



GREEN JOBS FOR YOUTH IN AFRICA

SIRI LIJFERING AND NINJA LACEY

CHALLENGE
FUND
FOR
YOUTH
EMPLOYMENT

INCLUDE

KNOWLEDGE PLATFORM ON INCLUSIVE DEVELOPMENT POLICIES

Preface by Palladium

The way we live and work has been changing. At the same time, emerging challenges such as climate change, poverty and inequality are accelerating the need to rethink the world of work. The concept of a 'green economy' is emerging as one of the hopeful solutions to these challenges. In addition, the transformation towards green jobs is also seen as a way for African countries to create decent jobs and an inclusive economy and is, therefore, a potential solution to the youth unemployment crisis in Africa.

In our Challenge Fund for Youth Employment (CFYE) Portfolio, we see a growing number of 'green jobs'. With an increasing number of implementing partners working on supporting these green jobs, there is also a growing interest in understanding the dynamics of the green transition and associated employment effects. This interest is echoed by CFYE partners in their different countries, as well as by our funder, for which this was identified as a key policy priority. In light of this significant interest, we have defined 'green jobs' as one of the priority learning themes for CFYE in 2022. Hence, we wish to gain more insights into these types of jobs, the perception of youth towards green jobs, the skills required, and the quality of green jobs.

Accordingly, the Palladium Group entered into a collaborative learning partnership with INCLUDE to explore what is needed to facilitate the transition to green decent jobs for young people in Africa. Through this long-term partnership, we join forces with INCLUDE to strengthen the evidence base around youth employment and a green future of work in Africa. This evidence will provide us with key insights about the green jobs in our portfolio, as well as with the tools to select new green partners.

Arqam Lodhi
Deputy Team Leader
Challenge Fund for Youth Employment

Acknowledgements

This insight paper is the result of a collaborative project by the Challenge Fund for Youth Employment and INCLUDE into the role of green jobs in the future of work for youth in Africa. The aim of the partnership between INCLUDE and the CFYE is to strengthen the evidence base around decent work and youth employment in Africa by providing key insights, practical guidance, and tools for effective programming and policy making. The researchers would like to thank the CFYE team for supporting this study and particularly the Learning & Innovation team for their guidance and reflections. Many thanks also go out to the different CFYE country managers and implementing partners in Kenya, Uganda and Nigeria, who have taken the time to share their experiences, reflections, and viewpoints. This has been extremely valuable.

Siri Lijfering and Ninja Lacey
INCLUDE
July 2022

Executive summary – Green Jobs for Youth in Africa

Dealing with the negative consequences of climate change and creating a large number of jobs for a growing population are two of the major challenges facing the African continent. The transition to a green economy can help tackle both simultaneously. This transition is twofold, along the lines of adaptation and mitigation. On the one hand, it involves making African economies more resilient to the effects of climate change. On the other, it requires investments in renewable energy and more sustainable production processes, in order to reduce Africa's own emissions. Both of these tracks of the green transition require not only large-scale investments and capital allocation, but also labour. Green jobs, therefore, are essential to make it work.

This paper provides insights on how to leverage green jobs to realise the transition to a green economy. The first step to achieving this is to create a better understanding of green jobs. To this end, following a literature analysis, we provide a mapping tool to help classify green jobs and measure their (potential) impact. The tool is based on four indicators: (i) sector; (ii) green business strategy; (iii) climate action; and (iv) green skills.

Thereafter, we use these indicators to guide an examination of three case studies of entrepreneurs supported by the Challenge Fund for Youth Employment (CFYE), in the Kenyan construction sector, the Nigerian manufacturing sector and the Ugandan energy sector. The case studies, based on interviews with CFYE staff and the entrepreneurs, also analyse the barriers and drivers of green job creation and improvement within these firms. Based on these findings, we discern four pathways for change to stimulate green jobs growth for youth in Africa:



Model of green job pathways

By using these pathways as guidance, we finally provide ten recommendations on how to enable the green economic transition and the creation of green jobs in Africa.

Finally, reflecting on the findings of this research, we distil a number of key messages regarding the attitude and general approaches that will be required to make successful progress on green jobs. These centre around the need to empower youth, to invest in continuous knowledge building and exchange, and to move away from standalone initiatives towards multi-stakeholder approaches to achieve greater impact.

We conclude that the green transition has the potential to create a plurality of job opportunities for youth in Africa, but that there is still a long way to go before this potential can be fulfilled. Concerted political will is needed to stimulate green job sectors and green employment and to create realistic pathways to the green economic transition. Strengthening the evidence-base on green jobs and showing the potential of greening the economy for youth in Africa is an important first step.

Contents

GREEN JOBS FOR YOUTH IN AFRICA	I
Preface by Palladium	ii
Acknowledgements	iii
Executive summary – Green Jobs for Youth in Africa	iv
Contents	vi
INTRODUCTION	1
1.1 Background	1
1.2 Methodology	2
1.3 Roadmap of the paper	3
THE CHALLENGE FUND FOR YOUTH EMPLOYMENT	4
2.1 What the Fund does	4
2.2 CFYE learning agenda	5
2.3 Green jobs and the future of work	5
PART 1. UNDERSTANDING GREEN JOBS	6
GREEN JOBS IN AFRICA: A DEFINITION AND TYPOLOGY	6
3.1 What are green jobs? A definition	6
3.2 Measuring green jobs	8
3.3 The CFYE green job mapping tool	9
3.4 Conclusion	16
PART 2: IMPROVING GREEN JOBS	17
GREEN JOBS IN PRACTICE	17
4.1 Drivers and barriers to green job growth in Africa	17
4.2 Green jobs in practice	20
4.3 Green job pathways	26

GREEN JOB PATHWAYS	27
PART 3: ENABLING GREEN JOBS	29
IMPLICATIONS AND RECOMMENDATIONS FOR POLICY AND PRACTICE	29
5.1 Policy implications and recommendations	29
5.2 Investment opportunities	33
CONCLUSION: THE ROAD AHEAD	36
6.1 Key messages	36
6.2 Opportunities for further research	37
6.3 Conclusion	38
Appendix 1. Green jobs in the CFYE portfolio	39

Introduction

1.1 Background

Despite remarkable growth in gross domestic product (GDP) in Africa in recent decades, this has not been accompanied by sufficient additional employment creation and wealth has not been equally distributed, leading to large-scale unemployment and inequality. According to the African Development Bank (AfDB), every year around 12 million young people enter the job market, while only 3 million formal jobs are created¹. With 70% of the population below the age of 35, Africa is the youngest continent on Earth, and it is estimated that by 2040 Africa will have the largest youth workforce, surpassing both India and China². The shortage of decent employment opportunities for Africa's youth comes with great risks for stability and inclusive development; hence, approaches to stimulate youth employment have become a priority in policy and practice.

Youth employment policies and programmes are being designed against the backdrop of large global changes and challenges – such as climate change, inequality and the economic fallout of the COVID-19 pandemic – which are stalling Africa's economic convergence with the rest of the world³. These global challenges, which can be classified as '*wicked problems*'⁴, for which no simple solutions exist, fall between public and private interests. Addressing these issues requires innovation, the re-imagining and restructuring of economies, and a concerted effort by a variety of stakeholders including civil society organisations, policymakers, knowledge institutions and the private sector.

The concept of the 'green economy', which is broadly understood as "*an economy that results in improvement of human well-being and social equity, while significantly reducing environmental risks and ecological scarcities*"⁵, is emerging as a hopeful solution to tackle these multiple challenges – and is gaining traction with policymakers, the private sector and international donors alike. It is anticipated that the transformation to a green economy will create new 'green jobs' and as such increase opportunities for youth in the future of work. According to calculations by the International Labour Organization (ILO) in the *World Employment and Social Outlook 2018*, the green economy is expected to create 24 million jobs globally in the next 20 years⁶, making it potentially one of the biggest growth markets for African youth.

Despite this great potential and enthusiasm, much is still unknown about what actually constitutes a green job and the evidence base on green employment in Africa is thin⁷. Policies and programmes are often not sufficiently informed by knowledge emerging from research and there are still only a few examples of what green jobs look like in practice. In addition, a systematic approach to unearthing the challenges and opportunities to stimulate green employment, from the perspective of employers as well as youth, is largely missing.

To explore the potential of green jobs for youth in Africa, this publication shares insights gained from the collaborative research project on green jobs and the future of work initiated by the INCLUDE knowledge platform and the Challenge Fund for Youth Employment (CFYE). This

research project brings together knowledge from research, policy and practice to shed light on what is needed to facilitate the transition to green jobs for young people in Africa. As such, this paper aims to strengthen the evidence base on decent work and youth employment by providing key insights, practical guidance, and tools that can inspire companies, policymakers and development practitioners to embark on this journey towards a green and sustainable future for youth in Africa.

This publication aims to address these issues by creating a better understanding of what green jobs entail and what the opportunities are for preparing youth in Africa for a green future. It does so by following a three-step research approach, aiming to: first **understand** what green jobs are and how they can be classified; second to see where green jobs can be **improved** by addressing key barriers and leveraging opportunities; and, finally, to determine how policymakers, practitioners and other stakeholders can **enable** the green economic transition and the creation of green jobs in Africa. Accordingly, the paper aims to answer the following questions:

- What is a green job and what are its key characteristics?
- What are high potential sectors that generate green jobs and which skills do they require?
- How can green jobs contribute to efforts towards climate mitigation and adaptation?
- What is needed to facilitate a transition to green youth employment in Africa?

1.2 Methodology

The research underpinning this publication took place between February 2022 and July 2022 and has been guided by an action-oriented research approach. The findings are rooted in an analysis of the work of CFYE on green jobs in Africa (see Chapter 2). The main knowledge questions and research methodology were co-developed by the partners of INCLUDE and Palladium and the project followed an iterative research process, allowing emerging insights and questions to shape the course of the research trajectory. During the research, several validation sessions with CFYE staff were organised to test the assumptions of the research and to validate the findings. The input generated during these sessions has been subsequently integrated into the research process, both fine-tuning and guiding the research.

Starting with a quick scan of the existing literature, taking both academic and grey publications into account, allowed the research team to build a solid theoretical foundation on which to build the empirical data collection. The internal documentation provided by CFYE, such as business plans, country scoping reports, and Salesforce data, was instrumental in developing the green business typologies and the analytical framework of the CFYE mapping tool, following the portfolio scan of the green businesses of CFYE's implementing partners. The in-depth interviews with the CFYE country managers and implementing partners in Kenya, Uganda and Nigeria formed the heart of this research, resulting in a wealth of insights, which are documented in the case illustrations and further developed into green job pathways and (policy) recommendations.

1.3 Roadmap of the paper

The structure of this paper follows the three-fold research approach described in section 1.2:

- Part 1 - Understand
- Part 2 - Improve
- Part 3 - Enable

Following this introduction (Chapter 1), Chapter 2 provides a general description of CFYE as the empirical case at the centre of this publication.

Part 1, Chapter 3, then focuses on *understanding* what green jobs entail by exploring different conceptualisations of green employment, resulting in the formulation of a definition of green jobs and an analytical framework to measure green jobs in practice. Applying this framework to the CFYE portfolio gives further insight into the main characteristics of green jobs, the sector potential and green business strategies, as well as the climate action and skills required for the transition to green jobs.

Part 2, Chapter 4, zooms in on the main barriers and drivers of green job growth. Combining insights from existing literature with the country analyses and three case illustrations of green businesses in the CFYE portfolio in Kenya, Uganda and Nigeria, this chapter highlights green job pathways that can be used to *improve* green job growth.

Part 3, Chapter 5, turns these insights into evidence for policymakers and practitioners, highlighting the main recommendations for creating an *enabling* environment for green growth and green employment creation in Africa. In addition, an initial mapping of green finance investment opportunities is presented in the last section of this chapter.

Chapter 6 presents a conclusion, which brings together the main insights and lessons learnt, providing food for thought and ways forward for CFYE and other parties interested in promoting green jobs for youth in Africa. Finally, the appendix provides an overview of green implementing partners in the CFYE portfolio, using the analytical framework presented in Chapter 3.

The Challenge Fund for Youth Employment

The findings presented in this insight paper are rooted in an analysis of the Challenge Fund for Youth Employment (CFYE) initiative, a six-year programme funded by the Dutch Ministry of Foreign Affairs and managed by a consortium of partners: Voluntary Service Overseas (VSO), the Palladium Group and Randstad. The Fund aims to create a prosperous future for 200,000 young women and men by supporting youth employment initiatives in the Middle East, North Africa, the Sahel and West Africa, and the Horn of Africa.

The first CFYE call was launched in Uganda in December 2019, followed by calls in Egypt, Nigeria, Jordan, Sudan and Kenya in 2021 and a thematic call in 2022. In 2022, the implementation of CFYE projects started in Tunisia, Morocco, Senegal, Ethiopia, Burkina Faso and Uganda. At the time of writing, it has funded 41 businesses, resulting in 131,984 jobs for youth. Over the course of this year, the CFYE aims to fund an additional 30 implementing partners, resulting in an estimated 60,848 jobs.

2.1 What the Fund does

CFYE provides financial and technical support to enterprises that work in collaboration with development and local organisations. The private sector, but also civil society and knowledge institutions are invited to submit proposals for initiatives to create scalable solutions for more and better jobs for youth. All proposals are assessed based on criteria – such as technical design, delivery feasibility and associated commercial proposal – with a clear preference for those entities and consortia that have the ability to deliver sustainable, business-model driven solutions.

The financial support provided by CFYE consists of co-investment in the initiatives, which can be up to 50% of the total investment needed to deliver the initiative. Technical assistance is tailored based on the demand of the delivery partners and an assessment of the support needed to deliver the initiatives efficiently and effectively. This support is provided for those initiatives that address specific youth employment challenges identified by CFYE and that offer solutions to match, create, and improve jobs for young women and men. By matching jobs for youth, the Fund strives to leverage youths' skills in work that they are excited to do. By creating jobs, the Fund stimulates initiatives and companies to develop new jobs for young people, especially young women. By improving jobs, the Fund aims to help young people out of precarious, unstable, or underpaid employment and into stable jobs that pay well and meet employment conditions that matter to them.

2.2 CFYE learning agenda

In order to achieve CFYE's goal of generating decent jobs for youth, a strong evidence base is needed. This evidence base focuses on how to (and why) generate decent, gender-responsive, youth employment through the private sector in target regions. This research project is connected to CFYE's learning agenda around the 'future of work for youth'. Questions surrounding this theme include: What does a 'future-proof' job look like for youth? How do digitally-enabled jobs increase job opportunities for youth? And: How do we prepare youth for 'green jobs'?

2.3 Green jobs and the future of work

CFYE has a specific interest in stimulating 'green jobs for youth' and aims to contribute to sustainable development on the continent. Green employment creation has been a thematic focus of the calls for solutions in several countries, targeting implementing partners that have the potential to scale up green jobs and circular economy solutions. In total, one-third of the supported businesses (12 projects) have been classified as green, creating a total of 15,647 green jobs in Africa.

PART 1. UNDERSTANDING green jobs

Green jobs in Africa: a definition and typology

Before taking any action to unearth the challenges and opportunities to stimulate green employment for African youth, we need to understand what green employment – or ‘green jobs’ – actually entail. The first part of this paper, therefore, focuses on **understanding** green jobs, its main characteristics, the associated business strategies, and the linking of green employment to climate change. Hence, this chapter explores the main definitions and conceptualisation of green jobs from the literature and applies these to CFYE’s portfolio of implementing partners in Africa, resulting in green job typologies and an analytical framework that can be used to stimulate green job growth in the future.

3.1 What are green jobs? A definition

Despite the increased interest in the green economy as a way to stimulate youth unemployment in Africa, there is no consensus on the meaning of green jobs. In the literature on green employment, one can find a plurality of definitions, all focusing on different aspects of the green economy. Box 1 contains an overview of the most commonly used definitions.

Box 1. Overview of the most common definitions of green jobs

International Labour Organisation: Green jobs are decent jobs that contribute to preserve or restore the environment, be they in traditional sectors such as manufacturing and construction, or in new, emerging green sectors such as renewable energy and energy efficiency⁸.

United Nations Environment Programme (UNEP): Green jobs as positions in agriculture, manufacturing, construction, installation, and maintenance, as well as scientific and technical, administrative, and service-related activities, that contribute substantially to preserving or restoring environmental quality⁹.

Organisation for Economic Co-operation and Development (OECD): Activities which produce goods and services to measure, prevent, limit, minimize and correct environmental damage to water, air and soil, as well as problems related to waste, noise and ecosystems. This includes technologies, products and services that reduce environmental risk and minimize pollution and resources¹⁰.

Bringing these different definitions together, one can say that green jobs contribute to a sustainable environment by:

- Protecting or restoring ecosystems and biodiversity
- Reducing resource consumption and inefficiency
- De-carbonizing the economy
- Minimizing or altogether eliminating all forms of waste and pollution

Green jobs in this respect include jobs that either generate **goods** or provide **services** that benefit the environment, for example, green buildings or clean transportation or jobs that contribute to more environmentally-friendly **processes**, for example, by reducing water consumption or improving recycling systems, while also generating and supporting the **wellbeing** of people¹¹.

One important element of this definition is that green jobs also have to be decent. Decent jobs must encompass opportunities for women and men to obtain productive work in conditions of freedom, equity, security, and human dignity, and in which women and men have access on equal terms¹². In this sense, green jobs must be structured in line with ILO's four pillars of decent work – employment creation, social protection, rights at work, and social dialogue.

The extent to which a green job benefits the environment and upholds decent work conditions can vary considerably and, rather than a binary distinction between green and brown jobs, we consider green jobs to be part of a spectrum, being more or less green in their production process or outcomes. This is in line with the shades of green conceptualisation by ILO, which classifies a job or enterprise as more or less green on the basis of its relative contribution to the ecological and social environment. See Figure 1 for a visualisation.

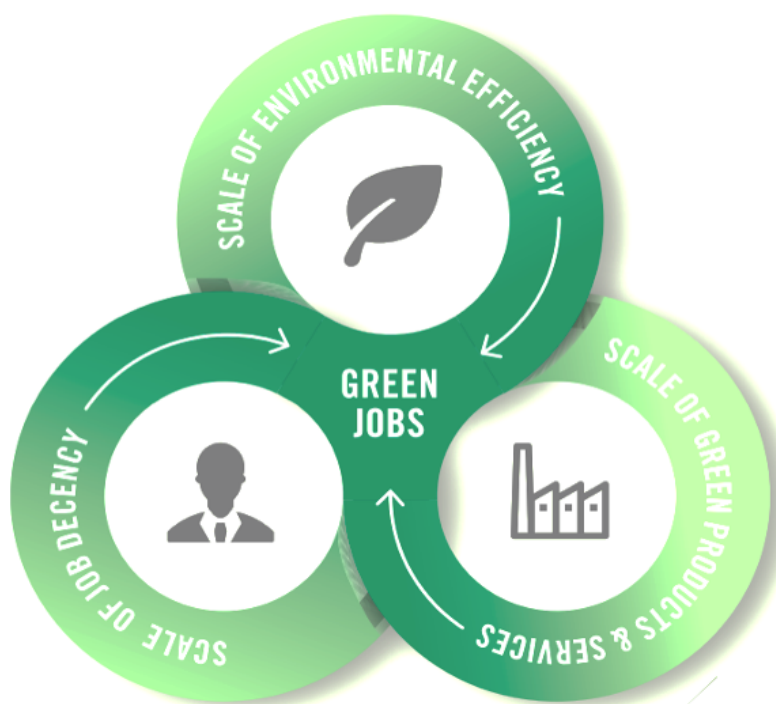


Figure 1. Visualisation of the main characteristics of green jobs¹³.

Even with this definition, deciding whether a job can be considered green can generate strong discussions. For example, can a political activist campaigning for renewable energy be considered to have a green job, and can the work of an employee working for a renewable energy company, although the job itself does not directly contribute to maintaining or restoring environmental quality and avoiding future damage, still be considered green? Taking the end-goal of greening the economy to create decent employment for youth as the vantage point of this discussion, we focus on the business or enterprise as the unit of analysis in defining green job creation. Hence, for the purpose of this paper, we use the following definition of green jobs:

Green jobs are jobs in green businesses that contribute appreciably to maintaining or restoring environmental quality and avoiding future damage to the Earth's ecosystems, while also generating and supporting the wellbeing of people¹⁴.

3.2 Measuring green jobs

This definition of green jobs provides general guidance on what green employment is, but the question remains: How do we measure the degree to which a job is green? Without indicators that measure green job potential, it can be difficult for policymakers and practitioners to decide which sectors or programmes should be included in schemes supporting the creation of green jobs, let alone which are likely to have the most promising results. To address this, the OECD developed 'green job indicators' representing different ways in which a job can be green: sector, product/ service, production method, green awareness, position in the value chain, occupational profile, required skills and abilities, job decency, and green workload¹⁵. These

indicators are placed in an analytical framework classified as the 'Green Equilibrium' (see Figure 2), which describes to what extent jobs meet the green job indicators¹⁶.

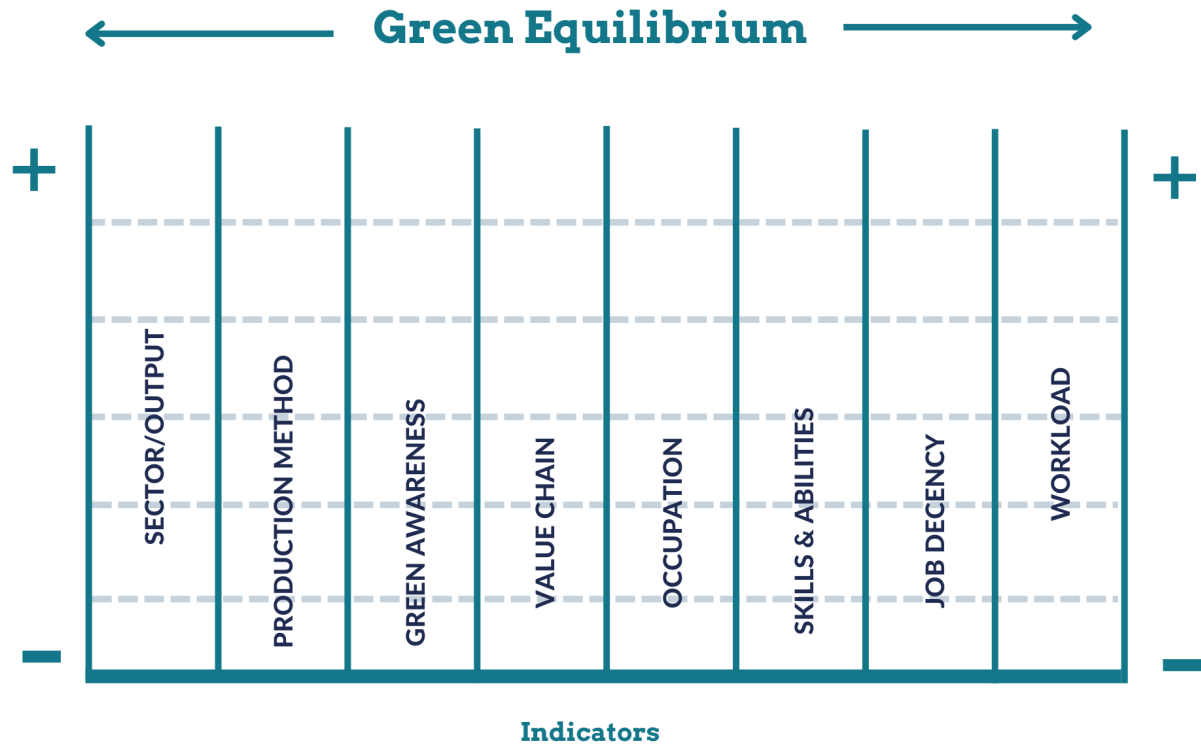


Figure 2. The OECD Green Equilibrium¹⁷

3.3 The CFYE green job mapping tool

The Green Equilibrium is not meant to be a blueprint for analysing green job potential, but is rather a tool that can be adapted for use in different contexts. In this regard, for the purpose of this research, we have identified four indicators that are relevant to the CFYE's mission to stimulate green job growth for youth in Africa: 1) sector, 2) green business strategy, 3) climate action, and 4) green skills. We bring these indicators together in the CFYE green jobs mapping tool (see Figure 3). The mapping tool can be used to assess to what extent a business fits the definition of a green job and identifies green job potential in the business strategy. The indicators used are explained further in Box 2.

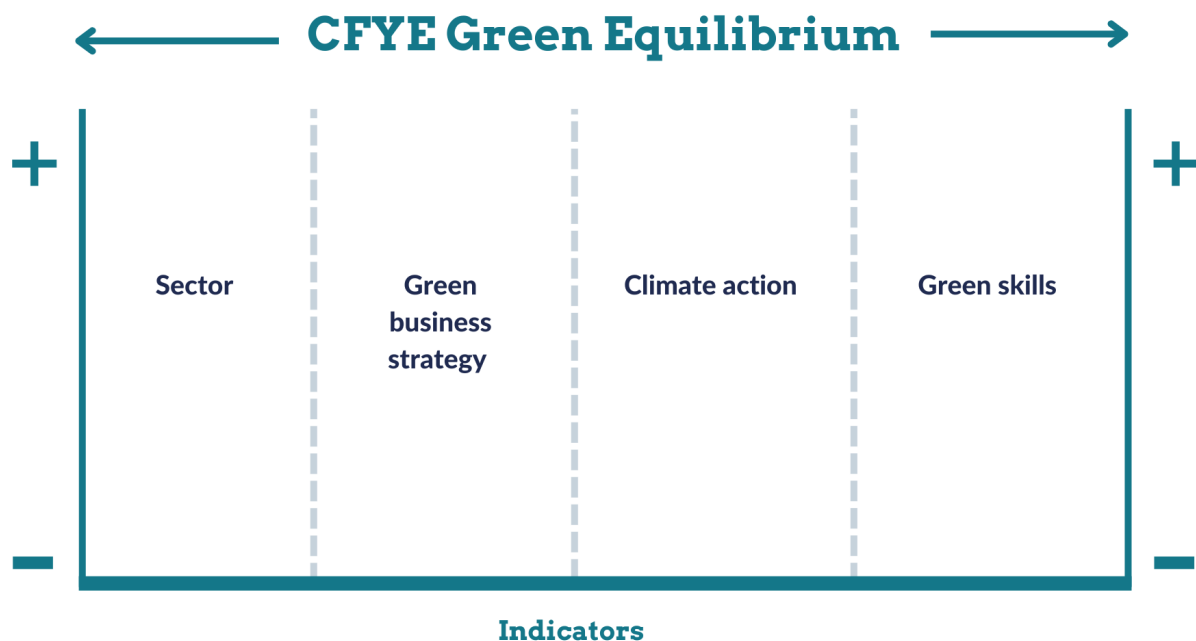


Figure 3. The CFYE green jobs mapping tool

Box 2. CFYE mapping tool indicators explained

Sector: Delineates the sector in which the business is operating and the greening potential of that sector in the economy, including the extent to which environmental impacts can be reduced.

Green business strategy: Considers the green objectives of the business, including businesses that generate goods or provide services that benefit the environment or contribute to more environmentally-friendly processes.

Climate action: The extent to which a business is focused on reducing emissions, and stabilizing the levels, of heat-trapping greenhouse gases in the atmosphere, or adapting to the climate change already in the pipeline.

Green skills: The knowledge, abilities, values and attitudes needed to live in, develop, and support a sustainable and resource efficient society, including core skills such as environmental awareness, technical know-how, values and attitudes, as well as specific skills and knowledge pertaining to green technologies and innovation.

Taking these four indicators to heart, we have analysed the CFYE portfolio and looked at the green job potential of the supported implementing partners¹⁸. This analysis allowed us to create green job typologies of the sectors with the highest green potential and associated green business strategies. In addition, we have been able to categorise the interventions into climate

action potential, focusing on climate adaptation or mitigation, and have identified the most important (green) skills required.

Green job typologies: sector potential

There are five sectors (and related sub-sectors) with high potential for green employment creation that can be considered growth sectors for green jobs for youth in Africa.

Agriculture, forestry and fishing

Agriculture remains the largest employer globally, especially for women, and accounts for 14% of GDP in sub-Saharan Africa¹⁹. Despite increasing urbanisation, projections estimate that around half of Africa's new jobseekers will need to find employment in rural areas, at least until 2030²⁰. At the same time, agriculture is a major source of greenhouse gas (GHG) emissions, the largest user and a significant polluter of water, and can cause both land degradation and loss of biodiversity²¹. Combined, these factors indicate enormous potential for greening and creating green employment by adopting agricultural practices that contribute to sustainability and improved livelihoods. Green solutions for agriculture include crop diversification, climate-smart agriculture, advancing agriculture through technology (also known as agri-tech or AgTech), and reducing emissions from farming practices and agroforestry.

Compared to agriculture, forestry is a relatively small sector of the sub-Saharan African economy. Overall, forestry contributes 1.3% to sub-Saharan Africa's GDP, but more than 5% in countries such as Liberia, Sierra Leone and Zambia²². Deforestation plays a crucial role in climate change. In Africa, deforestation accounts for almost 90% of carbon dioxide emissions due to changes in land use. Sustainable forest management, certification and reforestation are important avenues for climate mitigation and could boost formal employment in the forestry sector by 20% by 2050²³.

The long coast of sub-Saharan Africa makes fisheries an important sector for the livelihood and food security of millions of people. The sector employs more than 5 million people in the region. Overfishing and climate change directly and indirectly affect fishery resources and greening the fishery sector by sustainable management and green aquaculture is key to its survival.

Clean technologies and waste management

An estimated 70–80% of municipal solid waste generated in Africa is recyclable, but only 4% is currently recycled²⁴. In addition, 90% of that recycling is done by individual waste-pickers and buyers outside the formal economy, and working conditions are often precarious and insecure. Rapid urbanisation and increased economic activity make the need for recycling and waste-to-energy activities an important growth market for job creation, and the sector is projected to grow at an annual rate of 8.5%²⁵.

Moreover, the circular economy – which is a regenerative development strategy for economic growth that focuses on restoration, use of renewables, and elimination of toxic chemicals and

waste through the superior design of materials, products, systems, and business models – can generate numerous additional economic opportunities in this sector and beyond. The transition towards a circular economy is projected to create 6 million jobs worldwide by 2030²⁶.

Infrastructure and construction

The construction sector is a large-scale employer in Africa and expected to grow significantly in the coming decades, due to rapid urbanisation and economic growth. It is also one of the largest contributors to GHG emissions, contributing as much as one-third of total global emissions²⁷.

Green building applies resource- and energy-efficient processes and materials to the design, construction, renovation and destruction of buildings, thus covering the entire life cycle of a structure, thereby offering great potential for green job growth.

All across Africa, significant investment is needed in infrastructure and transportation and, thus, the potential for job growth in the sector is great. Sustainable infrastructure and eco-friendly transportation is, in many countries, still a distant notion, but could become an interesting growth market for green employment.

Renewable energy and green growth

The energy sector is critical in the transition to a green economy. In sub-Saharan Africa, renewable energy is currently still a relatively small sector and, thus, not a big employer, but projections by the International Renewable Energy Agency (IRENA) show great potential for renewable energy in meeting electricity needs in Africa²⁸. Technological advancements in solar, wind and bio-energy follow each other in rapid succession and provide great potential for green job creation on the African continent.

Manufacturing

Decarbonizing Africa's manufacturing sector could have profound economic implications not only for the continent, but also for the transition to a green economy generally²⁹. As the manufacturing sector is still a relatively small contributor to the economy in Africa, countries have the opportunity to develop green manufacturing facilities and adopt green industrial policies, leapfrogging GHG emitting technologies. Focusing on sustainable production and the manufacturing of eco-friendly materials can as such create many new green jobs for youth in Africa.

Green job typologies: green business strategies

By associating each of the identified potential growth sectors with specific green business strategies, we can discern different green job typologies, which are visualised in Figure 4. Looking at green job typologies, rather than at individual green job opportunities, provides insights into green job trends and developments and allows for strategic planning and policy making to stimulate green job growth.

Green job typologies



Figure 4. Overview of green job typologies

Climate action

The third indicator we look at is the strategy employed by green businesses to address climate change. Responding to climate change involves a two-pronged approach.

Climate change mitigation

Climate change mitigation is about reducing the emission of GHGs in the atmosphere to avoid or reduce climate change and prevent more severe climate change. Climate mitigation strategies involve reducing sources of GHGs by finding alternative energy sources to the burning of fossil fuels for electricity, heat, and transport, or enhancing the 'sinks' that accumulate and store these gases, such as the oceans, forests, and soil.

Climate change adaptation

Climate change adaptation refers to managing the risks of climate change that are already locked in and from the potential of more severe changes in the future. The goal is to reduce the risks of the harmful effects of climate change, such as rising sea-levels, extreme weather conditions and food insecurity. It also aims to seize the most of opportunities associated with climate change, for example, longer growing seasons or increased yields in some regions.

When analysing the CFYE portfolio, we find that 9 out of 12 implementing partners focus on mitigation while 3 out of 12 cases have also built in elements of adaptation, for example, implementing agricultural technologies that reduce crop vulnerability to climate change. None of the projects focus solely on climate change adaptation. See Figure 5 for a visual representation.

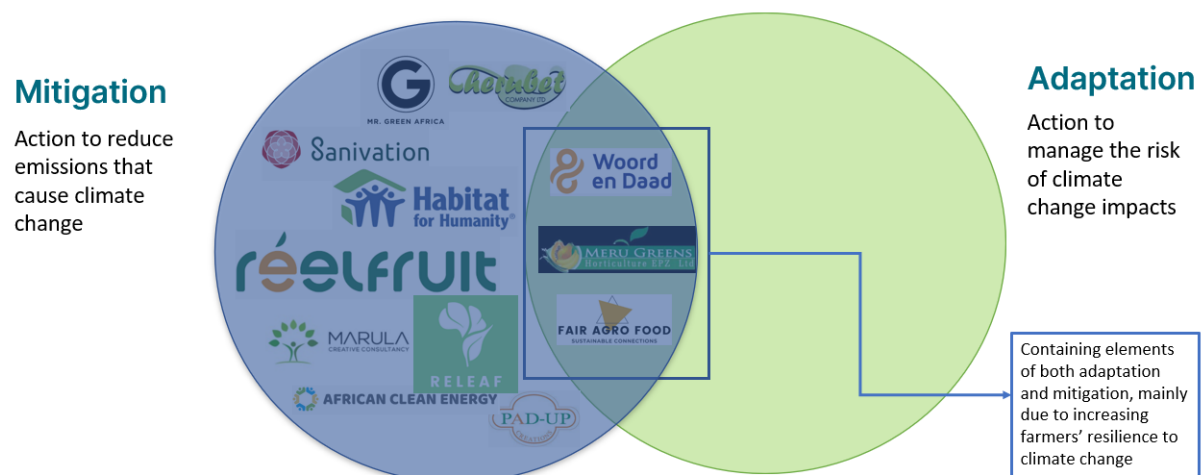


Figure 5. Overview of climate action strategies

The primary focus on climate mitigation appears to be a broader trend in green employment creation policies and programmes. Although Africa faces a disproportionately higher impact of climate change and has relatively low GHG emissions, there is still an overarching bias in climate financing towards mitigation strategies, which account for roughly 90% of current financing³⁰.

Green jobs that focus on reducing emissions, are often considered ‘low-hanging fruit’, as measures are based on existing technology and can generate a large number of jobs. This also makes them more ‘investable’ than climate change adaptation initiatives, which are generally more long term and difficult to attribute. Although there is still much ground to gain in terms of climate change mitigation, green jobs contributing to climate action on both fronts are needed and, in order to contribute to a more sustainable, green economy, it is important that green jobs are created on both sides of the spectrum.

Green skills

The transition to a low-carbon economy will increase the demand for some tasks and decrease the demand for others; trigger changes to tasks within existing jobs; and create occupations with new skills profiles, qualifications, and training frameworks³¹. As such, the greening of the economy will bring with it changes to the demand for certain skills in the labour market, also defined as the need for ‘green skills’. Green skills are broadly understood as *“The knowledge, abilities, values and attitudes needed to live in, develop and support a sustainable and resource efficient society”*³², and encompass a variety of different skill-sets. See Box 3 for an overview of green skills.

Box 3. An overview of skills needed in the green economy

The Green General Skill index³³ identifies four types of skills that are important for green jobs:

1. **Engineering and technical skills:** These are hard skills encompassing competences involved in the design, construction and assessment of technology, usually mastered by engineers and technicians. This know-how is needed for eco-buildings, renewable energy design, and energy-saving research and development (R&D) projects.
2. **Science skills:** These competences are essential to innovation activities, for example, physics and biology. Science skills are in especially high demand at each stage of value chains and in the utility sector, which provides basic amenities such as water, sewage services and electricity.
3. **Operation management skills:** This refers to the know-how related to the change in organizational structure required to support green activities.
4. **Monitoring skills:** This refers to the skills required to assess the observance of technical criteria and legal standards (examples are environmental compliance inspectors and emergency managers).

A commonly held assumption in the green economy discourse is that green jobs requires re-skilling and upskilling in high-level technical skills. However, looking at the CFYE portfolio, we find that green skills are not *necessarily* required for green jobs and that **employment is created for many different skill levels and skill sets**. In general terms, we find that implementing (low-skilled) jobs requires traditional skills, occasionally complemented by ‘green skills’, which can be

offered in on-the-job training programmes. Medium-skilled jobs typically require some operation management skills, as well as technical, digital, business and life skills, for which specific training courses are likely to be needed. Finally, high-skilled labour is required to develop transformative change towards a green economy, e.g., in green entrepreneurship.

In addition to these green skills, a range of **soft and other more general skills are also increasingly important**, not only for green jobs, but for the future of work in general, including the digital skills necessary to take part in the Fourth Industrial Revolution³⁴. In particular, skills related to design thinking, creativity, adaptability, resilience, and even empathy are increasingly regarded as critical in facilitating the change to a sustainable global economy³⁵.

3.4 Conclusion

As this chapter has shown, there is much more to the creation of green jobs than meets the eye, and creating a common understanding of what green jobs entail and how to analyse these is not only a useful academic exercise, but a necessity for creating effective green job policies and programmes. In this regard, looking at green job typologies can help to further specify the potential of different sectors and business strategies to contribute to the green economy. Relating these strategies to climate action approaches – whether they contribute to the mitigation of, or adaptation to, climate change – can provide further insights into how green jobs can contribute to a more sustainable future and help policymakers and investors decide on necessary action to ensure the climate action is taken on both fronts. Finally, analysing the skills necessary for green employment can help youth to prepare for the future of work and help societies invest wisely in the transition to a green economy.

In the next chapter we elaborate on these findings and see how these different elements work in practice by highlighting case illustrations from green businesses in Africa.

PART 2: IMPROVING green jobs

Green jobs in practice

To fulfil the promise of green jobs for youth in Africa, action is needed on both the supply and demand sides of the youth employment spectrum: not only do young people need to be ready and prepared to do green jobs, but there need to be green job opportunities for youth and the right conditions to absorb them. Hence, the second part of this paper focuses on how to **improve** green jobs for youth by addressing barriers and leveraging opportunities for green employment.

Drawing on existing green job literature and insights from practice, this chapter explores best practices and lessons learnt and formulates green job pathways that can improve youths' access to green jobs. Each pathway offers various opportunities for action for both policymakers and practitioners, which will be further elaborated on in the final part of this paper.

4.1 Drivers and barriers to green job growth in Africa

Despite the great potential of green jobs for Africa's youth, Africa's track record on green employment is still a work in progress. Ensuring coherence in green policy planning and implementation across African countries and development interventions to stimulate green jobs remains a key priority, as interventions are often ad-hoc or carried out in isolation³⁶. While significant progress has been made in the formulation of green economy policies in Africa, and governments across the continent have included green economy principles in their national and sectoral development plans in the last decade, little has been documented about the impact of these strategies and policy implementation is still lagging behind. In addition, there are important steps to be taken when it comes to ensuring the decency of green jobs, as many of the newly-created jobs are informal jobs or jobs in small businesses that involve precarious work. While some of the challenges involved in engaging youth in the green economy are linked to green jobs specifically, others relate to employment opportunities for youth in general. As such, the trend towards green jobs needs to be viewed in the context of the broader journey towards sustainable and inclusive economies. Addressing these challenges will be a key priority in preparing Africa's youth for the future of work.

Green finance

Small and medium-sized enterprises (SMEs) are the backbone of the world economy, contributing extensively to GDP growth and providing high levels of employment. In Africa, entrepreneurship is a driving factor in (self)employment and SMEs are estimated to provide up to 80% of jobs in both formal and informal economies across the continent, constituting a major driver of economic growth³⁷. Sub-Saharan Africa has 44 million micro, small, and medium enterprises (MSMEs), most of which are micro³⁸. For these businesses to grow, create more

jobs, and generate economic growth, they need access to capital. However, accessing green finance can be a challenge for young people, who typically struggle to access credit for any kind of enterprise.

Green businesses often suffer from high interest rates when they begin to use and implement new technologies, as they lack collateral and have a perceived higher risk as a business³⁹. In addition, green technology is expensive, because it is newer and comes with many up-front costs associated with instalment. However, access to finance is only one of the challenges. Young people seeking to start a green business or access green employment will also need to access other resources, such as equipment, technology and social capital, and the barriers to accessing these are significant, not only for young people, but for most business people on the African continent^{40, 41}. Investing in green entrepreneurship opportunities by providing access to finance, business development training and social capital can, therefore, significantly contribute to creating green businesses and green employment for youth.

Green skills

The second challenge is related to the skills mismatch between the knowledge and capacities that youth have and the expectations of the labour market, as the education and skills of youth do not always align with the demands of the transitioning sectors, processes, practices and systems. Sectors such as renewable energy, industry and infrastructure often require certain levels of education and skills that may not be readily accessible to young people⁴². To address this skills gap, a lot of attention has been paid to green skills training in recent years, so that young people can participate successfully in the shift to a green economy, either as entrepreneurs or as employees. However, the accessibility of education and skills training opportunities in technical and engineering fields is unevenly distributed across sub-Saharan Africa^{43, 44}. Countries such as South Africa, possess a strong infrastructure for technical education and skills development, but similar opportunities are more limited in other African countries. Kenya, for example, has had to attract skilled migrant labour to develop the national wind energy sector and relies on importing clean technology products, such as solar panels^{45, 46}.

The upskilling and reskilling of youth to bridge the skills gap is one aspect that needs to be addressed. There is a common misconception that youth need highly technological or scientific skills to participate and succeed in the green economy. General capacities and soft skills – such as creativity, collaboration and interpersonal dynamics – as well as skills related to sales, human resources, care and education roles, are often deemed to be just as, or even more, important than specific green skills⁴⁷. In this regard, providing access to education and training opportunities along the whole spectrum of employment skills should be a focal point of policies and programmes that aim to address the skills mismatch of youth and the (future) labour market.

Gender responsive interventions

While women are well positioned to access green jobs in many sectors, these jobs are currently overwhelmingly concentrated in sectors that are likely to create more low-end job opportunities than high-value green jobs⁴⁸. Young women, in particular women in rural areas,

face a number of barriers that limit their access to green jobs. Some of these barriers are sector-specific, such as social norms that deem certain jobs, like construction jobs, inappropriate for women, while others permeate all sectors. These include barriers such as access to land, finance and technology; gender segregation in the education system and labour market; laws that limit women's access to certain tasks and jobs; and unequal care responsibilities.

Integrating gender-responsiveness into interventions for green jobs for youth at all levels is, therefore, key to stimulate equitable opportunities for young men and women. Providing financial incentives and affirmative action to level the playing field for women to take part in the green economy and addressing the structural barriers that prevent them from participating are key strategies to accelerate change. In addition, changing perceptions about what are acceptable jobs for women and providing opportunities for capacity building and reskilling, as well as leveraging high-value green sectors where women are already present or well positioned in similar activities, could further enhance the opportunities for women in the green economy.

Green awareness and aspirations

The final major challenge concerns the awareness of youth about green employment and the attractiveness of green jobs. With unemployment and underemployment rates in the double digits, few youth may care whether or not a job is considered green, or whether it contributes to a more sustainable future. In addition, the green jobs that are available do not always appeal to youth or match their aspirations. Labour-intensive sectors such as agriculture and construction, which are relatively easy for young people to enter, have become unattractive, largely due to the negative perception of these jobs as unprofitable^{49, 50}. In addition, upcoming green sectors, such as waste management and recycling, are often seen as a last resort instead of an opportunity for the future of work.

Making green jobs and related sectors more attractive to youth is, therefore, a key strategy in engaging youth in the green economy. Hence, investing in innovation and digitalisation in high potential green sectors could be an interesting avenue to explore. For example, facilitating a smooth generational change in farming could introduce higher skills, leading to the adoption of new technologies and more sustainable practices, thereby stimulating innovative entrepreneurship in rural areas⁵¹. A study by the International Fund for Agricultural Development (IFAD) found that climate-smart solutions, public-private-producer partnership opportunities, peer-to-peer learning, and digital platforms provide key opportunities for engaging youth in agriculture⁵². In addition, creating employment opportunities in the circular economy or green energy sectors could enable youth to further develop their skills, making them more attractive in the labour market and thereby enabling them to find employment more easily.

To ensure that the objectives and opportunities of the green economy are well-aligned with the aspirations and ambitions of youth in relation to the future of work, it is crucial to engage youth in discussions on programmes and around green job creation. Organising dialogues with young people and setting up youth-inclusive governance mechanisms can help in this regard to provide evidence of their perceptions in relation to green and decent jobs.

4.2 Green jobs in practice

In addition to the insights from the literature on the main challenges and opportunities involved in engaging youth in the green economy, in-depth interviews were conducted with both CFYE country managers and the implementing partners of green businesses within the CFYE portfolio. These resulted in a country policy analysis and the three case illustrations, showcasing what green jobs look like in practice in Kenya, Nigeria and Uganda.

Green jobs in Kenya – Country context

Kenya's long-term development goals are outlined in the 'Kenya Vision 2030', which aims to make the nation a globally competitive and prosperous country with a high quality of life by 2030. Within this framework, Kenya has taken several steps towards a green economy and developed a strategy that seeks to consolidate, scale up and embed green growth initiatives in national development goals. Kenya's Climate Change Act 2016 gives the legal framework for the government's approach to climate change, which is reflected in Kenya's development policies and the Green Economy Strategy and Implementation Plan (GESIP), which provides the overall policy framework to facilitate a transition to a green economy, outlining the need to mainstream and align green economy initiatives across the economic, social and environmental spheres.

Also, in practice, the country has made many strides towards a greener future. Kenya is one of the few countries globally that generates more than 90% of its electricity from renewable sources. It has Africa's largest geothermal and wind power plants, working in conjunction with hydroelectricity and innovative investments in solar and mini-hydro powered small and micro-grid solutions. When it comes to supporting green businesses and the greening of sectors and industries, however, policy implementation is lagging behind. According to one of Kenya's CFYE country managers:

Kenya's climate action has been largely rhetoric and more of an international political statement than a coherent policy strategy. The government is treating green firms as business as usual and as such they do not get preferential treatment or tax cuts which would be able to incentivise more companies to go green⁵³.

This focus leads, according to another country manager, to an ad-hoc policy approach, with low-hanging fruit such as a ban on plastic bags being implemented first, while investment in high potential sectors such as waste management and recycling are left behind⁵⁴. Consequently, greening these industries and setting up cleaner production activities now falls mainly to the private sector, resulting in sparse and disconnected initiatives. Supporting companies working in these sectors by showcasing good practices and providing incentives should, therefore, be a key priority for policymakers and practitioners.

Green jobs in Nigeria – Country context

Africa's largest economy, Nigeria, is not the first country you may think of when it comes to green growth, as it is Africa's main oil producer and, as such, contributes significantly to GHG emissions and environmental degradation. The country's economy is closely tied to oil and gas exports, with the petroleum industry accounting for about 10% of Nigeria's GDP and almost 90% of all export value⁵⁵. In addition, there is large-scale investment in non-sustainable industries such as plastic factories, making it difficult to change the status quo. At the same time, the country hosts one of the most active youth climate movements on the continent⁵⁶ and the government has signed the Paris Agreement, pledging to reduce its GHG emissions by 20% by 2030, compared to 'business-as-usual' levels⁵⁷.

In recent years, significant additional steps have been made towards greening the Nigerian economy. The African Development Bank (AfDB) is playing a leading role in these efforts, having published a Country Strategy Paper⁵⁸ for climate action in 2020–2024. In 2020, the AfDB and the Federal Government of Nigeria, also established the Nigeria Circular Economy Working Group, in an effort to help Africa's economic giant build resilience, as it recovers from the COVID-19 pandemic. However despite these efforts, there still seems to be a lack of green awareness among policymakers, the private sector and youth, and encouraging green employment does not seem to be a policy priority. There are no obvious incentives – tax or otherwise – to support green businesses and high potential green job sectors, such as waste management and recycling, have been largely neglected and underdeveloped. Creating more green awareness and engaging in climate advocacy are important objectives in promoting policy engagement in green employment strategies, according to the CFYE country manager⁵⁹. Strengthening the evidence base on green growth and green jobs is in this regard an important first step.

Green jobs in Uganda – Country context

Uganda's primary development strategies – the Uganda Vision 2040 and the National Development Plan II – map out an ambitious growth agenda for the coming decades. However, this growth is threatened by the country's vulnerability to climate change, as 70% of the labour force is dependent on rain-fed agriculture, with rapid urbanization posing a further risk to the green transition. In addition, as youth in Uganda make up a large proportion of the country's demographic profile, with 77% of its population under the age of 30, of which 62% are jobless, creating green jobs for youth has been a policy priority of the Ugandan government.

The government has developed the Uganda Green Growth Development Strategy (UGGDS) to guide efforts around green growth, focusing largely on green skills and business development in green sectors by investing in work-based placement programmes and business accelerators, such as the Uganda Green Incubation Programme (UGIP). Key implementation areas of this strategy are distributed throughout the National Development Plan (NDP III) and reporting mechanisms have been set up to monitor progress. Despite the increased attention, implementation of this strategy and associated policies has been scattered, according to the CFYE country manager⁶⁰. While at the local government level, the Kampala city council authority has been very active in driving green economy initiatives, particularly in recycling and fighting pollution control, the approach is one of siloed-programmes, rather than coherence.

Most green job initiatives in Uganda are still donor-driven and investment in green growth comes largely from donors, multilateral and international organisations, such as the United Nations Capital Development Fund (UNCDF) and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). Creating social awareness around climate change and educating the public on the need for recycling and other sustainable initiatives is, according to the CFYE country manager⁶¹, important to increase public awareness, which can lead to more advocacy on green growth and green job creation with the government, thereby changing political will from the bottom up.

Country context analysis

Although there are many differences in the policy contexts of Kenya, Uganda and Nigeria when it comes to green employment, there are also similarities in terms of policy development and the social challenges that the countries are experiencing in the transition to green economic growth. While considerable progress has been made in all three countries regarding the formulation of comprehensive green growth policy strategies and frameworks, green awareness and policy implementation is still a work in progress. Green employment initiatives largely operate in silos and a coordinated policy approach, informed by evidence from research and practice, is sorely needed.

In line with these recommendations, the next part of this chapter provides examples by highlighting three cases of green businesses in Africa. These case illustrations show green job pathways that policymakers and practitioners can use as guidance in designing interventions to stimulate green jobs.

Case illustration 1. Habitat for Humanity in Kenya – Construction

Project description and sector potential

Through the support of CFYE, Habitat for Humanity aims to green the construction sector in Kenya and beyond. The construction sector generally contributes approximately 40% of all carbon emissions worldwide, both in the building process and in destruction. Jane Otim, regional director of the Terwilliger Center for Innovation in Shelter at Habitat for Humanity International, explains:

For decades construction has been largely built on bricks, mortar and cement leaving a lot of potential for the innovation of building materials to make them more sustainable, such as building materials from agricultural waste and plastic waste management to create new products and invest in circular solutions⁶².

In addition, there is an accumulated housing deficit of over 2 million units already, according to World Bank estimates, and it is still growing⁶³. Hence, there is great potential for affordable and sustainable houses and creation of decent work.

Green business strategy and climate action

With expertise from its Terwilliger Center for Innovation in Shelter, Habitat for Humanity is partnering with three local companies – Gjenge Makers, MycoTile and The Toolkit iSkills – to support and link at least 908 youths (34% female) to green jobs. Gjenge and MycoTile present new business models based on waste recycling for green housing products: Gjenge's paving blocks and MycoTile's insulation provide alternative, more affordable solutions to realize green construction. The Toolkit iSkills' model matches and certifies skilled labour in the renewable energy sector.

(Green) skills

To implement Habitat's green business strategy, there are two types of skills required: general building skills and green skills to work with alternative building materials. As Ms Otima explains, a lot of the skills required are general building skills, but what is missing is not the skills themselves, but a recognition or certification of those skills to separate high performing labourers from low performing ones⁶⁴. To facilitate this, Habitat works with local **TVET** institutions and the industry to establish **certification standards** for general and green skills in the construction industry.

Barriers and drivers

One of the main challenges, according to Ms Otima, is the **lack of green finance** for initiatives like these:

In development policies, the housing sector has largely been overlooked and investing in construction is not seen as a priority. Especially in relation to greening the economy, the focus largely remains on other sectors such as agriculture and renewable energy, because the creation of green jobs is seen as more direct. In agriculture you can have an immediate impact by changing your production practices, in construction, developing alternative building materials takes time. In addition, using these materials needs adjustment of existing building codes, making the process more time consuming and thereby riskier to invest in⁶⁵.

According to Ms Otima, there needs to be a change in the mindset of investors, showing that investment in sheltertech, as innovation in the housing sector is called, is a safe and rewarding way to create green jobs⁶⁶. Showcasing good practices and providing 'patient capital' with longer-term investment horizons, like CFYE, is a first step to change the investment ecosystem, and Ms Otima hopes that other investors will follow suit.

A second barrier is the **public perception** of the general Kenyan population when it comes to using green building materials.

Traditionally, Africans have been building green for decades, using sustainable materials from nature. We want to build on this tradition but make houses stronger and more sustainable. However, nowadays, Kenyans want to live in a modern house from brick and stones and are as such suspicious of 'alternative building materials'. Even though this building material is more durable and affordable, market uptake has been slow⁶⁷.

Sensitising the market and showing examples of viable, green alternatives should, therefore, be a key priority for green businesses in transforming the economy.

Finally, there is a **lack of green awareness and collaboration** in the housing industry to green the sector. Changing building codes to include alternative building materials and **providing incentives** for green construction are key to stimulating a green transition. The International Finance Corporation (IFC) report, *Green Buildings – A Finance and Policy Blueprint for Emerging Markets*⁶⁸, and the green bonds of the European Investment Bank, which prioritise investment in green building, are good examples of how this can be done.

According to Ms Otima, it is important to **take a systemic perspective** when looking at green jobs and green growth. Companies should not just focus on their own business and production methods, but also consider the impact that the business has along the chain, for example, when it comes to waste management and transportation cost. She explains: “If you really want to contribute to a more sustainable environment, you have to look at the ecosystem and seek to work with others”⁶⁹.

Case illustration 2. Pad-up creations in Nigeria – Manufacturing

Project description and sector potential

Pad-Up Creations Limited is a social enterprise manufacturing affordable and eco-friendly washable and reusable sanitary pads to help keep girls in schools during their menstrual cycle and also improve women’s economic involvement in society. There is considerable potential to green the manufacturing sector in Nigeria, both in terms of the production process and the recycling of waste. However, according to Olivia Onyemaobi, founder of the company, there does not seem to be much awareness of this potential, as waste is seen as a by-product, rather than a business opportunity. **Developing circular business models** that have sustainability at the heart of the business is key for green growth, according to Ms Onyemaobi⁷⁰.

Green business strategy and climate action

The business is contributing to a better environment by reducing plastic waste and not using any chemicals in the production process. In addition, the company decided to upcycle the left-over fabric, buttons and thread holders into products such as foam for bedding, children’s toys, chairs and pillows, both to reduce waste and create extra income. Being green was not a deliberate strategy from the start, but arose as a business opportunity during production, explains Ms Onyemaobi.

*Along the way, I realised there are opportunities to green the business in various ways. You have to look at the whole process and keep asking yourself: can this be done differently, can it be done better?*⁷¹

(Green) skills

The company’s Success Through Empowerment Project (STEP) is designed to **train and equip youth with relevant skills** for the production and distribution of washable and reusable sanitary pads. The target group is low-skilled workers, who receive some technical skills training on the production side, and operational skills training, such as financial literacy and product knowledge, on the sales side. Taking up waste management as a side business, the company

has had to **re-skill** its workers in the recycling, waste management, design and marketing of the recycled products. Providing **on-the-job training and raising green awareness** among staff has become a priority in greening the business model of the company.

Barriers and drivers

One key challenge the company faced was the negative **public perception** regarding reusable sanitary products. Consumers generally prefer unsustainable sanitary pads, as they view recycled products as inferior in quality. This realisation led the company to change its packaging material from paper to plastic, as that is what the Nigerian consumer is used to and, thus, prefers. Changing this perception by **showcasing alternatives** is key to making the manufacturing sector more sustainable, according to Ms Onyemaobi, but this is a long-term process, rather than a quick fix⁷².

Another challenge was convincing the staff and other businesses in the value chain of the importance of going green. There is a general **lack of green awareness** in the manufacturing industry, in which recycling is seen as a cost, rather than an opportunity. According to Ms Onyemaobi, a good way to tackle this is to **focus on the business case** of creating green employment, rather than the need for sustainability:

The story of green jobs is often framed in a negative way about the need to adapt to and mitigate climate change, which feels like a momentous task. By framing it positively, showing that money can be made by going green, you appeal more to people, thereby incentivising the sector to change from within⁷³.

Case illustration 3. African Clean Energy in Uganda – Renewable energy & green growth

Project description and sector potential

African Clean Energy (ACE) Uganda was established in 2016 as part of the Dutch social enterprise African Clean Energy. ACE is a certified B-Corp. These are businesses that meet the highest standards of verified social and environmental performance, transparency, and legal accountability to balance profit and purpose. The company's core business model involves the distribution of the ACE One hybrid, an energy system giving access to clean cooking (known as thermal energy) and basic electricity. The potential for green job creation is high, as Uganda has severely underdeveloped energy infrastructure, in which over 95% of the population cook on open fires or using rudimentary stoves that consume biomass fuels and a large part of the population does not have access to electricity. The unsustainable level of biomass consumption, coupled with high population growth, is causing Uganda to lose 86 thousand hectares of tree cover every year and exposes users to household air pollution. Developing the clean cooking sector could create many green employment opportunities, while also mitigating the effects on climate change by reducing emissions and through carbon offsets.

Green business strategy and climate action

The project funded by CFYE will catalyse the growth of the thermal energy sector in Uganda by strengthening the rural distribution of the ACE clean cooking systems, while at the same time creating 440 jobs for youth and women. ACE One is a dual energy product: users not only save on fuel, but they also gain access to solar electricity for charging and lighting. Taking a

holistic view of the energy sector in Uganda and **taking a value chain approach** to greening the energy sector, from the purchase of materials and collection of biomass to end of life recycling, is a key part of the business strategy according to Joan Judith Walker, chief operating officer (COO) of the company⁷⁴.

(Green) skills

Ms Walker explains that the main skills needed for youth in the green economy are **digital skills and basic digital literacy**:

*Once someone knows how to use the Internet, you can teach them anything. The basis to acquiring knowledge and new skills is learning how to learn. Greening the energy sector does require technical and maintenance skills, but these can all be taught **on the job** and with online modules, once the foundation for learning is there⁷⁵.*

Focusing on foundational education and career guidance is, according to Ms Walker, an important addition to technical and vocational training and entrepreneurship development for youth as **basic skills and work experience** are transferable, making them more attractive in the labour market⁷⁶.

Barriers and drivers

One of the main barriers to green growth is the **lack of finance and investment** opportunities needed to build economies of scale. The energy sector is seen as a risky investment and, apart from start-up grants, funds to scale the business beyond the pilot phase are scarce. According to Walker⁷⁷, donors like the Dutch Ministry of Foreign Affairs and initiatives like the CFYE play a crucial role in **bridging the finance gap** and de-risking the industry for other players to come on board.

Another major challenge that the company had to deal with was the negative public perception of and mistrust towards clean energy projects, as previous international organisations had failed to establish a working business model and had left the community without improving their wellbeing. According to Walker, **taking a business perspective** to green growth, by ensuring financial as well as environmental sustainability is key when it comes to setting up a green business in Africa⁷⁸.

4.3 Green job pathways

Building on the insights emerging from the green job narratives, as presented in the three case illustrations, we can discern pathways for change to stimulate green jobs for youth in Africa. These green job pathways can be categorised using four main themes: 1) green business strategy, 2) green financing, 3) green skills, and 4) green awareness. In Figure 6, we present examples of pathways that can be taken to address barriers and leverage opportunities for green job creation, working from each of the four main themes.

Green job pathways

- **Green business strategy**
 - Taking a value chain approach and using circular economy models as the engine of growth
 - Environmental and financial sustainability go hand-in-hand to stimulate green jobs
 - Sensitising the market to alternative materials and sustainable consumption
- **Green financing**
 - Patient capital that allows for long investment horizons
 - Donors should focus on bridging the finance gap for scaling and to de-risk the industries
 - Government incentives, such as tax cuts or subsidies for green businesses
- **(Green) skills**
 - Certification and recognition of existing skills
 - Basic skill development, soft skills and digital skills/digital literacy
 - Green skills: Stimulate on the job learning, training and self-learning, and career guidance
- **Green awareness**
 - Increase visibility and strengthen the evidence base by showcasing best practices.
 - Advocacy with policymakers and the private sector
 - Highlighting the business case of green jobs

Green job pathways

- Taking a value chain approach and focus on circular economy models as the engine of green growth
- Environmental and financial sustainability should go hand in hand to stimulate green jobs
- Sensitising the market to alternative materials and sustainable consumption



- Increase visibility and strengthening the evidence base by showcasing best practices.
- Advocacy both with policy makers and the private sector; encourage sectoral and cross-sector initiatives
- Highlighting the business case of green jobs instead of using climate change rhetoric

- Patient capital that allows for long investment horizons
- Donors should focus on bridging the finance gap for scaling and to de-risk the industries
- Incentives from the government, tax incentives or subsidies for green businesses

- Certification and recognition of existing skills
- Basic skill development; soft skills and digital skills/digital literacy
- Green skills: Stimulate on the job learning; training & self-learning and career guidance

Figure 6. Model of green job pathways

PART 3: ENABLING green jobs

Implications and recommendations for policy and practice

As the previous chapters have shown, a green transformation of the economy has the potential to create a plurality of job opportunities for youth in Africa. At the same time, however, this transformation will destroy and displace existing jobs, even as it creates new ones. This is bound to be disruptive. The question that, therefore, remains is: What can policymakers, practitioners, investors and other relevant stakeholders do to support this transition and stimulate job creation so that it benefits young people? Combining knowledge from existing policy analyses and the insights gained through this research, this chapter focuses on the implications for programming and policy making and formulates recommendations to create an **enabling** environment for green jobs for youth in Africa.

5.1 Policy implications and recommendations

While considerable progress has been made in most African countries in terms of putting in place a comprehensive set of policies to enable the transition to a green economy, as the analysis of the country policy contexts of the three African countries in this paper shows, the challenge mostly lies predominantly in the implementation process. As such, the recommendations discussed below are relevant not only for actors in the public sector, but rather underscore the need for a multi-stakeholder approach to green job creation, whereby national African governments, international donors, the private sector, trade unions, civil society organisations and other relevant stakeholders join forces in enabling the transition to a green economy and prepare African youth for the future of work. Hereto, we highlight ten key recommendations for policymakers and practitioners that emerge from this research.

Recommendation 1: Focus on high-potential green job sectors to shape policies towards a green economy

Rather than looking at green jobs from a binary perspective in which jobs are considered either green or brown, facilitating a green economic transition requires a holistic approach by looking at the green jobs potential for youth in different sectors. The identification of ‘growth’ sectors for youth employment⁷⁹ – i.e., the economic sectors that have the potential to significantly increase green job opportunities for youth – enable governments to target their interventions better and thereby stimulate the greening of sectors in which there is already strong market demand. Using the green job typologies and associated green business strategies model suggested in this paper can help in identifying the most promising green job opportunities.

In addition to stimulating growth sectors, moving towards a circular economic model and

integrating circular economy solutions in existing business models is a promising cross-sectoral category, as this transition has the potential to generate a significant number of green jobs for youth in Africa. For the circular economy to realise this potential, its implementation requires a multi-level policy approach, supported not only by policies that increase resource efficiency, but also that focus on clean energy, appropriate finance schemes, as well as standards for manufacturing and construction⁸⁰.

Finally, as a large part of the labour force is active in the informal economy and, therefore, largely invisible in official labour market statistics, specific attention should be paid to stimulate green job opportunities for informal workers. Especially in green sectors, such as waste management and agriculture, the proportion of informal workers is large and underemployment and working poverty are of serious concern. Encouraging decent jobs and the wellbeing of workers, in addition to employment creation, should, therefore, be part and parcel of any green job intervention.

Recommendation 2: Provide incentives for green businesses and green transition pioneers

To foster the transition towards a green economy, governments have a number of economic and policy instruments available to support green businesses, either by integrating a 'polluter-pays principle' into current policy frameworks, such as heavier taxation of smokestack industries and the removal of fossil fuel subsidies, or by initiating supportive measures such as tax cuts or benefits for green enterprises, investment in renewable energy and energy-efficient technologies, and feed-in tariffs. Stimulating green job pioneers with financial incentives and integrating specific environmental provisions can as such accelerate the transition to a green economy.

Recommendation 3: Promote inclusivity in green employment by considering the heterogeneity of youth

Policies to achieve a 'just' green transition in Africa should be inclusive and operate according to the Sustainable Development Goals principle of 'leaving no one behind'. Doing away with the idea of a green job blueprint for youth, interventions should be contextualised and account for the different agency and intersectionality of youth. Youth living in rural areas, for example, face different barriers than those situated in urban or peri-urban environments. In addition, young women and other disadvantaged groups, such as people with disabilities or migrant workers, require additional consideration and targeted approaches to stimulate employment in the green economy. To realize inclusive policies, vulnerable groups need to be able to participate in the decision making and implementation process, with support from coalitions of strategic actors across state and society.

Recommendation 4: Nurture a gender-responsive green transition

Related to the previous point, analysing and understanding the gender dimension of green jobs and youth unemployment is critical in ensuring that women can play an equal part in the green economy. In this regard, measures should be taken that both actively promote the participation of women in the green economy and address the structural barriers that women face in accessing green jobs. Gender specific business development programmes and a focus on STEM (science, technology, engineering, and mathematics) education for girls can help level the playing field for women in accessing green jobs and green entrepreneurship opportunities. In addition, addressing social norms and perceptions that prevent women from taking part in certain green jobs sectors and tackle barriers such as access to finance, land, technology and

gender segregation in education systems and labour markets can further boost women's engagement in the green economy.

Recommendation 5: Foster demand-driven skills development for green jobs, including digital skills

Retooling the labour force for the future of work is a priority for African policymakers in order to facilitate the transition of workers from low-productivity, obsolete sectors and jobs to new and emerging ones. According to the African Economic Outlook 2021⁸¹, African governments need to scale up efforts to retrain and reskill the labour force as quickly and broadly as possible. However, as this research has shown, it is not just a question of re-skilling the labour force towards green skills, but rather, it is also important to bridge the skills mismatch between what employers in the green economy demand and the skills that young women and men typically lack. As the analysis of green businesses in this study has highlighted, digital literacy and soft skills are just as, and in some cases maybe even more, important than specific green skills, as these can often be developed through on-the-job training programmes. Allowing youth to develop general capacities and transferrable skills, such as creativity, collaboration and entrepreneurship, is as such an important step in preparing them for the future of work.

Moreover, in some green technology sectors, such as e-waste management and smart grids, for example, green skills are closely inter-related with digital skills. Developing joint learning programmes on green and digital skills together with technical and vocational education and training institutions (TVET) could be a useful approach in preparing youth for the future of work.

Finally, in addition to new skills, it is also important to recognise what skills youth already have by strengthening certification schemes to ensure the acknowledgement of relevant skills for the green economy and conformity with training programmes. In addition, providing career development services to youth and experience through work-based placements in green businesses can play an important role in the employability of youth in green job sectors.

Recommendation 6: Strike a balance in supporting climate mitigation and climate adaptation initiatives

In current climate financing there is a bias towards funding businesses that focus on climate mitigation approaches by reducing GHG emissions, especially in the agricultural and renewable energy sectors. Although these sectors have great potential for the creation of green jobs for youth, to facilitate a broader transition to a green economy in Africa, it is important that green jobs contribute to both climate mitigation and adaptation by managing the risk of climate change impacts.

Aiming for a balanced investment and exploring opportunities for synergies between climate mitigation and adaptation approaches could provide additional opportunities for sustainable green employment. Climate smart agriculture (CSA), which is an approach to developing the technical, policy and investment conditions to achieve sustainable agricultural development for food security, incorporates both adaptation and mitigation mechanisms by building resilience in the face of climate change and reducing GHGs released by agricultural production and could be a promising avenue for green job creation in sustainable agriculture.

Recommendation 7: Close the finance gap and promote patient (venture) capital

Within the green economy discourse, it is increasingly recognised that SMEs have the potential to generate most of the new green jobs for African youth and can play an important role in diversifying a country's economic base. Within the green economy, SMEs can stimulate innovation, help deliver goods and services, and be a powerful force for integrating women and youth into the economic mainstream. However, despite the rhetorical recognition of this potential, there is still a significant lack of finance to support these businesses. Green businesses are seen as risky investments, because they typically need longer-term investment than traditional business ventures and the proof of concept of new, innovative solutions is less well-established. Facilitating a green transition, therefore, requires venture capital that accepts a longer-term investment horizon and a social, rather than just a financial, return on investment.

Another related issue is the finance gap for scaling efforts of green businesses. There is a so-called 'missing middle' in green finance, in which there is a lack of finance available for entrepreneurs who have grown out of microfinance, but are not yet able to access larger loans and bonds. Governments and donors could play a valuable role in de-risking green finance by providing 'patient capital' to green businesses, both for the start-up and scaling-up phases of their businesses. In section 5.2 we elaborate further on the opportunities for investment in the green economy.

Recommendation 8: Strengthen the evidence base with green jobs examples from practice

As this paper has argued, a clear conceptualisation and empirical evidence on green jobs and youth employment in the green economy in Africa is still largely lacking. When data is available, it is scattered and incoherent, which hampers learning and the further development of the sector. Strengthening the evidence base on green jobs for youth in Africa by systematically collecting, monitoring and publishing knowledge is critical to improve green job policies and practices. Developing and using explicit theories of change for green job creation and informing these with case illustrations and narratives of green businesses allows policymakers and practitioners to gain insight into what does and does not work when it comes to stimulating green jobs for youth, thereby supporting learning and the development of green job approaches. Highlighting and showcasing best green job practices in the public domain can further help to create awareness around the need for a green transition and inspire other businesses to follow-suit.

Recommendation 9: Facilitate learning and exchange between green job creators in the Global South

In addition to creating new knowledge on green employment creation, it is also important to stimulate an exchange of experiences and lessons learnt between green job creators, so that that opportunities for green job creation can be leveraged effectively and potential challenges mitigated or navigated. Organising and facilitating learning sessions and communities of practice with relevant green job stakeholders can provide a conducive platform for this exchange.

Recommendation 10: Stimulate meaningful youth engagement

Last, but definitely not least, in order to ensure that the objectives and opportunities of the green economy are well aligned with the aspirations and ambitions of youth in relation to the future of work, it is crucial to engage youth in discussions on programmes and around green job creation. Organising dialogues with young people and setting up youth-inclusive

governance mechanisms can help to provide evidence of their perceptions towards green and decent jobs

5.2 Investment opportunities

As highlighted in the previous section, finance plays a pivotal role in the transition to a green economy, as green funds and bonds provide capital for green economy projects, including the creation of green jobs. Although there is still considerable investment in non-sustainable industries such as fossil fuels, the volume of green finance has grown significantly over the last years. According to a recent study, the green finance market has grown 100-fold in the last decade⁸² and projections are that this market will grow even further in the coming years.

The focus on corporate social responsibility and inclusive businesses that aim for a triple bottom line of sustainability – i.e., creating social and environmental impact in addition to commercial viability – provides a promising avenue for green businesses. The acknowledgement of green enterprises through the Sustainable Stock Exchange Initiative, ILO's Green Jobs and Sustainable Enterprises programme, and certification schemes like B-Corps, which qualify the social and environmental performance of for-profit companies, can help green businesses to attract the finance they need.

Development finance institutions (DFIs), such as multilateral development banks and micro-finance institutions that support the private sector in developing countries and donor-supported funds, such as the CFYE, have great potential to accelerate the transition to a green economy even further by providing green job creators with both with the financial means and technical assistance they need to create green jobs for youth. Box 4 highlights a number of these initiatives that focus on green job creation in Africa.

Box 4. Green and sustainable financing initiatives

Netherlands: Dutch Development Bank (FMO) Sustainability Bonds

Since 2012, Dutch Development Bank FMO has been active in the thematic bond market with the issuance of Sustainability Bonds. FMO has issued 3 Sustainability Bonds in euros (EUR 500 million each) and 1 in Swedish krona (SEK 2.7 billion). Investors within the FMO Sustainability Bonds Framework invest in green and social projects without running project risks and benefit from a social impact return (avoided GHG emissions and jobs supported).

Global: Green Climate Fund

The Green Climate Fund (GCF) is a unique global platform to respond to climate change by investing in low-emission and climate-resilient development. The GCF was established by 194 governments to limit or reduce GHG emissions in developing countries, and to help vulnerable societies adapt to the unavoidable impacts of climate change. Total committed GCF financing is USD 10.8 billion.

Pan-African: The Africa Circular Economy Facility – African Development Bank Group

In 2022, the African Development Bank Group (AfDB) launched a circular economy fund to channel finance and de-risk innovative circular economy business models beyond waste management in Africa. The multi-donor trust fund will operate over a five-year period and will receive initial support of EUR 4 million from the Government of Finland and the Nordic Development Fund. The Facility is the AfDB's first dedicated trust fund to support circular economy innovations and policy frameworks and is as such unique in Africa.

European: NextGenerationEU Green Bonds

After adopting the NextGenerationEU Green Bond framework, the European Commission proceeded with the issuance of the first NextGenerationEU Green Bond in October 2021. Through this 15-year bond, the Commission raised EUR 12 billion and a further EUR 2.5 billion via a tap of this bond in January 2022. It is the Commission's intention to issue up to 30% of NextGenerationEU as Green Bonds, to provide further access to green investments for a wide range of investors.

Ghanaian: Boosting Green Employment and Enterprise (GrEEEn) Opportunities in Ghana

GrEEEn Ghana is a four-year joint project by the European Union, the Embassy of the Kingdom of the Netherlands in Ghana, the United Nations Capital Development Fund (UNCDF) and the Dutch development organization SNV. GrEEEn is funded under the European Union Emergency Trust Fund for Africa (EUTF), which European and African partners set up in 2015 and to which EUR 5 billion has been pledged. GrEEEn contributes to addressing the root causes of irregular migration by supporting sustainable and climate resilient local economies, green jobs, and development in departure, transit, and return regions.

Despite this great potential, a recent study examining 10 of the largest DFIs found that just half of them track how much of their portfolio is allocated to green or climate finance and, although most institutions do collect information about their impact on job creation in general terms, none of these DFIs track green jobs explicitly⁸³. Increasing the awareness of both the need and potential for green jobs in emerging economies and integrating green job indicators and definitions into standards for environmental, social and corporate governance (ESG) is an important next step in boosting green finance and accelerating a green economic transition in Africa and, hence, requires further attention in green jobs research.

In the following, concluding chapter of this paper we will reflect on the road ahead and more opportunities for further research and engagement.

Conclusion: the road ahead

Youth unemployment and climate change are two of the most pressing issues of our time and are seen as 'threat multipliers' that exacerbate existing challenges and inequalities, especially those of vulnerable communities in the Global South. The transition to a green economy emerges as a hopeful solution to address the multiple challenges of climate change, poverty and inequality, while also enabling African countries to create decent jobs for their youth. However, much is still unknown about what green jobs entail and how the potential of a green economic transition can be leveraged effectively for youth in Africa.

In this paper we have aimed to shed light on these questions by following a three-fold research approach to 1) **understand** green jobs by exploring the existing research on green jobs and formulating a green job definition and typologies, 2) **improve** green jobs by identifying the opportunities and challenges in green employment creation, and 3) **enable** green employment for youth by formulating the most important implications and recommendations for policymakers and practitioners working on green jobs. As such, this research has led to some key insights that aim to inform and inspire policymakers, practitioners and business leaders to embark on this journey towards a green and sustainable future. In this final chapter, we share these lessons learnt and reflect on the road ahead.

6.1 Key messages

Reflecting on the findings of this research a number of key insights for green jobs can be distilled.

Key message 1: Green jobs creation is a process, rather than an outcome

There is no such thing as a fully green job or green business model. Green jobs can be found along a continuum moving from unsustainable towards more sustainable business models. Green jobs and the transition to a green economy should, therefore, be seen as a process, rather than an outcome. As this paper shows, there are a number of key dimensions that need to be addressed to create green jobs for youth: 1) sector potential, 2) green business strategy, 3) climate action, and 4) green skills.

Key message 2: Knowledge is key in facilitating a green economic transition

Strengthening the evidence-base on green jobs for youth in Africa by systematically collecting, monitoring and publishing knowledge is critical to improving green job policies and practices. Developing and using explicit theories of change for green job creation and informing these with case illustrations of green businesses allows policymakers and practitioners to gain insights into what does and does not work when it comes to stimulating green jobs for youth, thereby supporting learning and the development of green jobs approaches.

Key message 3: Patience is a virtue when it comes to green financing

As green businesses have longer expected payback periods and higher perceived risk, standard finance protocols and evaluation methods are not fit for purpose. Green job creation needs a long-term investment strategy that allows green businesses to be scaled organically and sustainably, striving for a triple bottom line of sustainability, i.e., creating social and environmental impact in addition to commercial viability.

Key message 4: Prepare youth for the future of work with a diverse set of skills

Taking a multidimensional approach to skills development is key when it comes to preparing youth for the future of work. Recognising and building on the skills youth already have by strengthening certification schemes and providing opportunities for work experience, career development and on the job learning are important first steps. Second, investing in soft skills such as creativity, collaboration and entrepreneurship and basic digital skills and digital literacy builds a strong foundation on which further skills can be built. Collaborating with the private sector and, where necessary, technical and vocational education and training institutions to address the skills mismatch of youth and green businesses by developing specific green skills is the final step in preparing youth for the future of work.

Key message 5: “If you want to go fast, go alone. If you want to go far, go together”

While considerable progress has been made in the formulation of a comprehensive set of policies to enable the transition to a green economy in Africa, implementation of these policies is in many countries still work in progress. Facilitating a green transformation requires moving from standalone initiatives to innovation ecosystems, in which a variety of stakeholders work together to achieve greater impact. Multi-stakeholder partnerships in which national and local governments, international donors, the private sector, civil society organisations and other stakeholders join forces to enable the transition to a green economy are a promising avenue.

Key message 6: Youth need to be in the driver’s seat

Finally, policies and programmes aimed at stimulating youth employment are too often not sufficiently informed by insights from practice and the perspectives of youth themselves. Involving young people in decisions on youth employment policies and programmes needs to go beyond a tokenistic approach of consultation towards meaningful youth engagement to ensure youth voices are not only heard, but also count. Unlocking the potential of green jobs for youth, therefore, begins with placing youth in the driver’s seat of their own development.

6.2 Opportunities for further research

This research project aimed to uncover different perspectives and insights into green jobs for youth in Africa, which has also led to new knowledge questions that provide opportunities for further exploration and reflection. One of the questions that has arisen as a result of this research is how the finance gap can best be addressed and how businesses can leverage green finance to sustain and scale their business. In addition, while some impacts of green jobs creation have been highlighted in the case illustrations presented in this report, more empirical evidence is needed to systematically document green jobs practices and approaches and formulate lessons learnt and opportunities for further support.

Thirdly, although extensively addressed in this paper, the question of how to prepare youth for the future of work with the skills they need still requires further examination. Engaging other stakeholders in this field to formulate best practices and lessons learnt could be an interesting avenue to explore. Finally, in line with the last key insight presented in the previous section, youth voices also need to be heard and counted in research on green employment creation. Exploring youth aspirations and youth perspectives on green jobs is in this regard a critical step to ensuring this.

6.3 Conclusion

Despite the potential for job creation and sustainable development, unsustainable activities continue to offer huge employment and investment opportunities in many African countries. Concerted political will is, therefore, needed to stimulate green job sectors and green employment and to build realistic pathways towards a green economic transition. Green jobs are emblematic of a sustainable future, and it is imperative that decisive action be taken now to advance their growth and to remove all obstacles in their path.

Strengthening the evidence-base on green jobs and showing the potential of greening the economy for youth in Africa, as this paper has attempted to do, is an important first step in facilitating this transition and, although the road to a sustainable future will be long and bumpy, one thing is clear: the future of Africa is young and green.

Appendix 1. Green jobs in the CFYE portfolio

Below is an overview of the implementing partners in the CFYE portfolio that are considered green at the time of writing on the basis of the four indicators in the CFYE mapping tool: sector, green business strategy, climate action and green skills.

Organisation:	Habitat for Humanity
Country:	Kenya
Sector:	Infrastructure and construction

Driving green growth in the construction sector, Habitat for Humanity is pioneering a new way to support both a greener next generation construction sector, while also building an inclusive, skilled construction labour market that meaningfully engages youth and women as drivers of green growth in Kenya. The project contributes to climate change mitigation through the construction of more sustainable housing, thereby reducing emissions. Jobs within the project encompass implementing (low-skilled) jobs for the production of green housing products as well as medium to high-skilled jobs for changing standard construction practices to fit climate related challenges and ensure sustainable livelihoods.

Organisation:	Fair Agro Food
Country:	Sudan
Sector:	Agriculture

Fair Agro Food is building a digital agri-service ecosystem to directly create 1,711 decent jobs and directly improve 282 jobs for women and youth sustained by a business model that enables 100,000 farmers to regenerate and modernise their farms, ensuring the livelihoods of their successors in Sudan. The project contributes to climate change mitigation through water management and the use of solar panels and to climate change adaptation by changing agricultural practices to fit climate related challenges and ensure sustainable livelihoods. Adapting farming methods requires - aside from low-skilled labour complemented by on-the-job training - medium to higher skilled labour, and technical, digital, business and (soft) life skills. Some technical skills require specific training.

Organisation: Cherubet Company
Country: Kenya
Sector: Agriculture

The value addition of nutritious bean and bean-based products through climate-smart production techniques and environmental-friendly processing boosts access to decent employment and improves incomes and resilience for youth, including young women. This project by Cherubet Company contributes to climate change mitigation by reducing CO² in agricultural processes, such as waste and water management. Traditional skills and some additional technical skills (depending on the job position) are required to maximise labour productivity, most of which can be offered by on-the-job training programmes.

Organisation: Meru Greens
Country: Kenya
Sector: Agriculture

Turn Up the Green jobs project, by Meru Greens and Edukans, supports greening the green beans value chain. It also reduces post-harvest losses, decreases transportation, increases the inclusion and participation of employees, and ensures over 700 sustainable decent jobs for Kenyan youth, mainly women, both during the project and after it ends. The project contributes to climate change mitigation by reducing CO² in agricultural processes, such as through sustainable waste and water management. It also contributes to climate change mitigation by training farmers in sustainable farming technologies (GAP), water harvesting, climate change, and resilience and mitigation. Jobs are created at entry, mid, and senior levels. Some technical, business and (soft) life skills are needed on top of traditional skills. Some higher level jobs will require specific training.

Organisation: Mr Green Africa
Country: Kenya
Sector: Waste management/recycling

Mr Green Africa integrates informal waste pickers in a formal value chain and uses technology to source plastic waste directly from consumers. The goal is to develop a fair and inclusive circular economy that provides ample jobs and income opportunities for young people. The project contributes to climate change mitigation by transforming waste into a more sustainable resource, thereby reducing the environmental impact. The jobs created are mostly low-skilled labour jobs that can be formalised with a few additional skills. Manufacturing, field and office jobs will also be created, which may require soft, technical and science skills, as well as some operation management skills.

Organisation: Pad-Up Creations
Country: Nigeria
Sector: Waste management/recycling

Pad-Up Creations is designed to train and equip youth aged 18 to 35 with relevant skills to enable them to fit into the production and distribution of washable and reusable sanitary pads, thus helping them to be gainfully employed, have financial freedom, and contribute to economic growth. The project contributes to climate change mitigation through the sustainable production and minimising of waste through washable and reusable sanitary pads. The target group is low-skilled workers, who will be required to receive some technical skills training on the production side and operational skills training on the sales side, on top of traditional skills.

Organisation: Africa Clean Energy
Country: Uganda
Sector: Renewable energy

The Africa Clean Energy project seeks to catalyse the growth of the thermal energy sector in Uganda by strengthening rural distribution and after-sale service capacity. This will create 440 additional jobs for youth and women and result in the sale of 188,600 cooking stoves to rural households in the next 3 years. The project contributes to climate change mitigation by minimising the need for fossil fuel and the resulting CO² emissions. Jobs, depending on the position, require additional soft skills and digital skills training, on top of traditional skills.

Organisation: Marula Creative Consultancy
Country: Uganda
Sector: Agriculture and waste management

This project aims to transform Uganda's organic waste by feeding the future through sustainable animal feed and organic fertiliser. The project will provide 2,000 youth farmers with the opportunity to produce insect-based livestock feed. By directly employing 105 youth, the project supports these farmers through egg breeding, extension work, and larvae processing, creating a new animal feed supply chain in the country. The project contributes to climate change mitigation by transforming waste into feed, thereby reducing production needs. Jobs generally require low-skilled labour, although some technical training is needed to complement traditional skills. The organisation focuses mostly on social impact initiatives.

Organisation: Sanivation
Country: Kenya
Sector: Waste management

Poor sanitation and deforestation have devastating impacts on the environment in East Africa. Rapid urbanisation is exacerbating the issue. Sanivation's focus is on waste-to-energy

treatment plants as an inclusive solution. The plants clean cities, create jobs, and mitigate the effects of climate change. The project contributes to climate change mitigation through recycling and clean energy production. Jobs require low to high-skilled labourers, from biomass collectors to people to build and operate plants. On-the-job training will be required.

Organisation: ReelFruit
Country: Nigeria
Sector: Agriculture

The 'ReelSkills' project will upskill Nigerian youth (especially women) with practical, industry demand-led training for careers in the most valuable sectors in agri-processing. The company places 800 youth in decent jobs over a 3-year period. The project aims to increase the employment chances of post-secondary school youth by deploying market-led training needed in the agri-business sector and matching them to decent and secure jobs, reducing two key barriers to youth unemployment. The project will offer a tiered training system, focusing on skills that are relevant to employers, but that also match the interests of youth.

Organisation: Woord & Daad
Country: Uganda
Sector: Agriculture and forestry

Trees x Bees promotes (female) youth employment through beekeeping business in rural Uganda. To address climate change, 1,000 youth subsistence (coffee) farmers are enabled to diversify their business with tree-planting to protect their (coffee-)crops (shade), tapping the precious source of cross-pollination (yield-increase), and offering sustainable additional income after 3 years. A total of 588 new youth beekeepers will be linked with these (coffee)farmers to place beehives on their land, which benefits both through land-access and cross-pollination. The project contributes to climate change adaptation by making farmers more resilient to climate change and contributes to climate change mitigation through more sustainable farming methods. The jobs created (all through self-employment) are low-skilled, but do require training in technical, soft, and business skills.

Organisation:	Releaf
Country:	Nigeria
Sector:	Agriculture and forestry

Releaf's business model optimizes agricultural productivity in Nigeria's oil palm sector through efficient digital farmer sourcing and palm nut pre-processing technology. Through partnerships with training and technical experts, Releaf will inform, recruit, train, retain, and conduct business with over 1,900 young women in the oil palm sector. Job skills programmes funded by CFYE will result in over 830 technical and digital jobs throughout the oil palm value chain. The project contributes to climate change mitigation by using palm nut waste to generate energy. The jobs directly created are mainly low skilled, but require training to build the capacity of current and future staff in skills such as machine operation, maintenance, and sales.

Notes

¹ AfDB. (2022). The High 5: improve the quality of life for the people of Africa. [Online], African Development Bank, 23 May 2022. <https://www.afdb.org/en/documents/high-5-improve-quality-life-people-africa>

² Shawa, K.C., Sossa, P., & O'Higgins, N. (2020). *Report on employment in Africa (Re-Africa): tackling the youth employment challenge*. Geneva: ILO

³ AUC & OECD. (2022). *Africa's development dynamics 2022: regional value chains for a sustainable recovery*. Addis Ababa: African Union Commission; Paris: OECD Publishing. <https://www.oecd.org/dev/africa-s-development-dynamics-3290877b-en.htm>

⁴ For more on wicked problems see the original [publication](#) by Rittel, H.W.J., & Webber, M.M. (1973). Dilemmas in a general theory of planning. *Policy Science*, 4, 155–169; and this [article](#) and [blog](#) on climate change as a 'super wicked problem'.

⁵ UNEP. (2011). *Towards a green economy: Pathways to sustainable development and poverty eradication*. Nairobi: United Nations Environment Programme. <https://www.unep.org/explore-topics/green-economy>

⁶ ILO. (2018). *World employment and social outlook 2018: greening with jobs*. International Labour Organization. https://www.ilo.org/global/publications/books/WCMS_628654/lang--en/index.htm

⁷ Mwaura, G., & Glover, D. (2021). *Green jobs for young people in Africa: work in progress*. Leiden: INCLUDE. <https://includeplatform.net/publications/green-jobs-for-young-people-in-africa-work-in-progress/>

⁸ ILO. (2016). What is a green job? [Online], International Labour Organization, 13 April 2016. https://www.ilo.org/global/topics/green-jobs/news/WCMS_220248/lang--en/index.htm

⁹ UNEP. (2008). *Green jobs: towards decent work in a sustainable, low-carbon world*. Nairobi: United Nations Environment Programme. https://www.ilo.org/global/topics/green-jobs/publications/WCMS_158727/lang--en/index.htm

¹⁰ OECD. (2011). *Towards green growth*. OECD Green Growth Studies. Paris: OECD Publishing. <https://doi.org/10.1787/9789264111318-en>

¹¹ ILO. (2016). What is a green job? [Online], International Labour Organization, 13 April 2016. https://www.ilo.org/global/topics/green-jobs/news/WCMS_220248/lang--en/index.htm

¹² ILO. (n.d.). Decent work. [Online], International Labour Organization. <https://www.ilo.org/global/topics/decent-work/lang--en/index.htm>

¹³ ILO. (2015). *The Green Jobs Programme of the ILO*. [Brochure]. Geneva: International Labour Organization https://www.ilo.org/global/topics/green-jobs/publications/WCMS_371396/lang--en/index.htm

¹⁴ UNEP. (2008). Green jobs: Towards decent work in a sustainable, low-carbon world. Nairobi: United Nations Environment Programme. <https://www.unep.org/resources/report/green-jobs-towards-sustainable-work-low-carbon-world>

¹⁵ Martinez-Fernandez, C., Hinojosa, C., & Miranda, G. (2010). Greening jobs and skills: labour market implications of addressing climate change. OECD Local Economic and Employment Development (LEED) Papers, No. 2010/02. Paris: OECD Publishing. <https://doi.org/10.1787/5kmbjgl8sd0r-en>

¹⁶ Note: Indicators within the Green Equilibrium are all weighted equally. Therefore, indicators must be grouped and 'greenness' should be measured by the cumulative (potential) impact of all indicators together.

¹⁷ Martinez-Fernandez, C., et al. (2010). *Greening jobs and skills*. <https://doi.org/10.1787/5kmbjgl8sd0r-en>

¹⁸ See Appendix 1 for a full overview of the green implementing partners in the CFYE portfolio.

¹⁹ Bruzzone, B. (2021). The agriculture in Africa 2021: focus report. [Blog], Oxford Business Group, 12 April 2021. <https://oxfordbusinessgroup.com/blog/bernardo-bruzzone/focus-reports/agriculture-africa-2021-focus-report>

²⁰ Yeboah, T., & Flynn, J. (2021). *Rural youth employment in Africa: an evidence review*. Leiden: INCLUDE

²¹ FAO. (2022). *Green jobs for rural youth*. Food and Agriculture Organization. <https://www.fao.org/documents/card/en/c/cc0611en>

²² UN Women & AfDB. (2021). *Green jobs for women in Africa*. United Nations Entity for Gender Equality and the Empowerment of Women and African Development Bank. <https://africa.unwomen.org/en/digital-library/publications/2021/11/un-women-green-jobs-policy-briefs-and-reports-en-fr>

²³ UNEP. (2011). *Towards a green economy*. <https://sustainabledevelopment.un.org/index.php?page=view&type=400&nr=126&menu=35>

²⁴ UNEP, International Environmental Technology Centre (IETC), & the Council for Scientific and Industrial Research (CSIR). (2018). *Africa waste management outlook*. Nairobi: United Nations Environment Programme. <https://www.unep.org/ietc/resources/publication/africa-waste-management-outlook>

²⁵ Mordor Intelligence. (2021). *Africa waste management market 2020–2027. Industry report COVID insights*. <https://www.mordorintelligence.com/industry-reports/africa-waste-management-market>

²⁶ ILO. (2018). *World employment and social outlook 2018*. https://www.ilo.org/global/publications/books/WCMS_628654/lang--en/index.htm.

²⁷ IEA. (2010). *Energy technology perspectives 2010 – analysis*. International Energy Agency. <https://www.iea.org/reports/energy-technology-perspectives-2010>

²⁸ IRENA and AfDB (2022), *Renewable Energy Market Analysis: Africa and Its Regions*, International Renewable Energy Agency and African Development Bank, Abu Dhabi and Abidjan <https://www.irena.org/publications>

²⁹ Bouchene, L., Jayaram, K., Kendall, A., & Somers, K. (2021). Africa's green manufacturing crossroads: Choices for a low-carbon industrial future. [Online], McKinsey & Company, 27 September 2021. <https://www.mckinsey.com/business-functions/sustainability/our-insights/africas-green-manufacturing-crossroads-choices-for-a-low-carbon-industrial-future>

³⁰ Bruzzone, B. (2021). The agriculture in Africa 2021. [Blog]. <https://oxfordbusinessgroup.com/blog/bernardo-bruzzone/focus-reports/agriculture-africa-2021-focus-report>

-
- ³¹ Strietska-Ilina, O., Hofmann, C., Haro, M.D., & Jeon, S. (2012). *Skills for green jobs: A global view*. Geneva: International Labour Organisation
- ³² Arthur, C. (2022). What are green skills? [Online], United Nations Industrial Development Organization (UNIDO), 8 August 2022. <https://www.unido.org/stories/what-are-green-skills>
- ³³ Vona, F., Marin, G., Consoli, D., & Popp, D. (2015). *Green skills*. Working Paper 21116. National Bureau of Economic Research. <https://www.nber.org/papers/w21116>
- ³⁴ The Fourth Industrial Revolution, also known as 4iR, is the fusion of the digital, biological and physical worlds using technologies including robotics, cloud computing and wireless technologies, among other things. This revolution is expected to have transformative potential for youth through economic growth and development.
- ³⁵ Auktor, G.V. (2020). *Green industrial skills for a sustainable future*. Learning and Knowledge Development Facilities 2.0, United Nations Industrial Development Organization (UNIDO)
- ³⁶ Mwaura, G., & Glover, D. (2021). *Green jobs for young people in Africa*. <https://includeplatform.net/publications/green-jobs-for-young-people-in-africa-work-in-progress/>
- ³⁷ Kalidas, S., Magwentshu, N., & Rajagopaul, A. (2020). How South African SMEs can survive and thrive post COVID-19. [Online], McKinsey & Company, 10 July 2020. <https://www.mckinsey.com/featured-insights/middle-east-and-africa/how-south-african-smes-can-survive-and-thrive-post-covid-19>
- ³⁸ Runde, D., Savoy, C., & Staguhn, J. (2021). Supporting small and medium enterprises in sub-Saharan Africa through blended finance. [Online], CSIS Briefs, Centre for Strategic & International Studies, 7 July 2021. <https://www.csis.org/analysis/supporting-small-and-medium-enterprises-sub-saharan-africa-through-blended-finance>
- ³⁹ EADB. (n.d.). Financial opportunities and challenges faced by SMEs in advancing green business development in Africa. [Online], East African Development Bank. <https://www.eadb.org/news-events/financial-opportunities-and-challenges-faced-by-smes-in-advancing-green-business-development-in-africa>
- ⁴⁰ Bianco, A. (2016). Green jobs and policy measures for a sustainable agriculture. *Agriculture and Agricultural Science Procedia*, 8, 346–352
- ⁴¹ Angelov, N., & Johansson, M. (2011). Green jobs. In: T. Fitzpatrick (ed.), *Understanding the Environment and Social Policy*. Bristol: Bristol University Press, pp. 245–270
- ⁴² Decent Jobs for Youth. (2017). Thematic plan 4. Green jobs for youth. Boosting decent jobs for young people, greening the economy. [Online], Decent Jobs for Youth. <https://www.decentjobsforyouth.org/theme/green-jobs-for-youth#HOW>
- ⁴³ AfDB, OECD, UNDP & UNECA. (2012). *African Economic outlook 2012: promoting youth employment*. African Development Bank, Organisation for Economic Co-operation and Development, United Nations Development Programme, and United Nations Economic Commission for Africa. Paris: OECD Publishing. https://www.oecd-ilibrary.org/development/african-economic-outlook-2012_aeo-2012-en
- ⁴⁴ Shawa, K.C., Sossa, P., & O'Higgins, N. (2020). *Report on employment in Africa (Re-Africa): tackling the youth employment challenge*. Geneva: ILO
- ⁴⁵ Achiba, G.A. (2019). Navigating contested winds: Development visions and anti-politics of wind energy in northern Kenya. *Land*, 8(1), 7. <https://doi.org/10.3390/land8010007>

-
- ⁴⁶ Kkzimierczuk, A.H. (2020). *Tracing inclusivity: contribution of the Dutch private sector to inclusive development in Kenya. Case study of Unilever Tea Kenya Ltd., the flower sector and lake Turkana wind power project*. Doctoral thesis, Leiden University. <https://hdl.handle.net/1887/137215>
- ⁴⁷ Auktor, G.V. (2020) *Green industrial skills for a sustainable future*.
- ⁴⁸ UN Women & AfDB. (2021). *Green jobs for women in Africa*. United Nations Entity for Gender Equality and the Empowerment of Women and African Development Bank. <https://africa.unwomen.org/en/digital-library/publications/2021/11/un-women-green-jobs-policy-briefs-and-reports-en-fr>
- ⁴⁹ IFAD. (2016). Why are rural youth leaving farming? [Online], International Fund for Agricultural Development, 6 April 2016. <https://www.ifad.org/en/web/latest/-/story/why-are-rural-youth-leaving-farming->
- ⁵⁰ Filmer, D., & Fox, I. (2014). *Youth employment in sub-Saharan Africa*. Washington, DC: The World Bank
- ⁵¹ FAO. (2020). *Adaptation action through green jobs for youth*. Information Note. Rome: Food and Agriculture Organization
- ⁵² IFAD. (2020). Green jobs for youth: What works and what's missing? [Online], International Fund for Agricultural Development, 27 October 2020. <https://www.ifad.org/en/web/latest/story/asset/42141995>
- ⁵³ Kenya CFYE country manager (1), interview, 2022
- ⁵⁴ Kenya CFYE country manager (2), interview, 2022
- ⁵⁵ Sasu, D.D. (2022). Oil industry in Nigeria – statistics & facts. [Online], Statista, 5 April 2022. https://www.statista.com/topics/6914/oil-industry-in-nigeria/#topicHeader_wrapper
- ⁵⁶ Watts, J. (2019). 'The crisis is already here': young strikers facing climate apartheid. [Online], The Guardian, 19 September 2019. <https://www.theguardian.com/environment/2019/sep/19/the-crisis-is-already-here-young-strikers-facing-climate-apartheid>
- ⁵⁷ Carbon Brief. (2020). The carbon brief profile: Nigeria. [Online], Carbon Brief, 21 August 2020. <https://www.carbonbrief.org/the-carbon-brief-profile-nigeria/>
- ⁵⁸ AfDB. (2020). *Nigeria Country Strategy Paper 2020–2024*. African Development Bank <https://www.afdb.org/en/documents/nigeria-country-strategy-paper-2020-2024>
- ⁵⁹ Nigeria CFYE country manager, interview, 2022
- ⁶⁰ Uganda CFYE country manager, interview, 2022
- ⁶¹ Ibid. p. 21
- ⁶² Jane Otim, Habitat for Humanity International, interview, 2022
- ⁶³ World Bank. (2017). *Kenya Economic Update, No.15: Housing – Unavailable and Unaffordable*. World Bank. <https://openknowledge.worldbank.org/handle/10986/26392>
- ⁶⁴ Jane Otim, Habitat for Humanity International, interview, 2022

⁶⁵ Ibid.

⁶⁶ Ibid.

⁶⁷ Ibid.

⁶⁸ IFC. (2019). *Green buildings: a financial and policy blueprint for emerging markets*. International Finance Corporation.
https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/climate+business/resources/green+buildings+report

⁶⁹ Jane Otima, Habitat for Humanity International, interview, 2022

⁷⁰ Olivia Onyemaobi, founder Pad-Up Creations Limited, interview, 2022

⁷¹ Ibid.

⁷² Ibid. p. 24

⁷³ Ibid. p. 24

⁷⁴ Joan Judith Walker, COO African Clean Energy (ACE) Uganda, interview, 2022

⁷⁵ Ibid.

⁷⁶ Ibid.

⁷⁷ Ibid.

⁷⁸ Ibid.

⁷⁹ See the research programme '[Growth Sectors for Youth Employment](#)' commissioned by INCLUDE with support from the Dutch Ministry of Foreign Affairs and implemented by the African Economic Research Consortium (AERC), the Economic Research Forum (ERF) and Overseas Development Institute (ODI).

⁸⁰ Auktor, G.V. (2020) *Green industrial skills for a sustainable future*.

⁸¹ AfDB (2021). *African Economic Outlook 2021: From Debt Resolution to Growth: The Road Ahead for Africa*. Africa Development Bank Group. <https://afdb-org.cn/wp-content/uploads/2021/05/AfDB21-01-AEO-main-English-highlights-1.pdf>

⁸² TheCityUK. (2022). Green finance: a quantitative assessment of market trends. [Online], TheCityUK, 31 March 2022. <https://www.thecityuk.com/our-work/green-finance-a-quantitative-assessment-of-market-trends/>

⁸³ ACET. (2022). Shifting and accelerating DFI investments for more decent jobs in Africa. [Online], African Center for Economic Transformation. <https://acetforafrica.org/publications/reports/shifting-and-accelerating-dfi-investments-for-more-decent-jobs-in-africa/>

The background of the page is composed of large, overlapping geometric shapes. A large teal triangle points from the bottom left towards the center. A large yellow triangle points from the top right towards the center. These two triangles overlap in the middle of the page, creating a white triangular area in the center. The top half of the page is white.

CHALLENGE
FUND
FOR
YOUTH
EMPLOYMENT

INCLUDE
KNOWLEDGE PLATFORM ON INCLUSIVE DEVELOPMENT POLICIES