Adapt or die:

Small businesses are the gateway to Africa's climate resilience

By Muhammed Patel and Gaylor Montmasson-Clair

Muhammed Patel and Gaylor Montmasson-Clair are Senior Economists at Trade & Industrial Policy Strategies (TIPS). This article draws on a TIPS and Caribbean Natural Resources Institute (CANARI) report produced for the Global Commission on Adaptation (GCA), accessible on the TIPS website.

Responsible for only 3% of historical greenhouse gas emissions, the African continent is set to bear the brunt of climate impacts, which will further jeopardise the continent's chances to achieve sustainable development, worsening food security, livelihoods, population displacement, health and education, and halting and regressing development. MUHAMMED PATEL AND GAYLOR MONTMASSON-CLAIR argue the need to ramp up climate adaptation on the continent is urgent – in fact, it is a matter of life and death.

The impacts of climate change are brutally unequal. And African economies are – once more – at the wrong end of the stick. The continent's small businesses, if supported, offer an opportunity to enhance Africa's climate resilience as well as foster socio-economic development. Micro, Small and Medium Enterprises (MSMEs) are the engines of African economies and societies. They are key economic players driving inclusive and sustainable development. MSMEs contribute substantially to economic production and employment and have considerable potential to reduce poverty and inequality. They improve livelihoods of communities by stimulating local investments and providing employment to large parts of the population (Creech *et al.*, 2014; ILO, 2018).

Further, MSMEs link into local economies and contribute to social cohesion by integrating diverse populations (OECD, 2018a). They are also a pathway to inter-generational development and social growth (Page and Soderbom, 2015), promoting the inclusion of disadvantaged groups of society, particularly women, immigrants and minority groups (Groepe, 2015; NPC, 2011). Finally, they underpin development in rural areas, with many people deriving their livelihoods from family businesses in agriculture and retail.

Small businesses and climate risks

The climate risks that African MSMEs face are compounded by existing economic and social challenges that constrain their ability to respond. This is further exacerbated by the shift from carbon-intensive production processes and the impact of this transition on the socio-economic health of African countries. MSMEs face climate change-related risks which can be categorised into physical and transition risks (TFCD, 2017; Wei and Chase, 2018).

Physical risks relate to direct climatic hazards inflicting damage to infrastructure such as power supply, railways and roads and other assets such as buildings, factories and capital equipment, as well as people and communities. Acute physical risks are event-driven and refer to short, intense and largely unpredictable climatic events, such as cyclones, hurricanes, wildfires and floods. Chronic physical risks refer to long-term shifts in climate patterns, such as droughts, rising sea-level, rising temperatures and chronic heat waves. ➤➤

> **The climate risks that African MSMEs face are compounded by existing economic and social challenges that constrain their ability to respond.**

Photo credit: Flickr

Transition risks result from the changes required to shift to sustainable development pathways (IPCC, 2014; McKinsey, 2015; TFCD, 2017; WEF, 2018; Wei and Chase, 2018). As economies and societies move to a low-carbon and climate-resilient model as part of a broader sustainability transition, the operating environment of MSMEs and other businesses is transforming. Policy risks emerge as changes in regulatory and legal frameworks affect business operations. MSMEs increasingly need to shift to low-carbon, climate-resilient business models and operations to avoid carbon taxation and penalties, comply with regulations on resource-use efficiency or avoid climate change-related litigation.

Technology risks originate from the improvements and innovation triggered by the transition, such as renewable energy, resource efficiency, e-mobility and integrated smart technologies. These technologies displace old solutions and can quickly render traditional businesses unattractive, uncompetitive and/or obsolete. Market risks are driven by the shifting demand for goods and services as the transition unfolds. Reputation risks materialise as customers penalise firms for their negative climate-related impacts and/or their lack of action to mitigate them. Brand damage may have long-lasting impacts on business operations, possibly affecting sales but also partnerships, valuation and access to, as well as cost of, capital.

At the local level, many risks cannot be controlled as they depend on national-level policy-making and/or external global macro-economic factors. MSMEs can, however, implement adaptation measures to counter the negative impacts of such events. This requires MSMEs to adjust their systems to maintain their production capabilities under changing conditions (PRISE, 2018). The nature of a business also has implications for its ability to withstand climate change-related risks. While MSMEs are versatile and capable of considerable adaptation, larger and formal enterprises tend to have higher degrees of resilience due to higher human, institutional and financial resources (WRI and UNDP, 2015).

A higher degree of integration into value chains strengthens resilience for MSMEs, although it comes with its own sets of risks. Impacts within a value chain can trickle down to the operations of a MSME or other businesses, by disrupting access to raw materials, intermediary products, energy, water or any other inputs into the production process. The lack of climate-compatibility of a business's supply chain can also lead to market and reputational damage, particularly for MSMEs that do not have control over their supply chains. Impacts can also trickle-up from customers. MSMEs supplying large leading businesses may face significant pressure to transition to low-carbon and climate-resilient operations to maintain supply contracts. Climate change risks, either physical or transition, may also have negative impacts on an MSME's market. Their sales may face dire consequences if clients are negatively affected by climate change, either reducing their purchases or even closing down.

Adaptation in Africa and the crucial role of MSMEs

So what is the state of adaptation in Africa? Four inter-related perspectives – policies and interventions; infrastructure, markets and ICT; finance; and data, information and capacity development – provide an insight into the levels of resilience on the continent.

Policies and interventions encompass

institutional and governance arrangements, regulatory frameworks and policies. Regulatory frameworks and policies refer to climate change adaptation policies at national and regional levels, building standards and codes, local zoning rules, private sector development policies and climate change considerations integrated into policies supporting the development of the private sector and/or MSMEs (Crick *et al.*, 2018).

At the global level, institutions such as the United Nations Framework Convention on Climate Change (UNFCCC) have supported countries to develop strategies to address climate adaptation. This is achieved through the support of National Adaptation Plans (NAPs).[1] In 2021, only 22 out of 154 developing[2] countries completed their NAPs and 126 still have their adaptation plans in draft form. Some African countries are nevertheless more advanced. Kenya, Burkina Faso, Cameroon, Kenya and Sudan have already established NAPs. In 2020, South Africa also released its National Climate Change Adaptation Strategy. Overall, the levels of policy readiness and support to achieve it are vastly insufficient. And the implementation of the NAPs brings a whole new set of interrogations.

MSMEs play strong institutional roles in communities to identify cost-effective solutions to increase adaptive capacity. MSMEs are typically concentrated in the agricultural, fisheries, forestry and community-based tourism sectors, but also foster informal and formal support networks, such as farmers' groups, business partnerships and cooperatives within a sector or region. These networks can enable formal and informal enterprises to overcome capacity challenges through pooling resources, improved information sharing and dissemination, co-financing and risk-sharing (WRI and UNDP, 2015). Initiatives like the International Fund for Agricultural Development finance partnership building in the agricultural sector. Formal and informal support networks, such as agricultural cooperatives and women's groups, have been crucial in building the adaptive capacity of agricultural small businesses in countries such as the Gambia and Kenya (Atela et al., 2018; FAO, 2012). These social networks have been important for women-led businesses in Kenya's semi-arid lands, for example, to more actively engage in adaptation planning and actions at the local level through supporting each other. Yet the support MSMEs and their networks receive remains far too small and piecemeal to trigger a structural improvement to the continent's resilience.

Infrastructure, markets and ICT refer to the availability of, and access to, basic infrastructure, such as transportation, internet, water and electricity as well as business zones and centres (Crick *et al.*, 2018). In African settings, infrastructure tends to be developed to a lower degree than wealthier nations. An adaptation focus in infrastructure provision here is paramount. Maladaptation, i.e. actions aimed at increasing resilience that in fact lead to increased risk of adverse climate-related outcomes, is still too common. An increased adaptation focus can also open up new market opportunities for MSMEs (Montmasson-Clair *et al.*, 2019). In South Africa, a greater sustainability focus by fresh produce retailers, for example, encourages MSMEs to adapt and increase resilience by undertaking investments to *green* their businesses, increasing their resilience and producing goods in a sustainable manner, and providing them with the opportunity to enter established value chains (Patel, 2019). The marketing and sale of climate-resistant rice seeds in northern Uganda saw vulnerable farmers reduce their vulnerability to climate hazards (IISD, 2016). This was evident through improved production yields and a lower sensitivity to pests, diseases and climate hazards, notably droughts. In that case, the proximity of a MSME seed supplier to consumers (typically closer than larger businesses) also assisted farmers with flexibility of supply in times of need.

The *financial* environment refers to the availability and access of MSMEs to adaptation-related government incentives, financial instruments and insurance schemes. Governments can also ensure that finance for MSME adaptation is available and adequate through the roll-out of economic incentives and funds for climate adaptation. Resource mobilisation issues can hinder the implementation of adaptation measures by MSMEs despite increased climate awareness and understanding of viable adaptation options.

The International Finance Corporation indicates that between 200 and 245 million formal and informal MSMEs worldwide are still unable to access financial and risk management instruments, such as loans, insurance, credit and venture capital (Stein *et al.*, and IFC, 2010). It is further estimated that MSMEs suffer an approximate US$2 trillion gap in financing globally. Problematically, MSMEs in developing countries typically have limited capital or assets to cover high upfront costs for adaptation, and are perceived as having a high-risk profile by financial institutions (Crick *et al.*, 2018; OECD, 2018b; SEED, 2015; UNEP, 2018a; WRI and UNDP, 2015).This is particularly true for the informal sector in which more than 50% of MSMEs operate. While formal MSMEs may be able to access micro loans or grants up to US$10 000, larger amounts of US$20 000-250 000 are generally inaccessible (SEED, 2015; World Bank, 2007), which significantly limits opportunities to scale up. MSMEs in Africa have unfortunately been neglected in adaptation financing historically (UNEP, 2018b . This lack of access hampers MSMEs from implementing adaptation measures. Given that investments in adaptation ››

measures by businesses generally involve large upfront costs, relatively long payback periods and climate uncertainties, improving resource mobilisation and securing financing for MSMEs to invest in adaptation is key (WRI and UNDP, 2015).

Financial risk mitigation products have been gaining traction in recent years. However, there is a lack of appropriate risk-transfer finance mechanisms, such as micro insurance arrangements that are available and accessible to MSMEs to adapt. The uptake of such products depends on the consumer's risk perception, which is context-specific. Risk transfer products such as insurance can provide income security, protecting vulnerable MSMEs through smoothing consumption and lessening the financial and economic shocks of adverse climate events. Yet certain consumers are unable to purchase insurance, particularly if they are insuring high-risk activities. For vulnerable groups such as MSMEs, affordability is crucial for uptake.

Data, information and capacity development concern the availability of data and information systems that predict future weather patterns, provide risk assessment and decision-making tools, and provide information on adaptation measures, as well as their cost and applicability to different MSMEs in differing regions and sectors (Crick *et al.*, 2018).Capacity development relates to the availability of adaptation training programmes, research institutions focusing on adaptation, forums and conferences on climate change, agricultural extension and centres that focus on training and technology development.

Limited access to climate data and information on locally-appropriate adaptation options hinders the ability of the majority of MSMEs to effectively plan and adapt as it creates an environment of uncertainty (Okereke *et al.*, 2012; UNEP, 2018a; WRI and UNDP, 2015). This gap is particularly stark for MSMEs in African countries. The challenge of limited access to information also affects key stakeholders, such as governments, businesses and the general public. As consumers and promoters of adaptation-related goods and services, stakeholders require knowledge and data on adaptation, the available options and the best choices. Uncertainties over future climatic changes also reduce the attractiveness of investing in adaptation if there are no cost savings or requirements for compliance with specific legislation or standards.

Poor awareness about climate risks and uncertainties (either because information is unavailable or inaccessible) makes it difficult for African MSMEs to successfully incorporate these risks into their business planning and decision-making. This information must furthermore be available to firms in a format that is understandable and actionable. Entrepreneurs also need to be empowered to understand the business case for adaptation, know the available appropriate and cost-effective adaptation measures and why they stand to benefit from investing in adaptation. Difficulties in choosing among adaptation interventions when multiple options are available are also inherent. MSMEs lack the tools and knowledge to evaluate these options. Capacity to assess adaptation options and plan adaptation strategies require a certain level of technical knowledge which is not always available to MSMEs in low- and middle-income countries.

Governments, in collaboration with development partners, academia and private sector actors (such as chambers of commerce and industry), can support education and training on adaptation measures for MSMEs and other businesses. Building capacity on the proper use of climate information and tools to incorporate climate risks into business planning, budgeting and implementing adaptation measures is required to successfully enable MSMEs' adaptation. For instance, the Proadapt programme in Latin American and Caribbean countries could be extended to African settings. It involves market assessments of climate risks within the relevant sectors; awareness-raising and outreach to local enterprises, resource users and other stakeholders; and training and implementation in adaptation strategies to address climate risks. It also seeks to promote business opportunities related to adaptation through improved access to market intelligence and business advice.

A vision for the future

The evidence thus far is irrefutable. African MSMEs face severe challenges related to accessing climate data and information on locally appropriate adaptation options; have difficulty in choosing among options; face limited access to the appropriate finance; lack technical skills and tools for small business development and management; lack appropriate risk-transfer mechanisms; face unfavourable business environments; and have to navigate socio-cultural barriers.

Furthermore, a multi-stressor view points to the importance of understanding the complexities of different impacts and how climate change vulnerability overlaps with other socioeconomic challenges, such as poverty and inequitable access to resources. Strong context-specific factors need to be considered when thinking about increasing the resilience of small businesses.

Importantly, MSMEs do not have to be limited to increasing only their resilience. MSMEs can also act as *solution providers* – proliferators of adaptation-related goods and services. MSMEs are vital conduits through which adaptation technologies and goods can spread. They account for substantial shares of employment; are closer to local communities and households, which translates into a greater understanding of their needs; and tend to have a greater

MSMEs play strong institutional roles in communities to identify cost-effective solutions to increase adaptive capacity.

Photo credit: Wikimedia Common

capacity to test innovative and flexible business models (Montmasson-Clair and Mudombi, 2019).

While support for adaptation is gaining traction, the pace needs to be ramped up substantially. The economics of adaptation are dynamic and evolving. While adaptation is still considered relatively costly compared to mitigation, many adaptation-related interventions also bring positive socio-economic spillovers. As part of a just transition, adaptation ought to be prioritised. The need for an enhanced role for climate-sensitive decision-making and supporting MSME resilience to climate change is clear. Looking ahead, African countries can scale adaptation efforts through four key channels.

From a policy and institutional perspective, *African governments have to integrate an adaptation lens into central decision-making*. Many African countries have not yet fully articulated their adaptation responses to climate change. Policy-makers may not fully understand the complexities related to climate adaptation, how these complexities interrelate with other developmental priorities and how to move forward. This risks generating inadequate or misinformed policies while climate change presents new challenges and worsening existing ones. The path dependency of governance systems needs to be broken so that they can be more responsive to current and future needs and challenges. A starting point for governments is developing internal capacity in assessing the vulnerabilities of geographies and sectors in the economy, including the vulnerability of MSMEs, and drawing from the experience of neighbouring/similar countries. By forming dedicated institutions that assess, communicate and plan adaptation strategies, governments can track the extent to which the entire economy is resilient to impacts. Effective adaptation strategies for MSMEs need to be developed with them. Mechanisms for effective input of MSMEs, particularly informal and micro-enterprises where the most vulnerable work, into decision-making institutions should be created or strengthened.

Along with this, *new and innovative risk-transfer mechanisms require upscaling*. Financial security measures, such as risk-transfer products, also have their place in protecting vulnerable enterprises. Development of such products has to draw on the expertise of the insurance industry, financial regulators and governments. Governments can lead by engaging with the financial and insurance industries that are capable of assessing risk. These industries can be harnessed to provide insurance products that target MSMEs and assist governments.

From an infrastructure, markets and ICT perspective, *greater support is required to address basic resource deficits that MSMEs face*. MSMEs in African countries lack access to basic resources, such as infrastructure, fundamental business knowledge and management skills, and technology. The formation of business development hubs that provide MSMEs with knowledge on business management, financial statements, formulating business plans, managing costs, and supplier and consumer relationships are fundamental business support measures. This would help overcome steep learning curves early on. The development of a strong business model, the ability to leverage financing through multiple streams and the use of ICT (to enable access to new online markets notably) can be strengthened through dedicated support institutions. Supporting MSME associations and other bottom-up peer-support mechanisms created by MSMEs would also be valuable.

Further, *a conducive business environment for MSMEs to flourish must be promoted in African countries*. Numerous challenges continue to hamper the ››

> **As part of a just transition, adaptation ought to be prioritised.**

success of MSMEs. These include unclear regulatory and tax regimes, long permit approval periods and weak contractual enforcement. Poorly developed physical infrastructure limits the extent to which entrepreneurs can explore various production, transport and marketing options. The state should also ensure that regulatory hurdles for MSMEs are not onerous and that contractual law is upheld.

In addition, *proactive adaptation by large businesses can promote adaptation by stakeholders along their value chains including MSMEs.* The extent to which large entities embrace resilience has a bearing on MSMEs' resilience. Increasingly, large businesses have begun to embrace climate change fundamentals into their operations and supply chains. These large businesses clearly stand to benefit, as increasing the adaptive capacity of their value chain enhances security of supply and their brand image. Policies that seek to nudge larger players to support adaptation by MSMEs can transition sectors towards becoming more resilient. A suite of government instruments, including targets, licensing requirements and incentives, can stimulate such adaptation activity in markets.

From a data, information and capacity development perspective, *MSMEs have to be empowered to understand the risks they face and why adaptation is important*. While adaptation needs are evident, action is constrained by the often long-term, uncertain and misunderstood nature of the risks. The state can drive interventions that promote knowledge generation and transfer within and among MSMEs so that they understand the adaptation processes and markets. This can be aided by each country identifying priority sectors, relevant MSMEs, their competencies and the risks they face. Capacity building interventions must recognise and build on competencies MSMEs already have. Interventions should include mentoring, coaching, peer learning and support. Reforming existing business support programmes, whether by government or other actors, to better address the needs of MSMEs is also crucial.

Social learning is also a potent force to be leveraged in Africa. Learning is crucial for providing lessons from past experiences and from other people, areas or systems. Greater investment in participatory monitoring and reporting tools, which allow for iterative learning and adjustments, is needed. It is also necessary to embrace various forms of knowledge when attempting to incentivise MSMEs to increase resilience. Particularly, there is a need for the state and donor organisations to create institutions that can navigate the complexities and complementarity of indigenous and modern (scientific) knowledge and practices. This capability assists in overcoming social friction between traditional practices and newer, innovative ones.

Then, *adaptation requires cooperation, linkages and partnerships between multiple actors along the value chain*. Successful adaptation is required at both the individual and group level. While individual action can enhance individual resilience, more system-wide resilience is required. Win-win solutions can be achieved when stakeholders collaborate on solutions with better understanding of the challenge and are equipped with appropriate technical skills to address the challenge. Partnerships and linkages to wider knowledge networks, such as through government, public and private enterprises, labour unions, civil society organisations and researchers, allow for innovation and pooling of resources to address climate-related shocks and take advantage of new opportunities.

From a financial perspective, *funders have to be mindful of the delicate intricacies of entrepreneurship and adaptation finance.* MSMEs face financial constraints, particularly in the early stages of development. Financial institutions need to be empowered to serve as climate-sensitive decision-makers that understand the need for adaptation and the risks involved in undertaking adaptation-related investment with MSMEs. Since adaptation is based on forward-looking assessment of risks, financial institutions need to tailor expectations on a fundamental understanding of this uncertainty. For some adaptation investments, markets may be new and untested. Financiers may not understand the broader climate goals that are achieved through adaptation investments, as they over-emphasise profitability and returns in providing funding. Financiers need a fundamental understanding of this business context and tailor financing based on these constraints.

Also, *strengthening the resilience of climate-sensitive sectors goes hand in hand with diversifying through new, green opportunities.* There is a strong correlation between labour-intensive sectors and climate-sensitive sectors, which implies that climate impacts will have direct implications on MSMEs and employment. Ensuring that MSMEs thrive in the face of climate change is necessary to safeguard existing employment and create new employment activities. Many MSMEs in African countries are highly dependent on climate-sensitive sectors or areas. As part of fostering new opportunities, the state has a role to play in enabling the growth of "green" activities. Reducing the dependency on climate-sensitive sectors by diversifying into more resilient sectors is one strategy for

reducing the climate and employment risk. Physical and socio-economic environments may, however, impair and limit the ability of MSMEs to diversify into alternative economic activities, hence the need for the state to create a conducive and enabling environment for more product and process innovation.

The above set of interventions is critical to enhance the resilience of Africa's MSMEs and foster their sustainable development, in turn underpinning the adaptation of African economies and societies. But the road to resilience for Africa is long and treacherous, too often a lonely place to wander and get lost. Having a chance to achieve sustainable development in Africa requires a global just transition, in line with the principles of international solidarity and "common but differentiated responsibilities" embedded in the international climate regime. It requires a global compact to support adaptation in Africa (and other low- and middle-income countries), including restoration for loss and damage. Else, African societies will, once more, be left behind – to die.

REFERENCES

Atela, J. , Gannon, K. and Crick, F. 2018. Climate change adaptation among female-led micro, small and medium enterprises in semi-arid areas: a case study from Kenya. Available at https://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2018/10/working-paper-338-Atela-et-al.pdf (accessed 5.13.22).

Creech, H., Paas, L., Gabriel, G.H., Voora, V., Hybsier, C. and Marquard, H. 2014. Small-scale social-environmental enterprises in the green economy: supporting grassroots innovation. *Development in Practice,* 24, 366–378. Available at https://doi.org/10.1080/09614524.2014.899561

Crick, F., Gannon, K.E., Diop, M. and Sow, M. 2018. Enabling private sector adaptation to climate change in sub-Saharan Africa. *WIREs Climate Change,* 9, e505. Available at https://doi.org/10.1002/wcc.505

Engel, H., Enkvist, P-A. and Henderson, K. 2015. How companies can adapt to climate change. McKinsey & Company. Available at https://www.mckinsey.com/business-functions/sustainability/our-insights/how-companies-can-adapt-to-climate-change (accessed 5.13.22).

FAO. 2012. Good Practices in Building Innovative Rural Institutions to Increase Food Security. Available at https://www.fao.org/3/ap096e/ap096e.pdf (accessed 5.13.22).

Groepe. F. 2015. François Groepe: The role of small business in the economy. AHI conference paper. Available at https://www.gov.za/speeches/deputy-govenor-francois-groepe-role-small-business-economy-13-oct-2015-0000

IISD. 2016. How Small Businesses Can Support Climate-Resilient Value Chains: Lessons from Uganda. Available at https://www.iisd.org/system/files/publications/how-small-agricultural-business-support-crv-chains-equator-seeds-uganda.pdf (accessed 5.13.22).

ILO. 2018. International Labour Organisation. The impact of change adaptation, Input Document for the G20 Climate Sustainability Working Group. Available at https://www.ilo.org/wcmsp5/groups/public/---ed_emp/documents/publication/wcms_645572.pdf (accessed 10.5.22).

IPCC. 2014. AR5 Climate Change 2014: Impacts, Adaptation, and Vulnerability. Available at https://www.ipcc.ch/report/ar5/wg2/ (accessed 5.16.22).

Montmasson-Clair, G. and Mudombi, S. 2019. Concept Note to Inform the 2018 Partnership for Action on the Green Economy (PAGE) Ministerial Conference on Inclusivity within the Green Economy. Available at https://www.tips.org.za/images/TIPS_for_PAGE_Green_economy_and_inclusivity.pdf (accessed 5.13.22).

Montmasson-Clair, G., Mudombi, S. and Patel, M. 2019. Small business development in the climate change adaptation space in South Africa. Available at https://www.researchgate.net/publication/332446065_Small_business_development_in_the_climate_change_adaptation_space_in_South_Africa (accessed 5.16.22).

NPC. 2011. National Development Plan 2030 | South African Government. Available at https://www.gov.za/issues/national-development-plan-2030 (accessed 5.16.22).

OECD. 2018a. Declaration on Strengthening SMEs and Entrepreneurship for Productivity and Inclusive Growth. Available at https://www.oecd.org/cfe/smes/ministerial/SME-Ministerial-Declaration-ENG.pdf (accessed 5.13.22).

OECD. 2018b. Enhancing the Contributions of SMEs in a Global and Digitalised Economy. Available at https://www.oecd.org/industry/C-MIN-2017-8-EN.pdf (accessed 5.13.22).

Okereke, C., Wittneben, B. and Bowen, F. 2012. Climate Change: Challenging Business, Transforming Politics. Available at https://journals.sagepub.com/doi/abs/10.1177/0007650311427659 (accessed 5.13.22).

Page, J. and Soderbom, M. 2015. Is Small Beautiful? Small Enterprise, Aid and Employment in Africa, *African Development Review,* 27, 44–55. Available at https://doi.org/10.1111/1467-8268.12138

Patel, M., Maleke, M. and Pule, T. 2019. Using hydroponics to enhance food security, Trade & Industrial Policy Strategies (TIPS). Available at https://www.tips.org.za/research-archive/sustainable-growth/green-economy-2/item/download/1715_d266f8dd8beb9b443dc565c590841d22 (accessed 5.13.22).

PRISE. 2018. Pathways to Resilience in Semi-arid Economies. Value Chain Analysis for Resilience in Drylands (VC-ARID): identification of adaptation options in key sectors. Reflections on VC-ARID, November. Available at https://cdn.odi.org/media/documents/12515.pdf (accessed 5.13.22).

SEED. 2015. Shaping Sustainable Development through Eco-entrepreneurship. Available at https://www.kit.nl/wp-content/uploads/2018/08/5631def334290_SEED-policy-report-final.pdf (accessed 5.13.22).

Stein, P., Goland, T. and Schiff, R. 2010. Two Trillion and Counting: Assessing the Credit Gap for Micro, Small, and Medium-Size Enterprises in the Developing World. McKinsey & Company. Available at https://www.andeglobal.org/publication/two-trillion-and-counting-assessing-the-credit-gap-for-micro-small-and-medium-size-enterprises-in-the-developing-world/ (accessed 5.13.22).

TFCD. 2017. Task Force on Climate-Related Financial Disclosures. Publications. Available at https://www.fsb-tcfd.org/publications/ (accessed 5.16.22).

UNEP. 2018a. Private-sector action in adaptation: Perspectives on the role of micro, small and medium size enterprises. UNEP CCC. Available at https://unepdtu.org/publications/private-sector-action-in-adaptation-perspectives-on-the-role-of-micro-small-and-medium-size-enterprises/ (accessed 5.16.22).

UNEP. 2018b. The Adaptation Gap Report. 2018. Available at https://wedocs. unep.org/bitstream/handle/20.500.11822/27114/AGR_2018.pdf?sequence=3. (accessed 5.13.22).

UNFCCC. 2009. Least Developed Countries under the UNFCCC. Available at https://unfccc.int/resource/docs/publications/ldc_brochure2009.pdf (accessed 5.13.22).

WEF. 2018. World Economic Forum. The Global Risks Report 2018. Available at https://www.weforum.org/reports/the-global-risks-report-2018 (accessed 5.16.22).

Wei, D. and Chase, M. 2018. Climate + Supply Chain - The Business Case for Action. Available at https://www.bsr.org/en/our-insights/report-view/climate-change-and-supply-chain-the-business-case-for-action (accessed 5.16.22).

World Bank. 2007. Making Finance Work for Africa. Available at https://openknowledge.worldbank.org/handle/10986/6626 (accessed 5.16.22).

WRI, UNDP. 2015. Adapting from the Ground Up: Enabling Small Businesses in Developing Countries to Adapt to Climate Change. Available at https://www.andeglobal.org/publication/adapting-from-the-ground-up-enabling-small-businesses-in-developing-countries-to-adapt-to-climate-change/ (accessed 5.16.22).

ENDNOTES

1. While NAPs are not MSME-centric, they seek to build overall resilience of the economy, of which MSMEs and other businesses are a component. Such an initiative is a step in the right direction in proliferating adaptation-thinking.
2. This definition includes low- and middle-income countries and the Least Developed Countries. Least Developed Countries are defined as those countries with low income, weak human assets and high economic vulnerability. See (UNFCCC, 2009) NA