



WOW // Work and
Opportunities
for Women

Green growth opportunities for women and youth in urban areas of Mozambique

Key green sectors and best practices

Authors: Sohna Ngum and Deborah Livingstone

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Query Questions:

1. Drawing on global evidence, but with a particular focus on green growth opportunities in Africa, what are the key 'green sectors' that hold the most potential to generate employment or economic opportunities for women and youth in urban areas?
2. What examples exist of interventions and best practices (or potentially interesting interventions) for promoting women and youth engagement in these sectors?
3. In the drive toward a green economy, what options are there for MUVA to best support youth and women to make the most of these opportunities in urban areas of Mozambique?

Authors and institutional affiliations: Sohna Ngum, Freelance Consultant; and Deborah Livingstone, Freelance Consultant

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Acronyms

ADB	Asian Development Bank
AU	African Union
COVID	Coronavirus Disease
ENERGIA	International Network on Gender and Sustainable Energy
FAO	United Nations Food and Agriculture Organisation
FCDO	Foreign, Commonwealth and Development Office
IFC	International Finance Corporation
ILO	International Labour Organisation
INGO	International Non-Governmental Organisation
MDB	Multilateral Development Bank
MUVA	Programa de Empoderamento Economico Feminino
NCE	New Climate Economy
TVET	Technical and Vocational Education and Training
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UN HABITAT	United Nations Human Settlement Programme
WOW	Work and Opportunities for Women

Executive Summary

This WOW Helpdesk query identifies potential economic opportunities for urban women and youth in the green-growth and low-carbon sectors of the economy in Mozambique. A desk review of literature on green growth and green jobs and skills for urban women and youth was complemented by interviews with one key informant based in Mozambique. The evidence was presented and discussed at a consultation with representatives from FCDO and MUVA.

There is no single definition of green growth however there is some consensus that it supports environmental sustainability and social progress and that green jobs preserve the environment and provide decent work, advance the economy, and promote social equity. Transitioning to low-carbon and sustainable growth could deliver direct economic gains as more green jobs can be created per dollar invested compared with those created by fossil fuels. Sub-Saharan Africa is often regarded as the world's fastest urbanising region, which could see green growth in urban areas create new markets and significant numbers of jobs. As countries shift to a green economy, some economic sectors will shrink and others will expand – depending on availability of requisite skills, the expanding sectors could absorb the majority of its shrinking counterparts. It is important to mitigate the impact on women as they are more likely to be laid off when jobs are lost or unskilled jobs are replaced with skilled jobs (UNDP, 2013). As jobs are lost in some sectors and created in others, for example in energy and the circular economy, occupational gender stereotypes are likely to persist and women are likely to get only a fraction of the jobs created, unless measures are taken to train women in relevant skills (ILO, 2019). While estimates suggest that an investment of US\$ 630 billion in green sectors by 2030 would translate into at least 20 million additional jobs globally (NCE, 2018), skills shortages in green sectors already present a major hurdle for a just transition to low carbon, sustainable growth.

Deliberate action is needed to avoid women and youth facing significant costs such from the transition towards a green economy, such as the risk of rising energy prices, the collapse of sectors they work in, and new job opportunities that are inaccessible. Governments, the UN, development partners, and the private sector are already promoting green growth through regional and national action plans, stakeholder engagement strategies, urban planning that benefits women, youth and other excluded groups, and skills development in green sectors, entrepreneurship, value chains and leadership.

Evidence is limited on the key green sectors that can create economic opportunities for urban women and youth, however there is evidence that thriving markets already exist and that cities serve as engines of social progress and economic growth. Examples from sub-Saharan Africa and the global south demonstrate the potential for urban women and youth in green sectors. Cutting across all the opportunities is the need to support women and youth to overcome **social and cultural barriers** – lower literacy, lower access to finance, education, access to land, mobility, and the burden of care - ensuring that **skills training matches opportunities** in growing and emerging green sectors, and the importance of **transitioning informal workers to the formal economy** to ensure they have access to decent work and employment protections. Examples of potential opportunities include:

Restoration of natural capital will strengthen resilience and boost adaptation to climate impacts and **agriculture and forestry can become engines of green growth**, even in cities. Urban farming and forestry can contribute to delivering greater food security, more nutritious food, more equitable growth, strengthened resilience, and valuable ecosystem services.

Investment in **energy and infrastructure** could involve jobs in cleaner production processes in industry or contributing to lowering water and electricity consumption, constructing green buildings or within the transport sector. Facilitating women to train as skilled or semi-skilled construction workers can enable them to enter male-dominated sectors, benefit from economic activity, and earn higher wages.

Youth tend to form a large proportion of construction workforces, suggesting that, with the right skills, youth may benefit from jobs in sustainable infrastructure. Women's energy-intensive food preparation businesses need modern energy and can be supported within green cooking energy programmes or through women's entrepreneurship programmes.

Waste management and circular economy interventions can contribute to opportunities for women and youth and make a significant contribution to reducing energy usage and pollution. They are more labour intensive, can add more value and can provide more jobs than landfilling or burning waste, though some projects have been controversial and decent work needs to be ensured. Globally, almost 6 million jobs can be created by moving away from an extract-manufacture-use-discard model and embracing the recycling, reuse, remanufacture, rental and longer durability of goods (ILO, 2018b).

Income generating activities in the eco-**tourism industry** such as food tourism, community tourism, arts and craft tourism and nature tourism were found to build resilience to climate change effects. However, more can be done in the tourism sector to address the mismatch between skills provided by education and TVET providers and those demanded by the market, which limits the participation of young women and men. The growth of tourism also represents significant challenges to the use of natural resources, the protection of biodiversity and the preservation of unique cultural values, although these can be addressed by promotion of a more sustainable eco-tourism model. There is some doubt on the potential for *urban* tourism in Mozambique although there may be potential for local community initiatives supporting local markets, protecting local natural resources/spaces, or producing items, such as crafts and souvenirs, for the existing tourism sector that are currently sourced elsewhere, for example from South Africa.

Green entrepreneurship could be an important driver of job creation for women and youth. With skills training, female and young entrepreneurs can take advantage of entrepreneurship opportunities to promote environmental sustainability in sectors including agriculture, food production, construction, tourism, transport, renewable energy and recycling. This could be supported through entrepreneurship training, including the development of business plans and access to technology and information, or building on and greening existing businesses and plans. Evidence from the energy sector, for example, shows the value of promoting women's entrepreneurship through business education and skills development, training on personal agency and initiative, access to finance and capital, and access to coaches, mentors, and networks.

1. Introduction

The MUVA programme (2014-2022) is an FCDO-financed flexible and adaptive programme focusing on developing innovative approaches to promote the economic empowerment of vulnerable women and youth in urban areas of Mozambique. This WOW Helpdesk query is aimed at identifying potential large scale economic opportunities for urban women and youth in the green-growth and low-carbon sectors of the economy. The evidence was presented and discussed at a consultation with representatives from FCDO and MUVA. The query was rapid, limiting the depth of research and quantity of interviews undertaken.

The desk-based literature rapid review synthesises existing global evidence on green growth in low-income countries, with a particular focus on green growth opportunities in sub-Saharan Africa and Mozambique. One interview with a key informant based in Mozambique provided further insights. The report draws on evidence from research by the United Nations, World Bank, FCDO, and academic institutions around the gender-youth-green growth opportunities in urban areas nexus. Research around this area is limited but gaining traction. Literature reviewed included a qualitative 32 country

comparative study on skills for the green economy (ILO, 2019), rapid reviews of the literature on inclusive and green growth and on income generating activities and climate variabilities in low- and middle-income countries, and policy reports and briefings.

The query begins by defining inclusive green growth, exploring what green growth means for urban women and youth. While the literature on green growth sectors specifically for urban women and youth is limited, the evidence on green growth and green jobs does identify potential sectors with the for employment and economic opportunity creation for women and youth in urban areas including: a) conservation, eco-system management, urban forestry and farming; b) sustainable infrastructure (including transport and energy); c) waste management and the circular economy; d) hotel, catering and eco-tourism; and e) green entrepreneurship. A final section on climate finance explores the global evidence on climate finance and provides some examples of how climate finance is addressing adaptation and resilience in Mozambique.

The query will be used to inform the design of a new project by MUVA to test out a new and innovative approaches to supporting youth and women's skills development and employment in the green economy in Mozambique.

2. Global evidence on green growth

There is no single definition of inclusive green growth, however there is some consensus that it is growth that supports, or at least does not come at the expense of, environmental sustainability and social progress (Avis, 2018). Inclusive green growth aims to provide a solution to the joint objectives of economic growth, environmental sustainability and social inclusiveness. Others go further, for example UNEP (2010) explicitly includes social equity in its definition of the green economy alongside reducing environmental risks and ecological scarcities. Green growth opportunities are also viewed as those that can be adapted to a particular context or able to support income diversification as climate change negatively impacts livelihoods (Tull, 2020).

Similarly, there is yet to be a single universally agreed definition of a green job, making it difficult to compare research on green job creation (Bowen and Kuralbayeva, 2015). ILO defines green jobs as “the transformation of economies, enterprises, workplaces and labour markets into a sustainable, low-carbon economy providing decent work” (ILO, 2012, p.1) and UNEP defines green jobs as “work in agriculture, industry, services and administration that contributes to preserving or restoring the quality of the environment” (UNDP, 2013, p.3). These definitions emphasize that green jobs preserve the environment and must also provide decent work, advance the economy and promote social equity (UNDP, 2013).

Globally, transitioning to a low-carbon, sustainable growth path could deliver a direct economic gain of US\$26 trillion by 2030 compared to current trends (NCE, 2018). More green jobs can be created per dollar invested in green economy projects, for example 2-3 times more green jobs are created by renewable energy and energy efficiency projects than those created by fossil fuels (NCE, 2018). The transition to net zero carbon societies will, however, mean that jobs may be lost in polluting industries, jobs gained in the green economy, and the need to reskill or retrain workers (Rijsberman et al., 2020). An effective and ‘just transition’ to a green economy will be supported by policies promoting participation, social protection for those who may lose jobs, and reskilling for people to take up new opportunities (Rijsberman et al., 2020).

Developing regions of East Asia, South Asia and Africa will comprise 96% of urban growth which means green growth in urban areas could create new markets and provide jobs (UN Habitat, 2020).

Those in urban areas face the consequences of environmental hazards linked to overcrowding, pollution, and inadequate water and sanitation provision (Dercon, 2014). Most green growth efforts have focused on the economy and environment with more focus needed on people to tackle the poverty, inequality and exclusion that constrain both growth and environmental sustainability (Avis, 2018). Post-COVID-19 there may also be fundamental changes in the way people live and work, especially in cities. These changes may have implications on the types of jobs that are available with those on the lowest incomes most likely faced with unemployment and income reductions (Rijsberman et al., 2020).

Green growth is not inherently inclusive and deliberate action is required to ensure women, youth and other excluded groups benefit from green growth opportunities (Dercon, 2014). The short-term costs of green policies can create trade-offs between environmental protection and short-term economic growth (World Bank 2012). Green policies affect labour markets indirectly through supply chains, changes in overall demand and the destruction of 'brown jobs' in polluting industries with changes in labour productivity and the costs of employment often overlooked (Bowen and Kuralbayeva, 2015). At the same time, the poor are most vulnerable to natural hazards that affect economic productivity, health, and security of livelihoods with limited insurance or social protection (Dercon, 2014). These trade-offs should be explicitly addressed in implementing green growth policies and programmes to avoid women and men living in poverty from facing significant costs such as rising energy prices, the collapse of sectors they work in, and new job opportunities not being available to them (Dercon, 2014; Bowen and Kuralbayeva, 2015; Raworth et al., 2014).

As countries shift to a green economy, women are more likely to be laid off when jobs are lost, or unskilled jobs are replaced with skilled jobs (UNDP, 2013). UNEP estimates that an investment of US\$ 630 billion in green sectors by 2030 would translate into at least 20 million additional jobs globally (UNDP, 2013) however women and youth are already at a disadvantage in the labour market. Women and youth tend not to have access to technical and financial resources due to their legal status and property rights (UN Habitat 2020). Sub-Saharan Africa already has a slow school-to-work transition where young people struggle to enter the labour market, leading them to engage in self-employment (Chakravarty, 2017). An ILO survey (2014) of youth in eight countries in the region found that 71.7% of working youth engaged in self-employment; women (74%) were more likely than men (61%) to be self-employed or family workers; and women (20.6%) were less likely than men (31.6%) to be employees or employers.

Building the skills of informal workers, many of whom are women and youth, and transitioning informal workers to the formal economy is fundamental to achieving sustainable and inclusive urban development in developing countries (UN, 2020). Green jobs are relevant for informal workers (UNEP, 2013), although informal enterprises are generally not included in public policy interventions (UN, 2020) making decent work more difficult to ensure. Evidence from a 32 country study shows that informal employment, alongside poverty and low incomes especially in low income countries, has been found to be a constraint on green jobs growth (ILO, 2019)

This means deliberate action is needed to ensure urban women and youth can access training and jobs opportunities in the green economy and can participate in planning and policymaking. The provision of training, financial and employment opportunities for women and youth in the green growth sector would increase the economic value generated by cities (UN Habitat, 2020). Evidence shows that women's leadership and representation in parliaments results in more stringent climate change policies that lead to lower carbon dioxide emissions (Mavisakalyan and Tarverdi, 2019; McKinney and Fulkerson, 2015). Parliaments are more likely to set aside protected land and ratify international environmental treaties in countries where women participate in decision-making processes. Countries with stronger representation of women in parliament tend to be more progressive and forward-thinking, including around environmental issues. In India and Nepal for

example, forest conservation improved as a result of women's participation in community level forest management (UN 2012a). Policies designed to address both social and environmental goals can generate significant co-benefits and are most likely to bring lasting gains when they are designed with the participation, knowledge and practices of the target communities (Raworth et al., 2014).

Skills shortages are a major hurdle for a just transition to environmental sustainability (ILO, 2017).

Certain sectors and occupations are most affected, such as wind, wave and tidal power; renewable energies for manufacturing, construction and installation; expansion of the environmental industries; and the green building and construction sector (ILO, 2017). The inclusion of women in apprenticeships and skills training for environmentally sustainable jobs is seen as essential for overcoming skills shortages in certain occupations and disparities in the labour market (ILO, 2018a).

Governments (at central and local level), the UN, development partners, civil society, and the private sector are already promoting green growth. The African Union aims to deliver impactful at scale interventions in order to recover from the ongoing COVID-19 Pandemic. The African Union (AU) Green Stimulus Programme aims to support African countries reach the aspirations of the AU Agenda 2063, UN Sustainable Development Goals, and Paris agreement (UNEP, 2021). The national government action plans of certain countries promote green growth. For instance, Burkina Faso's Strategy for Accelerated Growth and Sustainable Development 3 aims to improve income distribution and reduce vulnerability to external shocks and poverty and is projected to improve agricultural yields, productivity and growth of agricultural value by 10.8% by 2015 (IMF, 2012). In addition, the National Planning Commission in South Africa is planning a stakeholder engagement process to support a transparent and participatory process for designing a just energy transition plan that will determine the future of the national coal industry (Rijsberman et al., 2020).

Evidence is limited on the extent to which these activities support urban women and youth though some actors are developing programmes specifically addressing gender inequality and women's economic empowerment. The Women Friendly Cities programme, guided by the UN Convention on the Elimination of All Forms of Discrimination Against Women, develops urban areas with the aim that everybody, especially women, can equally enjoy the city's economic, social and political opportunities (UN Habitat 2020). The International Finance Corporation Energy2Equal programme works with large companies and small firms across sub-Saharan Africa to increase women's access to jobs, leadership positions, and entrepreneurial opportunities in corporate value chains within the renewable energy sector (IFC, 2019).

The COVID-19 pandemic has links to the climate crisis and has seen fundamental changes in the way people work, live, and play with significant implications for women's economic empowerment (Rijsberman et al., 2020). Consequences include reduced travel for business and leisure due to travel restrictions, more remote working arrangements and online meetings; and greater reliance on digital technology for work, relying on deliveries for food and grocery shopping, and leisure activities. Those with access to digital technologies have been able to adapt to providing services remotely or by delivery. **In developing economies, 70 percent of women's employment is informal, and informal jobs are the first to disappear in times of economic uncertainty (United Nations, 2020).** For example, the sectors that have been most affected by the COVID-19 crisis so far are those with high levels of women workers, including the service sector, restaurant and hospitality business, as well as the travel sector (Rijsberman et al., 2020). At the same time, unpaid care work has increased, with children out-of-school, heightened care needs of infirm and older persons and overwhelmed health services. Women take on the burden of care without access to social protection or basic employment protections.

3. Opportunities in green sectors

Evidence is limited on the key green sectors for urban women and youth, however thriving markets driving the development of green technologies already exist (ILO, 2019) and cities serve as engines of social progress and economic growth (UN Habitat, 2020). Broadly, green sectors that build on and enhance the Earth's natural capital or reduce ecological scarcities and environmental risks include renewable energy, low-carbon transport, energy efficient infrastructure, improved waste management, sustainable agriculture and forest management (Avis, 2018).

In low- and middle-income countries, investing in green growth potentially offers significantly more employment opportunities when compared with further investments in the current unsustainable economic model (Rijsberman, 2020). Green jobs in urban areas can be created in sectors such as: (i) public transport; (ii) urban and peri-urban green agriculture and urban forestry; (iii) renewable energy; (iv) green construction; and (v) waste management and recycling (UNDP, 2013). Innovations can contribute to making cities more sustainable and provide solutions to a wide range of challenges, such as water management, sustainable mobility, security, solid waste management, green city development, renewable energy and urban agriculture (UN, 2020). Targeted skills development and adaptation for the female and youth labour force is necessary for a green economy, and helps prevent a mismatch between existing skills and opportunities (UNDP, 2013).

Adequate measures to transition workers and economic units from the informal to formal economy are fundamental to achieving sustainable and inclusive urban development in developing countries (UN Habitat, 2020). There are 700 million fewer women than men in paid formal employment globally, they are mostly found in the informal economy where they are less likely to have employment contracts, legal rights and social protections (UN Habitat, 2020). Opportunities may exist in Mozambique to support women and youth working in informal sectors to transition to formal sectors.

This section describes existing and emerging green sectors, providing examples from the region and the global south, with potential for employment and economic opportunities for urban women and youth. The majority of the examples fall under the scope of adaptation and resilience activities.

3.1. Conservation, eco-system management, urban forestry and farming

Globally restoration of natural capital - forests, degraded lands, and coastal zones - will strengthen resilience and boost adaptation to climate impacts. Agriculture and forests can become an engine of economic growth, delivering greater food security, more nutritious food, more equitable growth, strengthened resilience, and valuable ecosystem services (NCE, 2018). In Africa, 58% of total employment relies on ecosystem services - these jobs are in agriculture (80% forestry and 5% fishing); food, drink and tobacco (6%); and the wood and paper, renewable energy, water, textile, chemical and environment-related tourism sectors (9%) (ILO, 2018b). The shift to more sustainable forms of agriculture combined with strong forest protection could deliver over US\$2 trillion per year of economic benefits and generate millions of jobs globally (NCE, 2018). Research found that income-enhancing green growth opportunities such as growing plants, urban forest gardening (Ethiopia, Rwanda), and urban beekeeping (South Africa, Tanzania) gave a viable income to the urban poor (Avis, 2018; Tull 2020).

Green opportunities for women and youth in conservation, eco-system management, urban forestry and farming continue to grow. Agriculture and forestry have a direct relationship to climate change and environmental impacts, offering the potential both to mitigate carbon emissions and contribute to greater adaptation and resilience – and are highly significant employers in many low-income countries (ILO, 2019). If women farmers had access to the same financial and technical

resources as men, the resulting rise in output could rescue an estimated 150 million people from hunger (NCE, 2018). It is estimated that 130 million urban residents in Africa engage in agriculture, mainly horticulture, to provide food for their families or to earn income from sales, which is mostly done by women (UNDP, 2013). Urban farming provides employment as well as income for women and youth – the income can be realised directly through the sale of produce or indirectly because less food has to be bought (Flynn, 2001).

Agriculture and livestock value chains can offer opportunities for women and youth in conservation agriculture, climate-smart agriculture, mechanical and electrical engineering, plumbing, welding and information and communication technologies (ILO, 2019). Examples of different forms of value chains and value chain development in urban agriculture in Zimbabwe can be found [here](#) and examples of the types of green jobs available in the agriculture and livestock value chains – including areas or activity, training required and types of institution where training could be provided – can be found in Annex 1.

Awareness of the potential of urban cultivation is growing. Women marginalized in other forms of employment in the formal sector of the urban economy, often dominate urban cultivation (UNDP, 2013). Innovations in information and communication technology can boost agriculture, for example through access to skills development, use of mobile financial services and obtaining up-to-date market information (ILO, 2018a). Prioritising locally available inputs and technical capacities can yield benefits in terms of local employment generation and environmental protection (ILO, 2018a). For instance, one key informant suggested that, as in Mozambican cities every vacant lot is already used to grow food, there is the opportunity to support women and youth to use greener techniques and grow and market their produce more effectively; re-greening cities, for example planting trees, could support reducing temperatures in urban areas in Mozambique and could also be linked to nutrition-based projects. Enhancing coastal protection for cities on the coastline could provide jobs, ensure cities are more resilient to extreme events and reduce the risk of coastal flooding.

Micro-gardening in Senegal: The FAO in collaboration with the Ministry of Agriculture and city administrators launched a micro-garden project. It focused on sustainable community gardening for out-of-land horticultural production in overlooked locations with community gardening centres in low-income areas. With a budget of USD 450,000 over 2 years (2006–08), the project achieved remarkable results in sustaining urban production of vegetables and initiating marketing practices for poor families in the city and its surroundings. Over 4000 households were involved in the first phase; almost 65% set-up individual micro-gardens, and 35% are members of community production centres in different areas of Dakar (FAO, 2011).

Micro-agriculture in Matola, Mozambique: AVOMACC is a non-profit association formed in the Mozambican Municipality of Matola by women in need, whose main objective is to provide training and work to unemployed mothers and women, young people, single mothers, people with HIV-AIDS, and those who have children with enormous shortages in terms of education, health, food. The training includes women's economic empowerment activities such as sewing, agriculture and sales. 38 women and 9 men work on the Machamba micro agriculture project which grows various fruits and vegetables, which are sold across Maputo in restaurants and hotels, schools, companies, and private residences.

Sustainable oyster harvesting and mangrove protection in Banjul, The Gambia: The TRY Oyster Women's Association has around 500 female oyster harvesters from 15 villages in Greater Banjul. Cooperatives were created where the women exchange sustainable oyster harvesting techniques and receive training in small-scale enterprise development. The cooperatives have ensured access to appropriate equipment and technologies, set higher standards for working and sanitary conditions, and helped to coordinate the processing, packaging and marketing of oysters. They also mobilized to reforest local mangroves and educate the local population on the benefits of environmentally

responsible resource management. To participate, each woman must “buy-in” at the equivalent of USD 10. Each participant is then loaned USD 30 for investment into a new or existing small business enterprise. Of the 256 women involved in the first round of loan disbursements, only two did not repay their loans in full. Microcredit loans are complemented by a savings program, in which participating women are provided with secure safety boxes where they can store their money. To encourage larger savings during the second round of loan disbursements, the women who managed to save the most through these programs were offered additional, more substantial loans. One of TRY Association’s biggest accomplishments to date has been its leadership in the development and implementation of the Oyster and Cockle Co-Management Plan for the Tanbi Special Management Area, synonymous with the 6,300-hectare Tanbi Wetlands National Park. TRY Oyster Women’s Association was formed in an effort to tackle the challenges facing women oyster harvesters, the related challenge of rapidly declining mangrove forest and coastal health, and the task of educating the local population about the relationship between environmental degradation and deepening poverty.

AfDB/Climate Investment Fund Baixo Limpopo Irrigation and Climate Resilience Project, Gaza, Mozambique: *Funded as part of the AfDB Climate Investment Fund Pilot Programme for Climate Resilience, it aims to contribute to the economic empowerment and overall well-being of women by improving the productivity and climate resilience of their farming plots and by adding value through agro-processing and access to markets. Agrarian centres will provide women with training and employment in primary processing activities in order to increase their skill sets, making them more employable and more productive income earners. The project will provide climate-resilient infrastructure for increased agricultural productivity. Expected results include a 150% increase in incomes and crop production and a reduction in the poverty rate to 42%.*

3.2. Sustainable infrastructure, green energy and green urban development

Strategic urban planning and infrastructure investment could overcome bottlenecks to economic growth and lead to more liveable and resilient cities. More compact, connected, and coordinated cities are globally worth up to US\$17 trillion in economic savings by 2050 and will stimulate economic growth by improving access to jobs and housing (NCE, 2018). Studies have found that urbanization has helped lift the productive potential and standards of living for billions of workers (UN Habitat, 2020).

Sustainable infrastructure and green urban development are areas of opportunity for women and youth participation. Advances in technology can contribute to making cities more sustainable and provide solutions to a wide range of challenges. This could involve jobs in cleaner production processes in industry or contributing to lowering water and electricity consumption, constructing green buildings and green spaces within urban developments or transport systems moving to rail, electric cars and shared vehicles (ILO, 2018a). Greening transport routes, encouraging safe cycling routes and accessible transit routes in Mozambican cities could provide jobs with costs an estimated 1/10th of tarmacked roads (key informant). Facilitating women to train as skilled or semi-skilled construction workers can enable them to enter male-dominated sectors, benefit from economic activity, and earn higher wages (Mohun, 2016). Women's energy-intensive food preparation businesses need modern energy and can be supported within cooking energy programmes or through women's entrepreneurship programmes (ENERGIA, 2019).

Job opportunities exist in sustainable infrastructure and green urban development, and there is potential for more. Job opportunities in green infrastructure can be found in new construction, renovation of existing buildings, the promotion of cleaner cook stoves, use of solar panels and other photovoltaic technologies (UNDP, 2013). A proportionally high share of young workers was found in construction in Nigeria and Ghana between 2005-2015 and young workers accounted for almost half

of new construction jobs created in Zambia (ILO, 2017) suggesting that, with the right skills, youth may benefit from jobs in sustainable infrastructure. The production and distribution of cleaner, small scale energy technologies is an emerging market, providing opportunities for women to engage as sales agents, employees and entrepreneurs within the value chain (Mohun, 2016). Demand for energy saving stoves could create additional jobs for women and reduce the amount of time women spend on collecting more traditional sources of fuel for cooking, and provide health benefits (UNDP, 2013). Modern energy services can increase income by enabling the provision of services that attract more customers (such as playing music) or enable women to grow and process cash crops (for example, mechanised grain processing) (ENERGIA, 2019). A study on the street food sector across Rwanda, Senegal and South Africa in addition to using energy for cooking appliances, street food vendors, both women and men were found to be using the energy for radios, TVs, gas cookers, fans and air conditioners (ENERGIA, 2019).

Skills gaps and social and cultural barriers hinder women’s and youth’s participation in sustainable infrastructure and green urban development. Skills gaps and shortages are almost inevitable whenever any new product or service appears, and the green economy is no exception (ILO, 2019). Young workers are not adequately trained on handling new technologies or the use of sustainable materials in the construction industry (ILO, 2018a). There is a lack of capacity to collect data on skills for green transition, low level of awareness of environmental sustainability and weak institutional mechanisms for policy-making and social dialogue that prevent skills development from playing a stronger role in a just transition (ILO, 2018b).

Increased attentions to skills and increasing investments in overcoming social and cultural barriers – lower literacy, lower access to finance, education, land, mobility, and burden of care – will help lead to poverty alleviation and gender equality (ENERGIA, 2019). For example, investing in energy infrastructure that involves education and training for women to build businesses or be employed in the design production, marketing, sale and maintenance of new technologies and services can reduce energy poverty and build women’s assets, opportunities and capabilities (Mohun, 2016). Women and youth entrepreneurs in Mozambique face additional burdens around understanding licensing processes. When barriers arise, such as being asked to pay a bribe, networks and support could help provide skills and confidence to negotiate the systems (key informant).

[The Zambia Green Jobs programme](#) helped to create jobs among youth through promoting sustainable enterprises in an expanding market for green housing. Actors along the entire construction value chain were supported, including forest growers, processors, manufacturers and retailers of local building materials, as well as buyers of green housing. Over four years, 4,300 jobs were created out of which almost 75% were for youth (ILO, 2018a) with a total budget of US\$ 11,837,752 according to a [case study](#) on the programmeⁱ.

[BURN Manufacturing in Kenya](#) is producing clean cook stoves and has a business model prioritising employment for women in the local distribution and servicing of its products. It found that a focus on training for women and women’s leadership as an integral part of business models can accelerate social impact (NCE, 2018)

[Solar Sister](#) recruits, trains, and mentors women and builds women-to-women networks of trust to achieve last-mile distribution for solar devices and clean cookstoves in Sub-Saharan Africa. Solar Sister is a social enterprise and has a network of over 5000 entrepreneurs that provide services to over 1.7 million people in Africa (Solar Sister, 2021). Results show positive social impacts ranging from raising incomes and the decision-making power of women within families to creating female role models for girls and more productive, healthier, and safer communities (NCE, 2018). Solar Sister has multiple partners and sources of funding. For example, Solar Sister is a partner in the DFID funded Solar Nigeria Programme which aimed by 2020 to ensure improved welfare outcomes for more than 2.8 million people using domestic solar photovoltaic (PV) systems, with 190,000 school pupils and 4.7 million clinic

patients benefiting from public institutions with PV systems, and create more than 3000 jobs with a budget of £58.06 million over six years (Solar Nigeria Programme Annual Report).

In Ghana, the [Lady Volta Vocational Centre for Electricity and Solar Power](#), which started in 2015 as a collaboration across two non-profit organisations and now partners with the multinational firm Schneider Electric, trains women to work as technicians and managers in clean energy. By 2018, the Lady Volta programme enabled dozens of women to become certified by the government to work in various clean energy trades and offered a new training course to help women to pass the Ghana Energy Commission exam and access management positions (NCE, 2018). Between 2015 and 2017, the Lady Volta Green Vocational Centre trained about ten young people per year for the State examinations of the National Vocational Training Institute with a budget of 15 000 €.

3.3. Waste management and the circular economy

Well-designed waste management and circular economy interventions can contribute to opportunities for women and youth. Waste management and recycling make a significant contribution to reducing energy usage and pollution and provides more jobs than landfilling or burning waste (UNDP, 2013). Vegetable crops are food and income generating sources for the urban community and wastewater is one of the irrigation sources – however, this comes with numerous constraints and causes high health risks like cholera and typhoid (Tull, 2020).

Recycling jobs tend to be diverse, require different job skills and are often labour intensive; but they will be an important source of green jobs in urban areas (UNDP, 2013). Employment creation for the circular economy lies in retail trade and research and development, and reprocessing of materials (ILO, 2019). Almost 6 million jobs can be created by moving away from an extract-manufacture-use-discard model and embracing the recycling, reuse, remanufacture, rental and longer durability of goods (ILO, 2018b). While well-known waste recycling projects involve women, research found that there is no clear gender dimension in waste picking, although it is not clear whether this is due to data constraints or to the importance of local context in determining whether waste picking is more concentrated among women or men (Ogando, 2016). It should be noted that some waste management jobs have been controversial and the concept of decent work is very relevant here.

Paper recycling in Mutare, Zimbabwe: The city of Mutare introduced a paper recycling initiative that created employment opportunities for women and youth while addressing its environmental degradation challenges. Rapid urbanization had led to environmental degradation and rising inequality and unemployment. In one of the poorest suburbs of the city, Sakubva, an overused municipal waste dumpsite and the rapid growth of illegal housing in the area had created severe health and environmental problems. Mutare City Council engaged community partners including industries, youth groups and local residents to pilot a programme to increase the life span of the local dumpsite and improve the livelihoods of local residents. A waste-paper recycling project was started with the aim to provide employment for women and youth. Combining the information about the nature of the waste problem with the activities within the local economy, Mutare created employment opportunities for both women and youth, while addressing environmental challenges (UNDP, 2013).

Increasing waste management coverage and providing jobs in Maseru, Lesotho: The Maseru City Council in Lesotho has successfully used the public-private partnership approach to improve urban service delivery and meet local development goals. This included job-creation for 104 women and youth, improving living conditions, improving environmental management and public health, and fostering gender equality and empowerment. The pro-poor framework featured a public-private partnership with the support of UNDP Public-Private Partnerships for Service Delivery (PPPSD) and UN-HABITAT and the national government of Lesotho. As a result, the coverage of waste management service increased from 30% to 70% between 2006-2007. The project has directly contributed to reducing extreme poverty, empowering women and youth and ensuring environmental sustainability.

Income for small local business and revenue for the city have also increased. The project created approximately 104 direct jobs for the poor, mostly filled by women and youth (UNDP, 2013).

Waste collection in Burundi: *In urban Bujumbura, Burundi health and environmental problems resulted from a lack of an effective system of solid waste management and sanitation. The Municipality of Bujumbura responded with an innovative initiative offering female victims of war (i.e. widows, wives of ex-combatants, demobilized, displaced and repatriated women) the possibility of becoming service providers in the capital city through a local partnership with the municipality and a non-governmental organization, Women for Development (AJAD). Women became providers of solid waste services in selected areas of the city, responsible for street sweeping, waste collection and separation. Both local authorities and non-state partners were committed to pursuing a win-win solution to address local service delivery and social challenges. For the City Council, success was in the implementation of pro-poor and inclusive partnership as a mechanism to promote women's empowerment and employment while still serving their citizens. For the NGO partner, AJAD, success was strengthening institutional and technical capacities. The City Council is planning to scale up the small-scale initiative and to include other municipal services (UNDP, 2013).*

3.4. Tourism sector

Women and youth participation in the tourism sector exists but more can be done to address the mismatch between skills provided by education and TVET providers and those demanded by the market, which limits the participation of young women and men (ILO, 2018a). Eco-tourism, as distinct from a general greening of tourism, is seen as having considerable potential in some countries (ILO, 2019). However, a study found that tourism did not feature prominently in national environment and green jobs policies (ILO, 2018a). Another study found the proportion of employed youth in tourism is generally higher than in other economic sectors (ILO, 2018a).

Income generating activities in the tourism industry such as food tourism, arts and craft tourism and nature tourism were found to build resilience to climate change effects (Mngumi, 2018). Employment in the tourism sector creates approximately one-and-a-half additional or indirect jobs in activities related to tourism. However, one key informant suggested that there may not be a huge market for *urban tourism linked to new green jobs* in Mozambique. They instead recommended that local community initiatives would be more sustainable supporting local markets or alternatively producing items for the existing tourism sector that are currently sourced elsewhere, for example from South Africa.

The growth of tourism represents significant challenges to the use of natural resources, the protection of biodiversity and the preservation of unique cultural values (ILO,2018a). Transport related to tourism - by air, by land and by sea – generates an increasingly high level of greenhouse gas emissions so this may need to be balanced against the benefits of generating green jobs in the tourism sector.

Festival sur le Niger in Mali: *Ségou, Mali has an outstanding urban heritage, cultural vitality, geographic location and economic base. A group of local entrepreneurs launched the Festival sur le Niger – which gathers national and international artists and musicians and showcases local cultural industries. Over 150 local enterprises are involved, contributing to 140 direct and 2,000 indirect jobs. Other culture-based initiatives have emerged, including the Kore Cultural Centre, a training centre dedicated to cultural professions, and the Ndomo Centre, a production centre for traditional Bogolan weaving, targeting unemployed youth. (UN Habitat, 2020).*

Gorongosa National Park, Mozambique: *The Park's Wildlife population significantly declined during the country's 16-year civil conflict – this led to the decline of around 99% of some large mammal species' population. A 20-year agreement between the Carr Foundation and Mozambique Government*

was signed to revive the park to its pre-conflict numbers. There are almost 200,000 people living in traditional communities around the Park, and a Human Development Programme was launched to promote livelihoods that are compatible with biodiversity conservation around the vulnerable ecosystem. The Gorongosa Park team have been engaging with various communities to discuss opportunities for natural resource-based businesses. Activities under consideration include sustainable forestry management, community-based ecotourism and game meat production. Women and youth are also engaged in the participatory process to promote equity in decision-making (Gorongosa National Park, 2021).

3.5. Green entrepreneurship

With access to resources, green entrepreneurship can be an important driver of job creation for women and youth. Female and young entrepreneurs can take advantage of opportunities to promote environmental sustainability in sectors including agriculture, renewable energy and recycling (UNDP, 2013). Youth and women need targeted skills and environmental awareness to identify entrepreneurship opportunities in environmental conservation and rehabilitation and they need adequate entrepreneurship training, including support in the development of business plans and access to technology and technical know-how (UNDP, 2013). One key informant suggested exploring the range of existing and potential small businesses, identifying and greening existing business models that are already working with minimal skills and inputs.

Measures can be taken to increase women and youth's participation in green entrepreneurship. Green business innovation might be stifled by capital constraints, which could be the result of banks lacking knowledge about the viability of green products and services, or it may be disadvantaged by tight regulatory standards (ILO, 2018a). Both public and private suppliers can benefit from pursuing proven strategies to promote women's entrepreneurship in the energy sector, including business education and skills development, training on personal agency and initiative, access to finance and capital, and access to coaches, mentors, and networks (ENERGIA, 2019).

SNV's Opportunities for Youth Employment (OYE) programme in Tanzania, Mozambique and Rwanda. *aims to improve the livelihoods of 27,050 rural, out-of-school young people between 18 - 24 years by engaging them in local agriculture, renewable energy, and water and sanitation businesses. The model - "push, match, and pull" - links three key components in an approach to support rural market systems: i) skills and capacity development, ii) matching youth with market opportunities for employment and enterprise development, and iii) promoting value chain within growth sectors with real potential for employment creation, for example by promoting youth inclusive out-grower schemes or by creating self-employment in rural retail chains. The SNV OYE has come to an end, but the the Push – Match – Pull approach has proven its effectiveness and it is now in several SNV youth employment projects, such as [Value Chain Development and Youth Employment \(OYEM\)](#), [Livelihoods Improvement for Women and Youth \(LIWAY\)](#) and [Tanzania Youth Economic Empowerment Activity \(YEE\)](#). Donors included Mastercard and the Swiss Agency for Development Cooperation (SNV, 2019)*

Access to land in Argentina: *The Rosario Urban Agriculture Programme created green jobs by providing land plots for women, training them to develop their farming and sales skills, and helping them organize farmer's markets to generate income while preserving the environment. The programme provides training and technical support through workshops to help community gardeners develop their skills and to organize farmers' markets for the sale of produce. Due to the programme, Rosario now has four large park-sized gardens and 791 community gardens, with 342 entrepreneurs registered 2,000 workers gaining new sources of income, of which 62 percent are female gardeners. It also created five markets in different parts of the city where people sell the vegetables and fruit grown on their plots of lands. The initiatives increased the level of economic activity in the area and recent*

surveys found that it added an additional USD 40 to USD 150 to the monthly incomes of local residents. (UNDP, 2013).

The ILO's Youth Entrepreneurship Facility (YEF): YEF is aimed at decent work creation through female and youth entrepreneurship in Kenya, Tanzania, and Uganda. Funded by DANIDA, a partnership was implemented between 2010-2014 by the Africa Commission, Youth Employment Network, and International Labour Organization. YEF has successfully adapted an existing ILO training tool to exclusively focus on green entrepreneurship among youth. It achieved large-scale outreach and sustainable institutional impact. This includes: i) the Junior Achievement Kenya introducing green business concepts and entrepreneurship to among 25,504 students in secondary schools and 787 in universities; ii) The Enablis Entrepreneurial Network and Chase Bank business plan competitions with a Green and Ecological Business category were supported. Business planning and green entrepreneurship training was given to 5967 participants across major towns in Kenya.; iii) the Kenya Women Finance Trust YEF trained 30 women Renewable Energy Ambassadors (REAs) in support of the Trust's loan portfolio. In 2014, 500 women entrepreneurs were trained using SIYB programme under this partnership. (ILO, 2018a)

4. Green/climate finance

Climate finance is funding which supports activities that reduce emissions (mitigation), or which supports countries to adapt to the impacts of climate change (adaptation). Climate finance architecture is extremely complex with financing coming from a variety of sources and taking a multitude of forms (UN Women, 2016). It can be international or national, public or private, or market-based. Sources include multilateral vertical funds, bilateral initiatives and donors, and development banks. The funds are then channelled via a range of agents including multilateral, bilateral, national and non-governmental actors. These actors use a variety of financial instruments, encompassing both grant instruments and non-grant instruments such as public loans, guarantees and public equity. Climate-related development funding is a separate source of finance, delivered through existing development architecture.

Climate finance interventions targeted at women and youth are limited but gaining momentum. Many climate funds started out gender-blind, but over the past few years they have begun to integrate gender considerations (Schalatek, 2015). The positive impact women can have on their environment has generated widespread demand for more inclusive climate action and gender-sensitive financing channels (ADB, 2014). However, the outcomes and impact of climate finance remain uncertain and/or under-reported among climate funds that have embedded gender equality in policy and practice (Hall et al., 2019).

Green/climate finance and other forms of innovative finance hold great potential to support actions for women and youth participation in green growth but requires deliberate action to support positive outcomes. Gender-responsive climate finance supporting private sector initiatives targeting micro-small-and medium-sized enterprises can provide requisite resources (Schalatek, 2015). Climate finance can encompass public, private, and philanthropic flows of funds and have specific systems that structure the way the funds are distributed (Hall et al., 2019). A gender-responsive approach to climate finance will not only address how funding decisions are made and implemented but will fundamentally alter the focus of funding operations (Schalatek, 2015). If climate finance does not pay sufficient attention to existing gender gaps or is not ready to challenge structural inequalities, it risks reinforcing, rather than challenging, women's subordination in access to land and public participation (Wong, 2016).

Climate finance is being used to support mitigation, adaptation and resilience in Mozambique. For example, the [Climate Investment Fund](#) is providing \$86 million to support infrastructure upgrades, better resource management, enhanced climate services, and the development of local and national capacities for climate resilient planning and action, and \$24 million for Mozambique's national REDD+ strategy to reduce deforestation and forest degradation by 40% by 2030. National- and landscape-level interventions aim to reduce emissions and promote rural development, while the private sector is being engaged to link communities to opportunities provided by major forest sector plantation investment. [The Green Climate Fund](#) is providing funding for mitigation and adaptation through multi-country global funds and a Mozambique specific project – 'Climate-resilient food security for women and men smallholders in Mozambique through integrated risk management'. (See also the example of AfDB/Climate Investment Fund Baixo Limpopo Irrigation and Climate Resilience Project, Section 3.1)

Multilateral Development Banks (MDBs) play a key role in channelling climate related finance to women and youth interventions. These include the World Bank and regional development banks who are tasked with disbursing multilateral funding that flows outside of the United Nations Framework Convention on Climate Change (UNFCCC). The MDBs' identity as development institutions may allow them to approach mitigation in the frame of sustainable development which may mean that funds are more amenable to promoting gender equality (ADB, 2014). Climate-related aid with a strong focus on gender equality is mostly channelled to the following sectors: agriculture (57%), water (44%), transport and storage (12%, and energy generation and supply (11%) (OECD, 2015).

There appears to be no consolidated evidence analysing the full range of climate finance and climate-related development funding specifically in Mozambique, however data exists on the many [sources of funding for conservation and environmental projects](#). This data demonstrates the range of funding from multilaterals, bilaterals, the UN, foundations, and INGOs for one aspect of the potential green economy. There is no analysis of gender or youth related aspects of the funding however it does provide some indication of the range of donors already engaged. Further research could develop a full picture of the range of climate finance sources, instruments and uses in Mozambique.

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Annex 1

Table 4.3 Types of green jobs related to the agriculture and livestock value chain in Zimbabwe

AREAS OF ACTIVITY AND RELATED JOBS	TRAINING REQUIREMENTS	TYPES OF INSTITUTIONS WHERE REQUIRED SKILLS TRAINING COULD BE PROVIDED
Farm power installation, maintenance and repair: solar for lighting, refrigeration, boreholes, irrigation, piped water schemes	Electrical, plumbing, welding	Agricultural colleges, polytechnics, vocational training colleges (VTCs)
Reduction in agricultural energy use: building energy-efficient tobacco barns; applications of clean technologies and fuel-efficient technologies in agro-processing/value addition	Mechanical/electrical engineering construction, conservation agriculture, climate smart agriculture	Universities, agricultural colleges, polytechnics, VTCs
Design, construction, commissioning, maintenance and repair of biogas digesters, using livestock waste, human waste, wood/milling waste, agricultural waste, etc.	Civil engineering, construction	Universities, polytechnics, VTCs
Composting, vermiculture	Conservation agriculture, climate smart agriculture	Agricultural colleges, polytechnics, VTCs
Agro-processing/value addition making use of renewable energy: solar-based food dryers, agro-processing equipment, chick incubators, milling, refrigeration for storing and processing perishables, etc.	Mechanical/electrical engineering construction, carpentry	Universities, polytechnics, VTCs
Post-harvest conservation: storage and preservation using renewable energy, upgrading silos, etc.	Mechanical/electrical/civil engineering, construction, carpentry	Universities, agricultural colleges, polytechnics, VTCs
Growing of crops for biofuel production, e.g. sugarcane, Jatropha)	Conservation agriculture, climate smart agriculture	Agricultural colleges, polytechnics, VTCs
Design, construction, operation and maintenance of wind mills for water pumping	Mechanical engineering, plumbing, welding	Universities, polytechnics, VTCs.
Production and sales of alternative cooking fuels and waste derived products, e.g. bio gels, agricultural waste turned into fuel pellets or briquettes, tiles from maize cobs waste, etc.	Mechanical, electrical engineering	Polytechnics, VTCs
Practising conservation agriculture: minimum tillage, crop residue management, fodder crops, drought-resistant and highly nutritious crops, crop rotation with cereals and legumes, intercropping, dry planting, seed banks/management, etc.	Conservation agriculture, climate smart agriculture	Agricultural colleges, polytechnics, VTCs
Practising climate smart agriculture: control of soil erosion, nutrient management, reduced tillage, mulching and residue management, carbon sequestration, small-grain and short-season varieties, early planting and mulching, integrated fertility management, drought-tolerant varieties, crop diversification, small-scale irrigation	Conservation agriculture, climate smart agriculture	Agricultural colleges, polytechnics, VTCs
Efficient water management: higher-efficiency irrigation systems – drip-irrigation, subsurface irrigation, in situ moisture conservation, rainwater harvesting techniques, hydroponics, etc.	Conservation agriculture, climate smart agriculture, plumbing	Agricultural colleges, polytechnics, VTCs

Table 4.3 (cont'd)

AREAS OF ACTIVITY AND RELATED JOBS	TRAINING REQUIREMENTS	TYPES OF INSTITUTIONS WHERE REQUIRED SKILLS TRAINING COULD BE PROVIDED
Indigenous livestock breeding and improved livestock management: local breeds that are more heat and drought tolerant, grazing management, breed management, herd management, breeding management	Conservation agriculture, climate smart agriculture	Agricultural colleges, polytechnics, VTCs
Integrated pest management: use of alternative pesticides/fertilizers, surveillance, early warning systems and response to pest management	Conservation agriculture, climate smart agriculture	Agricultural colleges, polytechnics, VTCs
Introduction of greenhouse technologies	Conservation agriculture, climate smart agriculture	Agricultural colleges, polytechnics, VTCs
Growing of organic crops	Conservation agriculture, climate smart agriculture	Agricultural colleges, polytechnics, VTCs
Waste management: collection and management of waste agricultural plastics (e.g. pesticide containers, ground coverage) and bags to avoid livestock chokes, etc.	Conservation agriculture, climate smart agriculture	Agricultural colleges, polytechnics, VTCs
Development of ICT applications: climate/weather applications, early pest warning systems, etc.	Information and communications technologies	Universities, polytechnics

Source: Extracted from preliminary findings: see ILO, forthcoming 2020, table 7.

(ILO, 2019)

ⁱ <https://www.enterprise-development.org/wp-content/uploads/DCED-GGWWG-Case-study-Zambia.pdf>