this suit, the Plaintiffs made several allegations against the defendants, including fraud. They argued that the plaintiffs fraudulently undervalued their land. They also argued that the process of valuation and compensation was not transparent, and sought several remedies including the following. (i) A permanent injunction restraining defendants from further trespass, acquisition of land or disturbance of the plaintiffs' occupancy on the suit land unless duly compensated under the laws of Uganda. (ii) A declaration that the suit land rightfully belongs to them as customary occupants, lawful/bonafide occupants and that they are entitled to stay on the land and utilize it unless compensated for their market value of the said land with their full consent and permission. (iii) A declaration that the acts of the defendants of occupying the suit land without prior fair compensation of the plaintiffs' rights and interests is unconstitutional. Similarly, it was reported that in 2015, some residents of Kalangala filed a suit against Oil Palm Uganda Ltd. for restitution of their land, fair compensation and general damages.[7]

Land in Uganda is a very contentious and controversial matter that has even led to loss of lives. For example, it is reported that three people were killed during demonstrations by environmental activists and the general public to save Mabira Forest over the plan to degazette it and give several acres of it to the Mehta Group for sugar cane growing.[8] It is also reported that there are over 40 petitions before the Parliament Committee of Physical Infrastructure challenging irregular land allocation to foreign investors, or encroachers in the name of development.[9]

The principle of free, prior and informed consent

Although there is no universally accepted definition, Oxfam proposes the following. ''FPIC is the principle that indigenous peoples and local communities must be adequately informed about projects in a timely manner and given the opportunity to oppose or reject a project before operations begin. This includes participation in setting up the terms and conditions that address the economic, social and environmental impacts of all phases...''[10] The UN advises that ''FPIC processes must be free from manipulation or coercion; allow adequate time for traditional decision-making processes; facilitate the sharing of objective, accurate, and easily understandable information and ensure community agreement''[11]

This principle of FPIC emanates from international law. The United Nations International Covenant on Economic, Social and Cultural Rights (ICESCR) which Uganda signed in 1987, implores States to recognize rights such as the right to self-determination, which includes the right to freely dispose of own natural wealth and resources and bars the deprivation of peoples of means of subsistence (Article 1). This convention also recognizes the right to work and the right to an adequate standard of living, adequate food, clothing, housing and the continuous improvement of living conditions and the right to take part in cultural life.

The right to self-determination is also reinforced by the UN Declaration on the Rights of Indigenous People, which although not binding, gives a persuasive position on FPIC. In the African context, the African Charter on Human and People's Rights and which Uganda is signatory to, also has similar provisions and its effects have been tested in the case of the *Centre for Minority Rights Development (Kenya) and Minority Rights Group International on behalf of Endorois Welfare Council vs. Kenya*. In 2009, the African Commission of Human and People's Rights found that by forcibly removing the Endorois people from their ancestral lands around Lake Bogoria to create a game reserve, the Government of Kenya violated the Endorois' right to religion, property, natural resources, culture, and development (Articles 8, 14, 17, 21, 22); and the African Charter on Human and People's Rights noted in particular that the Endorois are "an indigenous community" and a "people," and that for "any development or investment projects that would have a major impact within the Endorois territory, the State has a duty not only to consult with the community, but also to obtain their free, prior, and informed consent, according to their customs and traditions."[12]

Principles and rights enshrined in the aforementioned conventions are also recognized by the 1995 Constitution of Uganda. The National Objectives oblige the state to ensure that Ugandans enjoy decent shelter, food security, free and compulsory basic education, and to take measures to ensure every citizen can attain the highest standard of education. The 1995 Constitution further provides for the right to protection from deprivation of property, the right to education, the right to work and participate in trade union activity, the right to a clean and healthy environment (Article 40), and the right to culture (Article 37). The principles of FPIC are also set out in the Contracts Act, 2010, to the effect that ''A contract is an agreement made with the free consent of parties with capacity to contract for lawful consideration and a lawful object with the intention to be legally bound'' (Section 10). Consent is also defined as an ''Agreement of two or more persons obtained freely, upon the same thing in the same sense" (Section 2). The Contracts Act further provides that ''Consent of parties to a contract is taken to be free where is not caused by; (a) coercion; (b) undue influence, (c) fraud; (d) misrepresentation, or (e) mistake."'

In light of the above, it is clear that in terms of the legal framework, the principle of free, prior and informed consent is well enumerated and must therefore be recognized, and failure to do so can have far reaching consequences.

Methodology

Prior to fieldwork in July and August 2018, key interview informants, respondents, and specific sample areas to visit were identified. Research tools were prepared including interview guides for respective respondent groups, and media reports were reviewed. For the fieldwork, primary data was collected through focus group discussions and key informant interviews. To assess FPIC, information was gathered to answer the following questions. (i) Was the affected community given the opportunity to discuss and debate the issue involved in the land acquisition and compensation process? (ii) What were the land acquisition and compensation processes carried out in respective communities? (iii) What sources of information were available to enable decision making? (iv) Did the affected communities have access to independent professional advice on the various aspects of the project? (v) What opinions did people have on the decisions made or taken?

Fieldwork in Buvuma was carried out in July and in August in Bugala, Kalangala district. In Buvuma, focus group discussions included a total of 180 community members in five villages including Buwangwe Lunyanja (23), Bugoba (16), Kasanza (50), Lukale (18) and Kitiko (73). These comprised of men and women participating in the project, some who had been compensated and others in the process of being compensated. Key informant interviews included the District Police Commandant (DPC), Buvuma District Police, Secretary of Buvuma District Land Board, and Buvuma district local government officials including the District Production Officer, Senior Agricultural Officer, VODP focal person, and District Natural Resources Officer.

In Kalangala, focus group discussions included 73 smallholder outgrowers and community members from Lusenke village, Kalangala town council, Busanga, Kasekulo, Bujumba and Bbeta. Key informant interviews included the LCV Chairperson of Kalangala District, General Manager of Kalangala Oil Palm Out Growers' Trust (KOPGT), Land Officer of Kalangala District Land Board, District Natural Resources Officer from Kalangala district local government, Administrator of Buganda Land Board, and Chairperson of Kalangala Oil Palm Association.

Secondary research included the review of articles and websites with relevant information on the project and on FPIC, including MAAIF[13] and IFAD[14]. The IFAD report includes project objectives, highlighting it as a public-private partnership, and discusses the roles of different stakeholders. Other content reviewed included a case filed in the High Court of compensation. Buvuma compensations have been the subject of media attention including one that reported that Buvuma residents had gone to court over compensation issues including ghost beneficiaries.[15] Similarly, in Kalangala, land grabbing and compensation claims had been made in the media and court.[16]

Land acquisition

There are four main tenure systems in Uganda namely; customary, mailo, leasehold and free hold and one sub-tenure system, as well as several other forms of tenancy and occupation. The main land system in the project area is mailo ownership with associated tenancy and occupation subsystems, with more traditional customary tenure prevalent in some areas. Most land holdings are not formally registered and disputes over ownership and use are high.[17]

Kalangala

In Kalangala, the total area planted with oil palm is 10,924 ha, with 6500 ha of nucleus estate run by Oil Palm Uganda Limited (OPUL), and 4424 ha by smallholder outgrowers. According to Mr Balironda David Mukasa, General Manager KOPGT and who has also played a central role in VODP from the outset, ''When BIDCO and OPUL joined VODP, they said that for the project to be viable in Kalangala, 10,000 hectares had to be secured.'' Fortunately, 6500 ha which were part of public land under the custody of the Administration of Kalangala District Land Board were available, and that was subsequently acquired by Uganda Land Commission for creating and granting leasehold interest to Oil Palm Uganda Ltd.

At project inception, there were allegations that this public land was partially for forest reserves under the National Forestry Authority. However, these allegations were refuted by the government and BIDCO/OPUL. In fact, a suit was filed by civil society organizations challenging the degazetting of forest reserves for purposes of this oil palm development, but was dismissed with the finding that there was no proof that the forest reserves had been degazetted.[7]

Notwithstanding the above, there remains debate as to the status and true ownership of some of the land for the project. During this research, it appeared that a large area of former public land and some mailo land in Buvuma was given back to Buganda Kingdom as part of the properties returned to Buganda pursuant to a Memorandum of Understanding between the Central government and Buganda. However, according to District Land Officer, Mr Kasibante Alex, "There is a problem due to the absence of a clear map as the government has not yet surveyed and demarcated the land to identify which one belongs to government and which one was given back to Buganda Land Board.'' It was also discovered that the Buganda Land Board had started an initiative where it was registering people who were occupying land believed to having been given back to Buganda. As such, Mr Kasibante said that the district is firefighting the situation with the Buganda Land Board.

Besides public land for the nucleus estate, the rest of 4424 ha of oil palm plantations are run and managed by 1810 outgrowers. Out of the 73 respondents interviewed, 69 of them admitted that their interest stems from *mailo* land tenure, while none said they were landlords. They were *Kibanja* holders with absentee landlords. Some had in fact never met their landlords who they said are based in Kampala or Masaka. *Kibanja* holders' interests as occupants (Ntabazi versus Walusimbi High Court Civil Appeal No. 114 of 2015) are recognized under the Ugandan law and were upheld in the case of *Kassim Ssempebwa vs. Ssewaga Godfrey* (High Court Civil Appeal No. 137 of 2012) where in recognizing the interests of *bona fide* occupants, Justice Masalu Musene referred to S. 29(2) of the Land Act (Cap 227 of the Laws of Uganda) and noted the following: "S.29 (2) (a)" Bonafide Occupant means a person who before the coming in force of the Constitution – Had occupied and utilised or developed any land unchallenged by the registered owner or agent of the registered owner for twelve years or more. S.29 (5) of the Land Act provides "29 (5) Any person who has purchased or otherwise acquired the interest of the person qualified to be a bona fide occupant under this Section shall be taken to be a bona fide occupant for purposes of this Act."

The challenge though, is that since the interests of these *kibanja* holders are not registered, verification of their interest and boundaries was an issue when implementing the project and still remains a challenge, made worse because many landlords/land owners do not even know who are the *kibanja* holders on their land. As a result, according to Mr Balironda David Mukasa of KOPGT, when *kibanja* holders tried to register and secure certificates of occupancy they were unsuccessful because landlords refused to recognize them and give consent. The issue of giving land back to the Buganda Land Board had not only affected public land occupants, but also affected some *kibanja* holders. According to Mr Balironda, ''Buganda Land Board is telling some of the oil palm outgrowers to get a lease on their land, but some occupants argue that they are *kibanja* holders who do not need to get a lease since they already claim a recognizable right to the land.''

Of the 73 people interviewed, four had acquired leases for some of their land from the District Land Board, but they had far bigger oil palm plantations (average of 26 acres, 10 ha) compared to the 69 interviewed *kibanja* holders. These four were also all employees or former employees of the Kalangala local government. Some respondents with leases also held *kibanja* interests on other land.

Kalangala also has public land containing 31 different central forest reserves under the National Forest Authority. There have been some cases of encroachment on forest reserves and other natural resources by outgrowers who planted oil palm, especially in the 200 m buffer zones. According to Ms Harriet Saawo, the District Natural Resources Officer, "People are encroaching on the buffer zone of the lake shore, and growing food and palms in the 200 m zone.''

It was highlighted during this study that because Kalangala district gave up so much of its land for the project, its development plans for amenities and utilities are now constrained, as it does not have enough land to carry out any more ambitious development projects.

Buvuma

According to the NOPP Focal Person Mr James Mugerwa, a total of 10,000 hectares is required for the oil palm project in Buvuma, with 6500 ha for the nucleus estate. Unlike in Kalangala where land for the nucleus estate was secured from the local government, in Buvuma, its private *mailo* land that is being and/or has been acquired for the nucleus estate.

According to Mr Silver Wasswa, Secretary Buvuma District Land Board, 1000 acres (405 ha) of public land had been identified by NOPP, and NOPP even started a process of compensating occupants of this land. However, owing to the fact that NOPP had not followed the due process, acquisition of public land by the Uganda Land Commission is only now being regularized. At the time of the field study, this process had not ended, so whether or not public land has been acquired for the nucleus estate was still unclear.

According to Mr Silver Wasswa, Secretary of Buvuma District Land Board, the proper process requires the interested party to fulfil the following. (i) In the Application, demonstrate that you are a dwelling resident of the area where the land is situated and the application must be picked from your area of residence. (ii) The Application is picked from the Area Land Committee which is conversant with the particulars of the land. (iii) Subsequently, the Committee will inspect the land and investigate from the applicant the intended use of the land. (iv) If satisfied with

the appropriateness of the Application, then they will prepare a report and send it to the District Land Board. (v) The District Land Board then interviews that Applicant, goes on the ground and exercises its discretion whether to grant the lease or not. (vi) Once the District Land Board approves then they set the terms and conditions for the use of the land including compensating any squatters on the land.

However, it is said that the Uganda Land Commission skipped this process in Buvuma and went ahead to compensate squatters on public land without first taking any of the steps spelt out above. In respect to private *mailo* land, as discussed earlier, all other rights must be recognized regarding *kibanja* holders (bona fide occupants) and licensees. Of the 180 respondents, 95% were *kibanja* holders and others were licensees. All land being acquired is vested in the Uganda Land Commission, which is creating leasehold interests in favour of OPUL.

The evolution of NOPP and whether FPIC was applied

The IFAD National Oil Palm Project Final Report Design (5 November 2017)[14] was reviewed, along with IFAD project supervision reports and the IFAD website, which highlighted the contractual obligations and rights of the parties involved. Also included were accounts by key informants, especially the KOPGT General Manager, Balironda David Mukasa, who noted that land deals had a protracted history starting back with the sample growing of oil palm in 1994. In 1996, the government advertised for an investor to grow oil palm and Madhvani group won the Bid. However, the project did not kick off as planned and subsequently the group dropped out. It is at this point that BIDCO Kenya which had also submitted an original bid, expressed further interest in the project and was taken on by the government, culminating in a public-private partnership between the Government of Uganda, BIDCO and IFAD.

By the time Madhvani pulled out in 1998, the government had already secured the 3000 ha and created leasehold interest in its favour. Accordingly, Madhvani's lease interest had to be cancelled. Although BIDCO was interested in the project, it did not have any experience in oil palm plantation management, so it co-opted the renown Wilmer International company, and together they created Oil Palm Uganda Ltd with 10% of the shares being reserved for outgrowers. BIDCO asked for 10,000 ha to make the project viable. At that point, it became necessary to secure funding for the project and IFAD became the financing partner. The land deals made as part of VODP all stem from the overarching public private partnership agreement under which the project was implemented. Under this, the government, IFAD, OPUL and smallholder farmers all have a role to play in the establishment of oil palm plantations, mills and refineries in the project areas.

The government had the responsibility of providing land to OPUL for a nucleus estate in Kalangala, and still has this responsibility in Buvuma. The government availed funds for start-up loans to smallholder farmers with flexible payment conditions, to buy seedlings, fertilizers, inputs, etc., and to transport fresh fruit bunches to the mill. Outgrowers in Kalangala are repaying loans through their umbrella body KOPGT. The government also has the duty of maintaining and improving infrastructure in the project areas.

This proposal was met with resistance from the EU, World Bank, etc. but notwithstanding objections from international bodies, the Parliament of Uganda allowed the degazettement of Forest Reserves. However, afraid of the backlash from environmentalists and the public generally, it is said that BIDCO objected to this degazettement and threatened to pull out, leading the government to backtrack, and to subsequently secure land that was not part of any forest reserves.

According to Mr Balironda, the Prime Minister established a land acquisition task force, with the mandate of looking for land and negotiating with willing sellers. He added that Kalangala was undeveloped and its population was small, it had absentee landlords and a few squatters who cut timber, made charcoal, fished or did petty trading. People were given the option of selling or leasing their land, but most opted to sell. This made it easier for the project to get land, at a cost at that time of UGX 80,000-100,000 per acre (US$55-70/ha). The task force then started negotiations and bought land, with about 3000 acres purchased under the terms that proprietary interest reverted to outgrowers after 3.5 years of the project, but also that the areas were substantially reduced by applying the 200 m coastal buffer zone.

Around 2005, BIDCO started importing seedlings and the outgrower scheme began. For a *kibanja* holder to become an outgrower, they had to present a certificate of occupancy as security to get a loan, with the process

managed at district level. A land officer was recruited to help with issuing certificates of occupancy and to sensitize kibanja holders on their relevance. However, this became a challenge as some landlords did not want to grow oil palm on their land and so refused to give the *kibanja* holder any proof of right of occupancy. In the end, this requirement was scrapped, and *kibanja* holders then starting to grow oil palm without the consent of landlords.

An intermediary agency was appointed to reduce government bureaucracy in giving loans. A consultant was appointed by IFAD and proposed the establishment of KOPGT to manage outgrowers for the interests of all stakeholders. When land was converted to oil palm, many squatters moved to landing sites and fishing villages, but some of these areas were part of land given to OPUL, posing a relocation challenge for the squatters. In respect of land deals in Buvuma, as most land is being acquired from private individuals, this has resulted in issues to be discussed under regarding FPIC. As in Kalangala, it is expected that the government and IFAD will provide financial support to farmers by way through loans.

Kalangala

A difference in attitude and reaction was observed between people from Kalangala and those from Buvuma. Respondents in Kalangala were not as disgruntled as those of Buvuma, perhaps due to the passage of time, and their complaints were more related to the actual implementation of the project as opposed to its inception. Respondents noted that as most landlords were absentees, many did not even know that the project was going on and were not involved in any debate or discussion. However, eventually when they learnt of developments, a few became involved and some clashed with *kibanja* holders. One respondent said that her landlord did not want her to grow oil palm on the land, and another said that the landlord demanded a share of the proceeds from oil palm. In one village, a landowner was killed by squatters on his land for attempting to harvest oil palm fruits grown by an occupant on his land. These examples demonstrate that landlords did not have sufficient information to enable them make effective and constructive decisions and that their interests were disregarded when the need for a certificate of occupancy was waived as a requirement for outgrowers. Accordingly, it is concluded that more than 80% of landlords did not have free, prior and informed consent.

Regarding *kibanja* holders who became outgrowers, all said that they were involved in discussions at a community level, and in sensitization programmes about the project. However, all of them stated that these discussions focused only on the project benefits, and that decisions were made based on excitement. There are issues that were not well discussed, explained or understood by outgrowers, as one respondent said. "They did not sensitize people well, they raised people's expectations and people committed all their land for oil palm. As a result, there is now a threat of food insecurity."

All respondents without exception complained about the pricing formula. They said that the price offered did not take in account the value of other products derived from the land, and is based only on fresh fruit bunches as a raw material, which they found very unfair. One respondent added that ''people were not educated about the pricing formula and it is too complex for the ordinary illiterate farmer to understand.'' Such negative sentiments about the pricing formula will likely affect the farmers' involvement. Many outgrowers do not appear prepared to carry on with the project without government involvement, and many requested that the government postpones its decision to withdraw its active participation in the project. Furthermore, all respondents confirmed that they had no access to independent legal or professional advice to enable them make informed decisions. This challenge continues, and many farmers noted that access to independent legal advice would help them to defend their rights, but also assist them to resolve disputes arising from the project, even between other outgrowers.

Other issues that respondents complained of included the high price of fertilizers, the monopoly of OPUL for supplying all inputs, and that the government is withdrawing financial support this year. All outgrowers also said they had a detailed contract spelling out the terms and conditions of the transaction. Under the Tripartite Agreement, outgrowers have 10% of OPUL's shares, but many do not understand or appreciate how these help them. Respondents added that their representatives have never been invited or attended any OPUL shareholder meetings. In conclusion, although no respondent said they regret joining the project due to the financial benefits, it cannot be concluded that FPIC was absolutely obtained, with only a few aspects of FPIC being applied prior to implementation of the project.

Buvuma

In the compensation process in Buvuma, three interests in land were recognized, i.e. the registered proprietor, the tenant (*kibanja* holder), and the licensee (persons merely cultivating the land). Of the 180 people interviewed through focus group discussion, only two said they were happy and content with the process. As in Kalangala, it is apparent that sensitizations focused on project benefits rather than giving holistic and comprehensive information on project impacts, and accordingly, participant decisions were skewed.

The first group to be compensated by government were registered *mailo* landowners. From this research, there were no complaints from this group, and like the situation in Kalangala, most of these are absentees. Having not actively utilized their land, these landlords cared more about the financial benefits to them, rather than project impacts on other occupants of the land. In fact, prior to selling their interests, landlords did not consult the kibanja holders at all for their opinion or consent.

Although many respondents were positive about the project being brought to Buvuma, many *kibanja* holders and licensees were disgruntled. Those with land rights said they were not given any contracts that spelled out the terms and conditions of compensation, given only small chits that merely indicated the size of the land and the valuation amount. There were no other contractual documents that detailed the terms and conditions of the acquisition process. Five main reasons were cited for the disgruntlement. Firstly, *bibanja* holders and licensees alleged that there was no proper sensitization on the process of surveying, valuation and compensation. On the other hand, NOPP and local government officials said that numerous sensitization programmes were carried out using radio programmes and other media. Thus, although sensitization was done, it was clearly not effective in enabling the participants to appreciate all of the relevant issues.

It was also alleged that land areas held by *kibanja* holders and licensees was under declared by surveyors. One respondent said, for example, that "they measured my land to be 3.75 acres, but only considered 0.5 acres for my compensation.'' This may have arisen for a number of reasons. Many tenants are not known to the landlord and cannot confirm the size of their land, depending on circumstantial evidence from neighbours or local administrative structures. They do not have accurate measurements of their land, use rudimental methods to estimate the size, and boundary demarcation is not always clear. Others claim portions of land in forest reserves or part of public land. Most are illiterate and lack knowledge or appreciation of the technical surveying processes. Some also participate in what is known locally as 'betting', the practice of using anticipated payments as security to borrow money. It is also the practice of *bibanja* holders to allow an extra person to put in a claim of ownership in respect of a portion of their land. This has become a challenge because the added person may sometimes be given a higher compensation than the *kibanja* holder, leading to further disputes. In other cases, if the third party is not compensated, they may also complain, yet they have no legally recognized right to the land.

Furthermore, there were many allegations of undervaluation and low compensation. This complaint stems from perceptions that there was under declaration of the size of land by surveyors and also that people do not understand the valuation criteria used. Buvuma district does not as yet have its own valuation list, and it is unclear to many what was used as a basis for compensation. Believing that they were cheated, many have refused to vacate the land despite having been compensated, and some have petitioned court for redress. Another resounding complaint for many was delayed compensation. On average, the entire process of surveying, valuation and compensation takes two years and many tenants reported that until recently, upon surveying and valuation, they would be told to vacate the land notwithstanding the fact that they had not yet received compensation.

Overall, the legal documents discussed together with case law indicated that free, prior informed consent was not strictly adhered to in the acquisition of land in Buvuma, and less so as compared to Kalangala. Yet, it could have been expected that lessons learned from Kalangala should have informed better implementation in Buvuma.

Conclusions

The intentions of NOPP may be noble. However, it is important that the implementation of such projects gives due consideration to FPIC, and the social and economic rights of people likely to be affected. Failure to adhere to set standards and regulations can have far reaching consequences, on the project, communities involved, and Uganda at large. It could also lead to social conflicts, so precautions are needed.

1. Differences in the land tenure systems presented challenges in successfully and equitably applying the principles of free, prior and informed consent. Some tenure systems were obscure, making proper land acquisition hard to manage.
2. Awareness raising leading to the acquisition of land and compensation were not only skewed towards potential benefits, but it also failed to transmit information in the right forums, formats and language.
3. Valuation and compensation processes leading to land acquisition were not clear, leading to high numbers of very disgruntled kibanja holders and licensees.
4. Those involved in land sales had no access to legal representation and therefore could not get legal advice to aid decision making during the sale process.
5. Discussions regarding the project were not rigorous enough, with some stakeholders missing out completely. This was either by commission or omission, and thereby some of those selling land only joined at the end when almost all the relevant decisions had been made.

Recommendations

Many lessons can be learned from experiences in Kalangala and Buvuma. But to ensure mistakes are not repeated elsewhere where land acquisition is yet to begin, actions are needed by the government, donors and BIDCO.

1. The government and others such as Buganda Land Board should undertake full land surveys prior to acquisition, and should issue certificates of occupancy to Bibanja holders.
2. The government needs to establish clear and updated policies for valuation and compensation, and consider verifying these with private/independent valuers.
3. Authorities including the police should be included at an early stage to reduce cases of fraud, and ensure that user-friendly grievance settlement mechanisms are put in place.
4. Adequate and balanced sensitization is required prior to acquisition, including potential negative issues and not just the intended benefits, and communities should have access to legal services and representation at the outset.
5. Land acquisition should proceed according to both nationally and internationally recognized best practices, and land should be acquired only on a 'willing buyer' and 'willing seller' basis.
6. Free, prior and informed consent must be adhered to, follow the usual requirements of (i) adequate sensitization, (ii) valuation of willing sellers and, (iii) disclosure of values prior to final agreements being signed.

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Economic trajectories of palm oil development in Buvuma and Kalangala districts

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Summary

This research on economic trajectories of oil palm described and quantified direct and indirect benefits, and assessed trade-offs between oil palm and current livelihoods in Buvuma and Kalangala districts. It was designed as a descriptive evaluation study, considering both ex-post factors of progress made with oil palm production, and ex-ante factors of future prospects for livelihoods along with other socio-economic and environmental factors. The projection analysis supporting ex-ante analysis covered the period 2018-2030. The principal primary data collected was through questionnaires and focus group discussions. Secondary data was drawn from reports by district governments, IFAD, the Ministry of Agriculture Animal Industry and Fisheries (MAAIF) and the Ecological Trends Alliance/Tropenbos International partnership. Analysis was based on descriptive analysis of primary data using STATA software and a synthesis of field notes. Food security analysis was based on two criteria prescribed by FAO/WFP's 2013 Guidelines for Comprehensive Food Security and Vulnerability Analysis. Gross margin analysis assessed enterprise performance for oil palm and other crop and livestock enterprises. Projection and trade-off analyses were conducted for oil palm, other farm incomes, and forest-

based ecosystem services. Results should feed into proposed implementation of further land acquisitions in the new ten-year National Oil Palm Project (NOPP).

Projections of direct impacts of oil palm incomes and agricultural production, and the indirect impacts on food security and forestry-based ecosystem services for Kalangala and Buvuma districts showed medium to long term decline in economic welfare under the current system of oil palm production. In Kalangala, the net economic contribution of oil palm was projected to decline from UGX 23.0-63.6 billion/year (US$ 6.3-17.3 million) in 2019, to UGX -4.1 to +7.8 billion/year (US$ -1.1 to +2.1 million) by 2030. In Buvuma, the net economic contribution of oil palm was projected to decline from UGX 5.6-12.4 billion/year (US$ 1.5-3.4 million) in 2019, to UGX -4.4 to +10.1 billion/year (US$ -1.2 to +2.8 million) by 2030. Economic forecasts for Kalangala were based on a projected increase of 1326 hectares in farmland and 337 hectares more oil palm plantations, and a decline of 1983 hectares of dense tropical high forests. The economic results in Buvuma are based on a projected reduction of 6397 hectares in subsistence farmland and 1081 hectares less woodlands, as a result of planting of 7478 hectares of oil palm.

Buvuma has a much higher population density (305 persons/km2) than Kalangala (120 persons/km2), and a larger area under subsistence farmland. Conversely, Kalangala still has a large area of fully stocked tropical high forests compared to the woodlands in Buvuma district. As a result, loss of agricultural production and livelihoods, followed by food security, were identified as the main factors expected to limit the economic benefits associated with oil palm in Buvuma, while loss of forest ecosystem services, followed by loss of agricultural livelihoods, were likely to be most limiting in Kalangala. Even though Kalangala showed a higher skills-based education attainment (21%) compared to Buvuma (3%), both districts generally have few trained people to optimally benefit from new employment opportunities, with the exception of casual labour associated with oil palm production.

Introduction

Background

The Government of Uganda is implementing the Vegetable Oil Development Project (VODP) with support from the International Fund for Agricultural Development (IFAD). Under this, oil palm purchase and trade are promoted through a partnership with a private sector partner and smallholder farmers. Starting in 2019, the government with support from IFAD, the private sector and oil palm growing communities intends to replace VODP2 with the National Oil Palm Project (NOPP). As distinct from VODP and VODP2, NOPP will focus on strengthening the value chain through an innovative public-private-producer partnership (4P) arrangements, developing oil palm in Buvuma and three other districts in the country, as well as consolidating production, supply and the value chain in Kalangala district.

Oil palm development was initially focused on Bugala island. The predominant economic activity is fishing, but there are also many smallholder farm households scattered across the island. Kalangala district was least populous in Central Uganda with a population of 54,293 people in 2014, mean household size of 2.5, and a population density of 120 people per square kilometre (national population density is 173) (UBOS 2016). The main economic activities in Buvuma are agriculture and fishing. Agricultural and livestock production is mostly of a subsistence nature, but with some commercial focus. Many communities undertake primary processing in nearby towns, especially Jinja. Transportation of produce to markets is by boat and the ferry, while bicycles and motorcycles are used for movements within the island.

Evolution of oil palm production

The rationale for VODP was to provide import substitution, diversify Uganda's export commodities, improve rural incomes, and improve the health of the population (MAAIF 2009). Specific objectives were: (i) to reduce poverty and increase farmer incomes by involving smallholders in oil crop production; (ii) create an enabling environment to attract private sector investment in oil palm development with a view to reducing imports of vegetable oil and thus create savings on foreign exchange; (iii) promote private sector agro-industrial investment with the introduction of industrial oil processing mills that are environmentally friendly; (iv) improve the delivery mechanisms and availability of credit and improved seeds; (v) develop the potential for sunflower and other arable oil seeds; (vi) provide interested smallholders, particularly women, with appropriate technologies to extract oil from arable oil seeds; (vii) stimulate and support the raw materials base and know-how for the subsequent development of commercial

essential oils; and (viii) create an industry-financed consultative body to advise the government on its priorities. The project covers several oil crops in different parts of the country, but the oil palm component was the largest (MAAIF, 2009).

The first phase (VODP1) was approved in 1997 and implemented between 1998 and 2010, focused on growth, poverty reduction and agricultural modernization, with an increased role for the private sector (IFAD, 2010). The goal was to increase household cash income of smallholders by revitalizing and increasing domestic vegetable oil production. The specific objectives were, among others, to develop a well-integrated palm oil for the benefit of smallholders and private sector processors. The project design included a total planted area of 4500 ha with a nucleus estate of 1000 ha on Bugala island, Kalangala district, and 3500 ha for smallholder oil palm development. After failed negotiations with the original private-sector investor, this was redesigned between 2000 and 2003 as part of negotiations with a new private-sector investor, BIDCO Oil Refineries Limited. As a result, the nucleus estate was increased to 6500 ha, while the 3500 ha for smallholder development was maintained, bringing the total area planted to 10,000 ha (IFAD, 2010).

The second phase (VODP2) started in October 2010, approved by IFAD's Executive Board in April 2010 and by the Government of Uganda on 29 September 2010 (IFAD, 2012). The goal was to contribute to sustainable poverty reduction in the project area, with the development objective "to increase the domestic production of vegetable oil and its by-products, thus raising rural incomes for smallholder producers and ensuring the supply of affordable vegetable oil products to Ugandan consumers and neighbouring regional markets." The outcome indicators for VODP2 were for 11,200 ha of oil palm in Kalangala, and 2500 ha in Buvuma initiated, and provision of extension and value chain services to smallholder farmers. The project also works with the Uganda National Bureau of Standards (UNBS), National Agricultural Research Organization (NARO), National Seed Certification Service (NSCS), and financial institutions. By the beginning of 2018, the total oil palm areas planted in Kalangala was 10,924 hectares, comprising 6500 hectares by the private sector partner on the nucleus estate and 4424 hectares by smallholder farmers. Annual oil palm fresh fruit bunches harvested were estimated at 26,889 t, valued at UGX 15.7 billion (US$4.2 million).

In April 2018, IFAD and the Government of Uganda proposed the National Oil Palm Project (NOPP) to replace VODP2 (IFAD, 2018). The rationale for NOPP lies in the transformative socioeconomic impact achieved under the VODP I and II. The overall goal is for inclusive rural transformation through oil palm development – the NOPP theory of change. NOPP will expand a vertically integrated value chain with strong linkages between smallholder oil palm growers and primary processors, based on the innovative public-private-producer partnership (4P) arrangement developed under VODP. This will reduce market risks faced by smallholders and ensure their access to quality inputs, technical know-how and investment credit. The government will provide the necessary public infrastructure and offer growers financial, technical and organizational support. IFAD's main role will be to broker this 4P relationship and build trust among the partners. The project will work in three identified geographical hubs (Buvuma, Mayuge and Masaka), defined as agroclimatically suitable areas within a radius of 30 km around a crude palm oil mill, in which at least 3000 ha of smallholder oil palm production can be assured. A fourth new hub is yet to be definitively identified. In Kalangala, the hub established during VODP, the project will consolidate the investments to date, but will not expand the area under oil palm production.

Methodology

The overall objective of this research was to undertake an assessment of the economic trajectories of palm oil development for different stakeholders in the landscape. Expected outputs were the following. (i) Collect information on livelihoods at household level in Kalangala related to the oil palm project and use this for trajectories of socio-economic effects of oil palm development on Buvuma. (ii) Describe economics, food security and food prices, dependency on the environment and on third parties at household level and how these will change due to the oil palm project. (iii) Quantify direct benefits vs. indirect benefits of oil palm and the hidden costs of oil palm growing.

The study was undertaken in Buvuma and Kalangala districts, assessing the impacts of oil palm on other economic activities, livelihoods, society, and the environment and natural resources in the islands. The study was to calculate economic trajectories on the short, medium and long-term impacts of oil palm in the two districts. The study will support future planning of safeguards, and optimization of emerging economic opportunities linked to the oil palm

value chain, and will contribute to planning for and implementing optimal land use for sustainable livelihoods in the medium and long-term within the districts and beyond.

The study was designed as a descriptive evaluation study, considering both ex-post factors of progress made with oil palm production and livelihoods in Kalangala. The study also considered ex-ante factors of future prospects of livelihoods, and other socioeconomic and environmental factors with oil palm production in both Kalangala and Buvuma. The projection analysis supporting the ex-ante analysis covered the period between 2018 and 2030. The descriptive evaluation considered at household level, types of livelihoods and wealth, current and future economic activities, observed outcomes of oil palm production, and future likely outcomes of oil palm production. The results included gross margins, food security, household wealth, socioeconomic status, and status of drivers for future economic, social and environmental transitions, changes and impacts. The scenarios project likely outcomes associated with oil palm production and the local economy in the two districts.

A total of 213 interviews were conducted, 104 in Kalagala and 109 in Buvuma including six focus group discussions in each, with principal primary data collected through administered questionnaires. The type of data collected was based on the three study objectives. Data included: (i) description of communities, livelihoods, wealth and social economic factors; (ii) economic activities including oil palm production, other dominant economic activities, and food security considerations; (iii) perspectives of communities, local governments, and oil palm stakeholders among others, on direct and indirect benefits and hidden costs associated with oil palm production. Secondary data comprised census data collected by the district local government, and reports compiled by IFAD on the VODP project. Literature reviews also considered previous work on oil palm impacts and activities under the Ecological Trends Alliance/Tropenbos International partnerships; and work of actors such as Care International in Uganda.

Statistics were developed on the frequencies and means of occurrences observed in the primary data using STATA software. The descriptive analysis characterized the status of community livelihoods, wealth and economic activity, and also showed how average income; weekly, monthly and annual compared across the two districts. Food security analysis was conducted based on two criteria for strong food security prescribed in the FAO/WFP (2013) Guidelines for Comprehensive Food Security and Vulnerability Analysis (CFSVA), being the Dietary Diversity Score (DDS) and the Food Security Score (FSC). The DDS nutritional security based on benchmarks of food groups (meat/fish, pulses, carbohydrates, fruits, vegetable, milk, sugar/honey), the higher the score the more diversified the diet. The FSC shows commutative food security over a specified period (1-7 food days), based on benchmarks of poor, borderline and acceptable food and nutritional opportunities. Table 2 shows the food groups and categorization used for weighting, to determine dietary diversity and aggregation to determine the food security score for a given community (WFP, 2008).

Table 1: Default scores used for calculation of dietary diversity and food consumption score

No.	Food items (examples)	Food group (definitive)	Weighting (definitive)
1	Maize, rice, sorghum, millet, bread, other cereals	Cereals, tubers and plantain (carbohydrates)	2
	Cassava, sweet potato, potato, plantain, cooking banana		
2	Beans, peas, groundnuts etc.	Pulses	3
3	Vegetables and leaves		1
4	Mangoes, passion fruit, jack fruit	Fruit	1
5	Beef, goats, poultry, pork, eggs, fish	Meat and fish	4
6	Milk, yoghurt and other dairy products	Milk	4
7	Oils, fats and butter	Oil	0.5
8	Sugar and sugar products	Sugar	0.5
9	Spices, coffee, tea, salt, fish powder	Condiment	0

Source: WFP, 2008

Performance of the crop and livestock enterprises was assessed based on gross margin analysis. Gross revenues were estimated by multiplying animal output by average prices, while total variable costs were estimated by aggregating product input quantities by input prices. Gross margin was calculated as the difference between gross revenues and total variable costs, and was used to rank performances of different crop and livestock enterprises. Three

basic scenarios were developed with a high and low trajectory for aggregate gross margins of farm enterprises for farm households in Buvuma and Kalangala districts. In Buvuma, business as usual' (BAU) and oil palm investment (OPI) scenarios were developed, while in Kalangala, the oil palm investment (OPI) scenario was developed. Two scenarios for Buvuma project included before and after oil palm production, but effective graphical comparison was made was made for two OPI scenarios. The BAU scenario for Buvuma was developed based on calculations and estimates and included in a table, while the trajectories for the OPI scenarios for Buvuma and Kalangala districts were shown graphically.

Scenarios are based on projections of discounted gross margins for oil palm on the one hand, and a second of projections based on discounted gross margins from oil palm netted out with expected impacts on subsistence crop enterprises, farm income, losses in ecosystem service flows, and impacts on food security. Ecosystem service losses and food security impacts are shown separately, reflecting on indirect impacts associated with oil palm production. Oil palm revenue trajectories and crop enterprise losses reflect the more direct impacts of oil palm. Indirect and direct benefits were assessed based on a synthesis of discussions described in focus group discussion notes. Benefits and hidden costs were described based on a synthesis of results from the quantitative analysis and collaborated with community and stakeholder perceptions, as well as the synthesis of scenarios analysis.

Household description

Modal family size in Buvuma is 4-5 persons per household, 5-6 in Kalangala (Table 2), while families above 10 members were about 12% of the entire group of respondents. The average household size for Buvuma and Kalangala districts, respectively were 6.1 and 6.5, higher than the national average of 4.7 persons per household and the national rural average of 4.9 (Figure 1).

Table 2: Family size

Family size (members per household)	Buvuma district		Kalangala district	
	n	%	n	%
1 to 3	25	23	28	27
4 to 6	43	39	31	30
7 to 10	31	28	27	26
11 to 18	10	9	18	17

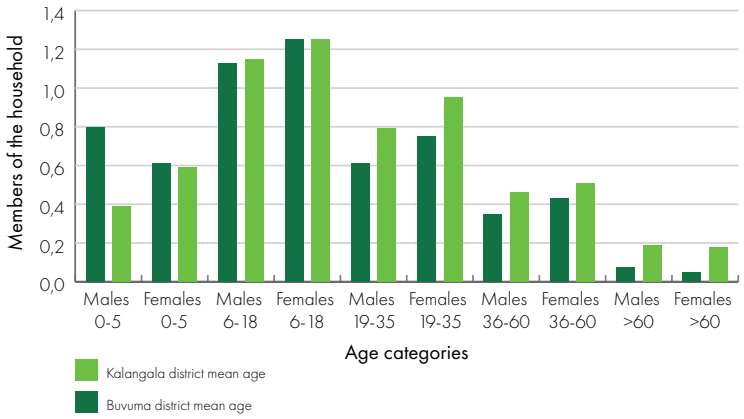


Figure 1: Distribution of members of household by age

Higher average household size may indicate a higher pressure on local resources to support livelihoods. Higher population size may also indicate remoteness and limited access to family planning services, and therefore whether or not economic opportunities are available, families are not well educated on how to manage the number of children and dependents in their homes.

Long-term settled people who described themselves as indigenous, included those born on the island, those who returned because of their ancestry, and those settled in the islands for more than 20 years. Community interviews showed that 70% of people in Buvuma district are recently settled, 30% 'local', while in Kalangala the number

of recent settlers 40% with 60% 'local', with many indicated they had migrated from nearby districts of Masaka, Rakai, Isingiro, Busia, Mayuge, Jinja and Mukono, among others. New settlers in Buvuma were largely attracted to the area because of fishing prospects, while those in Kalangala were attracted by new economic opportunities of trade, timber and charcoal production and the likelihood of employment in hotels, farms and fishing when the timber and charcoal trade reduced. Production of new crops such as rice, millet, maize is also attractive to newly settled people.

Generally, households are headed by men and fewer households are headed by women. However, there were more female headed households in Buvuma district compared to Kalangala. Out of every five households in Buvuma about two were headed by a woman (42%), while out of every five households in Kalangala only one was headed by a woman (23%), compared to the national average of 25%. More than three-quarters of the household heads in Buvuma and Kalangala are married, nearly 20% are widows or widowers and about 5% are single. For nearly one-fifth of the households to be headed by widows is an indication of the impact of fatalities on the water and external factors of household health, and particularly HIV/AIDS in fishing communities. HIV prevalence is high (15-40%) among fishing communities, compared to 37% among sex workers and 18% in partners of sex workers (GOU, 2016).

The average age of the household head is about 40 years in Buvuma and 46 years in Kalangala. The indication is that the communities in Buvuma are on average six or more years younger than their counterparts in Kalangala. The age groupings for household heads also show clear differences between the two communities. The modal household age group for Buvuma are those aged between 20–35 years while for Kalangala it is the older group of those 50 years and over.

Educational attainment in Kalangala was clearly higher than in Buvuma. The number of years of primary education averaged six years in Buvuma compared to six and a half years in Kalangala. The main difference is at for the secondary school. For secondary school on average for persons living in Kalangala District at least 50% of them attained four years of secondary school education, while for Buvuma less than 30% attained at least three years of secondary school education (Table 5). The gap in education attainment was wider at tertiary level. Only three of the 109 respondents in Buvuma has a tertiary education while in Kalangala at least one-fifth of the respondents had tertiary education. Tertiary education is associated with acquisition of technical skills that are crucial to obtaining skilled employment. Even though local community members generally preferred to operate as outgrowers and/or suppliers of shop or market items to the nucleus estate and BIDCO rather than work, due to the reports of low wages for nucleus estate and the oil palm processing factory workers.

In both Buvuma and Kalangala district, the majority of houses (55% and 67%, respectively) are made of bricks and iron sheet roofs (Table 6). In Buvuma unlike Kalangala, wooden houses make up a large fraction of 42% of all houses. In Kalangala, only 5% of houses are made of wood. Just under one-third of the houses in Kalangala are made from mud and wattle, while 3% in Buvuma are mud and wattle. Wooden houses represent new or temporary settlement for the owner of the houses. The wooden houses were common in concentrated settlements with in fishing villages. Many of the wooden houses were built on rented land with no occupancy rights for the owners of the houses. Permanent brick walled iron roofed houses represent permanent settlement. The level of permanence of settlements is higher in Kalangala compared to Buvuma. In Buvuma 72% of houses are owned by current occupants while 83% of houses in Kalangala are owned by current occupants. Only 28% and 17% of houses in Buvuma and Kalangala, respectively, are rented. There is a strong level of house ownership which reflects, the absence of houses for rent on one-hand, and the community preference to build their own structures for housing. The lack of clear standards for construction and/or poorly developed real estate markets may account for observed housing ownership.

Economic performance of crop enterprises

Farm crop enterprise profitability in Kalangala is dominated by oil palm, with a profitability range of UGX of 3.85 to 10.63 million/ha/yr (Table 3). Passion fruit, however, have the potential to raise between UGX 5.8 to 12.7 million/ha/yr, but the number of farmers engaged in the enterprise is less than 5% of households interviewed. Tomatoes are another high value crop grown by a few farmers but has a profit range that peaks at UGX 4.6 million/ha/yr. Coffee performs much better in Kalangala with gross margin of UGX 2.4 million compared to UGX 0.84 million in Buvuma.

Table 3: Annual gross revenue from crop enterprises in Kalangala district

Crops	Area (ha)		Yield (units*/ha)	Total variable costs (UGX/ha)		Gross margins (UGX/ha)	
	High	Low	High	High	Low	High	Low
Bananas (bunches)	0.5	0.25	100	1,118,695	1,118,695	3,715,305	1,298,305
Beans (tonnes)	1.5	1	4.5	625,423	0	1,549,877	128,907
Cassava (sacks)	2	0.25	10	891,638	891,638	921,112	268,522
Sweet potatoes (sacks)	2	0.5	15	379,488	0	1,614,537	193,360
Coffee (60 kg sacks)	2	0.25	12.5	2,129,067	0	2,402,808	386,720
Maize (tonnes)	2	0.5	0.5	0	0	422,975	145,020
Oil palm (tonnes)	15	1	144	2,129,067	2,129,067	10,632,693	3,853,008
Passion fruit (sacks)	1	1	35	2,998,459	2,998,459	9,690,791	2,802,341
Rice (tonnes)	2	2	1.05	2,998,459	891,638	3,092,381	1,464,937
Tomatoes (boxes)	2	0.5	42	2,998,459	891,638	4,615,091	268,522

* units indicated on left hand side with crop

In Buvuma district, the most profitable enterprise is bean cultivation, with per hectare gross margins of UGX 4.3 to 5.5 million (Table 4). Despite the high profitability, however, the average area of bean crops is 0.07-0.25 ha per household. Therefore, the most farmers generally make in bean production is a gross revenue of about UGX 2.5 million/year. Bean profitability is followed by cassava (gross margin UGX 0.76-1.5 million/ha/yr), sweet potato (UGX 0.84-0.95 million/ha/yr) and coffee (UGX 0.72-0.91 million/ha/yr). Other notable enterprises are rice (gross margins UGX 0.67-0.93 million/ha/yr), followed by groundnuts and maize (UGX 0.2-0.5 million/ha/yr).

Table 4: Gross revenue from crop enterprises in Buvuma district

Crops	Area (ha)		Yield (units*/ha)	Total variable costs (UGX/ha)		Gross margins (UGX/ha)	
	High	Low	High	High	Low	High	Low
Bananas (bunches)	4.14	0.62	120	250,320	250,320	909,840	716,480
Beans (tonnes)	0.41	0.21	6.1	520,881	520,881	8,542,869	4,313,119
Cassava (sacks)	2.07	0.21	19.3	207,846	207,846	1,145,674	758,954
Sweet potato (sacks)	1.65	0.10	9.1	207,846	207,846	154,704	952,314
Coffee (60kg sacks)	0.41	0.21	61	614,631	614,631	835,569	545,529
Groundnuts	0.21	0.10	7.1	520,881	0	204,219	145,020
Maize	1.65	0.83	0.6	614,631	0	442,807	120,850
Rice	0.62	0.41	24.2	614,631	614,631	932,249	674,436

Nutrition and food security

The number of different foods or food groups eaten over a reference period is a proxy indicator for improved outcomes in areas related to human health (e.g. birth weight, improved haemoglobin concentrations, etc.). A more diversified diet is highly correlated with such factors as caloric and protein adequacy, percentage of protein from animal sources (high-quality protein), and household income. Even in very poor households, increased food expenditure resulting from additional income is associated with increased quantity and quality of the diet.

Average dietary diversity was captured by measuring the food groups that a household consumes during one week, based on memory recall of respondents. The results showed a higher dietary diversity in Kalangala compared to Buvuma. The range of the dietary diversity score was 43-50% for the eight food groups in Buvuma, and 58-62% for Kalangala (Tables 5 and 6). Differences were in the consumption of meat and fish, milk, fruits, sugar, oil and fats, and carbohydrates, where Kalangala had a higher consumption than Buvuma. Conversely, Buvuma had a higher consumption only for vegetables, and it seems likely that the income differences between the two communities

in Buvuma and Kalangala are already observable in terms of their consumption patterns. Food groups such as meat and fish, milk and fruits are associated with more affluent people with higher disposable incomes, whereas vegetables, pulses and carbohydrates are more associated with subsistence livelihoods.

Table 5: Dietary diversity in Buvuma district

Days	Meat & fish	Milk	Fruit	Vege-tables	Sugar	Oil	Fish	Carbo-hydrates	Pulses	Dietary index	Dietary diversity
	Average daily weights over daily for one week										
1	0.48	0.16	0.05	0.35	0.23	0.09	0.46	1.62	0.50	3.43	43%
2	0.43	0.15	0.04	0.34	0.26	0.13	0.42	1.61	0.53	3.44	43%
3	0.42	0.16	0.06	0.37	0.27	0.15	0.41	1.67	0.61	3.64	46%
4	0.38	0.16	0.01	0.33	0.28	0.16	0.35	1.75	0.71	3.76	47%
5	0.41	0.15	0.04	0.33	0.25	0.13	0.38	1.78	0.67	3.72	46%
6	0.40	0.16	0.04	0.40	0.28	0.17	0.39	1.86	0.67	3.94	49%
7	0.50	0.17	0.04	0.44	0.22	0.15	0.37	1.88	0.68	4.04	50%

Table 6: Dietary diversity in Kalangala district

Days	Meat & fish	Milk	Fruit	Vege-tables	Sugar	Oil	Fish	Carbo-hydrates	Pulses	Dietary index	Dietary diversity
	Average daily weights over daily for one week										
1	0.71	0.25	0.23	0.24	0.49	0.34	2.06	0.60	4.92	62%	43%
2	0.62	0.25	0.2	0.20	0.49	0.33	2.03	0.63	4.75	59%	43%
3	0.58	0.24	0.17	0.18	0.46	0.36	2.00	0.68	4.67	58%	46%
4	0.51	0.29	0.17	0.20	0.50	0.36	2.05	0.80	4.88	61%	47%
5	0.53	0.22	0.09	0.17	0.48	0.37	2.01	0.79	4.66	58%	46%
6	0.51	0.27	0.16	0.20	0.49	0.34	2.15	0.80	4.92	62%	49%
7	0.69	0.21	0.13	0.17	0.51	0.34	2.22	0.66	4.93	62%	50%

Food security scores are a composite based on dietary diversity, food frequency, and relative nutritional importance of different food groups. The thresholds of the food consumption score were determined based on the frequency and knowledge of consumption behaviour in that country/region. Results (Figure 2 and 3) show the cumulative performance of the food security score profile for Buvuma and Kalangala, respectively. Over the course of the seven days, an acceptable level of food security for Buvuma was achieved between the fourth and fifth day of cumulative consumption, whereas for Kalangala, the acceptable food security threshold was achieved between the third and fourth day. Thus, cumulative food security is achieved a day earlier in Kalangala than in Buvuma, indicating that communities in Kalangala are significantly more food secure that those in Buvuma.

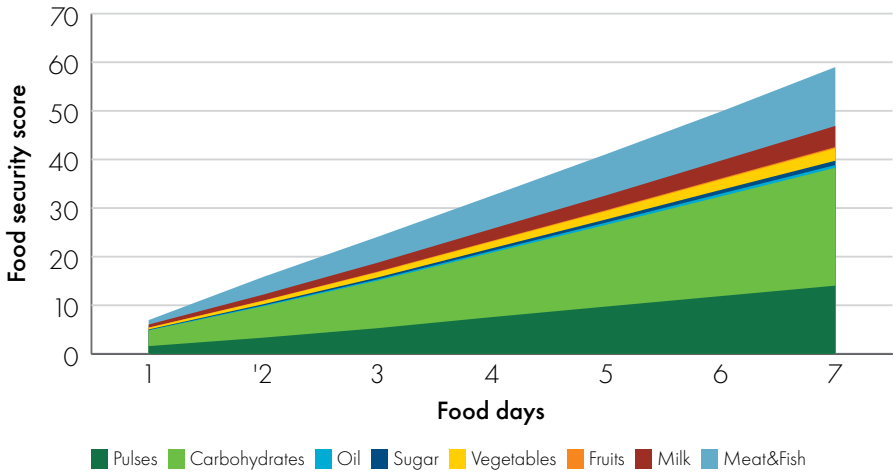


Figure 2: Cumulative increase in Food Security Score over one week in Buvuma district

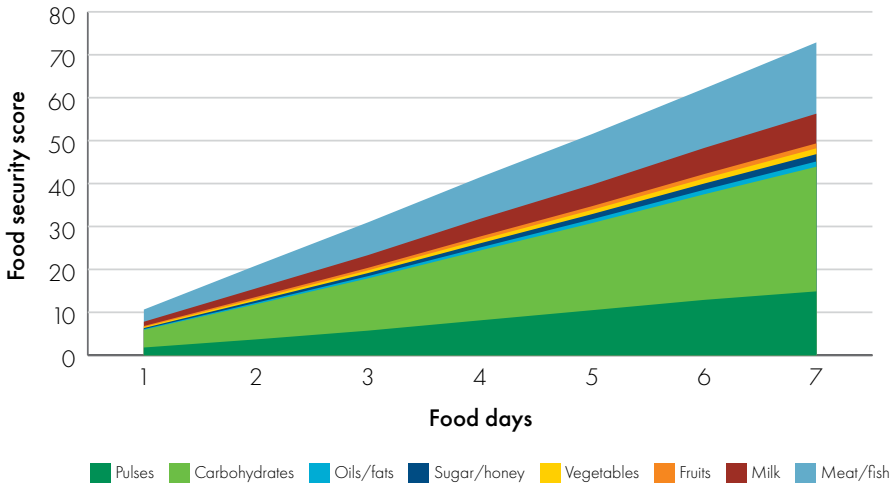


Figure 3: Cumulative increase in Food Security Score over one week for Kalangala District

Scenario analysis: direct, indirect and hidden impacts of oil palm production

Deriving benefits and hidden costs

Direct benefits represent gains achieved in the project area, directly associated with oil palm production. The leading direct benefit is the income associated with oil palm production. Some is obtained by outgrowers while some is by workers in the nucleus estate. Direct benefits are calculated from the gross margins of oil palm from outgrower plantations, estimated to be at least 25% of the income generated from the nucleus estate. Conversely to income gains, oil palm production also leads to land conversion that results in a loss of income as farmers have to cede current subsistence production in exchange for income from oil palm.

Indirect benefits and losses on the other hand are derived, and occur as secondary impacts, such as the loss of ecosystem services, carbon storage, pollinator services and future wood fuel supply, among others. The oil palm industry has brought along with it a strict need for financial literacy among farmers, such as bookkeeping which is important to monitor cash flows so that farmers can realize profits from oil palm. This financial literacy is now being extended to other crop enterprises, with skills passed to other family members and particularly children who help their parents manage their farms.

Hidden costs are those that appear underneath the primary and secondary impacts. For example, the level of impacts on food security may affect the more vulnerable groups in a community where income from oil palm is either too low or their direct participation in the oil palm industry is limited. Costs such as carbon sequestration and loss of biodiversity affect the country's capacity to implement international commitments to the Nationally Determined Contributions (NDCs). There are also hidden costs associated with the opportunity cost of long-term impacts on ecosystem services related to wetlands, forestry and fresh water systems. There are also potential impacts on livelihood resilience and the failure to cope to with lifestyle changes for some community members.

Scenarios for gross margin of farm incomes with oil palm

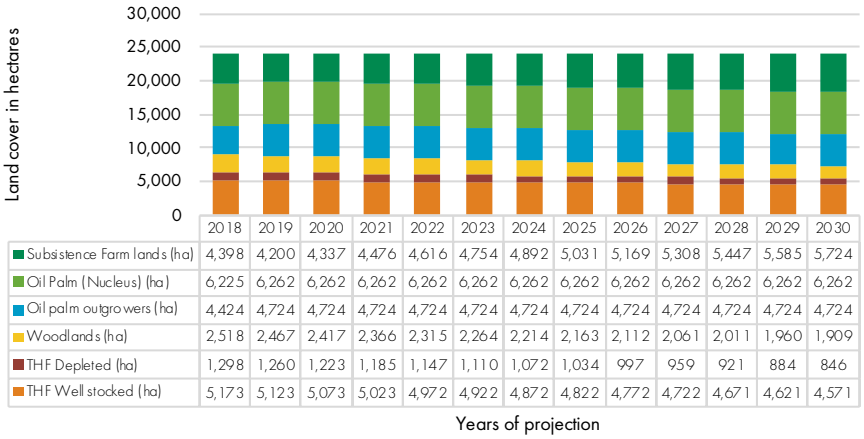
Scenarios were conducted by developing projections on discounted gross margins with oil palm production in Buvuma and Kalangala districts. These scenarios focused on the range of gross margins between low and high, based on prices and yields obtained by farmers and the gross margin assessment. Therefore, for each projection, a low and high range were added to the scenario analysis. The scenarios also assessed the direct impacts from oil palm production, i.e. the additional income from oil palm production and lost income from crop production replaced by oil palm, with an assumption that the impact of oil palm on livestock production is indeterminate. And whereas farmers indicated that livestock can be produced along with oil palm, there were reports that nucleus estate managers had stopped farmers from grazing livestock within their plantations because of the damage caused and the likelihood of livestock feeding on the fresh fruit bunches.

The indirect impacts assessed were impacts on food security and ecosystem services. The ecosystem services considered were for forestry resources because of the clear observed impacts on land cover and land use changes. The impacts are likely to extend to wetlands, fresh water systems such as streams, springs, shore line vegetation,

fisheries resources, and potential for pollution into the lake. However, these were synthesized as hidden costs that are unclear, based on the limited information currently available.

Land cover and land use change

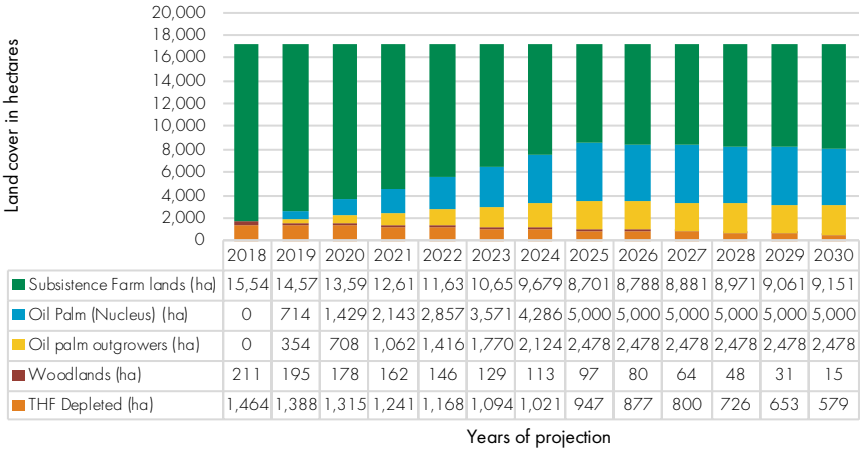
Kalangala district, unlike Buvuma, had a small baseline area of subsistence farmland which was projected to reduce by 370 ha over the 11-year projection. This decline in subsistence farmland was relatively small, and was assumed to be largely due to a small expansion of the oil palm area, based on definitive plans in the NOPP report (IFAD, 2018) that stated that with no additional funding and/or programming for expansion of oil palm in Kalangala district, the focus will be on consolidating current oil palm areas. Nonetheless, well stock tropical high forest, depleted tropical high forest and woodlands are expected to decline considerably between 2018 and 2030 (Figure 4).



	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Subsistence Farm lands (ha)	4,398	4,200	4,337	4,476	4,616	4,754	4,892	5,031	5,169	5,308	5,447	5,585	5,724
Oil Palm (Nucleus) (ha)	6,225	6,262	6,262	6,262	6,262	6,262	6,262	6,262	6,262	6,262	6,262	6,262	6,262
Oil palm outgrowers (ha)	4,424	4,724	4,724	4,724	4,724	4,724	4,724	4,724	4,724	4,724	4,724	4,724	4,724
Woodlands (ha)	2,518	2,467	2,417	2,366	2,315	2,264	2,214	2,163	2,112	2,061	2,011	1,960	1,909
THF Depleted (ha)	1,298	1,260	1,223	1,185	1,147	1,110	1,072	1,034	997	959	921	884	846
THF Well stocked (ha)	5,173	5,123	5,073	5,023	4,972	4,922	4,872	4,822	4,772	4,722	4,671	4,621	4,571

Figure 4: Trends of land use projected for 2018 to 2030 in Kalangala district

The land cover and land use change projected in Buvuma district involves a rapid decline in the area of subsistence agricultural land. The area of oil palm is projected to increase for both the nucleus estate and outgrowers, while woodlands and depleted tropical high forest are projected to decline (Figure 5). The projections are based on proposals in NOPP (IFAD, 2018), and were used as a basis to predict expected changes in land cover and land use.



	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Subsistence Farm lands (ha)	15,54	14,57	13,59	12,61	11,63	10,65	9,679	8,701	8,788	8,881	8,971	9,061	9,151
Oil Palm (Nucleus) (ha)	0	714	1,429	2,143	2,857	3,571	4,286	5,000	5,000	5,000	5,000	5,000	5,000
Oil palm outgrowers (ha)	0	354	708	1,062	1,416	1,770	2,124	2,478	2,478	2,478	2,478	2,478	2,478
Woodlands (ha)	211	195	178	162	146	129	113	97	80	64	48	31	15
THF Depleted (ha)	1,464	1,388	1,315	1,241	1,168	1,094	1,021	947	877	800	726	653	579

Figure 5: Trends of land use projected for 2018 to 2030 in Buvuma district

Ecosystem service values and expenditure for food security

The indicator adopted for the indirect benefits and/or losses from oil palm production was ecosystem services. Using a benefit transfer approach, the values of woodlands, well stocked and deleted tropical high forest were adopted from the financial and economic assessment of forest landscape restoration opportunities in Uganda (MWE and IUCN, 2018). The highest values are in for well stocked tropical high forest, due to the higher biomass and higher timber values, followed by depleted tropical high forest, and woodlands (Table 7). Biomass data was generated by the National Forestry Authority under standard methodology using forest landscape restoration assessments and that can be applied across the country. Therefore, assumptions for benefit transfer are plausible within the Ugandan context, i.e. with similar figures for both Kalangala and Buvuma.

Table 7: Value of ecosystem services

Ecosystem services	Values in UGX/ha		
	Well stocked tropical high forest	Depleted tropical high forest	Woodlands
Timber	18,008,563	6,288,130	1,226,560
Poles	358,848	150,400	51,200
Wood fuel	168,210	141,000	96,000
Carbon sequestration	8,226,900	3,447,840	3,209,550
Pollinator services	8,150	8,150	8,150
Soil loss reduction	464,000	464,000	1,393,200
Totals UGX/ha	**27,234,671**	**10,499,520**	**5,984,660**

Source: MWE and IUCN (2018)

Expenditure on food was based on a number of estimates including food security score calculations, and the default thresholds of expenditure on food as a percentage of income (The Economist Intelligence Unit, 2018). These estimates were based on default household expenditures on food security, the average size of the household, and average subsistence income (Table 8). Whereas subsistence income was higher in Kalangala, both the population density and size of the households were higher in Buvuma district.

Table 8: Expenditure on food estimates

Description for food expenditure calculation	Kalangala	Buvuma
Population (2018)	62,328	112,542
Number of households	24,931	33,101
Households/ha	1.09	1.54
Average household size	2.5	3.4
Default value of expenditure on food (as percentage of income)	28.5	28.5
Average expenditure on food per household/ha/year	760,867	1,651,147

Indirect losses and direct gains from oil palm production

In Kalangala district, indirect gains from oil palm production are characterized by losses of ecosystem services associated with the reduction in well stocked and deleted tropical high forest, and woodlands, as well as food security losses from a reduction in land under agricultural use (Figure 6). Over the projection period, total losses in ecosystem services and food security increased from UGX 3.37 billion/year in 2018 to UGX 32.7 billion/year in 2030. The highest losses were associated with ecosystem services of well stocked tropical high forest, from UGX 4.1 to 13.1 billion/year over the projection period, followed by depleted tropical high forest from UGX 2.8 to 8.9 billion/year. Losses from food security due to land conversion for oil palm were higher than the losses from the woodland areas.

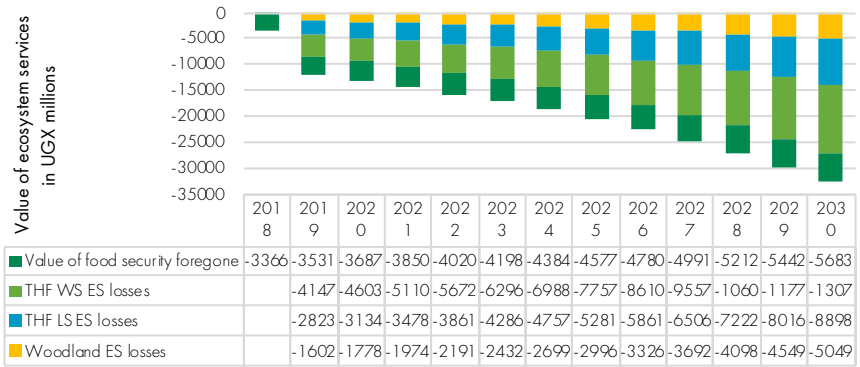
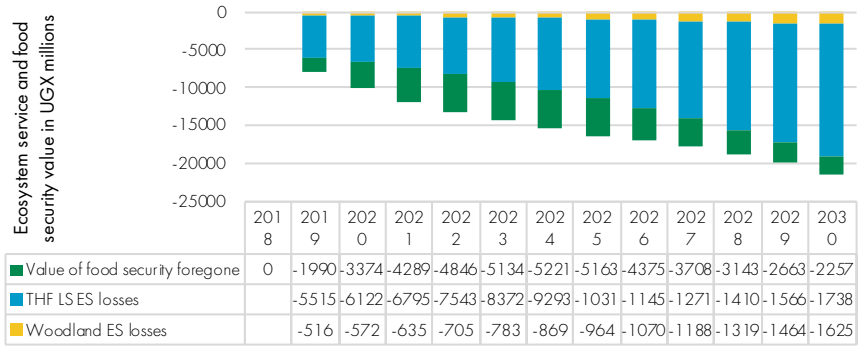


Figure 6: Losses in food security and ecosystem service values associated with oil palm production in Kalangala district (2018-2030)

In Buvuma, unlike Kalangala, well stocked tropical high forest had already been degraded by the time of the base year of projection in 2018 (Figure 7), with woodlands and depleted tropical high forest providing the forest ecosystem services that were considered. The bulk of indirect losses is related to food security losses and ecosystem services from depleted tropical high forest. But Buvuma would still be expected to have a large area of subsistence farm land after the introduction of oil palm over the 2018 to 2030 projection, based on lessons learned from the introduction of oil palm in Kalangala. Nonetheless, given the subsistence nature of production and the relatively higher population density of 305 people/km^2 compared to the national average of 173 people/km^2 and the population density in Kalangala of 120 people/km^2, means that low food productivity is compensated for by having a more land under cultivation.



	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Value of food security foregone	0	-1990	-3374	-4289	-4846	-5134	-5221	-5163	-4375	-3708	-3143	-2663	-2257
THF LS ES losses		-5515	-6122	-6795	-7543	-8372	-9293	-1031	-1145	-1271	-1410	-1566	-1738
Woodland ES losses		-516	-572	-635	-705	-783	-869	-964	-1070	-1188	-1319	-1464	-1625

Figure 7: Losses in food security and ecosystem service values associated with oil palm (Buvuma, 2018-2030).

Direct gains and losses from oil palm production

Projections of gross margins from oil palm production and subsistence farm incomes show that based on current prices, oil palm production will continue to be the main source of income and economic returns in Kalangala (Figure 8). However, between 2026 and 2027, agricultural production on farm land may overtake oil palm as the leading source of economic returns and/or income for farm households, as long as the area of oil palm remains as indicated in NOPP. In Kalangala, oil palm creates an opportunity for revenue that can be used to transform agricultural production. Unless prices from oil palm production increase, discounted gross margins show that revenues from oil palm will be overtaken by the future investment in ensuring food security, at least by 2027.

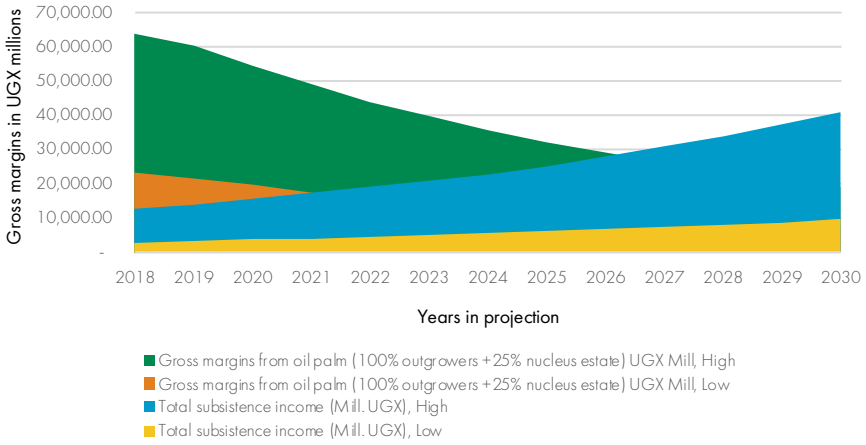


Figure 8: Gross margins oil palm versus total subsistence income in Kalangala district (2018-2030)

In Buvuma, as oil palm production begins, it is expected to quickly become the leading source of income for farm households. However, similar to Kalangala, by 2028, agricultural crop production will overtake oil palm as the leading source of economic returns and/or gross incomes (Figure 9). New income from oil palm will be important in the medium term, however, and should prices increase, may continue to be a major source of revenue. Projections are based on current commodity prices for both oil palm and food crops.

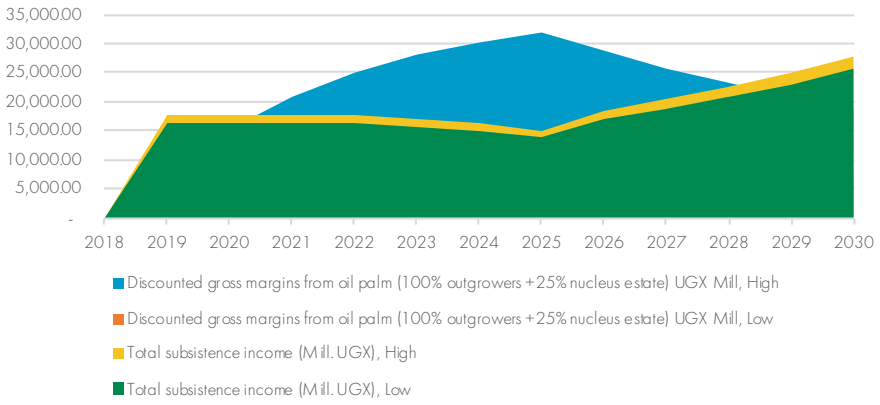
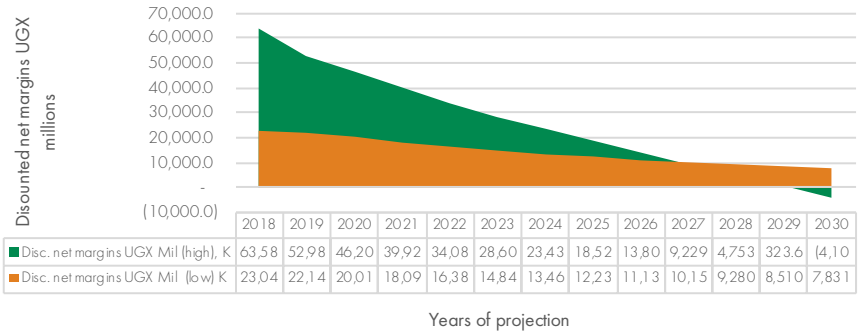


Figure 9: Gross margins oil palm versus total subsistence income in Buvuma district (2018-2030)

Discounted net margins for oil palm production

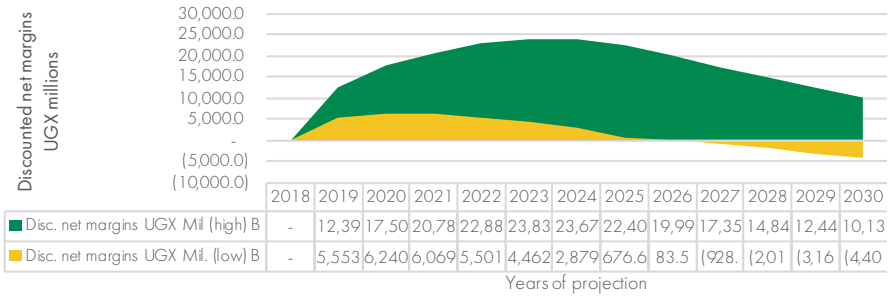
In aggregate terms, net gross margins for oil palm enterprises on their own will decline in the long-term based on current fresh fruit bunch prices. By 2030, the net economic contribution of oil palm to the economy may either be negative, or about UGX 7.8 billion/year (Figure 10). This economic return is based on contributions of oil palm amongst outgrowers, and 25% of the economic returns from the nucleus estate.



	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Disc. net margins UGX Mil (high), K	63,58	52,98	46,20	39,92	34,08	28,60	23,43	18,52	13,80	9,229	4,753	323.6	(4,10
Disc. net margins UGX Mil (low) K	23,04	22,14	20,01	18,09	16,38	14,84	13,46	12,23	11,13	10,15	9,280	8,510	7,831

Figure 10: Projections of discounted net gross margins with oil palm production in Kalangala (2018-2030)

The range in current income from crops and oil palm will be significant to overall discounted net margins from oil palm in 2018-2030. Between 2018 and 2024, net margins associated with oil palm production will generally increase, while after 2024, gross margins start to decline as the impact of losses to ecosystem services and food security begin to catch up with gains from oil palm income. At the peak (2023-2024), oil palm net margins will be at a maximum of UGX 23.8 billion/year. In the low range of incomes, economic gains from oil palm will dip into aggregate economic losses in 2026. However, in the high range of prices by 2030, net economic gains from oil palm will still be strongly positive, at about UGX 10 billion/year, but declining.



	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Disc. net margins UGX Mil (high) B	-	12,39	17,50	20,78	22,88	23,83	23,67	22,40	19,99	17,35	14,84	12,44	10,13
Disc. net margins UGX Mil. (low) B	-	5,553	6,240	6,069	5,501	4,462	2,879	676.6	83.5	(928.	(2,01	(3,16	(4,40

Figure 11: Projections of discounted net gross margins with oil palm production in Buvuma (2018-2030)

Discussion

The higher projected average household expenditure on food in Buvuma was associated with the higher population density and average household size in the former as compared to Kalangala. It is likely that the hidden cost of food insecurity will emerge more strongly in Buvuma as oil palm replaces subsistence agricultural land. Therefore, effective action is required to ensure that livelihoods options are maintained in the local communities, thus the scope of interventions must be wider than oil palm alone.

Community interviews showed that 70% of the people in Buvuma are recently settled while in Kalangala the number of long-term settled and indigenous people exceed recent settlers. New settlers in Buvuma were largely attracted by fishing prospects, while those in Kalangala were attracted by the new economic opportunities from trade, timber and charcoal production, and the likelihood of employment in hotels, farms and fishing when the timber and charcoal trade reduced. Production of new crops such as rice, millet, maize is also attractive to newly settled people.

Generally, both Buvuma and Kalangala showed strong commitment to primary education, but levels of secondary and tertiary education were considerably less in Buvuma, with only 3% of household heads having attained tertiary education compared to the 21% in Kalangala. Low levels of education mean that many opportunities for skilled labour directly or indirectly linked to oil palm are likely to be taken by people from outside the district. The dearth of well-trained people in Buvuma is at an acute level, and should be a priority for development programmes.

Economic activities in Kalangala and Buvuma are dominated by agricultural value chains. In Kalangala, oil palm has created direct opportunities for nearly 60% in local communities as outgrowers, employees and casual labourers. Commercial and subsistence agriculture, employment by local government, community-based organisations, NGOs and business activities are also important sources of livelihoods in Kalangala. In Buvuma, the subsistence economy of mixed farming of food crops such as cassava, banana, beans, maize, rice and sweet potato among others is still the dominant source of livelihoods. Fishing has transitioned into commercial fisheries where local people are mainly employed as porters for wealthier boat owners. Women are most engaged in processing silver fish and farming, and the enterprise mix in Buvuma is clearly inferior to that for Kalangala district.

Gross margin analysis for crop enterprises showed that cassava, beans, sweet potato, rice and coffee were the leading enterprises in Buvuma. In Kalangala, oil palm was the leading enterprise, with passion fruit, tomato and coffee being high value alternatives to oil palm. Food and nutritional security based on dietary diversity and food security score showed that Kalangala was significantly more food secure than Buvuma. The preference of food types showed higher affluence associated with more disposable income. Dietary distribution in Kalangala indicated a higher consumption of meat and milk, which score higher as compared to carbohydrates and pulses. The presence of fish in Buvuma was outweighed by low household incomes to buy other food types.

In Kalangala, oil palm creates an opportunity for revenue that can be used to transform agricultural production. Unless prices from oil palm production increase, discounted gross margins showed that the current prices of oil palm will be overtaken by the future investment required to ensure food security, at least by 2027. In aggregate terms, net gross margins for oil palm on its own will decline in the long-term in Kalangala, based on the current prices for fresh fruit bunches, and the economic impact on ecosystem services and food security. By 2030, net economic contribution of oil palm to the economy in Kalangala may either be negative, or UGX 7.8 billion/year., based on the contributions of oil palm from outgrowers and 25% of the economic returns from the nucleus estate.

Between 2018 and 2024, net margins associated with oil palm production in Buvuma district will generally increase. After 2024, gross margins start to decline as impacts of lossed to ecosystem services and food security begin to catch up with gains from oil palm incomes. Between 2023 and 2024, oil palm net margins will be at a maximum of UGX23.8 billion/year. In the low range of incomes, economic gains from oil palm will dip into aggregate economic losses in 2026. However, in the high range of prices by 2030, net economic gains from oil palm will still be strongly positive at UGX10 billion/year, but declining.

Projections for oil palm show that it will generally have positive economic returns. However, the projected decline in returns will become a major consideration in the long term, as the impact of lost ecosystem services and the growing demands for food security as land for food production in Buvuma becomes limiting. Therefore, oil palm production and maintenance of ecosystem services and food security need to be considered together, or the long-term gains of oil palm will be negated.

Conclusions

Migration in and out of the islands disrupts the establishment of social programmes and also leads to communities with low social development in education and healthcare, among others. The low education attained in both districts but particularly in Buvuma, limits the possibility of exploiting value chain upgrading opportunities that may become available in the district. There is potential for tourism and alternative agricultural value chains in dairy, poultry and fish processing, but these enterprises are poorly developed, though there are signs of some innovation in these sectors. Moreover, many of the innovators are either based on the mainland or prefer to make investments on the mainland even though they exploit resources from the islands.

The population density in Buvuma leads to higher average household expenditure on food security compared to Kalangala. Therefore, from the outset, the risk of food insecurity following the introduction of oil palm is higher in Buvuma, and effective action is required to ensure that livelihood options are wide enough to boost agricultural production to safeguard food security of the settled community in Buvuma. The assessment of direct and indirect impacts was based on the economic contribution of natural resources, and impacts on ecosystem services, food security and household incomes. Kalangala and Buvuma still maintain primary economies of production and sale of raw produce with limited processing and development of other sectors. Therefore, economic returns to the communities will still be largely associated with direct incomes, ecosystem services and food security benefits, and their own income will remain the basis for healthcare, education, nutrition and other social services they can access.

Projections of food insecurity emerged as both an indirect and hidden cost more strongly for Buvuma than for Kalangala. Nonetheless, for both districts, food insecurity will increase as economic gains of oil palm are outweighed by the need to enhance living standards. The loss in ecosystem services is a more limiting factor for Kalangala due to the larger size of well stocked tropical high forest and maintenance of ecosystem services will be critical to agroecosystem sustainability and diversification of livelihoods.

Recommendations

Oil palm has been produced in Kalangala for over 12 years, with many lessons learned. But to ensure mistakes are not repeated where planting is yet to begin, actions are needed by the government, donors and BIDCO/OPUL.

1. The National Oil Palm Programme (NOPP) should include alternative livelihood options and means to increase food security, including the promotion of other crops such as banana and coffee, and agroforestry through intercropping food crops.
2. Government regulators should reinforce social, economic and environmental safeguards to minimize negative impacts associated with oil palm development.
3. The government and donors should support integration of the value of ecosystem services into district accounting systems, and in developing and managing projects.
4. The government, in close collaboration with communities and other partners, should develop integrated land use plans that incorporate their considerations and concerns.
5. The government should consider breaking the monopsony (the condition of having only a single buyer) to give farmers choice and allow them to obtain more competitive prices.

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