INDIRECT JOBS MEASUREMENT PAPER
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Uganda - Investment in Forests and Protected Areas for Climate-Smart Development Project

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UGANDA - INVESTMENT IN FORESTS AND PROTECTED AREAS FOR CLIMATE-SMART DEVELOPMENT PROJECT

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UGANDA -

INVESTMENT IN FORESTS AND PROTECTED AREAS FOR CLIMATE-SMART DEVELOPMENT PROJECT

INDIRECT JOBS IMPACT ESTIMATION SERIES[1]

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WORLD BANK

[1]This report is part of the World Bank IDA19 Policy Commitment to better understand how to measure indirect jobs impacts of development interventions and policies. It is an exploratory exercise on the suitability of estimation methodologies. The results from this report are not official assessments of the performance of the interventions or policies being analyzed and should not be quoted as such.

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Investment in Forests and Protected Areas for Climate-Smart Development Project

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1. INTRODUCTION

1. In connection with the IDA19 capital replenishment, the World Bank Group (WBG) made a Policy Commitment (PC) to launch a pilot program to assess the employment impacts of IDA projects. The objectives of this pilot program are to develop, test, and instill improved practices for estimating the direct and indirect jobs impacts[2] of IDA-funded projects, both *ex ante* (before project implementation) and *ex post*.

> **PC12:** IDA will conduct 20 pilots in 'economic transformation IDA projects' to estimate indirect and/or induced jobs. […] Where feasible, jobs reporting will be disaggregated by the poorest quintile, gender, FCS, disability, and youth.

2. The Uganda: Investment in Forests and Protected Areas for Climate-Smart Development (IFPA-CD) Project is a US$148.2 million project financed by IDA credit and grants. The Project Development Objective (PDO) is "*to improve sustainable management of forests and protected areas and increase benefits to communities from forests in target landscapes*."

3. The project is particularly relevant for PC12 due to its Component 2: *Increased revenues and jobs from forests and wildlife protected areas*. This component will invest US$38.5 million (IDA credit) in tourism and production forestry and consists of two subcomponents: one on investments in tourism and one on investments in production forestry and wood industries (*that is*, wood-based value chains or forest-based bioeconomy).

4. This study developed an approach and estimates the impact of the IFPA-CD project on the quantity and quality of employment in these two key sectors for the Ugandan economy. As will be discussed in more detail in Chapters 21 and 33, two different approaches were selected—one for nature-based tourism (NBT) and one for the wood sector[3]—due to the fact that the situation and near-term development projections in the sector were quite different. The tourism sector is expected to have a more incremental development pathway while in the wood sector—particularly wood processing—more structural changes are expected. The project is at early stages of its implementation,[4] and therefore the assessment will be *ex ante*. However, the study also provides a basis and template for impact monitoring and, ultimately, *ex post* analysis of the employment impact. The study is also a pilot study to develop a methodology for measuring the employment impact of World Bank (and other public development) funding to wood-based value chains and tourism.

5. The analysis covers all types of employment: both formal and informal.[5] However, the employment impacts need to be related to market activities, and purely subsistence-driven self-employment are not included. The study also aimed to assess the *quality* of employment, addressing such

[2] For types of jobs impact, see Figure 1.1. The terminology in the PC12 is slightly different from the one currently in use by the World Bank (see World Bank Jobs Group [undated])

[3] The term *wood sector* is used in this context to include both wood production from sustainably management plantations and downstream processing of the wood produced.

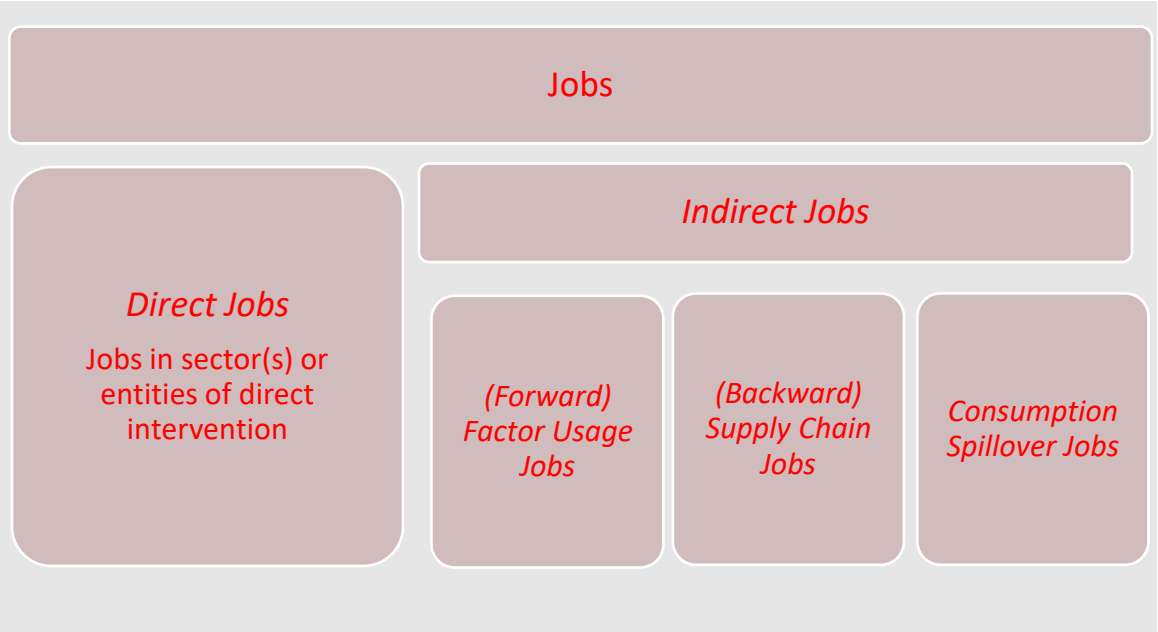
[4] The project became effective in August 2021 and first disbursements were in February 2022.

[5] As defined in ILO (undated): "27. Persons in employment are defined as all those of working age who, during a short reference period, were engaged in any activity to produce goods or provide services for pay or profit. They comprise: (a) employed persons "at work", i.e. who worked in a job for at least one hour; (b) employed persons "not at work" due to temporary absence from a job, or to work."

issues as moving from part-time and seasonal jobs to full-time employment, use of contractors, and so on.

6. The definition of different job impacts was taken from World Bank Jobs Group (undated). The jobs impact was categorized either as *direct* or *indirect.* In summary, 'direct' impacts can be observed in the sector and entities that are direct beneficiaries of the project while all other jobs impacts would be 'indirect'. Consumer spillover indicates the multiplier effect in the economy when incomes from direct and factor usage and supply chain jobs are being used by the employees. (Figure 1.1)

Figure 1.1 Categories of Possible Jobs Impacts



Source: adapted from Osborne and Romero (2023).

7. Both sectors included in the project, tourism and forestry, are nature-dependent and thus seasonal changes in employment are notable. In wood processing, seasonal changes may be lower, but still the seasonal changes in supply chains have an impact as well. This jobs assessment is based on full-time equivalent (FTE) employment, and thus the actual number of people employed at least for a part of the year, may be higher than presented here.

2. PROJECT[6]

2.1 Theory of change

8. The theory of change (TOC) for the project is presented in Figure 2.1. The outputs and activities that are expected to be most linked to employment are presented in **bold**. The individual components are discussed in more detail in Chapter 2.2 below.

9. The TOC starts with strengthened management of protected areas (PAs) and improvements in tourism opportunities and forest products value chains. These increase incentives for sustainable forest management, increase diversification of incomes toward conservation-compatible livelihoods, improve value addition (with potential for increased exports) in the wood sector, and thus increase revenues from forests. Medium- and long-term project outcomes are expected to enhance the climate resilience of forests, landscapes, and communities in targeted areas by strengthening core capacities in climate resilience, that is, absorptive, adaptive, and transformative capacities.

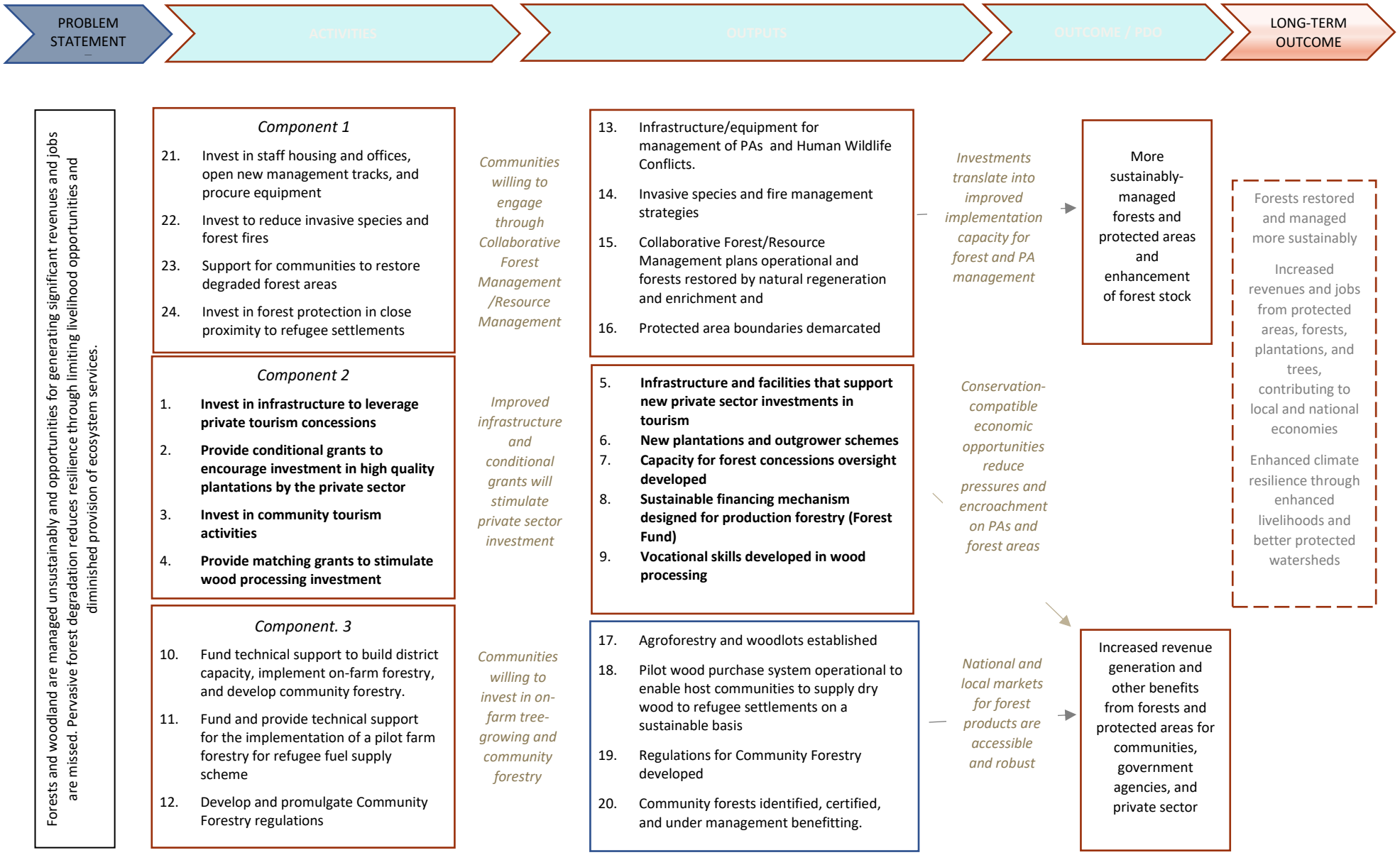
10. The critical assumptions are made on the impact of increased incentives to investor behavior, on the impact of improved sustainable production opportunities on natural ecosystems, and on the functioning of forest products markets. Sustainability will be addressed by supporting critical activities relating to PA planning, management, enforcement, and financing, and these will be complemented by activities aimed at improving the enabling environment. Investments in infrastructure will help attract the private sector and improve community-based opportunities.

11. The jobs impact analysis covered the scope of the project and the process presented in the TOC only partially. Activities related to community-forestry in refugee holding areas (Component 3 in Figure 2.1) were not included. This component is expected to improve livelihoods and access to various forest products and services at households, and little, if any, *formal* and *market-oriented* employment is expected to be generated. As discussed above in paragraph 5, the assessment focused on market-oriented employment, not on subsistence impacts inside households.

[6] Presentation of the TOC and project components is largely based on World Bank (2020a).

Figure 2.1 IFPA-CD TOC

(Critical assumptions shown in italics between boxes).



2.2 Components

12. The IFPA-CD project's geographical focus is on priority areas in western and northwestern Uganda. Project target landscapes include Albertine Rift (within Albert Water Management Zone [WMZ]), the refugee-hosting districts of West Nile Region, and Lamwo district (within Upper Nile WMZ) (Figure 2.2). The plantation forestry scheme under Component 2.2. has nationwide coverage. The Albert Nile WMZ contains the Albertine Rift, which supports the most carbon-dense forests remaining in Uganda and is also a global biodiversity hotspot. Many intact areas of forest remain in this landscape, but most are under high pressure and forest areas are becoming increasingly fragmented. As these forests fragment, they become increasingly vulnerable to forest fires. Fragmentation is also leading to biodiversity loss and, increasingly, human-wildlife conflicts, as wildlife, such as African elephant and chimpanzees which require large ranges, move between remaining blocks of habitat. The Albertine Rift is also home to several PAs with high tourism potential—Queen Elizabeth National Park (NP) and Murchison Falls NP, the most visited parks in Uganda, are in this landscape.

13. The project will support a landscape approach to improve management and economic productivity of forest ecosystems in the targeted landscapes. It will combine investments in forest management in state- and community-managed lands and will focus on improving the management of forests, increasing revenues for sustaining forests and supporting resilient livelihoods. The components are briefly summarized as follows:

(a) Component 1 focuses on improving management of government-managed forest and wildlife PAs to ensure they can continue to generate revenues and provide important environmental services.

(b) Component 2 increases revenues and jobs from these forest and wildlife PAs through targeted investments in tourism and productive forests.

(c) Component 3 encourages establishment of greater tree cover in refugee-hosting landscapes on host community land outside PAs, supporting sustainable forest management and landscape resilience on private and customary land.

(d) Component 4 supports project management and monitoring.

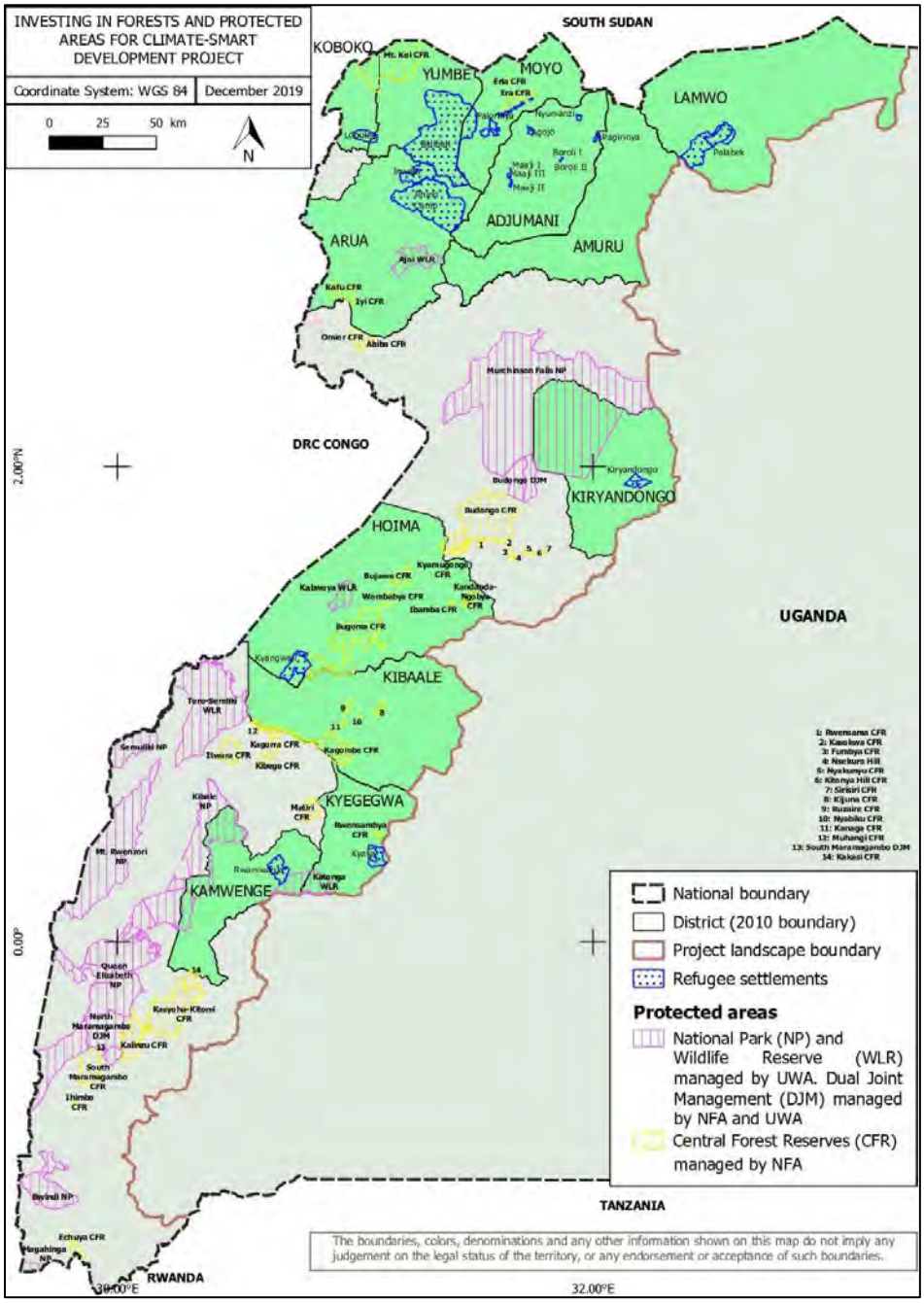
14. This jobs analysis covers Components 1 and 2. Components 3 and 4 are focusing more on improving livelihoods in the refugee hosting areas (Component 3) and project administration (Component 4) and are not linked to market transactions and long-term employment after the project period. In comparison, Component 1 will, through investments in the PAs and Central Forest Reserves (CFRs), create an enabling environment for NBT and Component 2 has direct interactions with formal sector employers. Components 1 and 2 and their subcomponents are presented in more detail in Table 2.1

Table 2.1 Project Components 1 and 2

Component	Description
Component 1. Improved management of protected areas (US$46.7 million, including IDA credit US$34.7 million equivalent, IDA grant US$6 million, and IDA RSW grant US$6 million)	
Subcomponent 1.1. Improvement of infrastructure and equipment for the management of PAs (US$24 million equivalent, all IDA credit)	(a) Grading and maintenance of tracks and trails; (b) Boundary planning and demarcation; (c) Infrastructure (fencing, walls, staff accommodation, ranger posts, and so on); (d) Communication, field, and office equipment; (e) Field vehicles; and (f) Support for the National Forest Monitoring System.
Subcomponent 1.2. Increasing the involvement of local communities in the management of forest and wildlife areas by increasing their access and benefits from these areas (US$6.7 million equivalent, all IDA credit)	Support to technical assistance (TA) packages and training aimed at developing the skills at the community level to actively participate in and benefit from the management of forest and wildlife resources.
Subcomponent 1.3. Restoration of degraded natural forests and habitats in forest reserves (US$4 million equivalent, all IDA credit)	Targeting degraded areas in key CFRs. Restoration will be implemented through natural regeneration and, where needed, enrichment planting, to enhance integrity of forests and their mitigation capacity, through engaging and employing local communities.
Subcomponent 1.4. Increased forest protection in CFRs and WRs in close proximity to refugee settlements (US$12 million equivalent, including US$6 million IDA grant and US$6 million IDA RSW grant)	At a small number of locations in proximity to refugee settlements, the project will deploy additional resources to improve PA management where there are site-specific threats to high-value forests. .
Component 2. Increased revenues and jobs from forests and wildlife protected areas (US$38.5 million equivalent, all IDA credit)	
Subcomponent 2.1. Investments in tourism (US$16 million equivalent, all IDA credit)	Investments in tourism infrastructure and products in select NPs and CFRs. Investments will fall into two broad categories: (a) tourist reception, information, and interpretive facilities and (b) infrastructure for new (or improving existing) tourist products and activities. Provision of support (grants) to community-based enterprises that could add value to the overall tourism offerings.
Subcomponent 2.2. Investments in productive forestry (US$ 22.5 million equivalent, all IDA credit)	Investments in plantation forestry and wood value chains with the aim of enabling plantation forestry to become a strong and self-sustaining economic sector in Uganda. To accomplish this, two types of investments will be made: (a) investments to further increase plantation areas and (b) investments to support processing and utilization of forest products to produce higher-value wood products.

Source: World Bank 2020b.

Figure 2.2 Map of Project Area



Source: World Bank 2020a.

3. JOBS ANALYSIS - PROCESS AND BACKGROUND

3.1 Survey

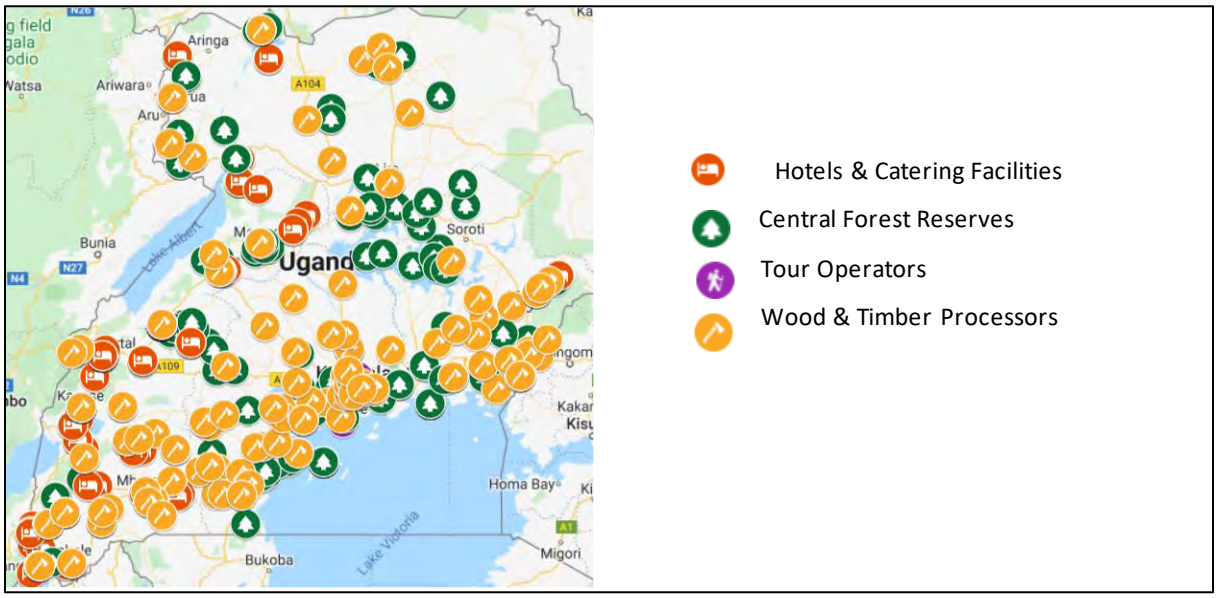
15. As part of the jobs assessment, a survey was conducted in the tourism and wood sectors to collect baseline information on employment and other characteristics of the industries. In total, 564 businesses were interviewed in April–May 2020 in the hotel and catering (that is, hospitality), tour operator, and wood processing sectors and in the CFRs. The survey was conducted by an experienced independent private sector firm. The geographic distribution of the selected firms was generally based on the project activities. However, some activities, particularly tour operators, were concentrated in the Kampala metropolitan area even if their services were conducted in the project area. Therefore, the location where the firms' headquarters are located, does not necessarily reflect the focus of the firms' business activities. (Table 3.1 and Figure 3.1)

Table 3.1 Firms Interviewed, by Sector and Region

	Central Forests	Hotels and Catering	Tour Operators	Wood and Timber Processors	N	%
Central	50	0	96	66	212	37.6
Eastern	18	1	0	30	49	8.7
Northern	34	22	0	13	69	12.2
Western	34	140	2	58	234	41.5
Total	**136**	**163**	**98**	**167**	**564**	**100.0**

Source: EDI Global 2022a.

Figure 3.1 Firms Interviewed, by Sector and Region - Map



16. The original sampling frame was the Uganda Bureau of Statistics (UBOS) Business Register (2010–2019) and the Ministry of Water and Environment (MWE) Forests records (1998–present). The initial sample of 542 establishments was randomly drawn across the following categories: hotels/accommodation establishments (157); tour operators (81); management units in CFRs (136); and

wood and timber processors (168). This target sample size included a 10 percent buffer for any non-response.[7]

17. During the process it became evident that the data used for the sampling frame had not been updated and many enterprises in the sample could not be located in the field nor were they known to the local authorities, and they had to be replaced. Attempted interviews include any interview where an approach to the firm resulted in a refusal, an incomplete interview, discovering the establishment had closed or did not operate in the desired sector, or that the business could not be located and was not known in the community it was registered in. Out of all unsuccessful interview attempts, the reason given for not being able to complete the interview in 90 percent of cases was that the establishment could not be located; it had closed or was not operating in the target sectors. The firms that could not be interviewed were replaced. (Table 3.2)

18. Following any unsuccessful attempts to approach sampling units, replacement happened within a district before moving to the next survey location. The sampling frame for each firm type was used as the replacement list, and the replacement was done according to the following guiding principles: (a) replacements are only ever made within the district to maintain the spread of sample; (b) replace like with like, that is, a large hotel should be replaced with another large hotel; and (c) only institutions which are currently open and were operating before COVID-19 were selected. Where unexpected challenges arise during the field work, the discretion of the coordination team may be used in a case-by-case basis.

Table 3.2 Interview Outcomes by Category of Establishment

	Completed Interviews			Attempted Interviews	Total Approached
	Sample	Replacement	Replacement (%)		
Central Forest	116	20	15	13	**149**
Hotel and Catering	109	54	34	38	**201**
Tour Operator	14	84	8	29	**127**
Wood and Timber Processor	50	117	70	78	**245**
Total	**289**	**275**	**49**	**158**	**722**

19. In total, 564 interviews were completed, 104 percent of the original target, but the high replacement rate still has an impact on the applicability of the survey results. The high number of interviews was possible due to the inclusion of additional hotels from within the PAs and the close clustering of tour operators approached for replacement interviews in Kampala, after exhausting the sample list. Still, the fact that one in two firms in the register could be found—and close to 90 percent of tour operators and 70 percent of wood processors—shows that the central business registers by UBOS are not accurate and the real number of businesses is not known. The replacement was done based on local knowledge rather than as a strictly randomized selection. While it can be assumed that the information gives relatively accurate information on the situation—or at least a perception of the situation—in the enterprises, due to the unknown population size, the statistical accuracy of the

[7] Originally a further 94 Local Government Forests (LGFs) were included in the sample but were later dropped as these are managed purely for protection, and no formal production activities take place.

information cannot be measured. Nor does the survey allow estimating, for example, the *total number of people employed*.

20. The survey teams had a robust quality control process to ensure that the enumerators correctly registered the information received, although this does not remove inherent data quality concerns in such surveys that are based on management interviews. Some of the issues identified include the following:

(a) Where there is sensitive information or presence of *informal or illegal activity*, regardless of the extent of probing, respondents may be selective in the information shared in a survey. The enumerators found this to be particularly true in the forestry sector, where they observed activities contradicting the establishment's responses.

(b) Several refusals were given on the basis of *research fatigue and lack of incentives*, particularly among the tour operator and wood and timber processors.

(c) All establishment types felt some *discomfort in answering income and employment wage questions*; many had doubts about whether the information would be used by the government for tax purposes. It is likely that the numbers given may be conservative estimates of true economic activity.

(d) When asked to recall specific numbers for *the business metrics and employment* sections over a five-year period, the majority (roughly three-fourths) of *respondents answered from memory rather than referring to records*. Sometimes the reason for this was expedience or because the records did not exist. The implication for the data set is that such questions may have recall and rounding bias. In other cases, respondents were newly recruited or had a rotational role meaning they had limited knowledge and the former employee with the required institutional knowledge was not available.

(e) The sampling list from the MWE gave details of CFR names and locations but not of the establishments operating within them. Enumerators were informed to ask about any private leaseholders operating within National Forestry Authority (NFA) forests to identify potential respondents. However, the *interlocutors interviewed in CFRs were mainly NFA officials and it is likely that private concession holders are underrepresented* among the entities interviewed.

(f) The survey and its results are discussed in detail in Chapter 5 and Part 2 of the report.

3.2 Nature-based tourism

3.2.1 Situation in the sector

21. NBT was identified as a key growth sector in the third National Development Plan (NDP III)[8] like it was in the previous NDPs as well. Tourism foreign exchange earnings have been growing in recent years, generating US$1.6 billion in 2018 (compared to US$1.45 billion in 2017) and providing 1.17 million jobs (8 percent of total employment). Travel and tourism are forecast to rise to 8 percent of gross domestic product (GDP) by 2027.[9] The forests and wildlife of the Albertine landscape are particularly important for tourism, as they attract more than 80 percent of the leisure tourists in Uganda for wildlife safaris, birdwatching tours, and gorilla and chimpanzee tracking.

[8] National Planning Authority 2020.

[9] Pre-COVID estimate.

22. NBT generates significant revenues, which benefit local communities through a benefit-sharing mechanism used by Uganda Wildlife Authority (UWA; whereby UWA shares 20 percent of all gate fees collected with park-adjacent communities) and through job creation as well as a host of community-based tourism products and services. These revenues also fund the operational costs of NPs and wildlife reserves (WRs) themselves and provide communities around PAs with sources of alternative livelihoods. Underinvestment and lack of integrated tourism-related planning have been major constraints to fully realizing the economic potential of Uganda's natural endowments. Opportunities to link wildlife attractions in PAs to nearby cultural or community-based goods and service providers are missed, and tourism products and infrastructure within the PAs are limited and have not really changed for many years.

23. The private sector plays an important role in tourism development, and efforts are being made to leverage private sector investment. In addition, some of the NFA-managed CFRs have tourism potential, especially those located along important tourism routes. So far, ecotourism has remained a largely untapped opportunity for the NFA, but there is a growing awareness within the organization that ecotourism represents a potentially significant source of revenue as well as an effective mechanism for preserving the many natural forests that are currently under severe threat posed by illegal activities. The NFA has developed a plan to further develop tourism within some of its key areas.

24. The forests and wildlife of the Albertine Rift are particularly important for tourism. The PAs in this part of the country contain many globally threatened species and populations, including those of Mountain Gorilla *Gorilla beringei ssp. beringei* (endangered) and Eastern Chimpanzee *Pan troglodytes* (endangered)[10]; 41 endemic bird species occur in the Albertine Rift landscape, a quarter of which are classified as vulnerable. As a result, these PAs attract more than 80 percent of the leisure tourists in Uganda for wildlife safaris, birdwatching tours, gorilla and chimpanzee tracking, and adventure tourism. Murchison Falls NP and Queen Elizabeth NP, both in the Albert WMZ, are the most visited parks in Uganda.

25. NBT generates significant revenues, some of which benefits local communities through benefit-sharing mechanisms used by the UWA and through job creation as well as a host of community-based tourism products and services. These revenues are also vital for funding the operational costs of NPs and WRs themselves and for providing communities around PAs viable sources of alternative (alternatives to for instance, poaching, firewood collection, tree-felling, illegal grazing, and cultivation) livelihoods.

26. Global tourism experienced a major slump during the COVID-pandemic that started in early 2020, and Uganda was no exception. Based on World Bank statistics,[11] in 2020 Uganda had 473,000 international tourism arrivals, when the respective figure in the previous year, 2019, had been over three times that, 1,543,000. The previous instance when arrivals had been below half a million was in 2005.

3.2.2 Methodology and assumptions

27. The employment estimate for the tourism sector is based on data from the National Planning Authority (NPA) and UBOS. Projections on how the employment would develop were based on adjusting

[10] IUCN Red List of Threatened Species https://www.iucnredlist.org/ (accessed 7/26/2022)

[11] Using data from the World Tourism Organization https://data.worldbank.org/indicator/ST.INT.ARVL?locations=UG (accessed 7/21/2022)

the current employment estimate[12] with GDP development (business-as-usual [BAU], NPA uses projected GDP development in its future models at sector level as well) and GDP change combined with transformational impact from the IFPA-CD investments. The aggregate estimates were complemented with the data from the enterprise survey.

28. Various other possible approaches and methods were identified and tested. The options assessed included the following:

(a) Using a macroeconomic model based on various independent factors such as National Economic Growth rate, Tourism Promotion & Marketing (IFPA investments), Tourist Satisfaction (index from previous studies), Tourism Product & Forest Development (IFPA investments), and National Stability (Proxy), to estimate employment creation for the IFPA project.

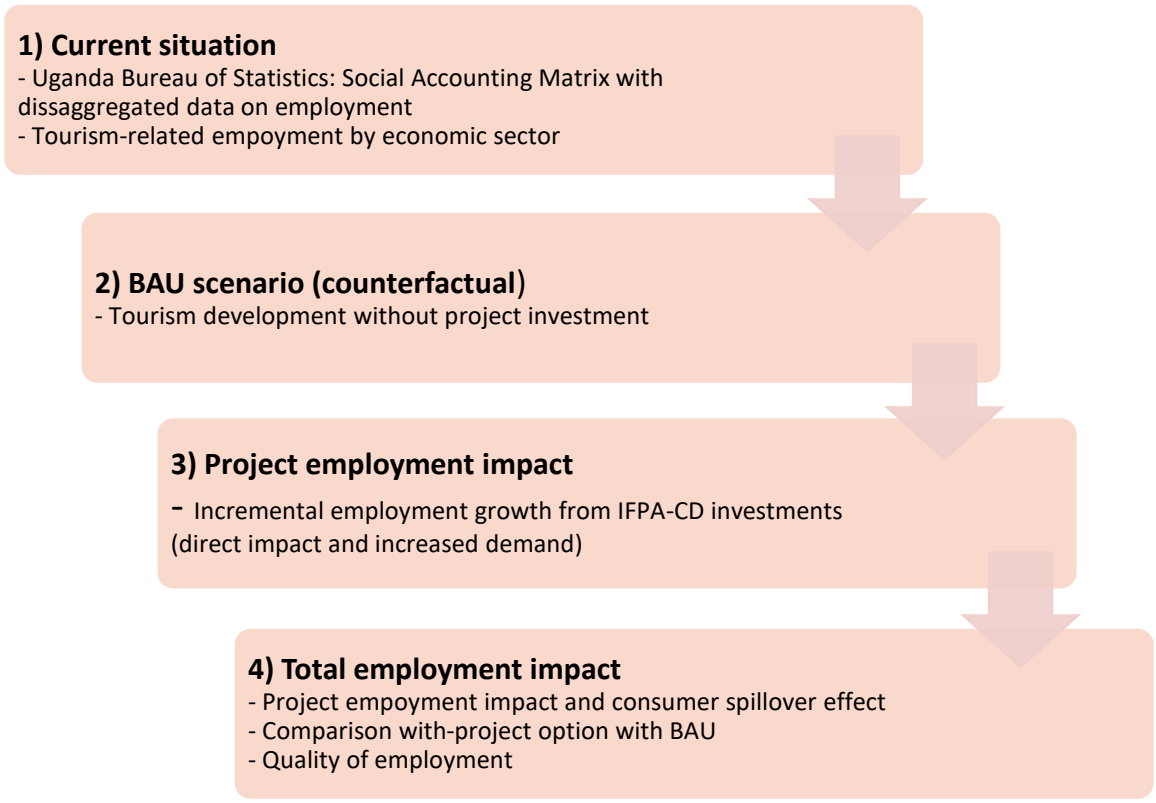
(b) Using different regression equations to estimate direct employment by each activity (for example, hotel and catering, tour guiding, land transport, and tour company services) based on current tourism industry data on these activities and the computed coefficient of the IFPA project investment in relation to the current development and recurrent non-wage budget to the tourism sector. The estimates for each activity when added up would provide an estimate of the direct employment impact.

(c) UBOS Social Accounting Matrix (with Tourism Activity Clusters) and Uganda's projected GDP to forecast the tourism employment. This would provide direct and indirect employment based on IFPA project investment.

29. Option (c) was adopted for the estimation/forecasting of the employment because it was superior in terms of using concrete data and in relation to existing country frameworks. The general flow for the employment assessment in NBT is presented in Figure 3.2.

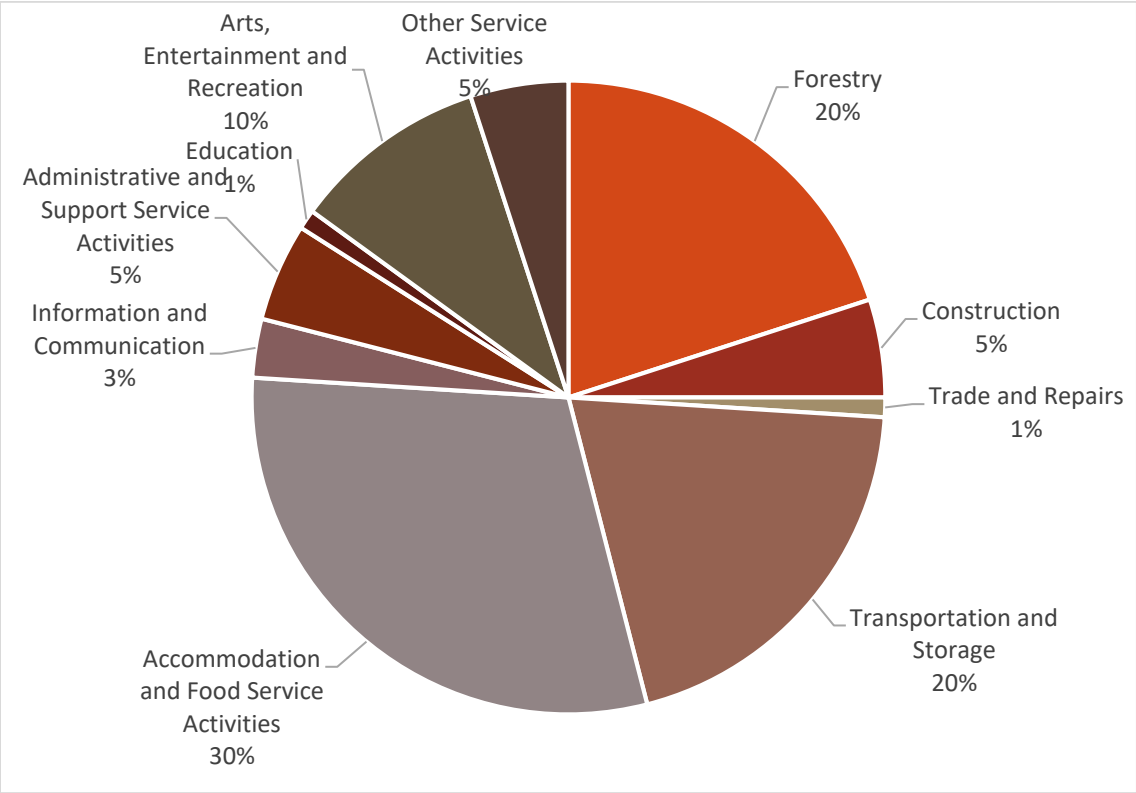
[12] '*Tourism'* in itself is not an independent sector in Ugandan statistics and tourism-driven employment can be found in several sectors in employment statistics (see Figure 3.3).

Figure 3.2 Assessment Process - NBT



30. The Ugandan statistical nomenclature does not recognize *NBT,* or even *tourism* generally as a separate category and tourism-related employment is classified under various economic activities based on the type of economic activity employees are engaged in. The estimated distribution of tourism-related employment by economic sector is presented in Figure 3.3.

Figure 3.3 Tourism Employment by Economic Sector



Source: NPA estimate.

31. The current employment in tourism, used in this assessment, is based on official estimates by the Government of Uganda, while different sources estimate different levels of employment. While detailed comparison of different estimates is beyond the scope of the current note, reasons for different estimates include different boundary definitions, that is, different interpretations on which economic activities should be included in *tourism.* Another reason may be different treatment of part-time and seasonal employment as opposed to full-time or FTE employment. Generally, statistical data in Uganda is often incomplete and lacking (see, for example, discussion on the industry survey conducted as part of this assessment in Chapter 3.1 above).

The without-project, or BAU, and with-project estimate were based on a series of estimates and assumption. These assumptions were generally based on the established NPA projection framework, IFPA-CD project documentation[13] relevant studies and assessments, and expert opinions. The model for IPFA-CD impact pathway in the tourism sector is presented in Figure 3.4 and key assumptions

32. Table 3.3.

[13] Mainly project PAD (World Bank 2020) and early implementation period Implementation Status and Results Reports.

Figure 3.4 Tourism Investment Impact Pathways

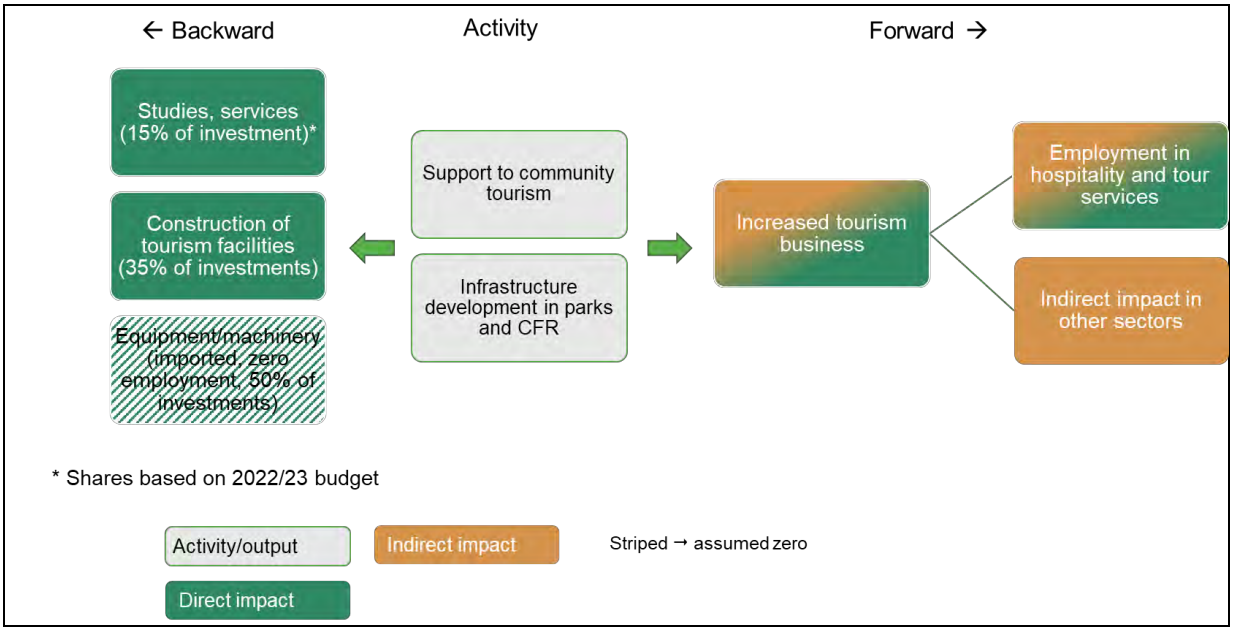


Table 3.3 Key Assumptions - NBT Development

Variable	Assumption	Comments and source
1) BAU		
Annual tourism growth	Same rate as GDP (0.2–3.8% per year)	NPA-UBOS models. A sensitivity analysis was conducted by using the 2008–2021 development trend for the BAU. In 2035, the difference would have been only 3.5%, and separate analysis was not deemed necessary.
2) With project investments		
Tourism growth	Project leads to 9.7% increase in demand for tourism services; all impact materializes at project end; after that, change *rate* same as in BAU.	Number of visitors increase 34% (project results indicator); duration of visit assumed constant; leisure (~nature-based) tourism is 29% of all tourism (World Bank 2020b)
Structure of employment, labor productivity	No change in labor productivity, labor demand increases at the same rate as demand for tourism services.	No major technological change assumed in relatively labor-intensive tourism services. Much of the investments will be in community-driven tourism which may be assumed to focus on employment
Direct impact (short-term during project period)	Employment in project investment activities, construction, and services. Machinery investments all imported with no employment impact; spread evenly across the project period.	Based on project work plan/budget 2022/23; NPA labor intensity estimates.

Variable	Assumption	Comments and source
Direct impact (long-term)	Increased employment in community enterprises.	The community enterprise grant recipients will be selected through calls-for-proposals. It is estimated that 10 enterprises will benefit. These grants are 2 percent of all NBT investments and 4 percent of construction and services expenditure.
Indirect forward linkages	Increased employment in commercial (non-community) enterprises	(Total employment impact) *minus* (community enterprises)
Consumer spillover impact	1.6*(direct and linkage impact)	Derived from World Bank (2020b) which analyzed the economic impact of tourism in Uganda.

Text Box 1 Consumer Spillover - Methodology

Figure 1.1 present the types of employment covered by the assessment. Direct employment and indirect impacts in the supply chain are relatively clear to define. The final category, 'consumer spillover jobs', is more complicated. World Bank Jobs Group (undated) defines it the following way:

> ***Consumption Spillover Jobs****: Consumption spillover jobs impacts are due to changes in the demand for goods and services on the part of the people experiencing a change in income from direct jobs, forward factor usage jobs, and backward supply chain jobs impacts. This is elsewhere called "indirect" and "induced" jobs.*

In this assessment, two different data sources were used:

- For the tourism sector, a standard multiplier defined in World Bank (2020b) was used. This was based on a through survey of data in the same target sector and therefore it was deemed accurate.
- For the wood sector, a generic industrial investment multiplier presented in Redqueen (2017) was used. While it is not specific to the wood sector (consumer spillover multipliers vary widely across sectors) it is based on an extensive socioeconomic impact assessment of a commercial bank's investments in Uganda. The wood sector is expected to go through a major structural change, and therefore assessments based on the *current* structure would not have been adequate.

3.3 Forestry and wood processing[14]

3.3.1 Situation in the sector

33. Uganda has seen tremendous growth in its timber plantation sector in the past 20 to 25 years, when the plantation area has increased from only 268,000 hectares in 2000 to the current (2020) 465,000 hectares.[15] As a comparison, natural forests have declined by a third from 2.9 million hectares to 1.9 million hectares in the same period. While plantations are no substitute for natural forests, neither in

[14] This note uses also the term *wood sector* to describe forestry and wood processing.

[15] Based on data from FAO (2020). Data on the plantation area is often inaccurate and other sources give much smaller estimates for the plantation area.

volume nor biodiversity, it shows that the country has made targeted efforts to develop its plantation sector. Roughly 100,000 hectares have been classified as 'commercial production' plantations and these plantations are the target of IFPA-CD investments. The remaining area consists of various other types of planted forests (agroforestry, very small private woodlots for subsistence use, protection forests, and so on) that are largely outside commercial activities.

34. A critical factor in the positive development in the plantation sector has been the Sawlog Production Grant Scheme (SPGS). The SPGS comprises a series of donor-funded programs since the early 2000s that have supported the establishment of private production plantations (mainly pine and eucalyptus) to benefit from the favorable growing conditions in Uganda. Now, after some 20 years of expanding the plantation sector, various stakeholders have recognized that it is essential to take stock of the current situation and develop pathways to assess the lessons learned, and to determine if there is a need to adjust the focus to better serve today's Uganda and its people.

35. There will a need to increase softwood processing capacity since the plantations established during the early years of SPGS implementation will reach maturity in the 2020s and roundwood supply will increase dramatically in the next few years (Figure 3.5).[16] The IFPA-CD will address this both through direct support to the industry through matching grants and support to national capacity building through investments in skills development (improvement of wood processing training facilities at Nyabyeya Forestry College[17] and co-financing of skilling and training of operators of the new equipment). Increasing the demand and use of softwood requires investments in processing as well as revised policies and a regulatory framework to increase domestic demand and exports.[18]

36. IFPA-CD will support increasing *wood production* through conditional grants for plantation establishment.[19] This will be the main part of Component 2.2 (see Table 2.1) It will also support training in safe wood harvesting (felling, extraction, and loading). It is expected that the establishment and management of these new plantation will largely apply the same technology and consequently labor productivity as during the SPGS. The grants will also be provided to smaller plantation areas than before (the SPGS had a minimum plantation area of 15 hectares while IFPA-CD is proposed to have a minimum of 10 hectares). This smaller plantation size (with lower labor productivity) may be expected to offset possible improvements in labor productivity.

37. The project will support *wood processing industries* through demand driven matching grants and skills development. Investments in wood processing are needed in both (a) production volume and (b) increasing the share of higher value products (improving the product mix). These two changes can be

[16] Hardwood (mainly Eucalyptus) markets are in more balance; supply is not expected to increase as dramatically as for softwoods and there is a steady demand for electricity transmission poles, scaffolding, and other construction poles.

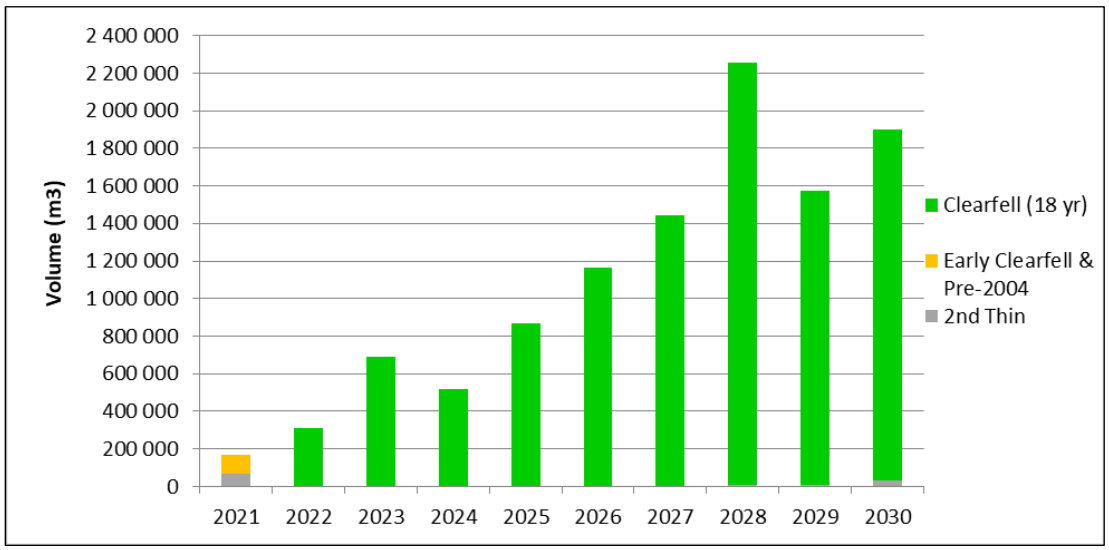
[17] The college provides diploma and certificate-level training in forestry and is, together with the Faculty of Forestry at Makerere University, the main institute training forestry professionals in Uganda. The IFPA-CD project aims to support modernization of the curricula, introduction of a wood industry training program, and investments in machinery.

[18] Policy reforms are not an integral part of the project and are outside the scope of this study. Changes in forest product policies and regulations will be addressed through regular sector dialogue with the Government.

[19] This will be based largely on the model from SPGS, even if some changes to the implementation modality may be expected.

expected to influence labor demand in opposite directions: increasing production with the *current*[20] product mix will improve labor productivity (many processing units operate below capacity and new units have higher labor productivity) and fewer employees are needed *per* unit (log-m^3) of raw material; on the other hand, increasing quality and value added (that is, by kiln drying and finger jointing or, even better, grading of sawnwood) will be more labor intensive than production of (low-quality) basic sawnwood leading to increased labor input *per* unit (log-m^3) of raw material. This *ex ante* assessment is based on the anticipated demand for grants and what they are expected to support.[21]

Figure 3.5 Projected Wood Flows (Pine, 2021–2030)



Source: SPGS; from World Bank 2022.

3.3.2 Methodology and assumptions

38. The jobs assessment in the wood sector is based on modeling the key value chains in the sector and thus the approach is different from the methodology applied in the tourism sector (see Chapter 3.2.2). As discussed above, after a strong growth in the sector since the early 2000s due to the SPGS supported investments in plantation and sector capacity, it is expected that the sector will go through a structural change the next few years. As seen in Figure 3.5, roundwood supply in Uganda will increase manyfold in the coming years and this will allow increasing (roundwood) exports, domestic processing, and use of sustainably produced wood products. It is highly unlikely that the current structures in the wood industry in Uganda would be able to process all the wood coming to the market. Therefore, using existing economic models, like in the case of tourism, were not seen adequate. Instead, the jobs impact assessment is based on expected changes in the production and processing volumes and in labor productivity.

39. Forests take time to grow and therefore most of the job impacts occur well after the project period. The tree species planted in the tree plantations in Uganda are mostly pine and eucalyptus species and their rotation periods in the Ugandan conditions are 18 and 10 years, respectively. This means, that

[20] Economic development in 2020–2021 has been strongly affected by the global COVID-19 pandemic. The baseline assessment will largely be based on the pro-COVID situation.

[21] The actual investments supported will be known only after the calls-for-proposals have been received and assessed later during project implementation.

the trees planted with project support will be harvested and processed in the early 2040s (pine) or mid 2030s (eucalyptus) at the earliest.[22] Therefore, the most notable long-term impact in employment is expected to occur over 10 years after the project start.

40. Secondly, the project financing in the wood sector focuses mainly on plantation development, and while grants to industries are included, they are only a small part of the project investments. This means, that financing for the investments needed to process the increased volumes of industrial roundwood produced in Uganda needs to come from outside the project and is not confirmed or influenced by the project. Therefore, to cover these two areas of uncertainty, the jobs analysis presents three different options for jobs impacts:

(a) A *conservative option* where wood processing increases at a predetermined rate and surplus roundwood is exported as roundwood or used outside the formal processing industry;

(b) A *high employment option* where surplus wood is exported as sawnwood[23]; this option would require notable private investments outside project scope; and

(c) A *long-term steady state option* which is a hypothetical model where annual production is based on average long term production potential (mean annual increment [MAI]) and all production is assumed to be processed in-country for sawnwood.

41. In the conservative and high employment models, all trees are expected to be harvested at the end of their standard rotation. This means that harvesting volumes are determined by planting areas 10 years (eucalyptus) or 18 years (pine) earlier and may thus either decline or increase each year. This is a simplification; wood is a non-perishable commodity and harvesting can occur earlier or later than the planned harvesting age depending on market conditions. In the analysis, annual harvesting volumes are based on a three-year moving average, but this does not fully remove the fluctuation.

42. The assumptions behind the BAU option are presented in Table 3.4.

Table 3.4 Assumption - Wood Sector BAU

Variable	Change	Comments/Source
Plantation area (new areas)	0%	Industry already facing oversupply
Log production/harvesting	100% of stocking clear felled	
Replanting	Clearcuts replanted with same species after harvesting at 10 years (eucalyptus) and 18 years (pine)	
Sawnwood production growth	5% per year.	GDP growth, long term

[22] There will be some interim thinning, but these are not expected to produce adequate volumes of industrial supply to be considered separately in the analysis.

[23] Uganda also has a wood-based panel industry, but only primary processing in the sawnwood industry is included in the models.

Variable	Change	Comments/Source
Secondary processing/joinery (that is, furniture)	30% of sawnwood	Based on industry survey
Labor productivity (sawmills)	+37% after 2022	Improved technology (higher labor productivity). Based on industry assessment by Gatsby Foundation (confidential).
Labor use in plantations per hectare	0.08 people per ha; +1.5% per year	South African reference for a modern plantation operation[24]; more harvesting in mature stands.
Sawmill conversion rate	33%	
If sawlog production > sawnwood production	Surplus exported to Kenya or substitutes natural forest charcoal	

43. The wood sector investments by the IFPA-CD project have employment impacts in several ways. In the assessment, the following impact pathways are included:

(a) *Employment in the new plantation areas* (36,000 ha) supported by the project will increase employment opportunities in the sector (Figure 3.6);

(b) *TA to new and existing plantations* can both increase (more management activities, for example, pruning) or decrease (improved skills and productivity) labor demand per plantation hectare (Figure 3.7);

(c) *Matching grants to industry* increase employment in the processing plants and secondary processing (improved product mix)[25] (Figure 3.8); and

(d) *Support to the Nyabyeya Forestry College* will improve the quality and employability of the labor force, but it is not expected to generate any additional employment.

[24] Clarke 2019. This reflects employment at 'medium' size enterprises. There is large variation in employment estimates across plantation operations, and assessment methodologies are not well established, see Malkämaki et al. 2018. Almeida and Delgado (2019) present a reference case in Mozambique, where the employment is 0.05 jobs per hectare.

[25] In the models, all grants are assumed to be used for financing drying kilns. This will improve the product mix while the total *production volume* of sawnwood is not influenced by the grants.

Figure 3.6 Wood Sector - Jobs Impact of Increased Plantations

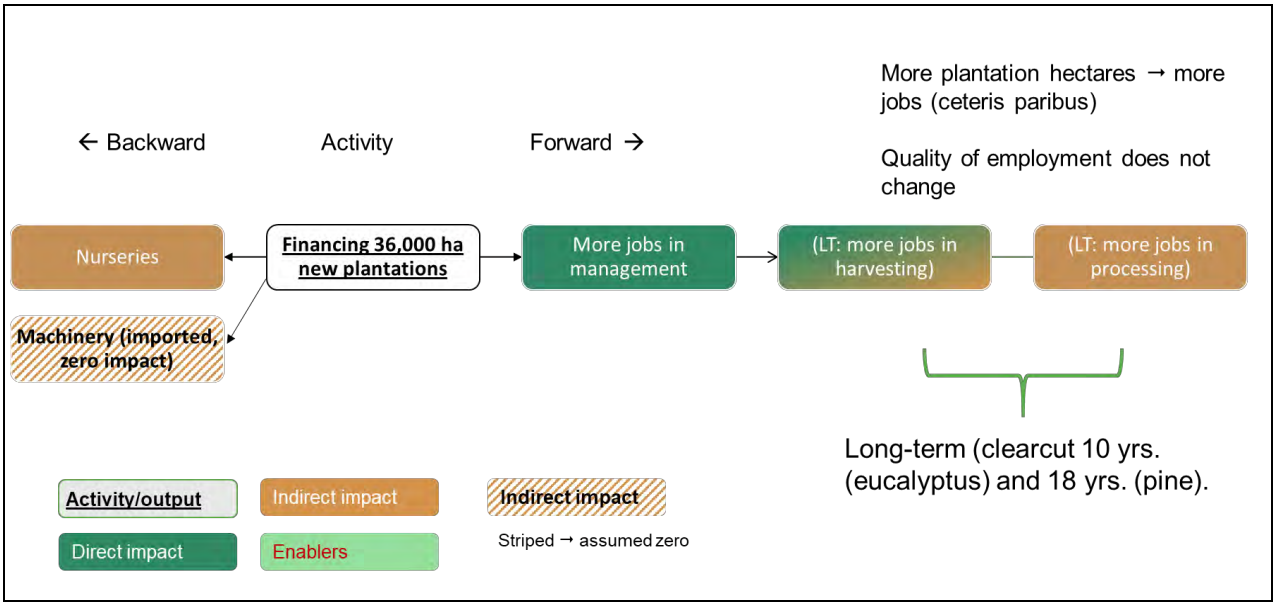


Figure 3.7 Wood Sector - Jobs Impact of TA to Plantation Management

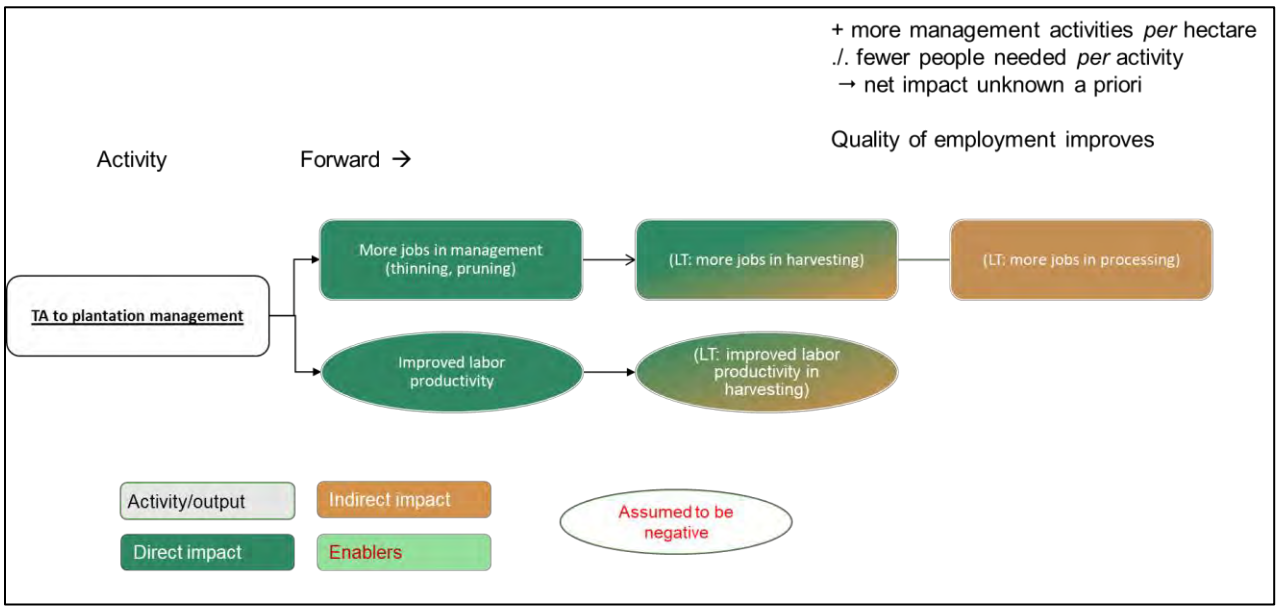
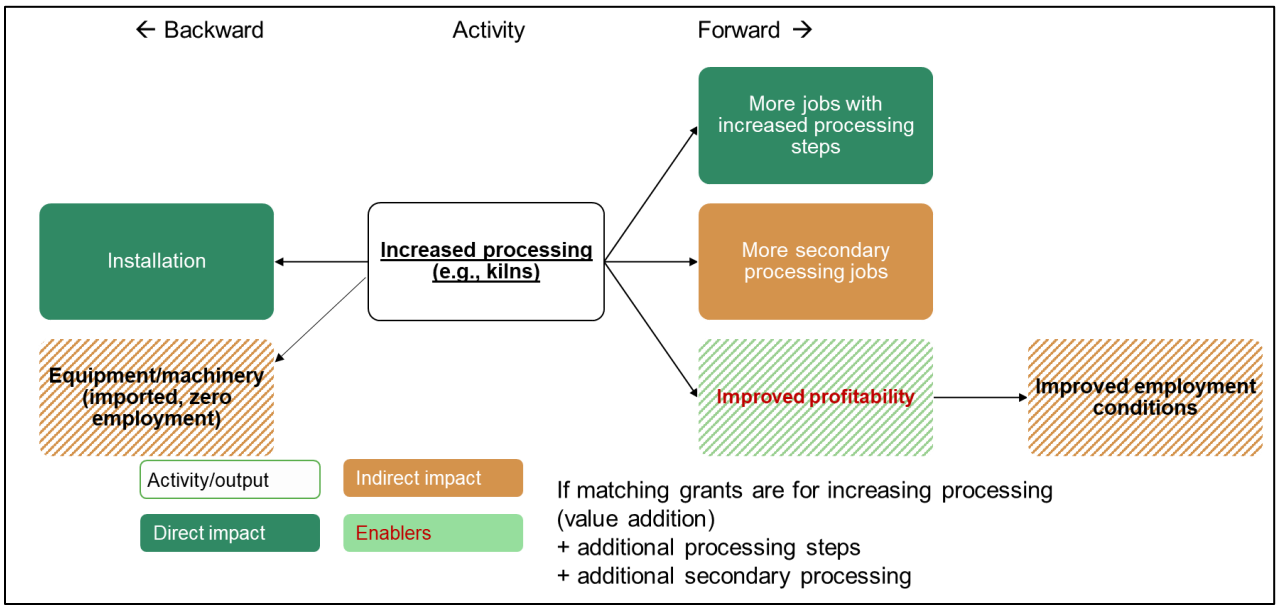


Figure 3.8 Wood Sector - Jobs Impact of TA to Plantation Management



44. The estimated changes in the wood sector are based on a number of assumptions that are based on case studies in Uganda, survey data, and regional reference cases. Many of the assumptions indicate a structural change in the industry when downstream processing is expected to adjust—at least partially—to the huge increase in upstream raw material supply in the near future (Figure 3.5) and after the IFPA-CD financed plantation are mature for harvesting (Table 3.5).

Table 3.5 Assumption - Wood Sector With-Project Option (Difference to BAU)

Variable	Change	Comments/Source
Plantation area (new areas)	Increase 36,000 ha (9,000 ha per year)	Steady pace during project, no increase after the project
Sawnwood production growth, conservative estimate	6.5%+1% per year	Growth in urban population + substitution of other material
Sawnwood production growth, high employment estimate	All logs produced in-country	This would require notable private investments beyond project scope
Product mix in sawmilling	All kiln dried wood used in joinery	
Nursery employment	50 jobs per 1000 ha planted	1111 seedling per ha; case studies in SPGS (2014).
Labor use in plantations per hectare	0.08 people per ha +1% per year	More harvesting of mature trees, more intensive management, and improved skills and technology
Matching grants to industry	All grants used to finance drying kilns	

Variable	Change	Comments/Source
Consumer spillover employment	+65% over direct and linkage impact	Redqueen 2017

4. RESULTS

4.1 Nature-based tourism

45. The project is expected to lead to a 9.7 percent increase[26] in tourism demand (that is, visits to target area NPs) after all the investments in tourism facilities in the NPs and community tourism facilities have been made. This is estimated to be a one-off increase in tourism levels. After that, annual increase is expected to be the same as in the BAU-model (that is, following GDP growth), albeit at a higher level. No structural change in labor demand is expected and the increase would lead to increased labor demand across all relevant economic sectors (see paragraph 30 and Figure 3.3).

The employment impact of the project investments can be classified in four categories (for underlying assumption, see

46. Table 3.3):

(a) *Direct employment during project implementation of NBT activities.*[27] This includes largely construction works and services like consultancies, surveys, eradication of invasive species, maintenance, and so on. This employment is temporary and will end after the project period.

(b) *Direct employment after project.* This includes increased employment in community enterprises that received matching grants from the project.[28]

(c) *Indirect employment in tourism.* This includes increased employment in the tourism driven value chains outside enterprises that got direct support from the project.

(d) *Consumer spillover effect* that presents how the consumption of the increased income in the three categories above, create additional employment in the rest of the economy.

47. In total, the project is expected to lead to a 9.7 percent increase in long-term employment in the tourism sector. This assumes that increased demand leads 1:1 to employment increase in the sector.

48. During project implementation, the activities are expected to provide employment for 32,300 person-years, that is, 8,100 per year.[29] Some 30 percent of the jobs would be in construction and the remaining 70 percent in services.[30] Additionally, the consumer spillover effect would increase the number

[26] The estimate is based on an estimated 34.0 percent increase in tourist visits to the parks (project results indicator). As 'leisure' tourism (a proxy for NBT) is 28.5 percent of all tourism demand in Uganda (World Bank 2020b), this leads to an overall increase of 9.7 percent.

[27] Components 1 and 2.1 of the project (see Chapter 2.2).

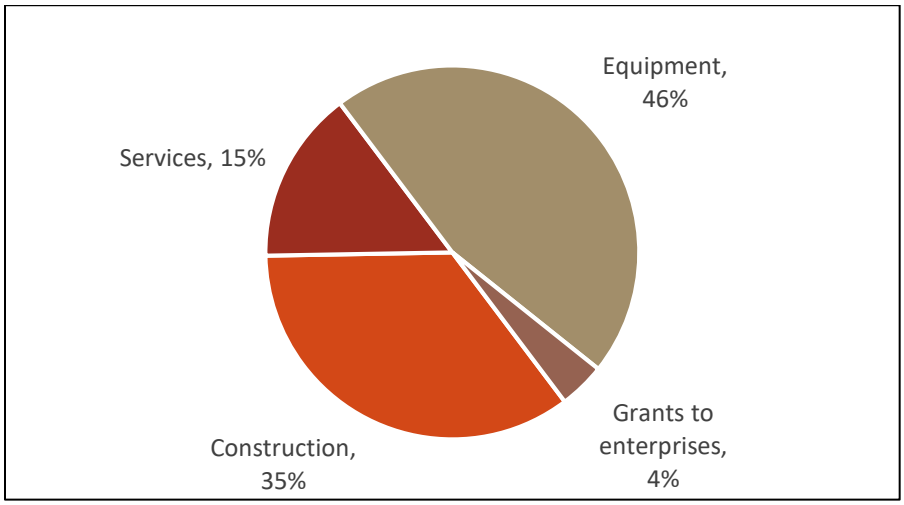
[28] The community enterprises are both direct and indirect beneficiaries; they get direct subsidies from the project and benefit indirectly through improved tourism services in the NPs just like tourism businesses that do not get direct subsidies.

[29] The project closes in June 2026. In the analysis, it is assumed that all investment activities will be done over a four-year period July 2022 to June 2026.

[30] Grants to enterprises will be distributed based on calls for proposals, and the exact nature of activities to be financed is not known. The unit employment impact is assumed to be the same as in construction. Imports of machinery may also provide marginal additional employment. However, purchase of goods (for example, vehicles and information technology equipment) were assumed to have a zero employment impact (see Table 3.3).

of employment opportunities created by 12,900[31] (FTE). Figure 4.1 presents the investment cost category breakdown for Components 1 and 2.1, and Table 4.1 shows the annual employment impact by impact category.

Figure 4.1 NBT Components - Cost Category Breakdown



Source: Project workplan and budget.

Table 4.1 Annual Employment during Project Implementation Period (Four Years)

Direct impact			Indirect impact	
Construction	**Services**	**Total**	**Consumer spillover**	**TOTAL**
2,400	5,700	**8,100**	12,900	**21,000**

Note: Estimate based on project workplans and Uganda macroeconomic model (NPA and UBOS).

49. The long-term employment impact of the IFPA-CD project is much larger than the impact of the project investments themselves during implementation. Tourism is a labor-intensive industry, and it provides employment at various levels ranging from masters' degree holders to manual untrained staff. The employment in the tourism and hospitality industry varies a lot. Developments in recent years have been largely influenced by the COVID pandemic, since early 2020. In the sample enterprises interviewed in the survey, in 2017 to 2021, the number of employees at the lowest point, in 2020, was only 68 percent of the peak in 2017.

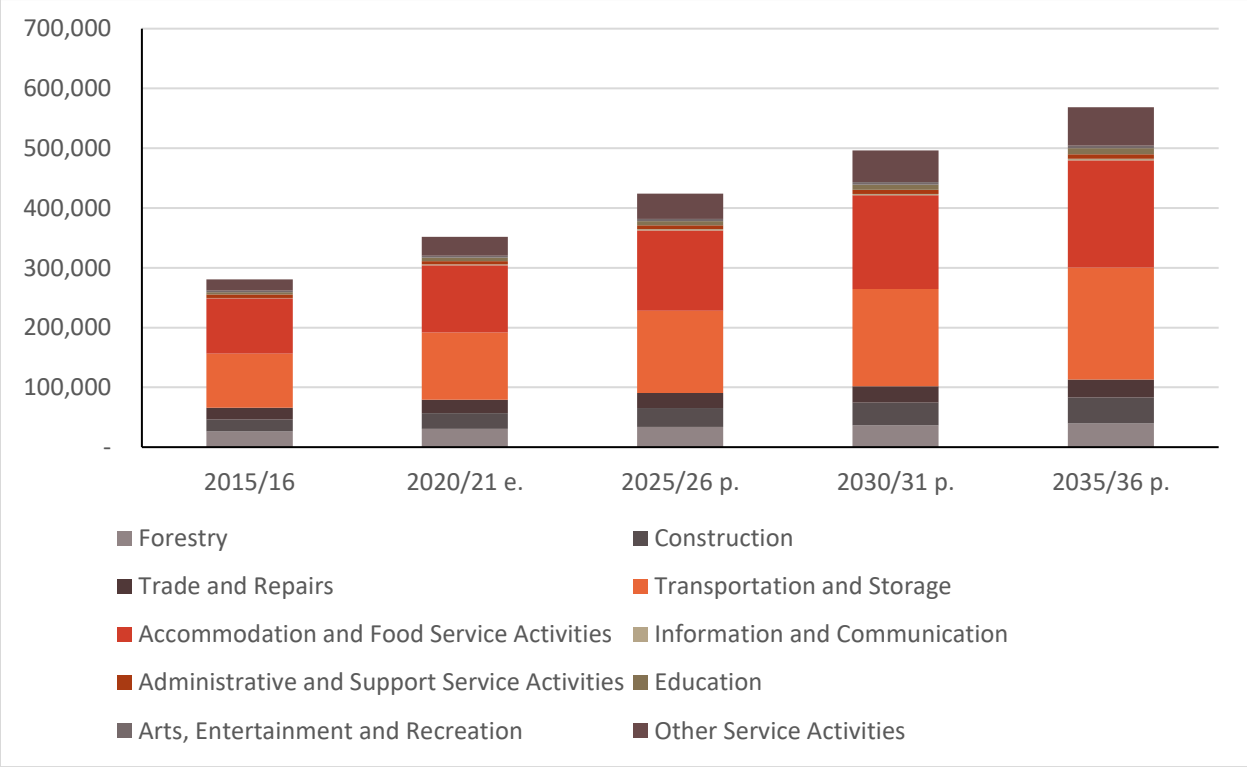
50. Effectively all employment impact in the tourism sector is indirect after the project implementation period. The employment impact should include both *direct* employment in firms that have benefited from project grants and *indirect* employment, where firms do not get direct funding from the project but benefit indirectly from investments for an improved enabling environment and investments in the NPs (see Figure 1.1 on page 2). This in turn, is expected to increase the number of visitors and demand for tourism services in the hospitality industry and the number of tour operators. However, direct support to businesses is a small part of the IFPA-CD financing: the estimated grants to community-based tourism businesses are US$1.5 million which represents roughly 2 percent of all investments in NBT by the project (that is, Components 1 and 2.1 combined). Based on the project PAD,

[31] Multiplier assumed to be the same as for the tourism activities.

10 community ecotourism enterprises are expected to be supported through these grants (a results indicator) and, based on the survey conducted for the study, the average direct employment in a hospitality sector enterprise is 12 people. Therefore, it can be assumed that the *direct* employment impact in the tourism sector after finalization of the project investments is marginal, particularly when compared to the *indirect* impact, and it has not been estimated separately.

51. Tourism is a growing industry, and even the BAU option would demonstrate that more people would be employed. Based on the NPA-UBOS modeling, the current employment in the sector is about 350,000–380,000 people.[32] With the BAU model, this is expected to grow to just below 500,000 in 2030 and to slightly below 570,000 in 2035. (Figure 4.2)

Figure 4.2 Tourism Employment Development - BAU (2015/16–2035/36)



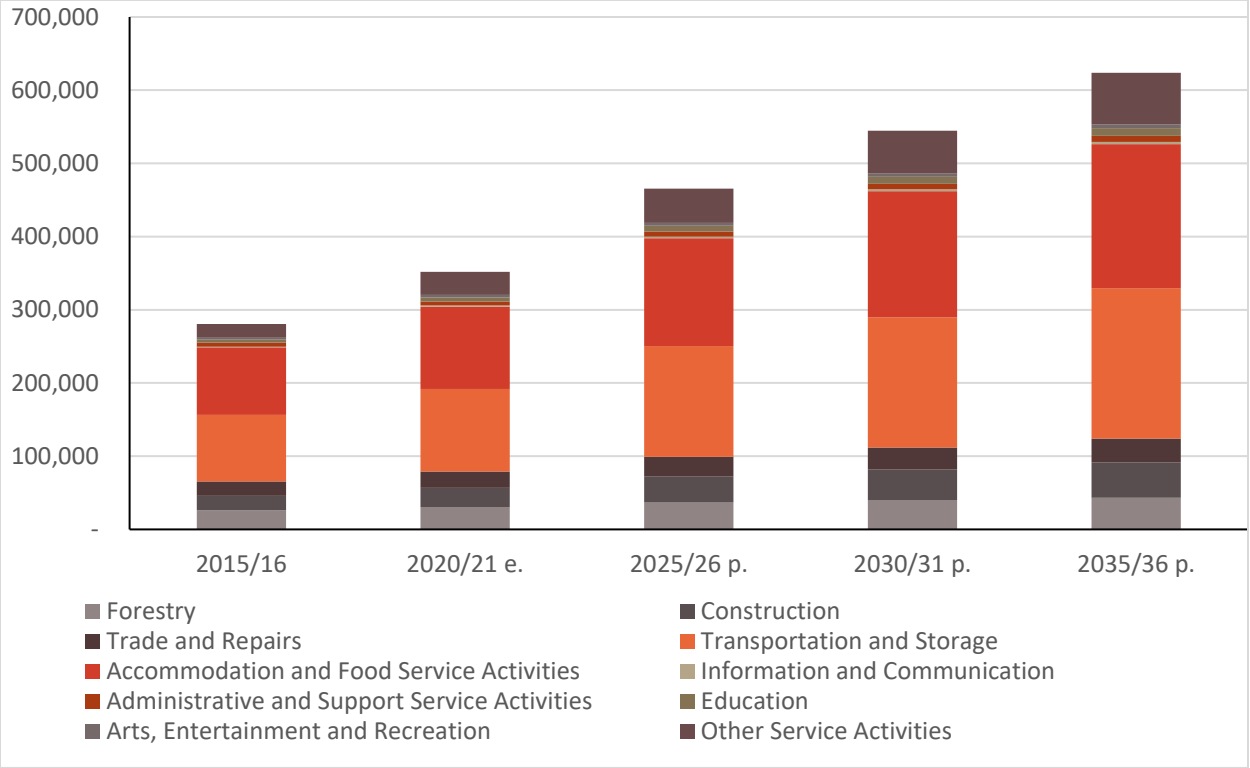
52. Project investments are estimated to increase the demand for tourism services by close to 10 percent and lead to a similar increase in demand for labor and employment and generate close to 50,000 new jobs by 2030/31. This would include both direct employment in the beneficiary enterprises and indirect benefits in the tourism sector. The positive employment impact would continue to increase and the estimated project benefit over the BAU pathway would be 55,000 in 2035/36 with a total employment of 624,000 (Table 4.2 and Figure 4.3)

[32] Different sources have presented different estimates for the employment provided by tourism. The differences can be explained by, among others, different interpretation of what constitutes the *tourism sector*, or different treatment of part-time employees. Also, statistical data is generally unreliable (see paragraph 17)

Table 4.2 Tourism Sector Employment and Increase over BAU (2025/26–2035/36)

Year	Estimated Employment	Increase over BAU
2025/26 p.	465,300	41,200
2030/31 p.	544,500	48,200
2035/36 p.	623,700	55,200

Figure 4.3 Tourism Employment Development - With-Project (2015/16–2035/36)



53. In addition to the impact on tourism-related businesses, increased employment in the sector creates new economic activities in other sectors when newly recruited people consume their increased income creating a consumer spillover effect. World Bank (2020b) has estimated that for each US$1 of tourism-related economic activity, an additional US$1.6 is generated through these spillover effects. This indicates that the total increased employment in the tourism sector would be close to 180,000 new jobs by 2035/36.

Table 4.3 Employment Increase over BAU Including Consumer Spillover (2025/26–2035/36)

Year	Increase over BAU	Consumer Spillover	Total
2025/26p.	41,200	65,800	133,100
2030/31p.	48,200	76,900	155,500
2035/36p.	55,200	88,100	178,000

4.2 Forestry and wood processing

54. The BAU model for employment indicates that the wood production and processing sectors that use plantation wood[33] in Uganda would provide close to 20,000 FTE jobs in the supply chains. With the increasing supply of roundwood and processing to meet domestic demand, this is expected to increase in the foreseeable future.

Text Box 2 Two Comments on Employment Estimates in the Wood Sector

1) The industry is seasonal and therefore the number of people employed during a given year for at least sometime, is higher than the number of estimated FTE jobs. As a result, the sector provides livelihoods to a much larger number of people. This is particularly valuable if the seasonal job opportunities materialize when other options, for example, in agriculture, are limited. However, with increased mechanizations and professionalization of plantation management and harvesting, it can be expected that jobs become more full time.

2) Annual harvesting potential is based on the areas planted each year at the beginning of the rotation (for example, 18 years earlier for pine), and there have been large annual fluctuations in plantation activity over the years. In the modeling for this study, the impact of these fluctuations has been limited by using a moving three-year average to estimate future annual clearcut areas. While this reduces the fluctuation, it does not remove it. Wood is a non-perishable product, and, to an extent, the time of harvest can be moved later based on market conditions and demand. However, the modeling approach may lead to drops in labor demand in individual years even if the overall trend is increasing.

Table 4.4 Wood Sector – BAU jobs (FTE, 2022–2035)

Stage	2022	2026	2030	2035
Nurseries	200	500	500	200
Plantations	8,400	9,000	9,500	10,200
Sawmills	3,300	2,900	3,500	4,500
Joinery	6,400	7,700	9,400	12,000
Total	**18,300**	**20,200**	**22,900**	**26,900**

55. As discussed in Chapter 3.3.2 above, IFPA-CD investments and support in the wood sector can be broadly classified in three types—TA, grants to plantation investments, and grants to industry development—and these all have different impacts on employment. Particularly, TA in plantation

[33] There is additional a large, yet largely informal and unregulated – if not clearly illegal – wood processing sector that uses wood from natural forests either from Uganda or imported from neighboring countries. This is not included here, though it is likely that some wood processors use both sources of raw material. See also paragraph 20 on page 11 for information on collecting information about informal activities.

management may even reduce unit labor demand as improved management and skills improve labor productivity. However, the increase in the total plantation area will offset that at aggregate.

56. In the following two tables, the jobs impact is presented separately for the plantation support and industry support. This is then followed by the aggregate impact using the three scenarios presented in paragraph 40 on page 19 with and without consumer surplus estimate.

57. The IFPA-CD project will support a notable increase in commercial plantation area. In total, the plantation area is expected to increase by 36,000 ha which is roughly one-third of the current area. The projected impact *without structural change in the processing sector* is presented in Table 4.5. Two points need to be noted here: first, the plantations established under IFPA-CD lead to increased logging only after the first rotations, that is, in the 2030s and 2040s. And second, before that, the increase in processing is based on the current plantations and the fact that the plantations established with SPGS support have reached maturity.

Table 4.5 Wood Sector - Jobs Estimate without Structural Change in the Industry (2022–2035)

Stage	2022	2026	2030	2035
Nurseries	200	1,000	500	500
Plantations	**8,400**	**11,400**	**11,400**	**11,500**
Processing	3,300	3,200	4,200	6,000
Joinery	6,400	10,900	13,700	18,600
Total	**18,300**	**26,500**	**29,800**	**36,600**

58. The grant support to the processing industry is a relatively small part of the budget, and its main benefit is to demonstrate that investments in improved product quality and efficiency benefit the industry and allow it to develop. In the modeling, it is assumed that the grant supports financing of 6 drying kilns with an annual drying capacity of 3,600 m^3 each.[34] All the dried sawnwood would then be used by the local joinery industry for higher value wood products (furniture, doors, window frames, and so on). Most of the job benefits would come from the processing stage, as kilns themselves require only a small labor input.

Table 4.6 Wood Sector - Jobs Estimate of Industry Grants (2022–2035)

Stage	2022	2026	2030	2035
Kiln operating*	**—**	**100**	**100**	**100**
Increased joinery employment	**—**	2,500	2,500	2,500
Total	**—**	**2,600**	**2,600**	**2,600**

Note: * installation negligible.

59. This report has discussed in several occasions that the plantation-based wood industry in Uganda is at the crossroads, and it is likely that there will be a structural change triggered by the increase in raw material supply due to the impact of the SPGS program and now the IFPA-CD investments. Modeling the medium- to long-term change in the wood sector has two specific sources of uncertainty. First, developing

[34] The grant will be distributed based on calls-for-proposals. Drying kilns are recognized as an efficient short-term measure to improve profitability in the wood processing sector. See World Bank. 2022.

the downstream value chains would require notable private investments and increasing the domestic use of wood products and/or wood product exports. How these will develop is still unknown and to a large extent, dependent on factors outside the forest sector.[35] Second, the source of uncertainty in the modeling is the lagged impact: trees planted during the IFPA-CD project will be harvested in the 2030s and 2040s and the operating environment for the industry and technology will develop and change during the period.

60. The conservative estimate includes the impact of the project itself with no structural change in value addition. The consumer spillover effect is estimated separately in Table 4.9. With the relevant assumptions, the project is estimated to support the development of 7,000 to 10,000 new jobs until 2035. Most of these new opportunities would be found in plantation management (direct impact) and secondary processing (or joineries, indirect impact). The processing industry would see a major impact only after the first rotation of the new plantations (eucalyptus after 2033) are mature and ready for harvesting.

Table 4.7 Wood Sector - Jobs Impact over BAU (Conservative Estimate, 2026–2035)

Stage	2026	2030	2035
		– Increase over BAU –	
Nurseries	500	—	300
Plantations [d]	2,500	2,000	1,300
Processing	300	800	1,600
Kiln operation [d]	100	100	100
Joinery	3,200	4,400	6,700
Total	**6,600**	**7,300**	**10,000**

Note: [d] indicates direct project impact. Others are indirect.

61. The jobs impact will change dramatically, if we assume that the processing industry will react to the increased raw material supply from the plantations. The jobs impact would more than double compared to the conservative option. However, for this option to materialize, it would also require extensive investments in the processing sector by the private sector. See the text box on page 28 regarding the fluctuations in annual numbers.

[35] For discussion on the private sector development in Uganda, see World Bank Group. 2022. The report identifies housing as a major growth sector for private sector in Uganda and that would create business opportunities for sustainable wood production and processing for the construction sector.

Table 4.8 Wood Sector - Jobs Impact over BAU (High Employment Estimate, 2026–2035)

Stage	2026	2030	2035
		– Increase over BAU –	
Nurseries	500	—	300
Plantations [d]	2,500	2,000	1,300
Processing	6,000	5,800	4,000
Kiln operation [d]	100	100	100
Joinery	19,400	20,000	17,300
Total	**28,500**	**27,900**	**23,000**

Note: [d] indicates direct project impact. Others are indirect.

62. Estimates in Table 4.7 and Table 4.8 include direct and indirect (backward and forward linkages) impacts of the project investments. As discussed in Figure 1.1, investments also have an indirect impact when peoples' increased incomes are used and new economic activity is generated. This consumer spillover effect[36] has a major positive impact on peoples' livelihoods. Table 4.9 presents the jobs impact with this consumer spillover effect. It also presents a *steady state option* that aims to present the jobs potential in a hypothetical situation with even age structure in the plantations. This is a theoretical long-term model where the plantation age structure in evenly spread across all age classes and removals are based on MAI.

Table 4.9 Wood Sector - Jobs Impact over BAU with Consumer Spillover Effect (2035)

Stage	Conservative	High Case	Steady State
		-Increase compared to BAU-	
Direct employment	1,400	1,400	200
Indirect linkages	8,600	21,600	19,000
Sub-total	*10,000*	*23,000*	*19,200*
Consumer spillover	6,500	14,900	12,500
Total	**16,500**	**37,900**	**31,700**

[36] Some literature uses the term *induced employment.*

5. KEY FINDINGS FROM THE SURVEY

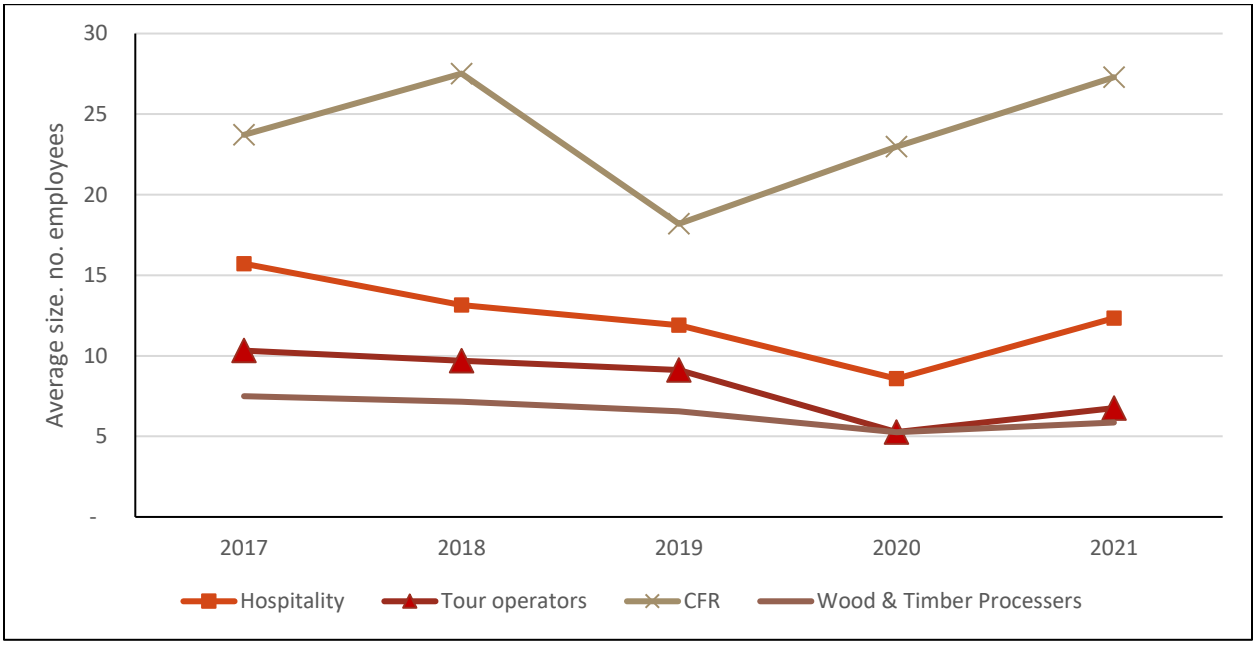
Text Box 3 A Comment on the Survey Tables

The aggregate or total number of employees in the tables and figures below are the *total number among the surveyed entities, not total for the whole sector*. The limitations of the underlying population data did not allow projecting the survey results to the whole sector. Therefore, the 'total numbers' in Chapter 5 cannot be compared to the total employment estimates in previous chapters.

63. As discussed in Chapter 3.1, a survey of over 500 firms[37] was conducted to gather information about the hospitality, tour operator, and wood processing sectors and CFRs. The survey focused on employment, business development, marketing, and development plans in the interviewed entities. While the incomplete national enterprise registers make it difficult to project the findings to the whole enterprise population in the target sectors, it can be safely assumed that the survey results provide valuable insights to the sectors and operators that form the business community in them.

64. The firms in both the tourism and wood sectors are usually small and, on average, employ less than 20 people. The CFRs are the largest employers. The average number of employees has also been declining and only in 2021, after the impact of COVID, did the number start increasing. It is too early to assess if this is a temporary effect or if the enterprise structure is changing.

Figure 5.1 Firm Size - Average Number of Employees by Sector (2017–2021)



65. The survey, like the whole assessment, was done when Uganda and the rest of the world was starting to recover from the impact of the global COVID pandemic that had started in early 2020 and had a devastating economic and social impact across the globe. In 2022, various restrictions on travel and economic activities were being lifted in Uganda and elsewhere. It was recognized that international travel

[37] In the CFRs, interviews were often conducted with NFA officials. NFA is legally a government agency, not a 'firm'. The term 'firm' is used to describe all entities interviewed for the sample.

was perhaps the most affected business activity globally.[38] This was reflected also in the tourism sector in Uganda. The wood industry sector felt much smaller declines. Over half (55 percent) of the hospitality enterprises and almost two-third (64 percent) of tour operators expect that reaching the pre-COVID level of business activity will take at least 2–3 years, if not longer.

Table 5.1 Expected Time to Recover to Pre-COVID Business Activity, by Sector

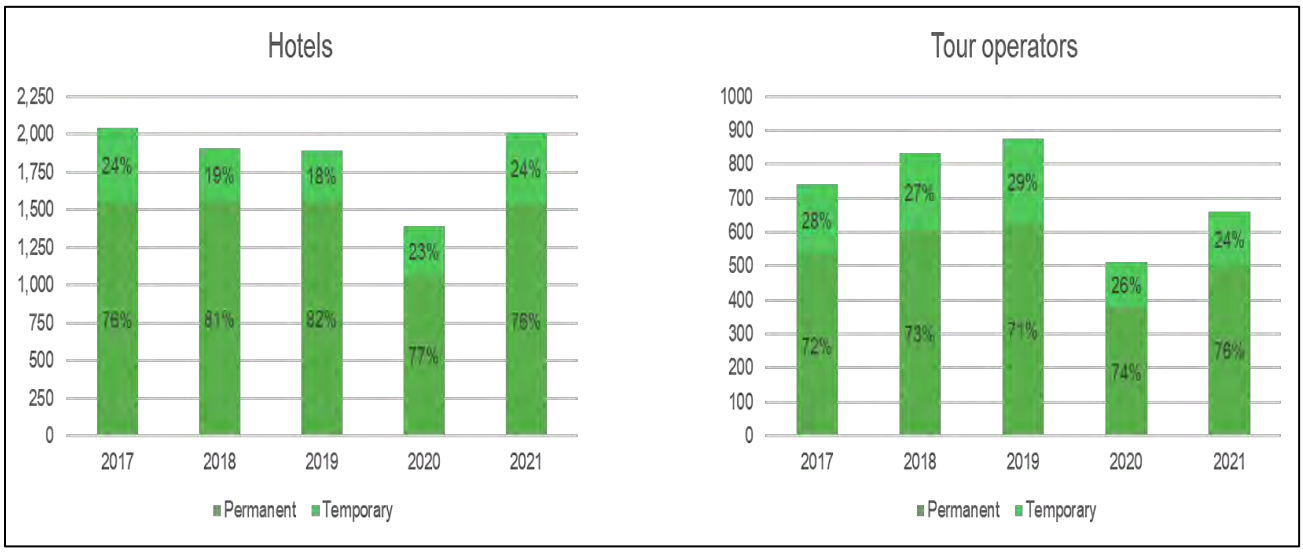
Recovery Timeline	Hotels and Catering	Tour Operators	CFR	Wood Processing
		– % –		
No impact/already recovered	11.0	1.0	36.8	5.8
<1 Year	11.7	5.1	10.3	7.7
1–2 Years	22.7	29.6	13.2	30.8
2–3 Years	31.9	31.6	14.7	25.0
3–5 Years	11.7	14.3	16.2	23.1
>5 Years	11.0	18.4	8.82	7.7
N	163	98	136	167
Total	100.0	100.0	100.0	100.0

5.1 Survey findings - tourism industry

66. In the tourism industry, some three-fourth of staff is permanent with little difference between the subsectors (hospitality and tour operators). However, even 'permanent' employment is subject to business fluctuations, and the COVID-related reduction in labor force in 2020 caused a large drop in both types of employment. In the hospitality sector, the drop was larger, in relative terms, among the permanent employees. (Figure 5.2)

[38] Based on International Air Transport Association (IATA) statistics, the industry-wide revenue passenger kilometers shrank by 94.3 percent year-on-year in April 2020, the largest contraction in recent history. The decline was broad-based across all regions. (https://www.iata.org/en/iata-repository/publications/economic-reports/air-passenger-monthly-analysis---apr-20202/)

Figure 5.2 Relative Shares of Permanent and Temporary Employees - Tourism Industry (2017–2021)



67. In addition to permanent and temporary employees, businesses in the tourism sector use contractors to provide services. On average, the contractors' input corresponds to some 20 percent of all labor need. In the hospitality sector, the use of contractors declined sharply in 2020 to rebound somewhat after that. This indicates that contractors were the buffer that businesses used when COVID led to a drastic decline in demand. In the tour operator sector, there was no comparable shift. (Table 5.2)

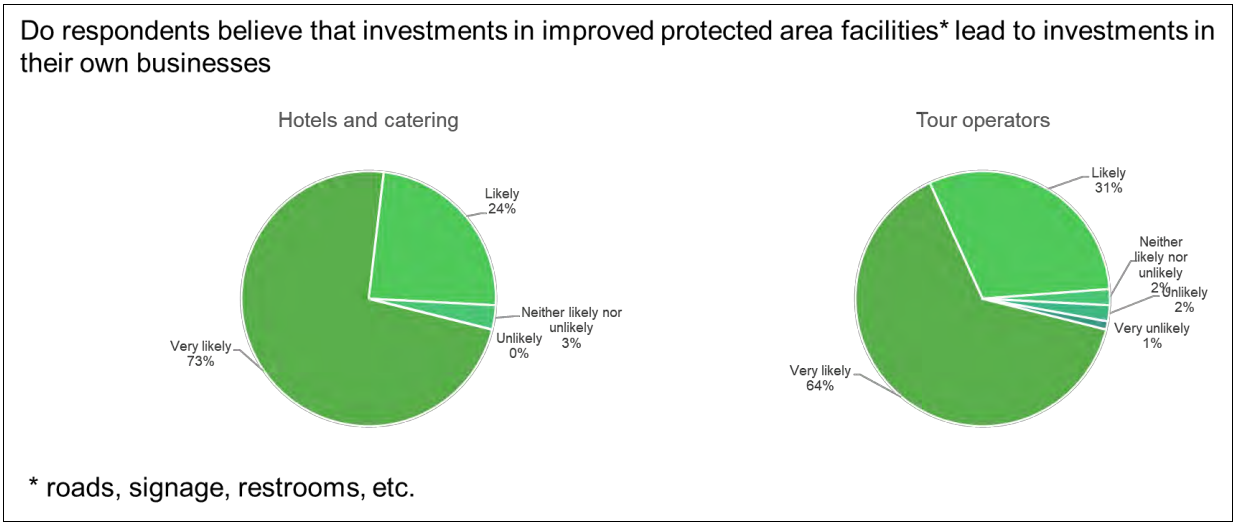
68. The main reasons for using contractors are lack of skilled employees and lower cost in the hospitality sector, and lower cost and special client need (for example, language preference) for tour operators.

Table 5.2 Contractor Use - Tourism Industry (2019–2021)

Year	No. Using Contactors	Contractors (FTE)	Non-contractor Headcount	Total Employment	Proportion Contractors
Hospitality					
2019	30	547	1,893	2,440	22.4%
2020	25	129	1,390	1,519	8.5%
2021	29	379	2,010	2,389	15.9%
Tour operators					
2019	35	265	876	1,141	23.2%
2020	20	170	511	681	25.0%
2021	36	253	661	914	27.7%

69. The IFPA-CD investments in the tourism sector focus on developing the quality of services in the NPs and the overall tourism experience for the visitors. This is important for the industry. While only a small part of the overall budget is allocated to the enterprises themselves—all such grants going to community enterprise development—vast majority (over 90 percent) of firms interviewed estimated that their businesses will benefit from improved PA facilities. (Figure 5.3)

Figure 5.3 Firm-level Expectation of Impact from Investments in PAs



5.2 Survey findings - wood sector

70. The wood sector firms mostly employ permanent staff, while CFRs have the highest share of temporary staff of the four sectors analyzed. This may be a reflection of the seasonal nature of plantation management (for example, planting can be done only in the rainy season) and different skills required at different stages of wood production. In the wood processing sector, a higher share of employees is permanent and also the fluctuation of overall employment is lower than in the CFRs. The CFRs interviewed had a surprising drop in employment numbers in 2019, while the processing industry saw a drop in 2020, probably caused by the COVID-related economic slowdown.

Figure 5.4 Relative Shares of Permanent and Temporary Employees - Wood Sector (2017–2021)

71. The CFRs use outside contractors in a very limited scale; only 2–3 percent of their total labor input is from contractors.[39] This can be compared to, or explained by, the relatively high share of temporary employees, indicating that contractual arrangements with seasonal workers is done as employment

[39] The survey did not include many private concession holders (lessees) in the CFRs and mainly NFA officials were interviewed. It is likely, that private operators were underrepresented in the sample. Based on international experience, commercial plantation operators often use contractors, particularly if special machinery is needed (for example, for harvesting or haulage; Clarke (2019) estimates that for medium-size producers in South Africa, contractors provide about one-third of all labor input). Therefore, it is possible that the results underestimate contractor use, and more targeted surveys of the private plantation operators would be needed.

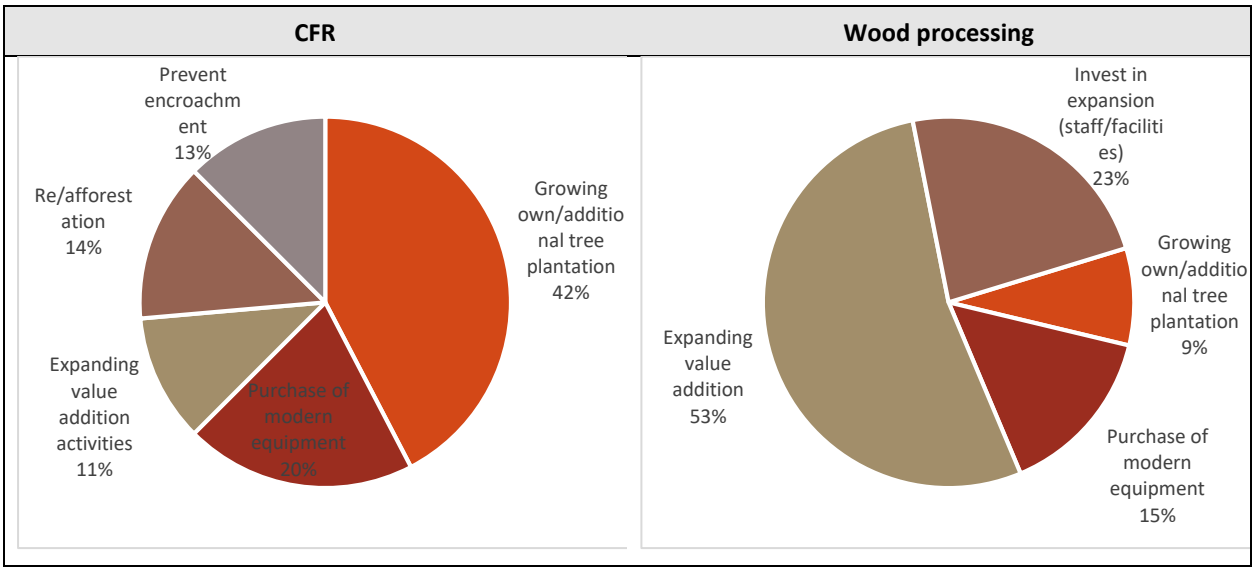
rather than a contractual arrangement. The main reason for using the small number of contractors is lower cost and creating local employment. In the wood processing sector, use of contractors is more common, reasons being lower cost and need for short-term expertise. (Table 5.3)

Table 5.3 Contractor Use - Tourism Industry (2019–2021)

Year	No. Using Contactors	Contractors (FTE)	Non-contractor Headcount	Total Employment	Proportion Contractors
CFR					
2019	22	76	2,474	2,550	3.0%
2020	21	58	3,126	3,184	1.8%
2021	21	59	3,601	3,660	1.6%
Wood processing					
2019	42	178	1,089	1,267	14.0%
2020	34	132	878	1,010	13.1%
2021	41	167	978	1,145	14.6%

72. The wood industry firms have plans for growing their business and this is very much in line with the overall development objectives of the IFPA-CD project. The firms' medium-term plans focus on expanding plantations for the CFRs and value addition for the processing industry. Firms in both subsectors would also be interested in investing in equipment and business expansion. (Figure 5.5)

Figure 5.5 Priority Plans for the Next Two to Three Years - Wood Sector



73. The wood sector firms also face various impediments for growth, and these are both financial and sector specific. The main challenges are lack of (working) capital which also reflects in the lack of adequate equipment. Interestingly, while firms plan to expand, over half of the wood processing firms also indicate that they face lack of demand. This could indicate that at least some of the firms are facing a 'low level equilibrium'—there is inadequate demand for their current (possibly relatively low quality) production,

but at the same time, they do not have resources to modernize and upgrade their production. This would require more detailed surveys and case studies. (Table 5.4)

74. Availability of skilled labor is also a challenge. One in six CFRs and one in three wood processors indicated that the lack of a skilled labor force is an impediment for their growth.

Table 5.4 Main Impediments to Growth - Wood Industry

Impediment	% of Respondents
CFR	
Lack of working capital	31.2
Lack of available land for plantations	23.7
Lack of skilled labor	**19.4**
Lack of demand	16.1
Other	41.9
Wood processing industry	
Lack of equipment	63.8
Lack of demand	53.3
Lack of skilled labor	**32.2**
Lack of available land for plantations	24.3
Inadequate roundwood supply	9.9

Note: About one-third of CFRs refused to answer the question.

The survey results are presented in more detail in Part 2 of the report which also presents the methodology and process for the survey.

6. DISCUSSION

75. The jobs assessment aimed to provide better understanding on how the IFPA-CD will create formal employment and incomes in Uganda. The project is implemented in an environment where around 700,000 young people reach working age every year and the number is expected to rise to an average of 1 million in the decade from 2030–2040. The fast growth in the labor pool is already creating a mismatch between demand and supply. About 77 percent of the population ages 15–64 work, and official unemployment is negligible at 3.2 percent for the adult population and 5.3 percent for youth. However, the low unemployment rates hide the fact that the quality of jobs is low. Most Ugandans (two-thirds) still work for themselves or for their families in agriculture. Among youth, three in five work in unpaid occupations, contributing to household enterprises, which are mostly farms.[40]

76. The high level of agricultural and informal employment demonstrates that increased employment in other market-oriented sectors would be needed to address the current, and increasing, labor market imbalance in Uganda. An additional challenge comes from the agricultural sector, where increased labor productivity would need to increase to improve agricultural incomes and to commercialize the agriculture sector—the mainstay of Uganda's economy. Combined, job opportunities outside the agricultural sector would thus need to increase at an accelerated rate to capture both the new entrants to the labor and the surplus labor from agriculture.

77. This assessment demonstrated that both NBT and plantation-based wood value chains are two options where Uganda's rich renewable natural resources can be used for economic development and job creation. While they alone cannot be expected to resolve Uganda's labor market challenges, their particular advantage is that employment is largely generated in rural areas and smaller towns. Economic development of Uganda's secondary cities is an essential part of creating a vibrant jobs market in the country. This requires, however, that right policies are in place and needed public investments are made. Sector transformation, in most cases, require public–private partnerships to ensure balanced and inclusive development. This has been demonstrated, for example, in the wood sector.[41]

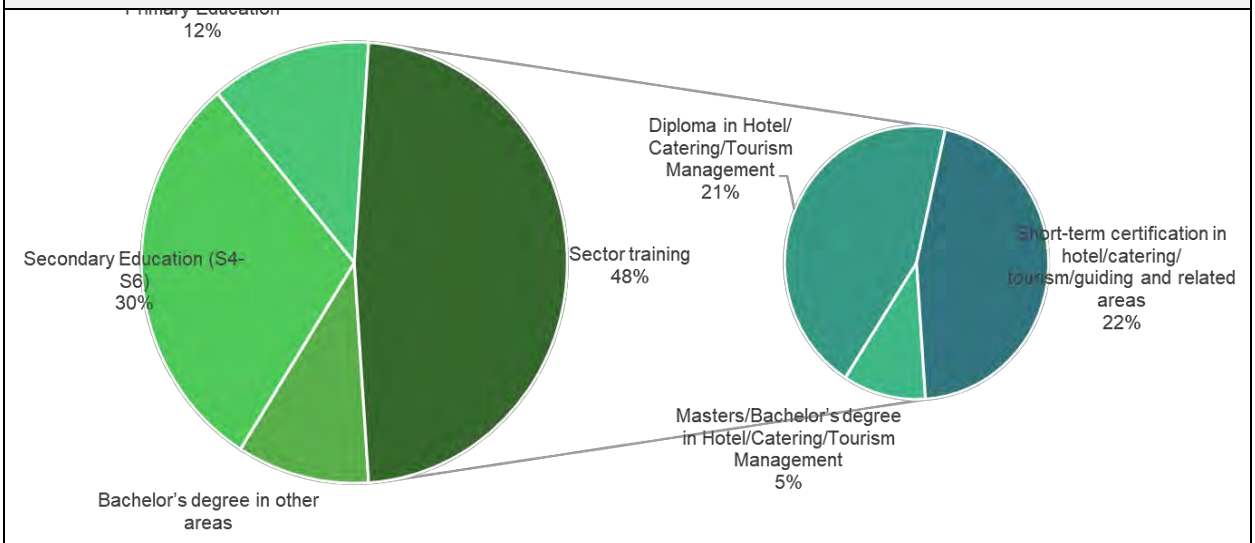
78. The jobs impact estimates were based on *ex ante* assessment of impacts since the IFPA-CD investments have not yet been made. Direct grants to industries will be based on competitive calls-for-proposals, so we know even less about them. While the estimates give the aggregate number of jobs, information on the type of employees needed is elusive. For the survey results, we get the current structure of employment in the surveyed firms, and we can assume that this reflects the structure in the target industries. One particularly interesting aspect is that in the tourism sector, particularly hospitality, half of the staff has sector specific training (at least a short-term certification) on the tourism/hospitality sector. Among tour operators, staff has more general, but still relatively high training. In the wood sector, staff has comparatively lower education. The low level of training may become a constraint as the sector moves toward more value-added engineered wood products unless adequate training is provided. Therefor the IFPA-CD has decided to also support the Nyabyeya Forestry College and its wood product training. Secondly, the high-level of sector specific training needed in the hospitality sector demonstrates, that if labor demand in the sector increases, training needs to follow to avoid bottlenecks or declining service quality. (Figure 6.1)

[40] Discussion on general labor market development in Uganda in this chapter is from Moretto (2019).

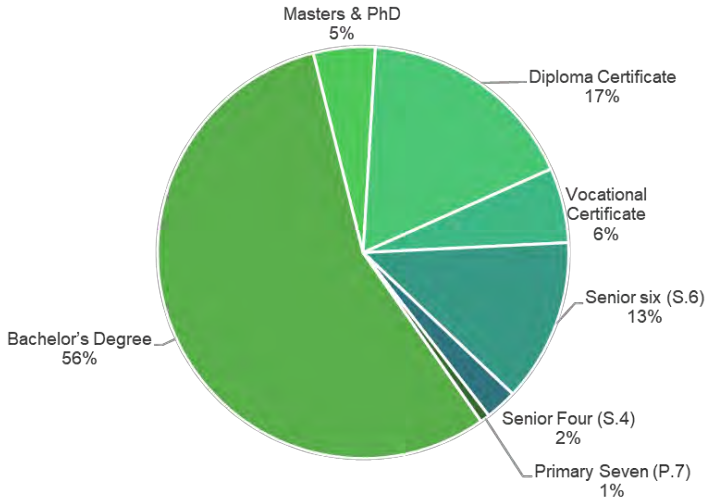
[41] World Bank 2022.

Figure 6.1 Training Levels in Target Industry - Survey Result

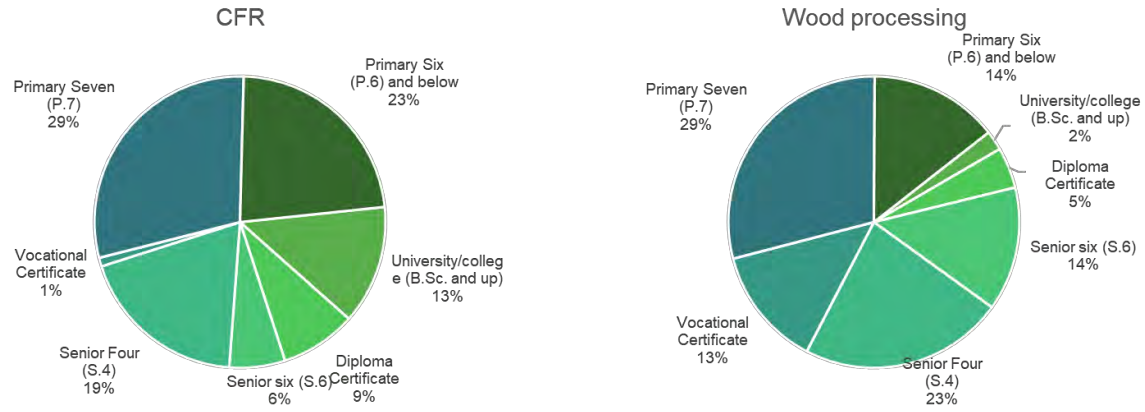
a) Hospitality sector



b) Tour operators



c) Wood sector



79. This report identified some issues that could not be covered in a quantifiable way in this work, but still essentially would need to be considered if and when the tourism and wood sectors are developed with employment in mind:

(a) *Both sectors are seasonal and do not provide the same level of employment throughout the year*. This may not be an issue if employees have alternative employment opportunities in the off-season, but if not, then these sectors do not necessarily provide adequate permanent livelihood. This may be a particular concern for people who are informally employed in the sector.

(b) *The COVID-pandemic demonstrated that while tourism is a growing and attractive component of economic development, it is also risky, and demand—and with it, employment—may fluctuate widely for reasons that are not in the operators' control.* Pandemics, wars, violent insurgencies, and so on are all factors that influence clients'—particularly international clients'—perceptions, even if the actual events have no impact in the target areas themselves.

(c) *Wood industry development needs to address the whole value chains 'from forest to consumer' if increased employment is aimed at.* Developing only a part of the value chain leads to imbalance in the market and missed opportunities to expand employment. This will require combining expertise and knowledge from forest management, wood product processing, and marketing, as well as general promotion of wood as a sustainable and renewable raw material.

80. The jobs impact of the IFPA-CD project was estimated by using three different approaches. In the tourism sector, it was estimated by using jobs multipliers from the national statistical authorities and extrapolating these to address the expected increased demand in the BAU and with-project scenarios (see Chapter 3.2.2 above). In the wood sector, the process was different and based on analyzing the value chains and expected changes in production volumes and unit labor demand (see Chapter 3.3.2 above). Finally, an industry survey was conducted to get information on the baseline and to obtain some qualitative information about employment in the target sectors. (see Chapter 3.1 above)

81. The accuracy of the *ex ante* estimates can only be assessed when projects have been implemented and the actual employment impact is known. As discussed in several places in this report, impact in the forest sector takes even much longer than that to materialize. Only then do we know if estimates were accurate and where they could have been improved. Still, already at this stage some general areas of improvement can be identified to allow for more accurate estimates:

(a) Both national employment multiplier models and industry-level surveys are dependent on accurate statistical data and business registers. In Uganda, it is clear that these need strengthening. The survey suffered from inaccurate business registers and as presented in Table 3.2 on page 9, roughly half of the firms that were originally identified for the sample could not be found as they had either moved or ceased to operate. As a result, there is no accurate information on what the overall enterprise population in Uganda is, and this makes estimating the aggregate employment in the target sector difficult, if not impossible. Like in all sectors, reliable and comprehensive statistical data and records are essential for effective policy implementation and monitoring.

(b) Combining different data sources may have higher costs, but it is likely that it would yield more reliable results. For example, detailed case studies would allow in-depth analysis of firms. Combining that with statistical and survey work would allow stratification and extrapolation across the enterprise population to get aggregated data on the target sectors.

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