

UNECE

Women Entrepreneurship in
Natural Resource Management:
Challenges and Opportunities for
the MSME Sector in the post-
COVID-19 Socio-economic
Recovery

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15 December 2020

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Acronyms & Abbreviations

ADB	Asian Development Bank
ADB I	Asian Development Bank Institute
AI	Artificial Intelligence
BDC	Business Development Bank of Canada
CEO	Chief Executive Officer
CESD	Center for Economic & Social Development
CFO	Chief Financial Officer
CIO	Chief Information Officer
COO	Chief Operations Officer
COVID	Coronavirus Disease
DCFTA	Deep and Comprehensive Free Trade Area
EAP	East Asia and Pacific
EBRD	European Bank for Reconstruction and Development
EC	European Commission
ECA	Europe and Central Asia
EIB	European Investment Bank
EU	European Union
EV	Electric Vehicles
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
GEM	Global Entrepreneurship Monitor
GEOSTAT	National Statistics Office of Georgia

ICT	Information Communication Technology
IFC	International Finance Corporation
ILO	International Labour Organization
IT	Information Technology
ITC	International Trade Center
LAC	Latin America and the Caribbean
MENA	Middle East and North Africa
MFO KMF	Microfinance organization in Kazakhstan
MSME	Micro, Small, Medium Enterprises
NRM	Natural Resources Management
OECD	Organization for Economic Cooperation and Development
OHCHR	Office of the United Nations High Commissioner for Human Rights
OVOP	One Village - One Product
PV	Photovoltaic
SA	South Africa
SCFWCA	State Committee for Family, Women, and Children Affairs
SDG	Sustainable Development Goal
SME	Small and Medium Enterprises
SSA	sub-Saharan Africa
STEM	Science, Technology, Engineering, and Mathematics
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNFC	United Nations Framework Classification
UNFPA	United Nations Population Fund
UNSTATS	United Nations Statistics Division
USD	United States Dollar
USGS	United States Geological Survey
WBG	World Bank Group
WED	Women Entrepreneurship Development
WEF	World Economic Forum
WHO	World Health Organization
WITS	World Integrated Trade Solutions
WTO	World Trade Organization
WWF	World Wide Fund for Nature

Executive Summary

Micro-, small-, and medium-sized enterprises (MSMEs) fill crucial roles in economies all over the world. MSMEs can often innovate, pivot, and generally navigate the global economic waters more quickly than their large counterparts. Globally, MSMEs account for 90% of business enterprises; micro- and small enterprises together account for a staggering 70% of employment worldwide. The MSME sector generates approximately 40% of Gross Domestic Product (GDP) in developing economies; in developed economies, 7 out of 10 jobs are created by MSMEs. MSMEs have very high job creation potential, and the sector is considered to be critical to socioeconomic development in most countries. In addition, as most economies are transitioning to sustainability, MSMEs are particularly well-placed to drive solutions to climate change. However, women are underrepresented in MSMEs in every economic sector. This may be linked to a lack of confidence to voice opinions and social and cultural barriers blocking them from decision-making roles.

While opportunities exist for women entrepreneurs in all sectors of the economy, there are few that can be considered as particularly well suited as MSMEs. These sectors include services, the circular economy, information technology, and management of natural resources. Each of them has at least one of the following characteristics: relatively low capital requirements, reliance on technological advancements such as machine learning and big data, and the need to adapt to quickly changing circumstances. This report has focused on the natural resources management (NRM) sector as uniquely suited for MSMEs, because it has all three of these characteristics. Further, the sector presents appealing, diverse, and long-term impactful opportunities. As non-renewable resources deplete, the natural resources industry is shifting away from the paradigm of “take, make, dispose” towards integrated systems approaches to increase resource efficiency and reduce waste. Innovations such as these are knowledge-intensive, rather than capital-intensive, and hence accessible to MSMEs. In an industry in transition, enterprises that adapt quickly will be the most successful.

Challenges for Women-led MSMEs in Natural Resource Management and the Impact of the COVID-19 Pandemic

Despite the high level of importance, the potential for economic growth, and multiple opportunities for MSMEs, women-led MSMEs in NRM face many challenges. Due to their size, many MSMEs are especially vulnerable and face hardships caused by natural and man-made disasters. A significant number of women-led MSMEs operate in the agriculture sector, recruiting informal labour who are not guaranteed fair pay, decent work conditions, and job security. Such MSMEs tend to have lower productivity levels and limited opportunities to expand operations or access financing and markets. MSMEs and their workforce are generally more vulnerable to economic shocks. The ongoing COVID-19 pandemic is a perfect example of this; it has created challenges for MSMEs across all economic sectors in nearly all economies, including those countries, in which containment measures were not too stringent. When surveyed about the impact of COVID-19 on their business operations, nearly 90% of micro-and small enterprises categorized the impact as moderate to severe, as opposed to just over 80% of large companies.

In addition to the challenges faced by all MSMEs, there is evidence suggesting that women-led MSMEs must overcome additional obstacles. Women tend to operate smaller and safer businesses. While this is likely due to a general preference for stability and security, it could also be due to a systematic bias, discouraging their participation as entrepreneurs. Fear of failure prevents women from starting their business, and if they decide to become entrepreneurs, they make safer business

choices. Women are often discriminated against in accessing credit; 95% of women entrepreneurs surveyed say they self-finance their business. Furthermore, women are often conspicuously absent from managerial or decision-making roles within organizations promoting MSMEs, which could instill and uphold any existing cultural biases that may be hindering the participation of women. In NRM, women are under-represented in every area. Among the possible reasons are a lack of confidence to voice opinions, feeling out-of-place in an entrepreneurship discourse that is predominantly masculine in nature, and social and cultural barriers that block them from decision-making roles.

It is critical to ensure that systemic gender bias does not hinder the economic development of women-led MSMEs. Men and women each account for about half of the potential workforce, so any such bias would limit the contributions of a substantial portion of the population. There are research data that indicate that innovation is more prevalent in women-led MSMEs. As economies wrestle with the COVID-19 crisis while already trying to drive climate change mitigation efforts and transition to a low-carbon economy, innovation is particularly important. By promoting environmental awareness and supporting an economic transition, women-led MSMEs can lead the change towards building a greener, gender-equal, and more sustainable economy.

Key Findings of the Study

This study explores different ways for women entrepreneurs to contribute to the NRM sector and to respond to problems resulting from the COVID-19 crisis. It includes case studies from several member States of the United Nations Economic Commission for Europe (UNECE), highlighting challenges, opportunities, best practices, and success stories. The following are the major findings of the study:

1. **There is an evident gender diversity problem in natural resources management.** For example, the oil and natural gas industry has struggled over the years to attract, retain, and promote women in the workforce, and it is important for this sector to decrease the gender gap as it is already facing employment challenges. The majority of NRM women entrepreneurs are in the agriculture sector.
2. **The COVID-19 pandemic simultaneously presents unprecedented challenges and unique opportunities to women-led MSMEs.** MSMEs in general, and women-led MSMEs in particular, have been especially vulnerable to the impacts of the pandemic. However, the pandemic has also caused a dramatic shift in the business as usual approach and paved the way for innovations, green growth, and sustainable development. Women-led MSMEs may be best equipped to take advantage of these opportunities.
3. **There are few policies to promote women entrepreneurship in NRM.** In part, this could be due to the lack of sufficiently detailed data. The severely limited amount of relevant data hinders analysis and makes it difficult to design public policies to promote the participation of female entrepreneurs in the sector.
4. **In recent years, the number of women studying science, technology, engineering, and mathematics (STEM) topics has increased.** An increase in women skilled in STEM topics should result in more women-led MSMEs taking advantage of opportunities presented by Fourth Industrial Revolution technologies, such as machine learning, cloud computing, and big data.

Recommendations

Based on the study and its key findings, the following are the recommendations for priority actions that countries can take to encourage the participation of women-led MSMEs in natural resources management.

Recommendation a: Enabling business environment: Ensure stable, transparent legislation and policies that support all entrepreneurs, and women entrepreneurs in particular, including easy access to publicly available information on starting a business.

Recommendation b: Pro-growth tax systems: Ensure that tax systems foster rather than impede entrepreneurship and growth of start-ups.

Recommendation c: Labour market flexibility: Ensure that labour policy frameworks support flexible working approaches for women entrepreneurs and their businesses.

Recommendation d: Challenge social and cultural stigma: Empower women by helping them develop skills to build confidence to address cultural norms that may discourage women setting up an enterprise.

Recommendation e: Information and data distribution system: Collect and process up-to-date, relevant data on women-led MSMEs across all sectors that would allow the development of proper support policies.

Recommendation f: Disaster management strategy: A coordinated approach on planning rules, tax reforms, subsidies, and other measures to mitigate the impact of COVID-19 can be beneficial for identifying reform priorities and to implement new regulations that can be used to overcome consequences of future pandemics and other disasters.

Recommendation g: Non-discrimination: Ensure that property rights and access to finance, including for equity investment, do not discriminate by gender.

Recommendation h: Networking and mentoring: Find ways to support connections among female and male entrepreneurs, including through small business initiatives and connecting large and small business.

Recommendation i: Affordable childcare and healthcare: Access to quality affordable childcare and healthcare is critical for promoting women entrepreneurship in all sectors, including natural resource management.

Recommendation j: Capacity development: Provide opportunities for women to access training and education programmes that improve entrepreneurship and technical skills, to increase chances for success of women-led MSMEs in natural resource management.

Recommendation k: Green economic recovery: Financial investments in the natural resources sector supporting innovation, green growth, and sustainable development can create multiple opportunities for women entrepreneurs to “build back better” and promote low-carbon solutions during the socioeconomic recovery from the COVID-19 pandemic.

Recommendation l: Create a platform for MSMEs, policymakers, and financial institutions to support resilience of resource supply chains in the ECE region.

Chapter 1. Introduction

MSMEs

While micro-, small-, and medium-sized enterprises (MSMEs) are logically “small”, there can be many ways to categorize them, and small is relative. There is no globally-accepted definition of what firms constitute the MSME sector. In general, MSMEs are frequently defined based on multiple criteria such as employee headcount, capital invested, and sales volume. Statistical data used by international organizations such as the International Finance Corporation (IFC) and the European Commission (EC) identify MSMEs by the number of employees. Table 1 and Table 2 demonstrate the different definitions of MSME categories by the IFC and EC, respectively.

Table 1 - Micro-, small-, and medium-sized enterprises, as defined by the International Finance Corporation.

Indicators	Micro	Small	Medium
Employee Count	<10	<50	<300
Total Assets	<\$100,000	< \$3,000,000	< \$15,000,000
Total Annual Sales	<\$100,000	< \$3,000,000	< \$15,000,000

Source: (IFC, 2012)

Table 2 - Micro-, small-, and medium-sized enterprises, as defined by the European Commission.

Indicator	Micro	Small	Medium
Employee Count	<10	<50	<250
Annual Turnover	≤€2,000,000	≤€10,000,000	≤€50,000,000
Annual Balance Sheet Total	≤€2,000,000	≤€10,000,000	≤€43,000,000

Source: (EC, 2015)

In this study, the MSME sector is broadly defined using the European Commission’s definition. The case studies, however, will follow the country-specific definitions.

In most countries, MSMEs account for 90% of enterprises; micro-and small enterprises, together with sole proprietorships, account for a staggering 70% of employment worldwide (ILO, 2020). The MSME sector generates approximately 40% of GDP in developing economies; in developed economies, 7 out of 10 jobs are created by the MSME sector (WBG, 2020). MSMEs have very high potential to create jobs, and the sector is considered to be critical to socioeconomic development in most countries.

In its Small Matters Report, the ILO (2019) has documented a positive correlation between country income levels and the split between formal and informal employment. They found that countries with higher income levels have a higher share of employment in the formal MSME sector. Figure 1 shows that developing economies have a larger share of the informal MSME sector. The findings from the report also suggest that women have a lower share of employment in the informal sector compared to men, as it exposes them to vulnerable situations.

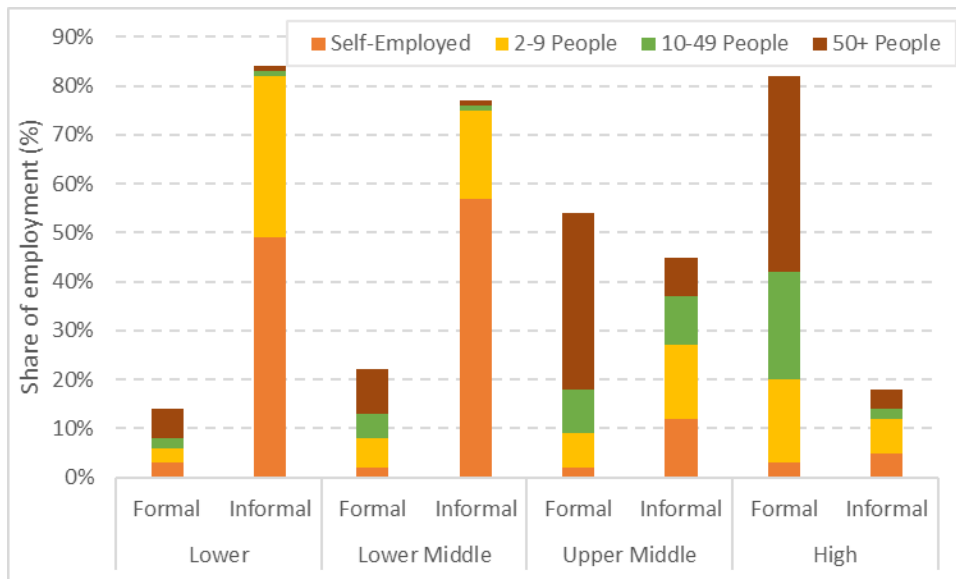


Figure 1 - Distribution of employment by sector (formal vs. informal) and economic unit size, across country income groups.

Source: (ILO, 2019)

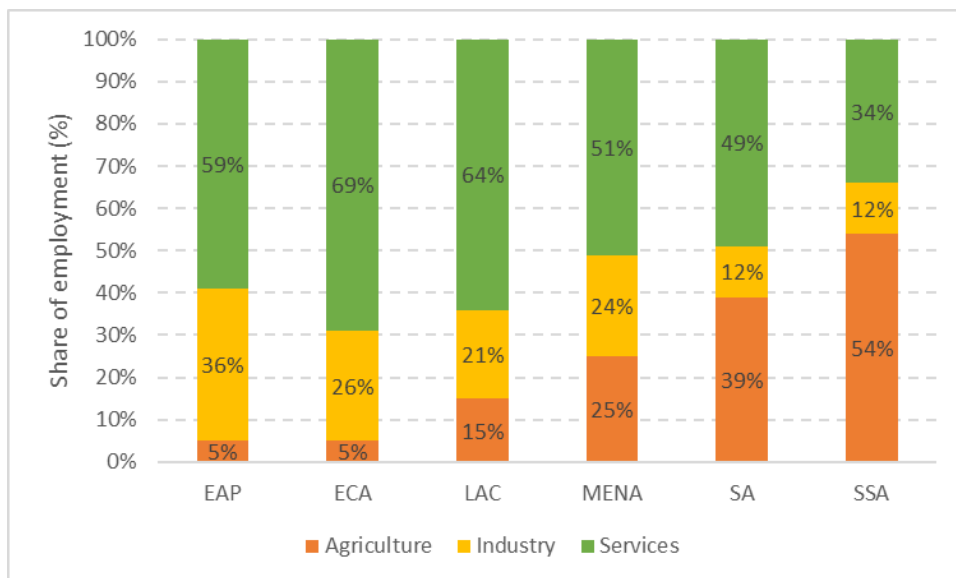


Figure 2 - Employment distribution by sector and region, measuring the share of MSMEs.

Source: (ILO, 2019)

Figure 2 shows the distribution of MSME employment in the three aggregate sectors of agriculture, industry, and services across six different regions (EAP=East Asia and Pacific, ECA = Europe and Central Asia, LAC = Latin America and the Caribbean, MENA = Middle East and North Africa, SA = South Asia, SSA = sub-Saharan Africa). The share of employment in industry (26%) in the Europe and Central Asia (ECA), is second only to the East Asia and the Pacific (EAP) region at 36%. Both regions also have the lowest employment share in agriculture (5%). In developed countries (ECA), less than 5% of total employment is in agriculture, with 70% in services. The employment shares of agriculture and services are mostly related to a country's income level. A high share of agriculture raises concerns regarding sectoral productivity, and whether a large share of agriculture employment is economically viable due to its low contribution to GDP. The developed countries have already made the transition towards the services sector. The role of the services sector has also become

increasingly important in developing economies in the last two decades, compared to other sectors, such as manufacturing and agriculture. The increasing share in the global economic growth of the service sector has increased employment opportunities in most countries. In 2017, 70% of labour employment was in the services sector in OECD countries, including government and private services.

Women in the MSME Sector

The Global Entrepreneurship Monitor 2016/2017 report (GEM, 2017) estimated that 163 million women started new businesses in 74 countries, in addition to 111 million running established businesses in 2016, reflecting an increase in female entrepreneurs by 16% from 2014 to 2016.

Globally, about 60% of survey respondents rate entrepreneurship as a career – this is true for both genders; this gender agreement is consistent across both region and income level (GEM, 2019). Why then do women have a lower tendency to be entrepreneurs? Underlying most efforts and frameworks to encourage entrepreneurship is the assumption that the chances of success, as well as access to resources, participation, and support are entirely merit-based. A good business plan in the right time and right place is all that should be needed. However, it is often the case that regional culture and economic context may be important factors. They may impact women's perceptions, intentions, motivations, business interests, and growth aspirations differently than men. These factors may help explain the observed differences.

However, women-led MSMEs exhibit a number of characteristics that are common to MSMEs more generally: women reported having lower confidence levels than men in their capabilities to start a business, and there is no region in which women rank higher than men. The gender gap is narrowing but women still tend to be risk averse, limiting their business choices. Exporting women-led MSMEs are typically based in traditional industries such as manufacturing. Despite generally having higher education levels, women-led MSMEs are less likely to foray into non-traditional industries or export-oriented markets.

COVID-19 Situation and Impact on MSMEs

The COVID-19 pandemic has created a global economic shock across all economies and heavily disrupted cross-border trade, supply chains, investments, and tourism. The subsequent recession is unlike that of any pandemics in the past, because today's world is much more interconnected, allowing impacts to propagate globally. The pandemic has affected every part of the world, with the magnitude varying, depending on the spread of the infection and economic structure/maturity. The synchronised nature of COVID-19 has impacted advanced, emerging, and least developed economies in different ways, but all have been affected, nonetheless. Countries are suffering from the disturbance in supply chains, social restrictions, and strict lockdown measures; countries that rely on natural resource import/export have been severely affected by the spread of COVID-19. However, the worst affected countries are the developing economies, which lack public health care services, rely on informal labour, lack proper sanitation, and have a weak public financial sector. The uncertain impact of COVID-19, with development of a vaccine still ongoing, is severely damaging economies, and there is no clarity on the duration of a continued recession.

Policymakers are grappling with the disruption caused by COVID-19, the effects of which are still unfolding. With no reference point for policymakers to understand the grim reality and future uncertainties from COVID-19 and its long-term impact on the society and economy, policymakers are facing unprecedented macroeconomic challenges. Almost every sector has been negatively impacted by COVID-19, with the exception of a few sectors which have a bullish outlook. Economic sectors that have been most negatively affected include services and natural resource extraction.

The services sector witnessed a major collapse due to lockdown restrictions being implemented to curb the spread of the virus. In particular, the food, retail, and entertainment subsectors have suffered heavy economic losses. Natural resource extraction industries - such as oil & natural gas and mining (minerals and metals) - have also been hit hard.

For example, the demand for petroleum products has been severely impacted. Restricted global and cross-border travel has led to reduced jet fuel consumption, affecting oil exports. The sharp decline in many industry supply chains has magnified the impact, resulting in further declines in oil demand. For example, oil prices in 2020 experienced their worst decline in recent history. At some hub locations in the United States, the price of a barrel of oil even entered negative territory. Reduced demand for petroleum products has contributed to unemployment among oil & natural gas workers. Global supply chain disruptions have also affected the renewables sector, especially in energy storage and electric vehicles (EV). While these industries are starting to recover, with production assembly lines for EVs restarting, the reduction in consumer spending is causing a ripple effect and impacting the extractives industry (mining for lithium used for batteries in EVs, etc.).

The only natural resources sector that has recovered thus far is agriculture. Agriculture initially faced a marginal decline due to supply chain disruption, the migratory nature of the workforce (informal labour), and cross-border transport restrictions, threatening food security. However, with the ease of lockdown restrictions and with an increase in local food production and renewed supply chains, the sector has predominantly bounced back.

The pandemic has magnified several realities of the world; particularly, the global interdependency which exists today between companies. The disruption of key input supply chains is threatening the global value chain. As shown in Figure 3, the complexity of global supply chains means a lockdown in one country can have ripple effects across the globe. Going forward, countries may transition to relying more on developing local supply chains to restart their economies. However, this may have the subsequent effect of causing insolvency for many enterprises relying on the global supply chain.

Considering the collapse of global supply chains due to the pandemic, and the wider impact on the global economy, recovery may require a global stimulus package (United Nations, 2020). Global stimulus supporting companies in dealing with rent, mortgages, wages. Such stimulus would not only help support SMEs in supply chains, but also households. To fully support MSMEs, support packages should be designed to target informal employers, which are generally not supported by public policies. In addition to potentially assisting 80% of enterprises, this could help formalize them (United Nations, 2020).

A multilateral trade agreement can mitigate this effect by creating international collaboration and possibly lead to the development of new standards and regulations for cross-border trading, building upon the newly acquired learning. Examples could include scientific collaboration in search of the COVID-19 vaccine, banning the wildlife trade due to its impact on health, and setting international climate standards to protect natural habitats.

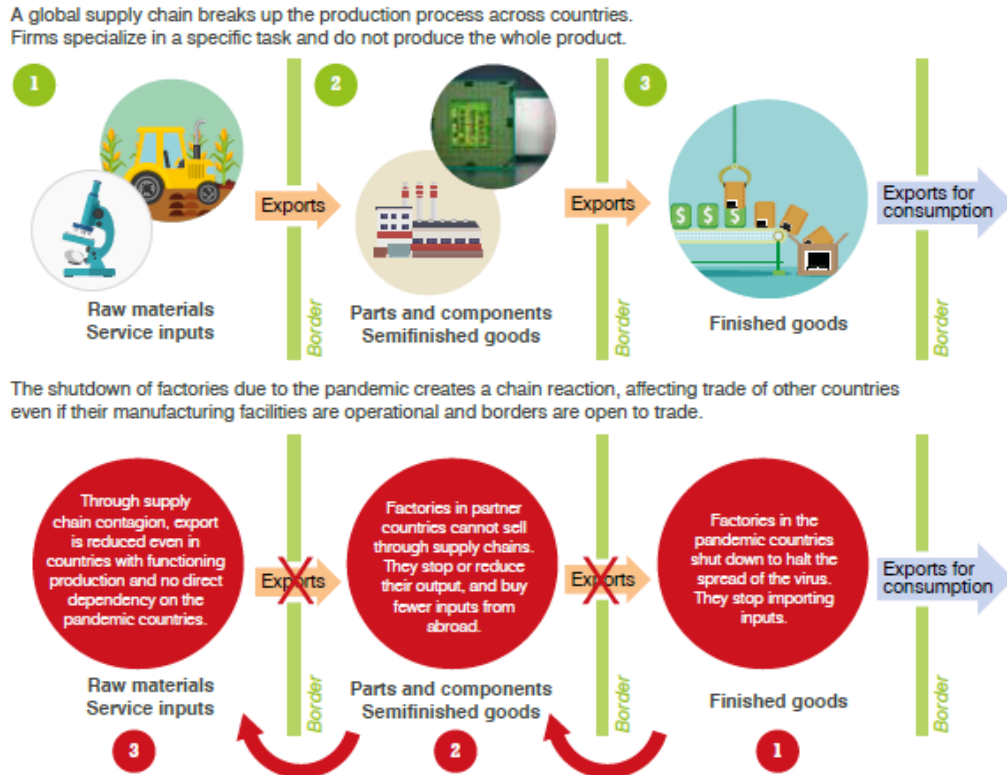


Figure 3 - Impact of COVID-19 on supply chains.

Source: (World Bank, 2019)

MSMEs are a highly-vulnerable component of the global supply chain that are completely dependent on the others, and the impact of COVID-19 on MSMEs has been disproportionately grave. It was due to this vulnerability that, when most of the world's economies closed down for six weeks, the revenue of MSMEs declined precipitously, threatening their financial survival and job losses. Further, many were unable to obtain financial support from governments and banks to survive the difficult times, and have been required to close operations. Many countries are anticipating a second wave of COVID-19 infections, and threats of a second lockdown. Working with legal and social constraints (such as social distancing) is pushing the productivity of MSMEs to the brink of collapse.

Containment policies and measures adopted by some countries to protect their citizens' wellbeing have also caused severe disruptions across global supply chains. A case in point in the natural resources sector is the food supply chain. Food supply chains have been critically disrupted, not due to the shortage of production in exporting countries, but due to containment policies (Røynesdal, 2020). The severity of disruption affected food security issues and impacted the general welfare of people around the world. This situation called for international bodies such as the WTO, the WHO, and the FAO to encourage countries to show solidarity by unlocking trade barriers, in support of major food-importing countries. In the absence of such support, many would need to put pressure on local resources and grow food unsustainably to meet local needs, negatively impacting climate (FAO, 2020).

It is crucial now to monitor and support the MSMEs to restart their operations as economies largely depend on them. The SME Competitiveness Outlook 2020 (ITC, 2020) is a study undertaken by the International Trade Centre (ITC), which surveyed MSMEs across 85 countries to assess the impact of

COVID-19 on business activities. Figure 4 shows that smaller companies suffered more significant impacts due to COVID-19, as compared to large companies.

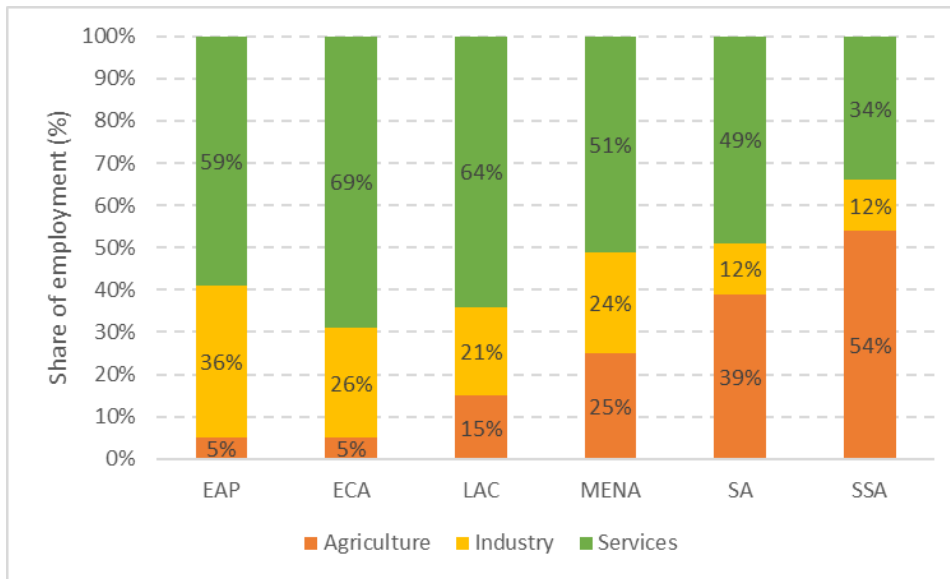


Figure 4 - COVID-19 impact on business operations categorized by severity and size of firm.

Source: (ITC, 2020)

MSMEs have been hit the hardest as they are largely represented in the services sector (food, accommodation, etc.) which experienced the most severe downturns. Following the services sector, the most affected sectors were manufacturing, retail & wholesale, and the travel and transport sector. Figure 5 shows how the severity of impact varies by sector.

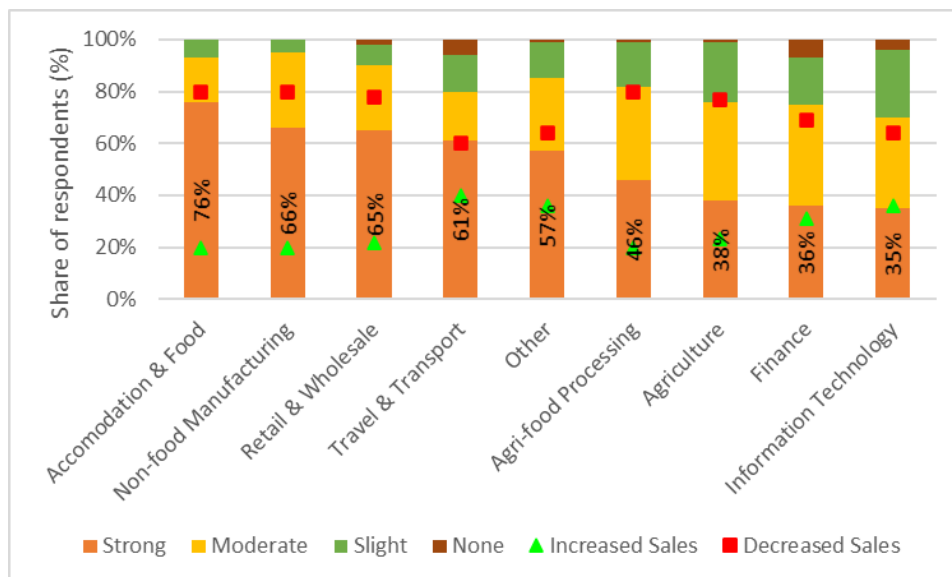


Figure 5 - COVID-19 impact on business operations categorized by severity and economic sector.

Source: (ITC, 2020)

Chapter 2. MSMEs in Sustainable and Integrated Management of Natural Resources

Natural Resource Management Landscape

The production of raw materials from natural resources is also known as the primary sector. The oil & natural gas, mining, agriculture, forestry, fishing, water, and renewables subsectors compose the natural resources management sector (NRM). Our reliance on natural resources to meet basic survival requirements (food, shelter, clothing, water) and other material needs creates substantial challenges, such as negative environmental externalities, natural resource depletion, volatility in commodity prices, and multi-layered complexity of risks. The global natural gas industry is a good example of volatility and the complex nature of risks which has heightened due to the COVID-19, impacting the natural resources industry in transition. In fact, natural gas was undergoing four transformations simultaneously (Tsafos, 2020). Firstly, natural gas was already experiencing oversupply and the resulting low prices, as part of the market cycle. Despite so much uncertainty about the future of fossil fuels, investments in natural gas were very high. In addition, the established system of long-term contracts with prices indexed to oil was in the midst of a transformation to more flexible, short-term contracting. Third, the industry was undergoing geopolitical transformation, with four nations becoming more important with a disproportionate impact on the global natural gas markets – the United States, the Russian Federation, Qatar, and China. Finally, natural gas plays a particularly pivotal role in the energy mix of countries under transition and is being squeezed: some industry participants support natural gas as being useful to supplement intermittent sources such as wind and solar PV, while others would like to see the combustion of all fossil fuels stopped immediately. As public budgets are being strained by COVID-19, and schemes supporting renewable energy come under fire - “sometimes the juice is not worth the squeeze” – some governments may shift more support to natural gas in the name of economic stimulation (Tsafos, 2020). Regardless of how the situation evolves, the COVID-19 pandemic is impacting a natural gas industry already undergoing a massive transformation and under strong pressure. Examples of the impact of the COVID-19 crisis on the natural gas industry, which may be similar to the impact on other natural resources, include (Tsafos, 2020):

- Demand: Some factors are positive and some are negative; these vary substantially by sector and region; an overall net reduction is likely.
- Production: With existing oversupply, low prices, and lower demand, production needs to be reduced.
- Operational / construction risks: Worker shift sizes are reducing and timing patterns changing to minimize travel and personal proximity in order to limit the spread of the virus.
- Investment: Tighter capital budgets and lending reserves will reduce investment, but government stimuli may bolster investments; equity markets may be changing their view of fundamentals.
- Structural change: Structural changes are inevitable, with long-term contracts and oil-indexing likely going extinct as natural gas consumers and suppliers alike need operational flexibility to survive the shocks COVID-19 is giving the natural gas market.

However, the NRM sector generates substantial revenue for natural resource-based economies. Figure 6 compares global extraction volumes of natural resources categorized by type for 2010 and 2017 (UNEP, 2019). With an increase in per capita demand, especially in developed economies, materials consumption grew by 17.4% in this period, largely driven by non-metallic materials.

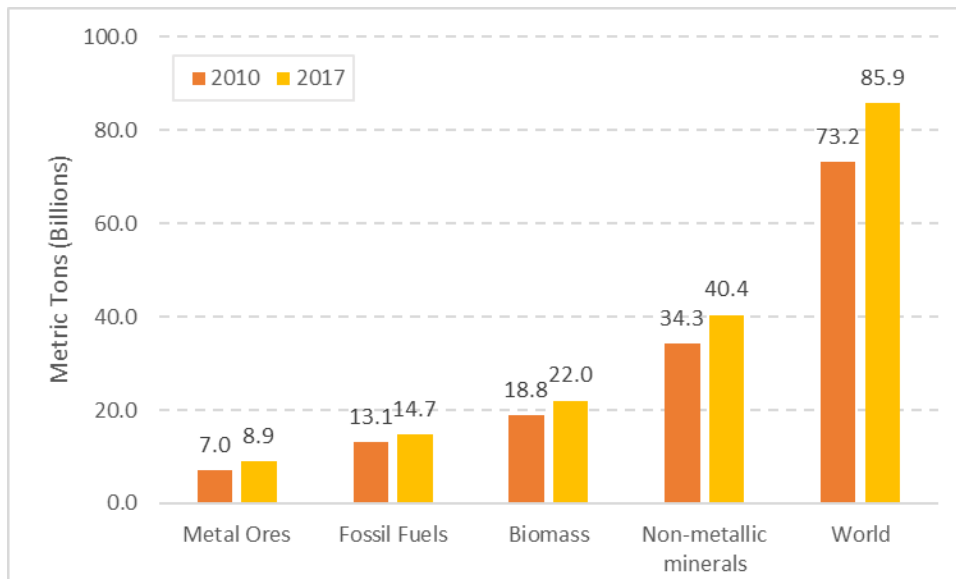


Figure 6 – Global extraction volumes by type of material and year.

Source: (UNEP, 2019)

This rapid growth has created the need to urgently reduce natural resource consumption. By reusing and recycling raw materials already extracted, in addition to slowing the depletion of natural resources, countries can reduce the carbon footprint of their extractive industries. Driving this transition in natural resource sectors can become an economic opportunity for exploration by the MSMEs. Further, the mining sector creates raw materials that feed into most other sectors, particularly transportation (roads) and telecommunications. Reuse and recycling of raw materials can also decrease these sectors' carbon footprints. It is essential to analyse the economic interactions taking place between various sectors, and if these indirect contributions are taken into account, the mining and other natural resource sectors can play a pivotal role in developing a sustainable and green economy.

With the increasing impact of extractive industries on the environment, countries are facing a challenge to translate natural resource wealth into sustainable development outcomes with a focus on long-term economic development. The threat of climate change and the finite availability of resources has brought a new phase of development in the natural resources sector, specifically in mining, i.e. resource efficiency. The linear path followed by countries in the natural resources sector – the paradigm of “take, make, dispose” - is evolving into developing an integrated system approach to increase resource efficiency and reduce waste for a sustainable and green future.

The natural resources sector directly ties into all 17 UN Sustainable Development Goals (SDGs). MSMEs in the natural resources sector have the potential to explore and achieve the SDGs whilst creating economic value, especially in the lower- to middle-income economies. Figure 7 shows some roles MSMEs can play and contribute towards achieving the SDGs in the natural resources sector.



Figure 7 - Some roles SMEs can play in the natural resources sector, supporting UN SDGs.

The United Nations is developing a voluntary global standard for integrated resource management, called the United Nations Resource Management System (UNRMS), to accelerate the development and adoption of sustainable resource management solutions. This system is based on the United Nations Framework Classification (UNFC) for resources, which has been classifying and reporting on minerals and other natural resources of countries since 1997 (UNECE, 2020a). The goal of the

UNRMS is to extend and integrate holistic management and development of all resources, but the programme is also widening its scope to managing information on quantities of natural resources. By integrating the activities of the natural resources sector with other sectors, the system may be able to highlight future trends that can impact the resources sector (UNECE, 2020b). While the UNRMS was implemented to support the UN Decade of Action (2020-2030) by accelerating the transition to sustainable natural resource management, its broader goal is to enable achievement of all the SDG's, which singularly rely upon natural resource management (UNECE, 2020b). This is the core principle of the UNRMS and why it was built – to align with the SDG's from the ground up. The UNRMS is far advanced from most resource management frameworks in use; it is designed with a systems view, employing the concepts of mathematical complexity and non-linear processes. Designed to evolve with rapid advancements in Fourth Industrial Revolution technologies, the UNRMS is strategically focussing on bringing technological advancements such as AI and big data to the natural resources sector (UNECE, 2020b).

There are sporadic developments across the world in using such technologies, but the sector has not yet grown in this direction in most countries. The adoption of AI, largely for autonomous decision-making, will open opportunities that would otherwise be too risky. However, the challenges that must be faced include identifying where to innovate, scaling solutions, and keeping sustainability as a central tenet. Combined with other new technologies (big data, cloud computing, etc.), AI has the potential to help solve environmental issues as well as deliver transformative solutions in the natural resources sector (UNECE, 2020b). For example, Figure 8 provides a glimpse of some applications of AI for maintaining the health of oceans (World Economic Forum, 2018).

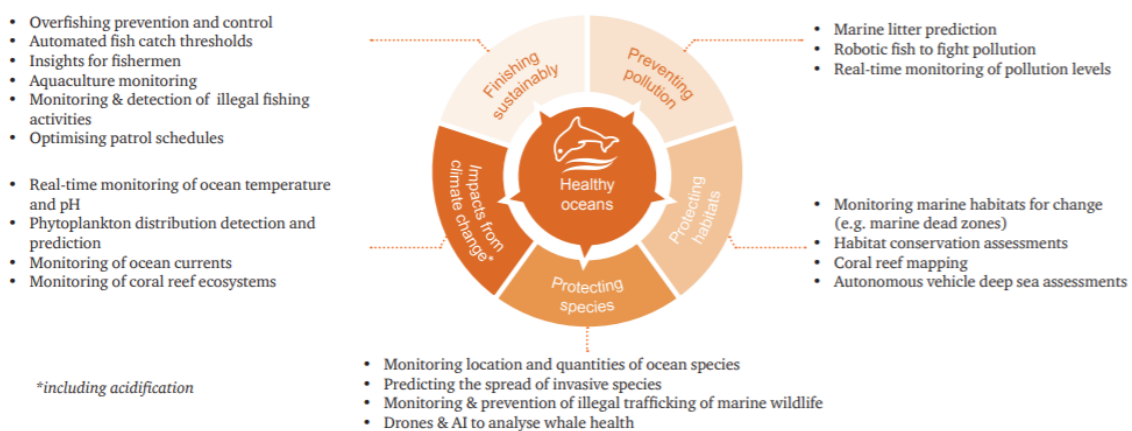


Figure 8 - AI for maintaining ocean health.

Source: (World Economic Forum, 2018)

Role of Women in MSME Sector in Natural Resource Management

The natural resource sector as a whole is currently witnessing a decline of workers. United States labour statistics show that only 1.8% of the United States workforce was engaged in mining and agriculture in 2018 (United States Bureau of Labour Statistics, 2019). In addition to the challenges related to overall employment, there is an evident gender diversity issue in the natural resources sector. For example, women compose only 15% of the United States petroleum oil field services workforce, 15% of the global metals and mining workforce, and 1 in 20 CEOs in the mining sector (Wood Mackenzie, 2019). The oil & natural gas industry has struggled over the years to attract, retain, and promote women in the workforce, and it is important for this sector to decrease the

gender gap as it is already facing employment challenges. These employment challenges are largely due to two factors: the aging workforce, and the industry’s decreased appeal to the younger population. As the sector strives to develop a more robust pool of new talent, it is imperative that women’s participation should be increased in developing new skill areas such as artificial intelligence and robotics (McKinsey, 2019).

The natural resources sectors are plagued with problems of gender inequality in the workforce; women are underrepresented in every area of NRM, despite their potential to contribute substantially. Perhaps this is due to a lack of confidence to voice opinions (see Figure 10), or social/cultural barriers blocking them from decision-making roles. Women often fill roles that are less visible and not formally recognized (ADB, 2017). For example, women tend to work on the land to which they have no formal rights, performing activities such as collecting water, fuelwood, food, and fodder for their household (WWF, 2012). As this is unpaid, it is not formally accounted as “work”. As another example, women who fish also mend their nets, prepare the catch, and sell/market the fish, but are often not counted as fishers (WWF, 2012). In many parts of the world, the participation of women in community decision-making is limited, which gives them less control over the disposition and management of natural resources. Furthermore, women are often conspicuously absent from managerial or decision-making roles within organizations promoting MSMEs (ADB, 2017). This could instil and uphold any existing cultural biases that may be hindering the participation of women. In fact, policies to specifically encourage women entrepreneurs in NRM are either non-existent or in very early stages of development.

The oil & natural gas sector ranks the lowest when compared to other Science, Technology, Engineering, and Mathematics (STEM) industries in women participation. Figure 9 shows the relative percentage of women working in the industry versus other sectors (a. Banking, b. Consumer goods, c. Consumer tech, d. Food / beverage dist., e. Hardware, f. Healthcare, g. IT services & telecom, h. Insurance, i. Investors, j. Manufacturing, k. Media & Entertainment, l. Pharmaceuticals, m. Power utilities, n. Professional services, o. Restaurants, p. Retail, q. Software, r. Transportation); yellow markers indicate STEM industries, orange markers are non-STEM industries.

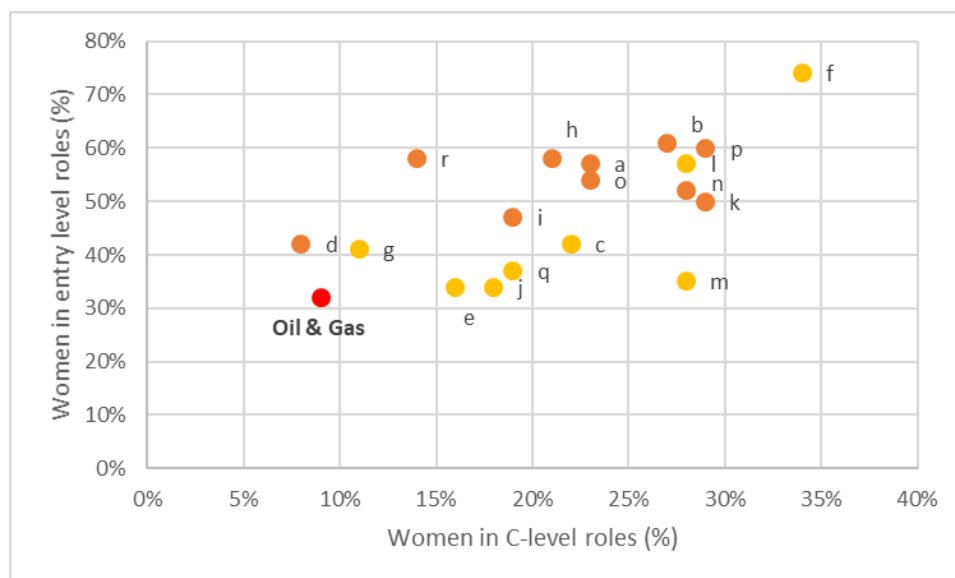


Figure 9 - Correlation between share of women in entry-level and C-level (CEO, CFO, etc.) roles.

Source: (McKinsey & Company, 2019)

Encouraging the participation of women in the MSME sector can improve the entrepreneurial climate across economies, create employment opportunities, and drive economic diversity. While higher education does play a role in gender differences in entrepreneurial activities, educational qualifications do not always translate into successful outcomes. This study focuses on potential opportunities, which can be exploited by women in the natural resources sector. Figure 10 is an example to show the qualified number of women in the STEM sector from selected countries in Eastern Europe, the Caucasus, and Central Asia.

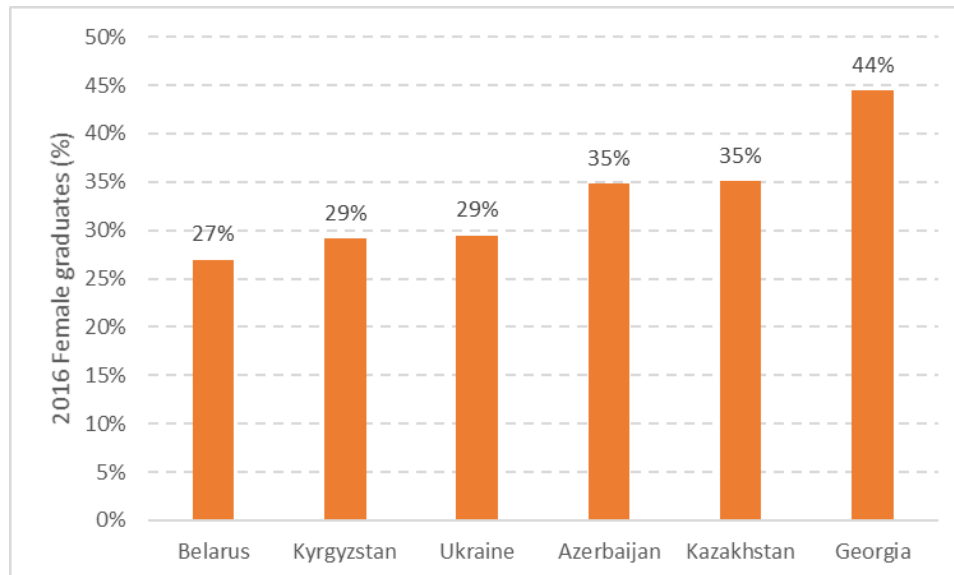


Figure 10 - Share of female STEM graduates at the tertiary level.

Source: UNSTATS

Qualities and skills such as management ability, creativity, risk management, and dynamism are most important for the success of enterprises - and are indifferent to gender. However, women entrepreneurs face systematic bias in setting up businesses (Dilli & Westerhuis, 2018). This chapter concludes with a few challenges which must be considered to ensure an equitable and level-playing field to promote economic growth and employment opportunities for the MSME sector. These challenges may require specific policy interventions in both developed and developing countries to ensure gender equality.

Challenges

1. **Access to Markets and Finance:** According to the IFC, 70% of women-led SMEs are underfunded, with the shortfall projected to be up to \$285 billion. It is a commonly known fact that women entrepreneurs face barriers in raising capital. This bias is based on unfounded evidence; the OECD notes that women tend to have better loan repayment records than men (IFC, 2014). As a result of societal norms and unconscious biases, male investors are less confident in investing in women-led businesses (IFC, 2014). Figure 11 compares by gender self-reported sources of funding for start-up businesses (OECD, 2019); according to this data, men have a higher tendency to use bank loans than women.
2. **Access to Information:** Access to information is critical for MSMEs. The lack of information, such as government initiatives to plan and adapt in uncertain times, can create confusion. Unclear messages or the absence of communication from the government on policies and measures can severely disrupt business planning. For example, during the COVID-19 pandemic, the

information on lockdown measures for businesses was abrupt and unclear, leading to significant financial losses.

3. Learning and Skill Development: The historic gender gap is narrowing, but gender bias remains in some regions of the world. Gender disparity also exists in education at the tertiary level. Policies targeting the STEM gender gap in tertiary education should consider gender differences emerging earlier in life. Reducing this gap earlier, at the family level (OECD 2012, Dilli et al. 2015), will be most effective at impacting culturally embedded roles.

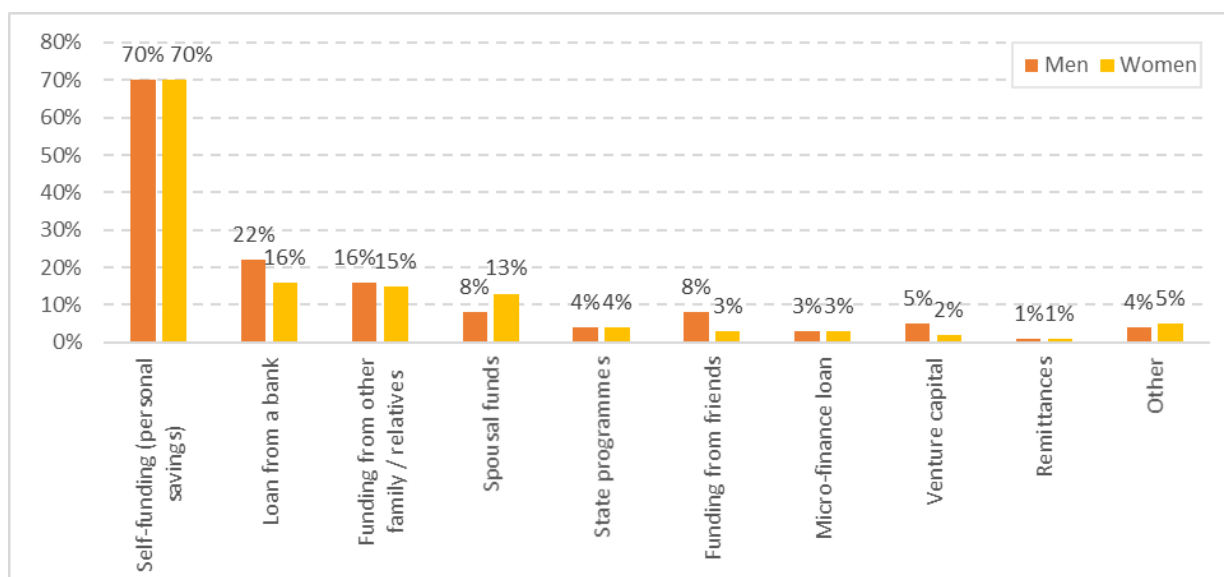


Figure 11 - Sources of start-up funding reported globally in 2018.

Source: (OECD, 2019)

Box 1 - STEM Entrepreneurs

A study by Dilli and Westerhuis (2018) analysed the role of gender differences in STEM education at the national level for three stages of the entrepreneurial process: entrepreneurial awareness, the choice of sector for entrepreneurial activity, and entrepreneurial growth aspirations. The study concluded that it is important to consider gender-specific policy tools for encouraging entrepreneurship. The findings of the study highlighted that women are generally less likely to engage in all three stages of entrepreneurial activity, a common phenomenon across most developed economies (including Europe and the United States). According to the authors, the gender gap in science education is negatively correlated with entrepreneurial aspirations in knowledge-intensive sectors. They suggested that closing the gender gap in science education would likely have the largest impact for knowledge work in the Nordic countries. The region's strong legal protection for employees, public expenditures in education, and female-friendly policies would be expected to leverage the benefits and increase the social returns.

Chapter 3. COVID-19 Impact on Women Entrepreneurs in Natural Resource Management

Prior to the pandemic, encouraging and supporting women entrepreneurship was a topic that was gaining traction across organizations and financial institutions. Social perceptions, doubting the capabilities of women in high-risk sectors, were slowly evolving towards acknowledging the importance of female participation. However, with the COVID-19 situation, the rate of private investment and raising capital for new and existing business has shifted away from preferentially supporting women-led firms, due to the economic downturn. Increased market volatility and economic slowdown have been setbacks for women entrepreneurs (McKinsey & Company, 2020).

Financial Risk

Women tend to operate smaller and safer businesses. While this is likely due to a general preference for stability and security, it could also be due to a systematic difference that may exist in society and institutions, discouraging their participation as entrepreneurs. The gender bias starts from an early age, influencing the learning and educational pathways, leading to downsizing their ambitions (OECD, 2019). Fear of failure prevents women from starting their business, and if they decide to become entrepreneurs, they make safer business choices. Figure 12 presents the proportion of men and women surveyed between 2014 and 2018, who reported being afraid of starting a business. The pandemic has further intensified the challenges that women already face and fear in starting their business. According to McKinsey & Company (2020), the severe disruption caused by COVID-19 on global trade and supply chains likely increased anxiety and decreased confidence levels of female entrepreneurs.

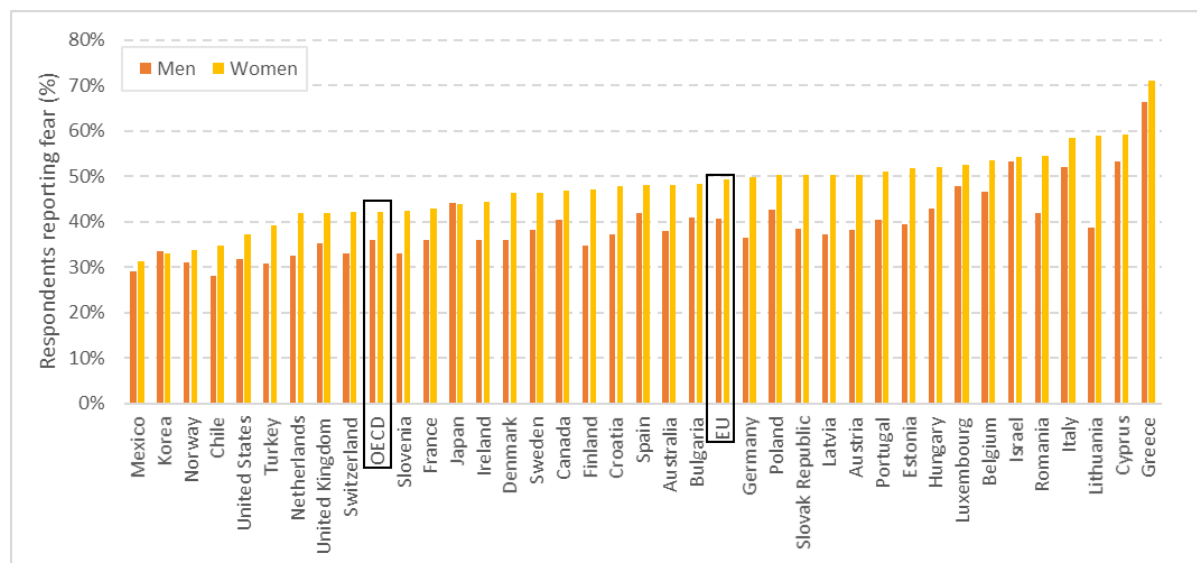


Figure 12 – Share, by country, of EU and OECD country respondents reporting fear of starting a business.

Source: (OECD, 2019)

Women are often discriminated against in accessing credit (OECD, 2019). Government bailouts and support measures should be gender-neutral and cover MSMEs in rural and urban locations. According to the GEM (2015) report, 95% of women entrepreneurs self-finance their business. Due to the lockdown measures and COVID-19-induced business decline, women entrepreneurs can be at particular risk of financial hardship.

Social Impact

Women have always been the primary caretakers of the family, and that role has not changed, despite their increased participation in the labour workforce. In most countries, women still play the role of the familial caregiver as well as wage-earner. Women undertake the responsibility for the children, other family members, and household (cooking, cleaning, and other associated chores) along with paid employment. During the COVID-19 pandemic, women's household responsibilities have multiplied. With lockdown restrictions and schools/day-cares closed, women are having to shoulder an increased domestic workload, in addition to trying to keep their businesses afloat.

During the COVID-19 pandemic, women-led firms, which are mostly represented in the services sector, suffered significant losses. As shown in Figure 13, the SME Competitive Outlook (ITC, 2020) reports that 64% of women-led enterprises indicated that their business suffered strong losses, as compared to 52% of companies led by men. Once the lockdown measures are eased across countries, and economies enter the recovery phase, women entrepreneurs might find the bias gap against investment in women-led MSMEs has further widened.

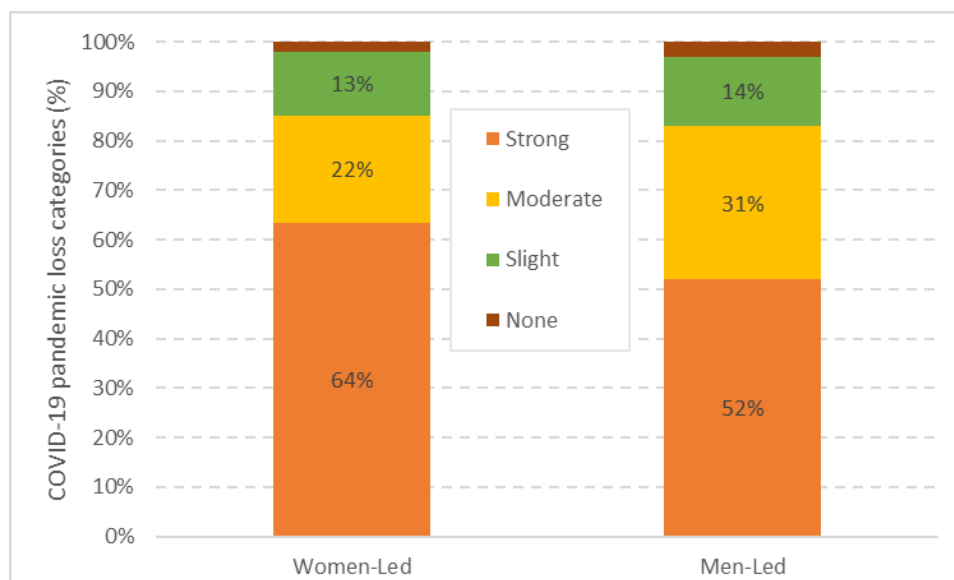


Figure 13 - Self-reported COVID-19 pandemic loss severities categorized.

Source: (ITC, 2020)

Chapter 4. New Opportunities for Women Entrepreneurs in Natural Resource Management

The COVID-19 pandemic and its consequences present an opportunity for countries to undertake economic transformation by adopting sustainable business practices and encouraging the development of green and low-carbon economies, resulting in a more resilient and robust economy (“build back better”). A renewed economic transition has the potential to create an equal and stronger economic society with decent work policies to protect the rights of the vulnerable workforce - specifically women and migrant workers.

There lies an opportunity for promoting MSMEs in manufacturing and other capital-intensive businesses which also have higher operational costs, but women entrepreneurs rarely explore such opportunities and are known to be risk averse. However, several opportunities for women to participate in the natural resources sector remain - if not directly than through ancillary services. Opportunities in knowledge-intensive services, which can support the natural resources sector, are abundant. Examples include market research, advertising, scientific studies, innovation and technical activities, law, human resources, and audit and accounting services. It is important for countries to support and promote the right business opportunities to capitalise on MSMEs participation. The box below highlights initiatives of four women entrepreneurs in India, supporting other MSMEs in their businesses across industries.

Box 2 - Four women-led start-ups that are helping SMEs thrive by providing services such as data analytics, accounting, and facilitating regulatory compliances.

CAXpert provides simple, convenient, and economical accounting solutions to small and medium enterprises. The start-up provides services to process orders, record sales, expenses, and time utilisation, and also recommends ways to optimize business operations.

Econolytics, a one-stop-shop for all data-related needs, the start-up is a curated marketplace of data scientists and engineers who can be hired by companies on-demand for flexible durations.

Banka & Banka Services helps SMEs with corporate and statutory compliance activities such as direct & indirect taxes, regular tax filings, corporate governance, etc.

Aaroh helps SMEs define their marketing strategy and communications, regardless of whether they are looking to grow in India or expand internationally.

Source: <https://yourstory.com/herstory/2020/06/women-entrepreneurs-smes-msme-startup>

It is common for oil & natural gas and mining companies to subcontract operations to many types of firms, including multinational companies, large national corporations, and small local companies. Indeed, because of significant benefits that can come from local MSMEs, many already prioritize small suppliers in procurement policies; these benefits include promoting local entrepreneurship and innovation, encouraging competition, and supporting local economies. In addition to financial benefits for the company, partnership with local economies fosters goodwill. However, reliance upon a local supply chain can often limit capacity and flexibility and require significant capacity-building investments. By increasing diversity, the development of supply chains including women-led small enterprises can increase robustness and reduce procurement and operational costs. With the currently low participation of women in these industries, there are many opportunities for women entrepreneurs to join NRM supply chains. Figure 14 summarizes the areas of intervention, and

specific strategies within those, that have been shown to work to encourage the development of women entrepreneurship development (WED).

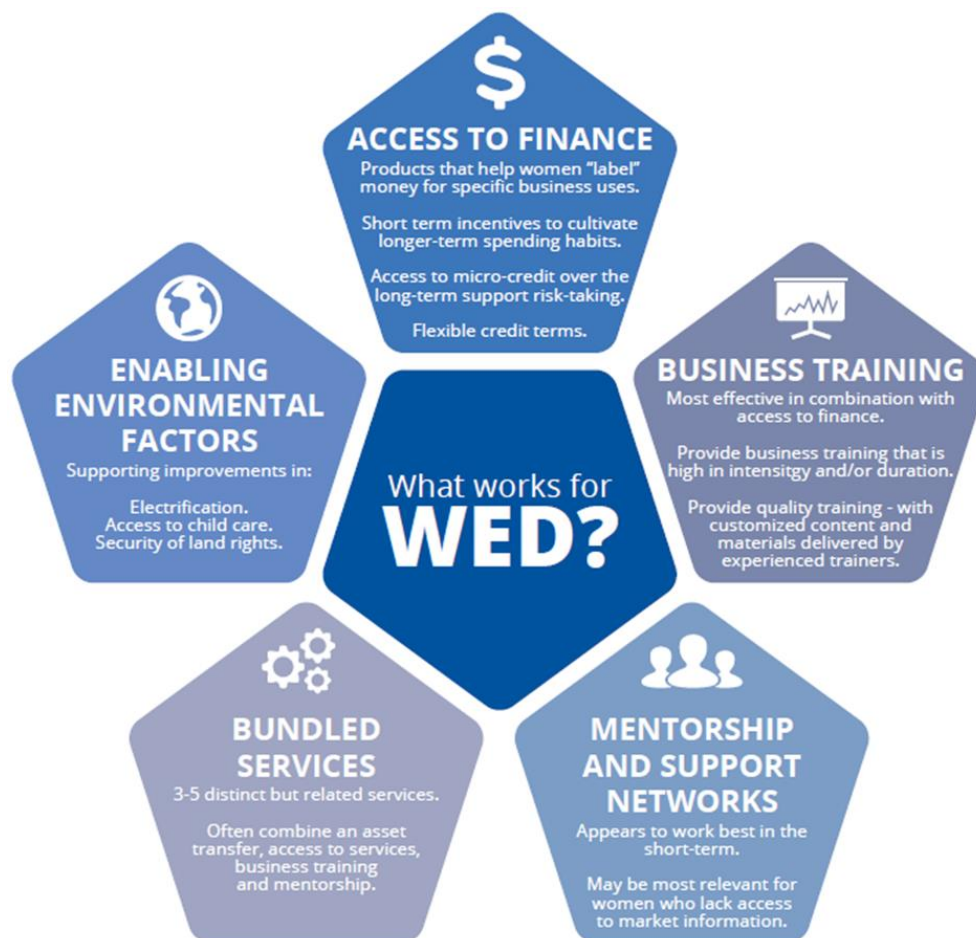


Figure 14 - Interventions and strategies for women entrepreneurship development (WED).

Source: (ILO, 2018)

Cleaner and Greener Economic Opportunities in Natural Resource Management

The NRM sector is growing in many areas. This presents several opportunities for women entrepreneurs who, due to various reservations, are more interested in non-extractive industries.

Bioeconomy

Several countries are developing strategies to explore the potential power of bioscience, which works across all sectors – from agriculture to pharmaceuticals, to manufacturing and energy. The potential of a bio-based economy offers significant opportunity to tackle the challenges of climate change, increase food consumption, and reduce pressure on the natural environment. A sustainable bio-economy has the potential to create decent jobs, and the start-up ecosystem in the biotechnology sector can play a pivotal role in boosting the economy whilst building a carbon-neutral future.

The bio-economy deploys the use of bioscience - using renewable biological resources to improve and innovate the way food, materials, and products are produced and consumed whilst maintaining a healthy ecosystem. The bio-economy can support the transition of economies by reducing

dependencies on finite fossil resources in several industries including construction, chemicals, forestry, consumer goods, etc. Research and innovation in life sciences and biotechnologies can lead to the production of new and sustainable biobased products (bio-chemicals and bio-fuels) and modernise or create new supply chains for industrial activities.

In the European Union's 2018 State of the Union Address (European Commission, 2018), the European Commission emphasized their strategy on bio-economy for a sustainable Europe, boosting jobs, growth, and investments in the EU. The Commission estimated the potential for bio-economy jobs to be 1 million green jobs by 2030; the region's long-term plan is to scale up the bio-based sectors and modernize the European economy and industries (European Commission, 2018).

Forest bio-economy is one sub-sector of the bio-economy (others listed in the paragraphs above), gaining much traction within the EU and other developed countries. Biomass is a biological material with enormous potential. For example, Finland's forest cover is approximately 74% of its land area, and the country has been a leader in tapping the potential value of their trees - especially the bark (Upton, 2020). Trees are traditionally used simply as a source of timber and firewood, but it has been found that the bark of a birch tree, for example, contains anti-microbial and antioxidant compounds that can be used as preservatives in food, pharmaceuticals, and cosmetics (Upton, 2020). It also has industrial applications, such as for adhesives and insulating materials. Despite the potential for many other applications, birch bark is currently used solely for combustion. However, there are challenges in adopting these new applications. Bark-based products must compete with

Box 3 - Sustainable financing for women entrepreneurs in Turkey

In 2010, the European Bank for Reconstruction and Development (EBRD) signed a €50M loan facility with Garanti Bank of Turkey. The purpose of this EBRD-supported project was to enable Garanti Bank to expand its portfolio of MSME loans in the economically less developed regions in the East and Southeast regions of Turkey and for specific sectors - namely agriculture and women entrepreneurs. For Garanti Bank, this facility is an opportunity to further increase access to finance for Turkish women entrepreneurs through its ongoing "Woman Entrepreneur's Support Package", the first of its kind designed by a private bank in Turkey. The objective of the programme was to increase access to business funding for women and to increase women's access training as well as to raise awareness of this market. The package includes special project loans for women-owned SMEs, company insurance, access to business and financial management training through partnerships the bank has with local universities, and sponsoring the "Woman Entrepreneur of the Year" award in collaboration with Kagider (Turkey Women Business Association). By 2016, Garanti Bank had invested close to €9B in the country, through more than 200 projects in infrastructure, energy, agribusiness, industry, and finance. It has also mobilised nearly €20B for these ventures from other sources of financing.

During the period of volatility caused by the COVID-19 pandemic, the EBRD is providing a new boost to Turkey's banking sector with a \$55M loan to Garanti Bank. The funds will predominantly be directed to small- and medium-sized enterprises hit by the Covid-19 outbreak. The EBRD financing is complemented by a \$50M loan from the International Finance Corporation (IFC). In addition, Garanti Bank has raised \$594M from international commercial banks. For the first time, the financing will be linked to Garanti Bank's sustainability practices. As part of the syndication agreement, the bank is committed to focusing on sustainability.

Source: <https://www.ebrd.com/news/2016/new-funds-to-garanti-bank-to-support-female-led-firms-in-turkey.html>

petroleum derivatives that have years of accrued advantages. Compared to petroleum, bark is extremely complex, and it will take a substantial amount of research to fully understand and exploit its chemical components and cell tissues. This is just one of many such potential alternate uses for forest resources in the bio-economy. Despite these challenges, momentum is growing for using sustainable and bio-based products. With increasing awareness, natural resources can be consumed efficiently and productively.

The impact of COVID-19 on business worldwide highlighted the need for rebuilding the economy in a sustainable way. The bio-economy can lead the way in supporting the development of technologies and mechanisms to create locally-sourced sustainable food, fuels, and consumer products, reducing the dependency on cross-border trade.

Circular Economy

Natural resources - either renewable or non-renewable - are present in every industrial product manufactured or service provided (energy, for example): metal, petroleum, plant matter, freshwater, etc. However, consumer demand is increasing, which can surpass the supply of resources. Although the imbalance can be overcome by substituting with other products or diversifying sources, it is still true that there is a limited amount of natural resources available on the planet. An innovative bio-based economy can pave the way for developing a robust circular economy, to extract and utilize natural resources present in waste. For example, extracting metals from electronic devices has proven to be more efficient and cost-effective than mining for new metals. An initiative led by the University of New South Wales has found that 450 g of copper, 227 g of aluminium, and 5.6 g of gold can be extracted from a typical TV or computer monitor. In 2016, 435,000 tons of mobile phones were discarded, containing €9.4B worth of raw materials (Woollacott, 2018).

Most countries are offering subsidies for recycling e-waste, and the amount of e-waste is expected to increase. The International Telecommunications Union estimated that 45 million tons of e-waste were generated in 2016; this figure is expected to surpass 50 million tons by 2021 (Woollacott, 2018). A study by Beijing's Tsinghua University and Macquarie University in Sydney found that mining from ore was 13 times more expensive than e-waste mining, when accounting for expenses for waste collection, labour, energy, material, transportation, and capital outlays for recycling centres and offsetting the benefits from subsidies (Zeng et al., 2018). A significant opportunity exists in the MSME sector for metal specialists and practitioners to take advantage and draw on the environmental, social, and economic benefits created by e-waste management whilst creating jobs.

Traditional mining sector activities have been linear and have not used sustainable processes, such as extending the product use phase, i.e. reuse and recycling of waste from industrial and consumer activities. The industry can create new economic value from mining waste by integrating the circular economy into its business processes. This will not only bring economic value but also minimize the industry's social and environmental impacts by reducing mining waste. A circular economy approach can help to reduce the negative externalities (environmental degradation, water contamination, etc.) from mining whilst reducing the need for extracting and processing new resources. Following the "3R" waste reduction principle (reduce, reuse, recycle) can contribute significantly to reducing costs, as well as create opportunities for innovation. However, transitioning towards developing a circular economy will require infrastructure development, supporting legislation, and economic incentives.

The COVID-19 pandemic has led to the adoption of new rules and regulations threatening the circular economy system – namely the proliferation of single-use items. However, as countries enter

the recovery phase, the adoption of smart mining technologies can eliminate the impact on human health from the handling of hazardous mine waste. This transition would be expected to increase operating costs temporarily, but then costs are projected to decrease, consistent with other new technologies (photovoltaic cells, wind turbines, etc.) (Rumbens & Campbell-Sloan, 2020).

Digitalisation, Big Data, and Artificial Intelligence

The accelerating pace of technological advancement has revolutionised automation processes in the mining sector, enabling humans to focus on the role of decision-makers and operation controllers, using machines for physical labour. The mining and metals industry has long led technology innovation in operations, but with increasing investments and decreasing costs, there is a growing trend towards digitalization. As with most sectors, the mining sector continues to become more global, relying on technology to connect disparate operations through digital infrastructure - even to remote locations. Digital tools are also helping maintain workforce safety and manage risks in dangerous working conditions. These advancements are increasingly important as the current workforce ages, and the sector struggles to fill the resulting employment gaps.

ACTIONABLE INSIGHTS

Result of extensive data analytics where information gives enough insights to drive decision making

ANALYTICS

The use of data and algorithms to improve decision making by generating insights

COGNITIVE

Component of AI containing a human-like layer of interaction between people, underlying data and technologies that form AI

MACHINE LEARNING

Algorithms that improve over time through exposure to more data

DEEP LEARNING

Subset of Machine Learning that uses neural networks¹ with massive amounts of data to learn

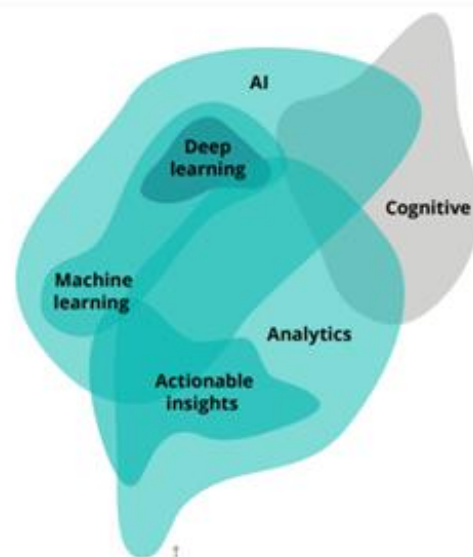


Figure 15 - Five transformative digital technologies and their intersections.

Source: (Deloitte & NORCAT, 2018)

Advanced robotics, virtual reality, cognitive computing, cloud computing, and artificial intelligence are all digital technologies that are transforming conventional business models and changing industries (see Figure 15). For mining, automation and robotics are playing a crucial role in this transformation. Digitalization in the mining sector is being deployed to handle activities that were traditionally undertaken by humans or manually-controlled machines. At a higher level, there is scope for analytics using machine learning and artificial intelligence to process data in order to plan future operations.

A robust mining sector is imperative for the development of low-carbon technologies, providing raw materials for photovoltaics, windmills, electric vehicles, electronics, etc. The growing role of minerals and metals in the development of low-carbon technology and a net-zero future offers opportunities for MSMEs to diversify in the field of innovation, artificial intelligence, computational modelling, and advanced analytics – digitalization.

Box 4 - Boosting Efficiency Through the Elimination of Errors

Identifying patterns in vast amounts of data can increase the efficiency, consistency, and quality of many processes. This is especially true of those processes subject to human error.

One example of this is the process of grading copper utilized by Ionic Engineering. Image recognition in machine learning has been used to reduce the error rates in this process to negligible. Using a neural network trained with data in which engineers have annotated the characteristics used in the grading improves operation times and product quality. This in turn increases the potential for cost reductions.

Source: <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Energy-and-Resources/deloitte-norcat-future-mining-with-ai-web.pdf>

The commodity markets, particularly those for petroleum products, have seen a significant decline during the COVID-19 pandemic. In many locations, the precipitous decline in oil prices has caused oil production to become uneconomic. Exploration by many firms has stalled, existing wells are being shut-in, and the workforce is being dramatically reduced. In the United Kingdom’s North Sea, for example, offshore rig staffing levels have been cut nearly in half since November 2019. Metal prices have also suffered sharp declines, negatively impacting revenues.

Perhaps the most prominent opportunity for MSMEs in mining lies in cost optimisation, with the adoption of digitalisation and technology enablement. Remote operations centres can be centralized, providing an offsite environment for operations personnel to collaborate while based remotely in control rooms. Digital technologies, such as live video streams, can enable employees to monitor operations and use real-time mine data to make decisions. The slow pace of the COVID-19 recovery also offers an opportunity to develop medium- and long-term plans for online platforms to promote skill-building programmes that will ensure the availability of a skilled workforce.

Innovation, Research, and Development

There is a significant opportunity for women-led MSMEs to drive innovation in natural resource management. A policy brief entitled “Does Gender Matter for the Innovativeness of SMEs?” (Akulava, 2015) presented results analysing the correlation between innovativeness and the gender of MSME leadership. Their results suggest, for five different measures of innovativeness, that innovation is more prevalent in women-led MSMEs. Thus, the participation of women in research and development to develop low-carbon solutions in NRM can lead the way for a structural shift to a greener and sustainable economy.

Box 5 - Opportunities to step in and scale up

The unexpected spread of the COVID-19 pandemic meant that most countries have experienced a critical shortage of masks, ventilators, and other such medical equipment. Countries that most urgently need these products lack the manufacturing resources or infrastructure, that is mostly centralized in the “world’s factory”, China. Sourcing raw materials, such as melt-blown fabric - one of the key materials needed to make N95 masks, cotton, hand sanitizer, ventilators, and face shields can provide alternative opportunities for MSMEs to survive and prosper through the pandemic. Repurposing and up-scaling to meet urgent needs has been seen in past emergency situations.

Promoting New Opportunities through Training and Skill Development

The COVID-19 lockdown phase presents an unprecedented opportunity to invest in enhancing and developing new skills. Retraining workers to prepare them for changes in business operations due to COVID-19 is a long-term investment that can be started now. Adopting sustainable business practices and transitioning to a low-carbon economy can also be a significant focus during these times. The skill sets required in the extractive and natural resources sector are complex and require development at all levels of the value chain. For MSMEs, it is crucial to create a diverse pool of resources to improve capacity readiness. The development of an online academy for delivering training programmes across the natural resources sector for women workers and entrepreneurs could be a strong potential business opportunity for MSMEs. The COVID-19 downturn presents a timely opportunity to develop and customize training programmes. For example, “training for women by women” programmes to meet local needs, enhance familiarity and comfort, and provide unique mentorship opportunities. Training and skill development for female entrepreneurs and employees now can help build capacity and make women-led enterprises future-proof.

Chapter 5. Case Studies

Azerbaijan

The Government of Azerbaijan classifies businesses as micro-, small-, or medium enterprises according to the criteria shown in Table 3. As shown in Figure 16, SMEs in Azerbaijan are largely concentrated in activities such as the trade and repair of vehicles (51.0%), education (16.7%), transportation and storage (15.1%), and accommodation and restaurants (8.1%) (OECD, 2019). Note that the majority are in services. Figure 17 demonstrates that, of 73,441 women employed by SMEs in 2018, reported by the State Statistical Committee of the Republic of Azerbaijan (SSC), more than half were in medium-sized firms. Micro-enterprises are mainly family-run businesses, predominantly in agriculture (OECD, 2019). In line with the Decision of the Cabinet of Ministers of the Republic of Azerbaijan of 21 December 2018, the categorization criteria of micro-, small, medium, and large enterprises is shown in Table 3.

Table 3 - Categorization criteria. The revenue thresholds are in Azerbaijani Manat but converted to Euros at the 30 October 2020 rate of 1 Euro to 1.9848 Manat.

Category	Average Headcount	Average Revenue
Micro	1 - 10	≤€100,766
Small	11 – 50	≤ €1,511,487
Medium	51 – 250	< €15,114,873
Large	> 251	> €15,114,873

Source: (SSC, 2018)

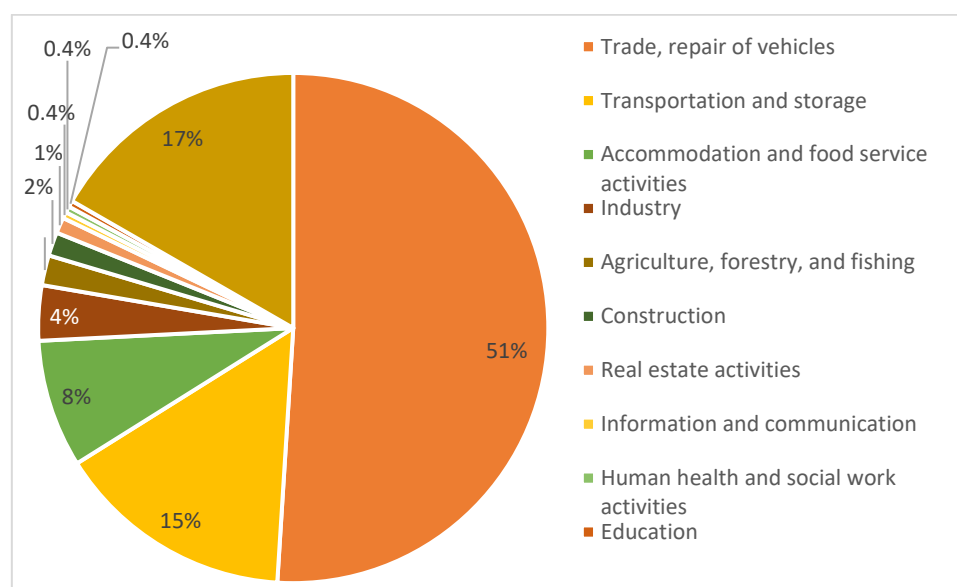


Figure 16 - Distribution of SMEs by sector in 2016.

Source (OECD, 2019)

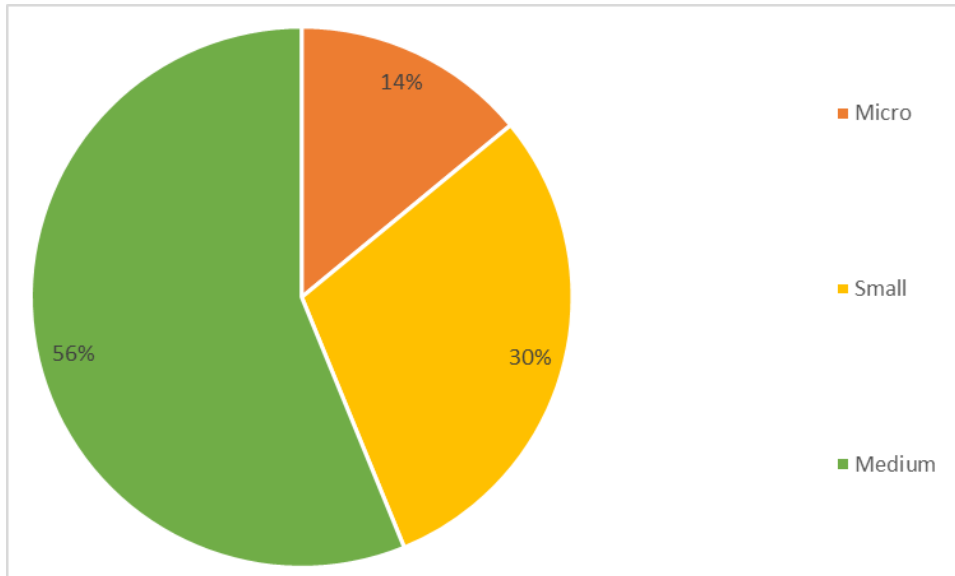


Figure 17 - Distribution of women employed by SMEs by firm size.

Source (SSC, 2019)

As stated above, according to the State Statistical Committee of the Republic of Azerbaijan (SSC, 2019), 73,441 women were employed by SMEs in 2018. As shown in Figure 18, these firms predominantly operate in the industrial and manufacturing sectors – about two-thirds of the women employed. Slightly more than 10% are employed in agriculture, forestry, and fishing. There could be substantial opportunity for women-led SMEs to expand in this sector.

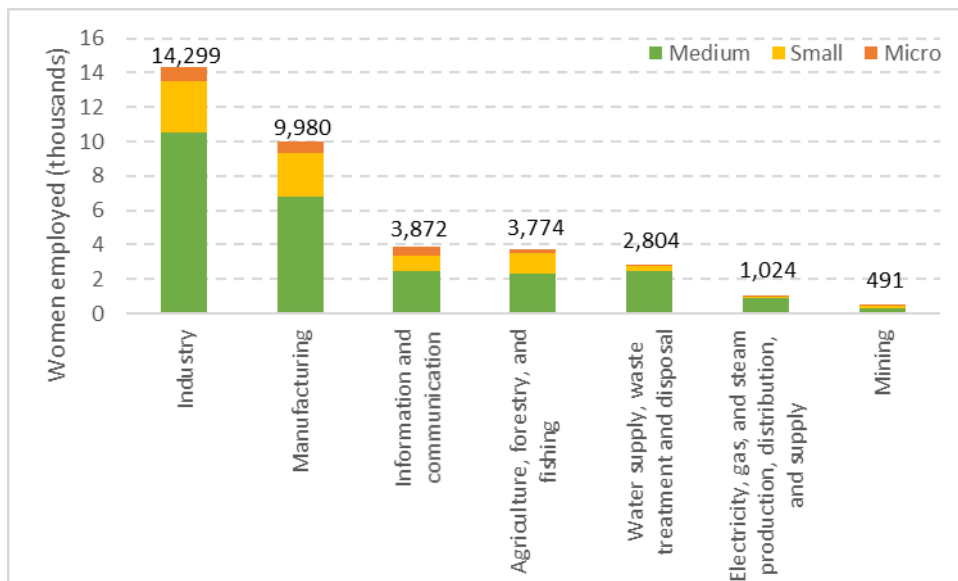


Figure 18 - Total number of women employed by SMEs by sector in 2018.

Source: The State Statistical Committee of the Republic of Azerbaijan, (Samadov, 2019)

Since the late 1990s, Azerbaijan has taken several actions to support the development of entrepreneurship, starting with the Presidential Decree in 1997, and subsequently in 2002, with the adoption of state programmes to support small and medium enterprises, improve the business environment, and create mechanisms for the protection of entrepreneurs' statutory rights. In 2016, the President adopted the Strategic Roadmaps for the National Economy and Main Economic Sectors, detailing short-, medium- and long-term goals in key sectors of the economy, including oil

and gas, agriculture, tourism, financial services, and SMEs (Center for Analysis of Economic Reforms and Communication, 2017).

The biggest common challenge faced by SMEs is access to finance. Large firms enjoy much better financial options than smaller companies (ADB, 2019). Although SME's prefer bank financing, high interest rates and reduced loan durations are a challenge. There are alternatives loan sources to banks, but these are not looked upon as favourable for SMEs, due to a lack of transparency and accountability. In addition, several initiatives to develop a national legislative framework to promote entrepreneurship have been undertaken to create an enabling environment in the country, including initiatives to implement an electronic governance system, one window principles, and subsidized electricity prices for SMEs. In particular, the latter initiative is not a long-term solution, and contradicts the UN's SDGs unless supported by energy efficiency measures.

One of the primary developmental targets of the government's Strategic Road Map for Manufacture of Consumer Goods by SMEs is encouraging women entrepreneurs. In support of this goal, the roadmap specifically lists three measures to be taken: creating effective incentive mechanisms, providing information support, and creating business incubators and related professional organizations. According to Article 25 of the Constitution of the Republic of Azerbaijan, men and women have the same rights and freedoms. However, women entrepreneurs face social, cultural, and gender bias which are deeply rooted in the mentality of people as highlighted in the paper by Aliyev (2019). The Entrepreneurship Development Fund of the Republic of Azerbaijan, which grants preferential loans to entrepreneurs, provided loans of up to 2.6 billion Manat (about €623 million) to more than 38,000 entrepreneurs in the country in the period 2002-2020. The share of these funds loaned to women entrepreneurs was 4.8% (MoE, 2021).

Natural Resources

Azerbaijan has a variety of mineral natural resources, according to the USGS 2016 Minerals Yearbook (USGS, 2020). In 2015, the country produced more than 300 million barrels of oil. By weight, crude oil and refined petroleum products combined account for about 90% of the country's mineral resources production (Figure 19). The third most important product in the same year was hydraulic cement, at 2.6 million tons (5%) produced. Slightly more than two tons of gold was mined in 2015.

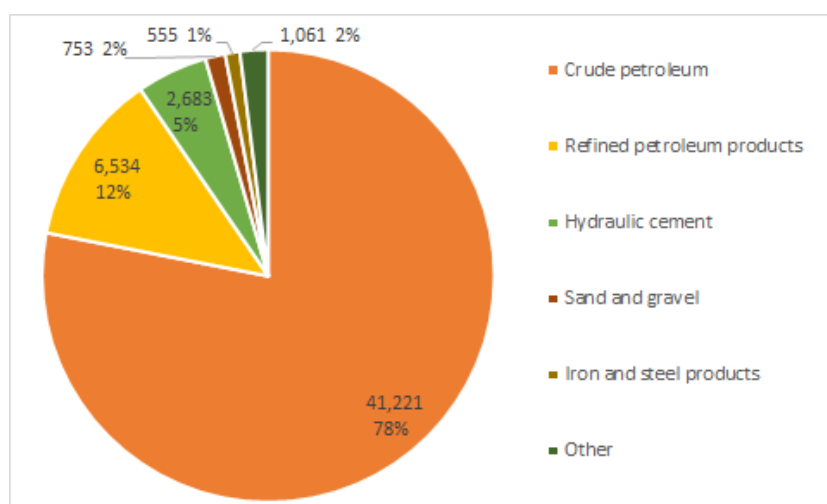


Figure 19 - Minerals production (thousand tons) in Azerbaijan in 2015.

Source: (USGS, 2020)

Azerbaijan has a flourishing natural resources sector. Hydrocarbon production is the main contributor to the country's GDP, at 32% of value-added in 2016 (Aliyev, 2019). It is a capital-intensive sector, but employs just around 2% of the population (OECD, 2019). Conversely, agriculture contributes to 36% of employment but generates only 6% of GDP (Aliyev, 2019).

COVID-19 Impact

The COVID-19 pandemic exposed the economic vulnerability of the global economy, and Azerbaijan is no exception. The decreased demand for oil and lower prices resulted in an approximately 25% cut in oil production. The current crisis has affirmed the need for economic diversification in Azerbaijan; even British Petroleum, which plays a major role in oil and gas exploration in the country, has decided to diversify its energy portfolio in Azerbaijan to include renewable energy sources (Heinrich-Böll-Stiftung, 2020).

During the COVID-19 pandemic, the Women Resource Centres have focused on supporting groups of women who are vulnerable and excluded from society. They have also launched programmes to help low-income families. Over 100 women from re parts of Azerbaijan have been given access to online business development training, covering topics such as women's networks, civil society, and entrepreneurship. Altogether, the State Committee for Family, Women, and Children Affairs (SCFWCA), Women Resource Centres and UN Development Program have provided food packages to over 300 rural families. These eco-friendly packages were purchased from women entrepreneurs (OHCHR, 2020).

The COVID-19 outbreak had major financial consequences for the wealth of women, including reduced spending power. A survey by the United Nations Population Fund (UNFPA) shows that economic protection of women has been hit hard, affecting both jobs and income. The biggest losses in income for both women and men were for those working in family businesses and farming. On a positive note, while working hours were reduced, 40% of the population was able to keep their jobs during the outbreak.

Opportunities

As previously mentioned, there are few women-led SMEs in agriculture; significant opportunities exist for women-led SMEs to improve the agriculture growth model in three areas: adopting technological advancements to increase productivity, deploying credit service infrastructure through banks, and developing training programmes for production equipment use and technical support. Women entrepreneurs in Azerbaijan can diversify towards more sustainable business opportunities to further support the SDG initiatives the government has endorsed and to take advantage of the extensive e-government infrastructure and business environment reforms (Bayramov et al., 2017). One such example is the National Fund for Entrepreneurship Support, which offers subsidized financing for the development of Information Technologies and Management of Agriculture Projects.

There are also several initiatives to promote the bio-economy through eco-tourism and forestry programmes. The bio-economy can support the economic transition by reducing dependencies on finite fossil resources in several industries, including construction, chemicals, forestry, consumer goods, etc. Research and innovation in life sciences and biotechnologies can lead to the production of new and sustainable biobased products (bio-chemicals and bio-fuels), and modernise or create new supply chains for industrial activities. The impact of COVID-19 on business worldwide highlighted the need for rebuilding the economy in a sustainable way. The bio-economy can lead the way in supporting the development of technologies and mechanisms to create locally-sourced sustainable food, fuels, and consumer products, reducing the dependency on cross-border trade.

Given the naturally rich resource landscape of Azerbaijan, several opportunities exist for women entrepreneurs to create businesses to support (both indirectly and directly) the fossil fuel sector. An example could be R&D to promote the adoption of low-carbon solutions to reduce the industry's environmental impact. The development of education and training programs to support the transition from a fossil fuel-based economy to a green and sustainable economy could also make promising opportunities.

Government- and International-led Programmes

To encourage the participation of SMEs in creating employment opportunities and diversify the economy from reliance on fossil fuel exports, the government has undertaken a number of measures to facilitate and support the businesses. For example, the Azerbaijan Investment Company was created to provide support for companies in economic sectors other than oil and gas. The Azerbaijan Export and Investment Promotion Foundation was created to promote international trade opportunities for domestic firms, especially SMEs.

To promote the development of SMEs and overcome these barriers, financial reforms were implemented in 2017, through institutional frameworks such as the Small and Medium Business Development Agency (SMB) (ADB, 2019). The SMB Development Agency of the Republic of Azerbaijan was established by the Presidential Decree of 28 December 2017. The agency's charter and structure were endorsed by the Decree of the President of Azerbaijan on 26 June 2018. As a legal entity under the Ministry of Economy, the agency is authorized to support the development of small and medium businesses (SMBs) in the country by providing SMBs with a number of services, as well as coordinating and regulating services rendered by government entities to SMBs.

The EU4Business initiative is an international program set in place by the EU to promote an economic resilience partnership program with the Eastern European countries to develop a vibrant and diversified economy across the region (EU4Business, 2018). The EU4Business program in Azerbaijan is focused on helping SMEs attract investments and create jobs in new sectors and support access to new markets. The Women in Business programme within this initiative aims to provide loans, technical assistance, and tailored support to women-led enterprises and create opportunities to access new markets across the region (EU4Business, 2018).

The country's 2016 Strategic Roadmap for Small and Medium Entrepreneurship identifies 5 strategic targets, with relevant priorities for each target. Priorities which can be expected to provide substantial support for women-led SMEs include:

- Develop business environment and regulatory framework favourable to SMEs: improve SME-specific legislative framework, establish SME-specific special industrial zones and clusters
- Make financing more accessible to SMEs: create SME loan guarantee fund; develop leasing and alternative financial instruments (forward, futures, option, swap, factoring, etc.) market to ease access to finance
- Internationalization of SMEs: expand financial services for international trade deals of SMEs and promote foreign direct investments
- Develop business and entrepreneurial skills: develop business incubators and start-up projects, increase training and education options for SMEs to accelerate the introduction of best practices, promote an entrepreneurial mindset; promote female entrepreneurship
- Expand promotion of investment and R&D opportunities for SMEs: form innovation infrastructure stimulating small and medium entrepreneurs

Recommendations

Recommendation 1: The government should promote opportunities for women-led businesses to develop the bio-economy.

Recommendation 2: The government should foster low-carbon innovation and research and development programmes, in support of achieving green economy SDGs.

Belarus

MSME classification in Belarus is solely based on the number of employees (revenue is not considered): 1-15 = micro, 16-100 = small, 101-250 = medium. The country also has a large share of state-owned enterprises (including MSMEs), which play a dominant role in the Belarusian economy. The Belarusian economy is still founded on the guarantee of full employment, largely by state-owned enterprises. This hamper efficient reallocation of capital and labour to more productive uses, limiting the extent to which small businesses can develop and grow (EBRD, 2016a; OECD, 2017). These facts, along with the MSME categorization rules, distort the market statistics, making it appear as if MSMEs are a larger share of the market than they really are. The proportion of active enterprises that were categorized as MSMEs in 2015 was 75.9%. In the same year, SMEs represented 30.5% of total employment and contributed 28.1% of national value-added. Figure 20 shows the distribution of MSMEs by sector (2015), nearly two-thirds of which are in Trade, repair of vehicles, Manufacturing, and Real estate and business services. If firms were categorized in a more typical manner, MSMEs would likely be a smaller proportion of businesses in Belarus.

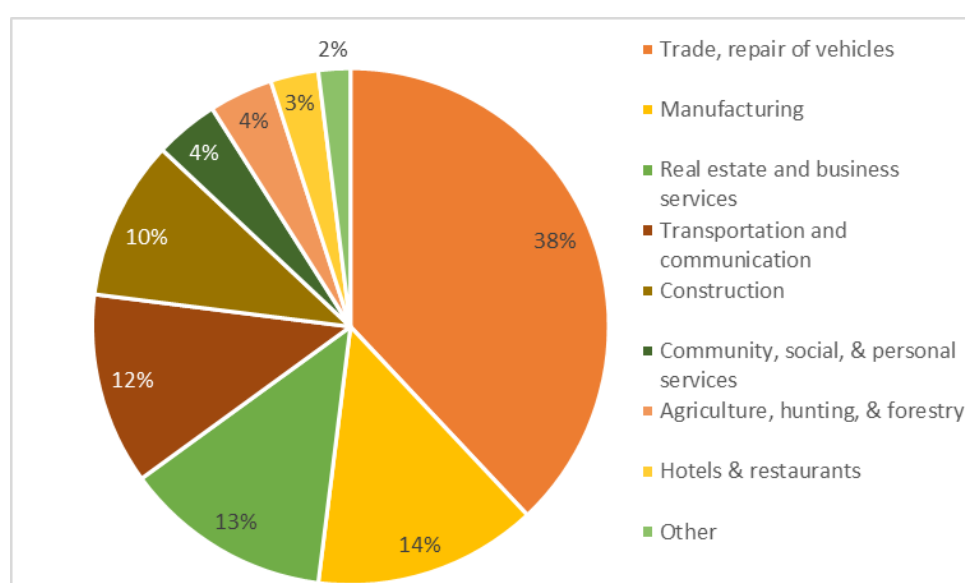


Figure 20 - Distribution of MSMEs by sector in 2015.

Source: (OECD,2017)

SMEs in Belarus are typically not innovative, and operate low-productivity industries at small scales. This partly explains why the supposed three-quarters of active businesses contribute less than 30% of GDP. Only 3.5% of SMEs introduced new products or developed process innovations in 2014. According to their 2018 annual report (EU4Business, 2018), the EU4Business Eastern Partnership has invested in two programmes designed to improve the necessary skills – Advice for Small Businesses in Belarus and Local Economic Development in Belarus.

The country's information technology (IT) industry is rapidly expanding. Between 2010 and 2015, IT services exports grew by 400%, accounting for approximately one-eighth of all service exports in 2015 (Belstat, 2015b, 2015c; 2016a; EU, 2016; UNITER, 2014) and was projected to contribute to GDP even more prominently in the subsequent years. With the increasing importance and value of digitalization and related technological advancements, the IT services sector could present substantial opportunities for women-led MSMEs. With more than half of working women holding advanced degrees, the Analytics-as-a-Service business model seems to hold particular potential.

Natural Resources

Belarusian natural resources include forests, peat deposits, small volumes of fossil fuels, and various other minerals and metals. More than half (51.6%) of the country is covered by both coniferous and deciduous forests. There could be many opportunities to develop a thriving bio-economy based on timber and other wood products. In addition, Belarus produces a variety of minerals, metals, and fossil fuels. According to the USGS (2020) Minerals Yearbook, the top five mineral and mineral products produced in the country are potash, hydraulic cement, iron and steel products, dolomite, and raw steel – see Figure 21. The majority of iron and steel products are not from locally-mined iron ores but imported. Historically, potash has been the leading export product from Belarus, with potash deposits containing magnesium salt, rock salt, and sylvinite. As of 2016, Belarus was expected to continue to be a major supplier of potash to world markets (USGS, 2020). However, the future of Belarus's mineral sector, in line with the economy in general, is likely to depend on political relations with the Russian Federation and on the country's ability to develop and maintain a reliable global business network (USGS, 2020).

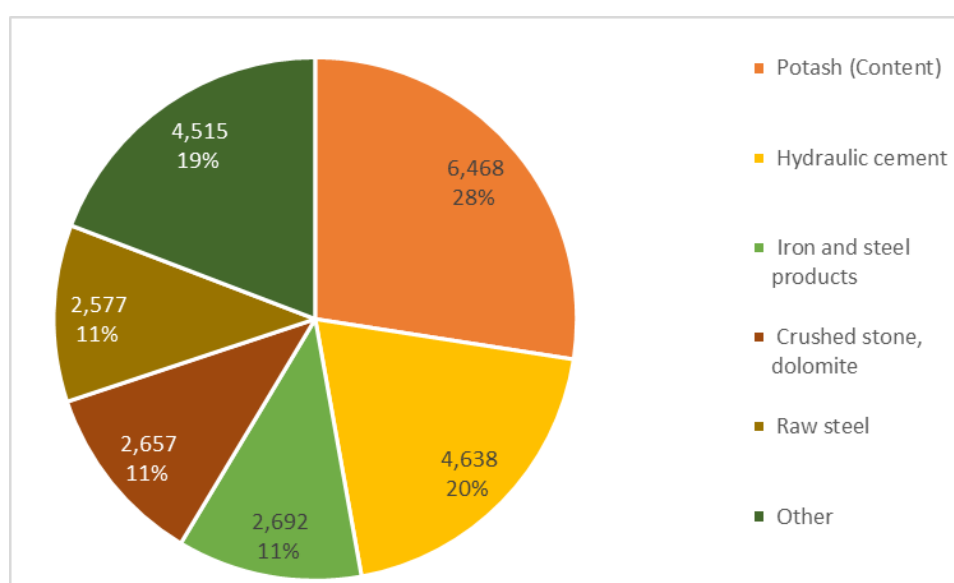


Figure 21 - Minerals production (thousand tons) in Belarus in 2015.

Source: (USGS, 2020)

COVID-19 Impact

The economy of Belarus is highly dependent on trade; according to the World Bank, goods and services exports accounted for 70% of GDP in 2018 (WITS, 2020). The majority of Belarusian exports are consumer goods, intermediate goods, and fuels, most of which go to the Russian Federation, Ukraine, and the United Kingdom. With its high level of reliance on trade, the COVID-19 crisis posed a severe challenge for Belarus. Reduced economic activity due to COVID-19 mitigation measures implemented by its trade partners resulted in an economic crisis in Belarus – even without any quarantine measures imposed domestically. A more diversified trade portfolio would have likely limited the pandemic's impact.

Opportunities

The natural resource sector in Belarus is mostly male-dominated; in 2013, male participation across economic activities is highest in the services sector (50%) followed by agriculture (35%) and industries (15%), while the participation of women in agriculture is merely 8% (Nestsarchyk, 2016). However, women participate significantly in the management and ownership of MSMEs in the

industry and services sectors. Overall, 54% of employees in Belarus are female, but their combined contribution to GDP is estimated to be 37%; a full quarter of businesses are headed by women. According to the International Finance Corporation (2014), 33% of companies are managed by women, and 44% are owned by women. More than 55% of working women – as opposed to 38% of working men – have completed higher and secondary special education.

However, some of these statistics which appear positive may be due to the idea that registering a company in a woman's name is a risk-diversification strategy. In Belarus, a strong social stereotype exists regarding the role of women; according to a survey, women spend 75% of their time on family duties and childcare.

Government- and International-led Programmes

Belarus developed a state programme, the National Sustainable Development Strategy of Belarus for 2016-20, to improve the business environment for SMEs, and to develop a positive image for entrepreneurship amongst the public. In 2015, the country became one of the first countries to launch the Women in Business programme implemented jointly with the EBRD. There are two credit lines available to support women-led SMEs: €8 million under the Belarus Sustainable Energy Finance Facility, and a €2 million senior loan under the EBRD's Women in Business programme.

As of 2018, the EU4Business Eastern Partnership completed 4 support projects, and had ten underway in Belarus, with the EU contributing more than €21 million (EU4Business, 2018), focusing on MSMEs, and with targeted support for women entrepreneurs. Between 2009 and 2017, these projects had the following impacts on MSMEs (EU4Business, 2018):

- 271 enterprises supported with advisory services
- 620 enterprises received loans worth a total of over €71 million
- 3,859 jobs created, and 18,898 jobs supported/sustained

Recommendations

***Recommendation 1:** The government should consider structural economic reforms to encourage entrepreneurship, including through women-led MSMEs, which can improve its economic competitiveness.*

***Recommendation 2:** The government should place more emphasis on training and educational programmes to promote competitiveness and innovation and to diversify the economy from traditional economic sectors.*

***Recommendation 3:** The government should encourage women entrepreneurship in the natural resources sector and encourage MSMEs' activities in bio-economy to benefit from the competitive advantage of the country's large forest resources.*

Georgia

The Government of Georgia has emphasized the importance of creating a strong private sector for the country's economic development, with special emphasis on SMEs. In 2015, Georgia adopted a new definition of SMEs, consistent with what is used in the European Union. Table 4 compares the previous and current categorizations used by GEOSTAT (statistical agency). The new methodology has been applied across all businesses, and existing enterprises were recategorized.

Table 4 - Evolution of the definition of enterprise categories. The turnover thresholds are defined in Georgian Lari but converted to Euros at the 30 October 2020 rate of 1 Euro to 3.78 Lari.

Category	Average Headcount		Turnover (thousand euros)	
	Previous	Current	Previous	Current
Small	<20	<50	<€132.1	<€3,172.0
Medium	21 – 100	51 – 250	≤€396.5	≤€15,859.6
Large	>100	>250	>€396.5	>€15,859.6

Source: (GEOSTAT, 2015)

Following this re-classification, the share of SMEs in Georgia is 99.7% in 2017. However, the share of value-added by SMEs during 2006-2014 did not exceed 20%. In comparison to the average global contribution, Georgian SMEs' contribution to job creation in 2014 was 44% (SME Development Strategy of Georgia 2016-2020, 2015), despite the high proportion of businesses classified as SMEs, which was 94% in 2014 (SME Development Strategy of Georgia 2016-2020, 2015). With renewed government focus on supporting SMEs and promoting economic growth, the share of gross value added from SMEs was 61.5%, and employment was 67% in 2016 (OECD, 2019).

Natural Resources

The natural resources sector contributes significantly to Georgia's economy; mining and associated industries contributed 17.3% of GDP in 2017, second only to wholesale & retail trade, at 24.3% (Khishtovani et al., 2019).

Georgia has relatively limited natural resources, including underdeveloped oil and natural gas. Figure 22 shows the amounts and proportions of the top five minerals and mineral products produced in 2015. Georgia has both gold and silver reserves, having produced 30 tons of gold in 2015. Stone is mined and quarried in the country, with hydraulic cement production accounting for about 40% of the total. Other than the top five resources, the country's mineral resources include nitrogen, gypsum, salt, and clays.

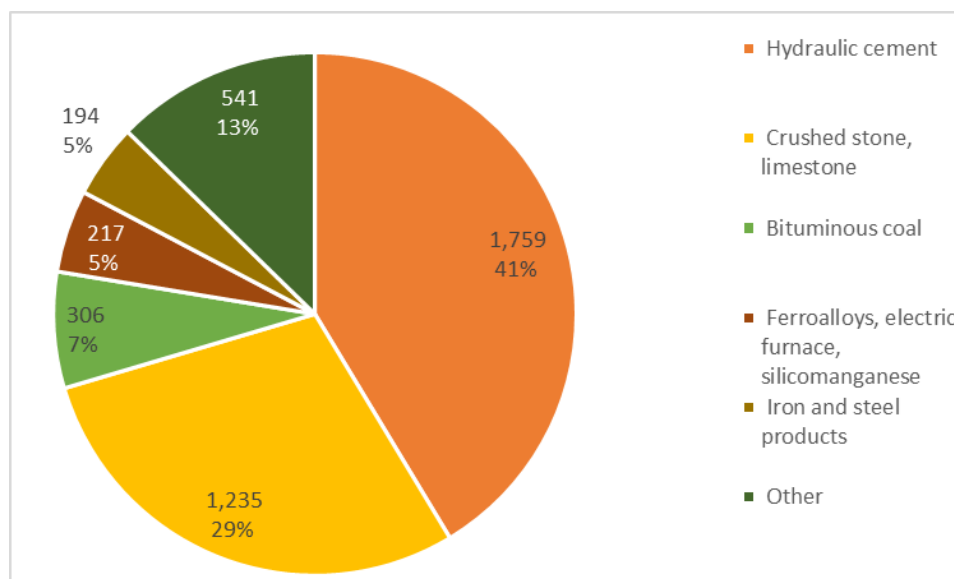


Figure 22 - Minerals production (thousand tons) in Georgia in 2015.

Source: (USGS, 2020)

COVID-19 Impact

Georgia responded efficiently and swiftly to contain the spread of COVID-19 and has slowly opened the economy. However, like any other country in the world, Georgia's economy was substantially impacted. The suspension of tourism was especially damaging, as it is one of the largest economic sectors (Czura, 2020). The containment measures also slowed down other economic sectors (for example, retail and services). Reduced tax remittances and weaker trade demand for goods and services from the rest of the region also impacted Georgia's economy.

Support from international financial institutions such as the European Investment Bank (EIB) will ease the recovery process. The Government plans to diversify its economy to focus on new renewable energy and agriculture projects whilst promoting its private sector through EIB support, specifically providing financing for MSMEs. Recent measures, such as the InnovFin programme will provide working capital, as well as adjusting existing MSME loans for borrowers in distressed situations (Czura, 2020).

Opportunities

Georgia's SME Development Strategy 2016-2020 (Government of Georgia, 2015) is projected to support the development of MSMEs by creating a favourable environment to enhance their competitiveness and innovation capacities. The strategy aimed at generating wealth and create jobs, resulting in inclusive and sustainable economic growth. The nation's SME Strategy is based on the Think Small First principle of the Small Business Act for Europe. The 2020 implementation targets of Georgia's SME Development Strategy (2013 is the baseline year) are as follows:

- Grow the average annual output of MSMEs by 10%
- Grow the number of people employed by MSMEs by 15%
- Grow productivity by 7%

The primary objectives of the SME Development Strategy are to enhance MSMEs' competitiveness in domestic and international markets, drive the development of relevant business skills, promote an entrepreneurial culture, and support technological modernization. Several high-priority actions planned under the strategy may be of particular benefit to women entrepreneurs, especially those

designed to increase the efficiency with which energy and resources are consumed. In addition, the impact on tourism and trade of the COVID-19 pandemic has convinced the government to shift more economic emphasis to innovation and R&D, with a strong focus on increasing technological capacity.

Government- and International-led Programmes

The growth in participation of women entrepreneurs in Georgia has progressed. As of 2014, 37.5% of early-stage entrepreneurs are women (Lezhava et al., 2015). However, the gap is slowly narrowing due to several initiatives undertaken by the government and international organizations. In February 2020, the IFC provided 100 million Georgian Lari (approximately \$35 million) as a long-term local currency loan to the Bank of Georgia to help finance small businesses and women entrepreneurs. The following ministries are implementing government initiatives supporting the development of SMEs:

- Produce in Georgia - Ministry of Economy and Sustainable Development and the Ministry of Environmental Protection and Agriculture
- United Agroproject - Ministry of Environmental Protection and Agriculture
- Supporting Start-ups in the Field of Innovation and Technology - Ministry of Economy and Sustainable Development

Aimed at increasing competitiveness, facilitating access to trade-related finance, and helping companies comply with quality standards, the European Commission launched the DCFTA (Deep and Comprehensive Free Trade Area) Facility in support of MSMEs in 2015 (EU4Business, 2018)). This facility, which provides free trade access to the EU for three signatory countries (Georgia, Moldova, Ukraine), became fully operational in 2017. It is funded by €200 million from the EU budget, to provide at least €2 billion in investments/loans. Under the DCFTA, the Women in Business programme has supported a project targeting civil society engagement of women-led MSMEs.

The EU4Business initiative has supported more than 20 projects in Georgia across four key objective areas: improving access to finance, strengthening policy and regulatory framework, improving the knowledge base and business skills, and improving access to markets (EU4Business a, 2018). According to its 2018 country report, most of the focus has been on improving access to finance for MSMEs, with 10 ongoing projects receiving the largest portion of the nearly €65 million of EU funding. Between 2009 and 2017, the initiative programmes have been responsible for the disbursement of over €880 million in loans to more than 37,000 businesses in Georgia. Due to an extremely supportive business environment, EU4Business Eastern Partnership projects have been easier to implement in Georgia than in other countries.

Recommendations

***Recommendation 1:** The government should promote investments in technology- and innovation-driven sectors to reduce the country's economic dependence on the services sector.*

***Recommendation 2:** The government should complement initiatives to support energy and resource efficiency with building capacity through education and training programmes, with a focus on enabling and empowering women-led MSMEs.*

Kazakhstan

Article 24 (Categories of Entrepreneurs) of the Entrepreneur Code of the Republic of Kazakhstan defines two different ways to categorize MSMEs. For national statistics, the number of employees is used. For the purposes of state support programmes, however, the number of employees and annual turnover is used. Table 5 lists the criteria for both these categorizations for micro-, small-, medium-, and large enterprises.

Table 5 - Definitions of business size categorizations. The turnover thresholds are defined by the Entrepreneur Code in US dollars.

Metric	Micro	Small	Medium	Large
National statistical definition				
Number of employees	<15	<100	<250	≥250
State support purposes				
Number of employees	<15	<100	<250	≥250
Annual turnover (\$ million)	<0.21	<2.14	<21.5	≥21.5

Source: (Kapparov, 2019)

Kazakhstan is a significant exporter of mineral natural resources, especially fossil fuels, and the country has grown overly dependent on this economic sector for both jobs and revenue. Economic diversification to reduce reliance on the extractive industry, especially fossil fuels, is imperative to achieve a long-term sustainable economy. Cognizant of this, the government is actively promoting economic diversification. The Third Modernization of the Economy initiative (GEM, 2017) is a cornerstone in the government's diversification strategy. This initiative envisages the formation of a new model of economic growth and technological modernization of the economy, with MSMEs playing a central role by supporting production diversification, promoting non-primary exports, and building human capital. Improvement and expansion of the business environment is a priority of the country's economic modernization strategy.

Currently, MSMEs in Kazakhstan account for only 25% of value-added and 37% of employment, but most of them operate in low value-added sectors. The government initiated several important reforms in 2017 aimed at enhancing the business environment, many of which concentrated on supporting the development of small enterprises. The Global Entrepreneurship Monitor National Report (GEM, 2017) is the focal point of Kazakhstan's economic policy, under which the regulations were changed to assist the private sector. Women own 30% of businesses, compared to the 51% share held by men, and the two genders are at equal parity as co-owners (19% of businesses), and in holding managerial positions (Jappar & Jandosova, 2014). Women's share in trade businesses is 41%, in hospitality services is 8%, in consumer goods production is 5%, and in financial services is 3%. The share of women as owners in fishing, construction, and material production is 5%, 4%, and 4% respectively (Jappar & Jandosova, 2014).

By investing in the private sector, including MSMEs in agribusiness and the non-extractive natural resources sectors, the government hopes to improve the economy's competitiveness. Even though economic growth in Kazakhstan has slowed down from earlier in the decade, the small business sector showed a stable expansion of 6.9% in 2016.

Natural Resources

Kazakhstan is rich in mineral natural resources. In addition to abundant fossil fuels, the region is well-known for both metallic and non-metallic deposits. The country has significant gold and silver resources (88 tons and 2,600 tons produced respectively in 2015), as well as uranium, lead, titanium, and rare earth minerals (USGS, 2019). Figure 23 shows the absolute amounts and relative shares of the top 5 mineral resources produced in 2015, reported by the US Geological Survey (USGS, 2019). In terms of tons, bituminous coal, crude oil and refined petroleum products, and natural gas account for more than three-quarters of production. When lignite coal and coke are included, Kazakhstan produced more than 225 million tons of fossil fuels – almost 80% of all mineral resources produced.

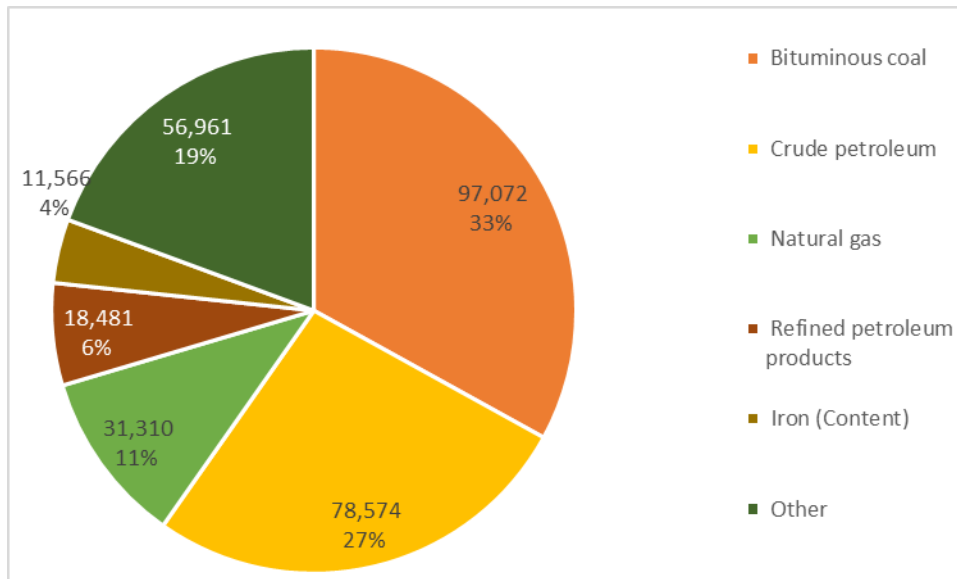


Figure 23 - Minerals production (thousand tons) in Kazakhstan in 2015.

Source: (USGS, 2019)

COVID-19 Impact

Kazakhstan, as a resource-rich country with an economy heavily dependent on the export of raw materials exports, suffered severe financial setbacks as the decline in oil and minerals commodity prices reduced state revenues. The COVID-19 pandemic further impacted 1.5 million people who were employed directly in the extractives and ancillary industries and lost their jobs. The government is preparing a significant fiscal response, but further negative effects on trade and industrial production are expected. The government is developing rehabilitation packages to support the most severely impacted industries. The new Employment Roadmap state programme is a substantial measure to secure employment after the COVID-19 pandemic, and is expected to stimulate the creation of more than one million jobs. The government is also implementing a Comprehensive Economic Growth Recovery plan to encourage business activity, further support employment, and increase revenues. Finally, a state commission for economic growth rehabilitation is being created, with the remit to develop economic recovery proposals.

Opportunities

The government of Kazakhstan is investing heavily in building infrastructure for sustainable energy under several initiatives, covering both renewable energy and energy efficiency technologies. The initiatives are intended to reduce Kazakhstan's carbon footprint and diversify away from economic reliance on fossil fuels. A supportive regulatory framework to encourage MSME participation in these areas would help the country make progress.

In addition to alternative energy, there are several opportunities for women-led MSMEs to become more active in agriculture, innovative industrial solutions, low-carbon technologies, the circular economy, the IT sector, and digitalization in natural resources management. Extracting minerals from waste electronics, as part of the circular economy, could be particularly attractive to small businesses in Kazakhstan. As compared to the extractives industry, recycling the minerals from e-waste is more environmentally friendly and less capital intensive, and could potentially use some of the existing infrastructures.

Entrepreneurs in Kazakhstan are fairly evenly split between men and women, which is largely the result of the high proportion of women in the labour force. Banks and financial institutions in Kazakhstan have been offering free financial education programmes for MSMEs borrowing funds, which includes providing mentoring opportunities and training on how to run a small business. However, gender barriers tend to prevail in rural areas, where women lack access to financial services, do not have bank accounts, credit history, financial education, or business knowledge and skills.

Government- and International-led Programmes

Policy instruments promoted by the government to foster MSME participation and facilitate access to finance include government loan guarantees, special guarantees and loans for start-ups, and subsidized interest rates. There are no domestically funded initiatives specifically targeting women-led small businesses.

In July 2015, the Ministry of National Economy began a 5-year partnership with the EBRD's Women in Business initiative, focusing on small businesses, women entrepreneurship, and the investment environment. In conjunction with several partner organizations (Arnur Credit, Bank Kassa Nova, Bank Centre Credit, ForteBank, microfinance organization MFO KMF, and Shinhan Bank), more than 21,000 small business loans worth a total of \$76M have been disbursed to women-led MSMEs (Shayakhmetova, 2019).

Recommendations

***Recommendation 1:** The government should identify economic opportunities for, and challenges facing, women-led MSMEs in the renewable energy sector in Kazakhstan.*

***Recommendation 2:** The government should develop policy measures and incentives promoting the implementation of circular economy concepts for extracting minerals from electronic waste.*

Kyrgyzstan

The Kyrgyz Republic defines MSMEs based on two criteria: the number of people employed and annual turnover, shown in *Table 6*. The small and medium enterprises are further grouped by economic activities:

- Activity Group 1: Agriculture, hunting, and forestry; Fishing, fish farming; Mining; Manufacturing; Production and distribution of electricity, natural gas, and water; Construction
- Activity Group 2: Trade; Repair of automobiles, household goods, and personal items; Hotels and restaurants; Transport and communications; Financial activities; Real estate services; Education; Health and social services; Communal, social, and personal services

Table 6 - Economic activity criteria to categorize MSMEs. The turnover thresholds are defined in Kyrgyz Soms, but converted to Euros at the 30 October 2020 rate of 1 Euro to 95.28 Soms.

Classification	No. of Employees for Economic Activity Group 1	Turnover for Economic Activity Group 1	No. of Employees for Economic Activity Group 2	Turnover for Economic Activity Group 2
Micro-	1 - 15	< €1,573	1 - 7	< €412
Small-	16 - 50	< €5,244	8 - 15	< €5,244
Medium-	51 - 200	€5,244 - €20,976	16 - 50	€5,244 - €20,976

The share of national gross value-added, categorized by firm size is shown in *Figure 24*. While micro- (or individual) enterprises contribute the largest share, the data clearly demonstrate that the share of GDP from MSMEs has mostly remained stagnant over the 2015 – 2018 period. Only one third of female entrepreneurs in the country are employed in MSMEs.

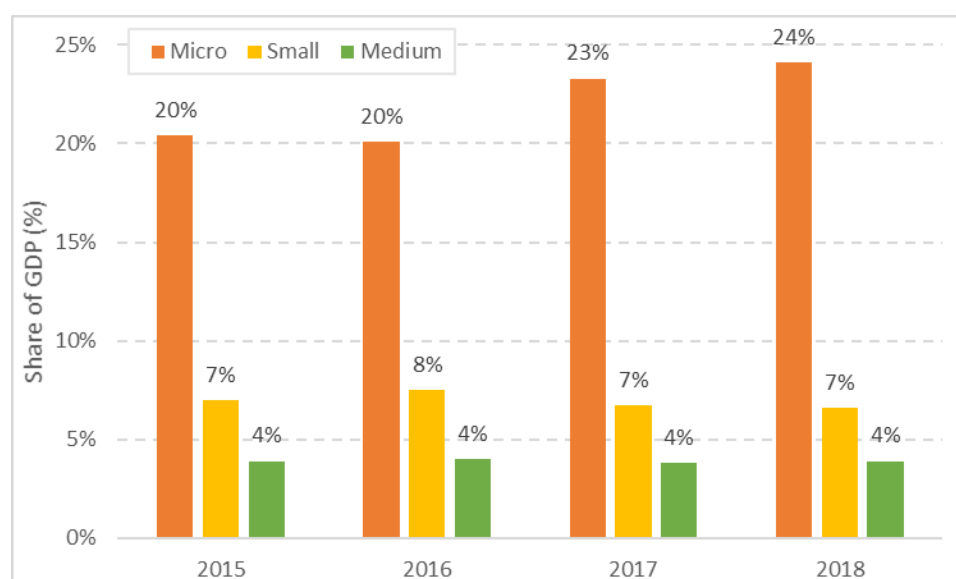


Figure 24 - Share of gross value-added in GDP by enterprise size.

Source: National statistics, Kyrgyzstan

The Kyrgyz government had passed a law supporting small business in 2009. However, the government has been slow in promoting reforms for small businesses and in engaging with local administration and institutions. A decade after passing the law, programmes for supporting SME development and encouraging women entrepreneurship are being developed. In 2019, the government proposed the draft Programme for Development and Support of SMEs for 2019-2023, which has not yet been approved. However, the proportion of women participating in the SME sector increased from 25% to 32% between 2010 and 2018 (Hasanova, 2019).

Accessing finance has been a complex and challenging process for women in Kyrgyzstan. Banks require property as collateral for loans. Also, most real estate is owned by men, so access to finance through collateral is restricted. Only 29% of women were registered as property owners (land/house), limiting access to credit. However, during the initial phase of developing microfinance loans, women were given priority, and their share of credit reached 80%. Even today, women are the majority of microfinance borrowers (Hasanova, 2019).

Natural Resources

Natural resources in Kyrgyzstan include hydropower, fossil fuels (especially coal), gold, and other minerals and metals. Though only 5% of the country is forested, the Jalal-Abad region has the world’s largest natural growth walnut forest, which may be the source of most of the different varieties of walnut around the world.

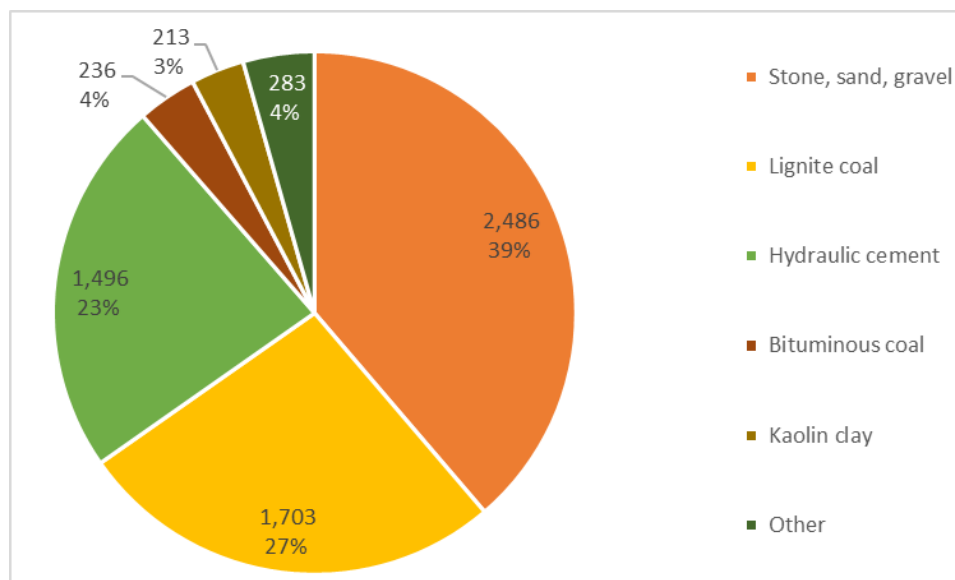


Figure 25 - Minerals production (thousand tons) in Kyrgyzstan in 2015.

Source: (USGS, 2020)

Regarding mineral resources, the country produced 17 tons of gold and 10 of silver in 2015. Uranium is also mined; Kyrgyzstan produced 1,500 tons of processed uranium that year. Figure 25 shows the top 5 minerals and mineral products produced in 2015. Various types and sizes of stones are quarried, with sand, gravel, and stone counting for nearly 40% of production; approximately 163,000 tons of granite and marble are also produced. Almost 2 million tons of coal were mined in 2015 – about 30% of mineral production (USGS, 2020).

COVID-19 Impact

The socioeconomic impacts of the COVID-19 pandemic are largely being borne by women. Women in Kyrgyzstan spend 68% (UNSTATS, 2015) of their time performing unpaid care work. Social

restrictions and school closures have increased this burden. With difficult and trying times for families losing economic stability amidst food security challenges, recent months have witnessed an increase in domestic violence. Due to lockdown restrictions, men who would otherwise be migrating to seek economic opportunities in neighbouring countries (mostly the Russian Federation) have stayed home due to the closure of international borders. This may partially explain the observed increase in the number of domestic violence cases, which have surged by 67% (OECD, 2020). Kyrgyzstan has been severely affected by COVID-19, rapidly depleting public finances and paralysing most of the country's economy.

Opportunities

Women-led MSMEs in the natural resources sector are currently limited to agriculture, and there are few opportunities available in other areas due to the lack of national reforms and access to capital. However, digitalization and development of the information communications and technology (IT) sector can create economic opportunities. Consider, for example, taking advantage of how COVID-19 has changed the way businesses operate - an e-commerce platform can help businesses develop and connect online. The proportion of female college graduates in STEM in Kyrgyzstan is 29%, which suggests that there is a substantial opportunity to tap into the potential of these women to promote women entrepreneurship in the scientific industry – including the IT sector.

Government- and International-led Programmes

The “one village – one product” (OVOP) project, supported by the Japan International Cooperation Agency, was developed as a movement to encourage economic specialization. The idea of the project is that each village would produce a unique product, creating many micro-monopolies. The project was built upon the concept of differentiation, and advertising and publicity could be made unique to each product line. The producers specialized in handicrafts and agricultural products. Female participation in the project was over 60%. The project has been successful, and continues to grow, with sales increasing by 22% from 2016 to 2018.

A 2013 assessment conducted by the International Finance Corporation (IFC) led to the development of financial literacy programmes. The goal was to ensure equal access to financial information and services. However, the programme was unsuccessful in promoting financial understanding, as no special provisions were made for women or girls to reduce their knowledge gap. There are currently no robust national programmes to promote female entrepreneurship in MSMEs, which is greatly needed to boost the economy.

Recommendations

Recommendation 1: *The government should provide MSMEs access to information on financial tools, professional organizations, and institutions to promote collaboration and development between enterprises and supply chains.*

Recommendation 2: *The national and local authorities should provide supporting financial mechanisms, education programmes, and gender awareness programmes to tackle the cultural and social stereotyping of women's role in society and to pave the way for changing the social mindset and lend support for women entrepreneurship.*

Recommendation 3: *The government should consider investing in developing infrastructure and undertaking necessary reforms to digitalise the economy. This can create a much-needed opportunity for female participation in knowledge-based economic sectors beyond agriculture.*

Conclusions

Micro-, small-, and medium-sized enterprises (MSMEs) fill crucial roles in economies all over the world. MSMEs can often innovate, pivot, and generally navigate the global economic waters more quickly than their large counterparts. Globally, MSMEs account for 90% of business enterprises; micro-and small enterprises together account for a staggering 70% of employment worldwide. The MSME sector generates approximately 40% of Gross Domestic Product (GDP) in developing economies; in developed economies, 7 out of 10 jobs are created by MSMEs. MSMEs have very high job creation potential, and the sector is considered to be critical to socioeconomic development in most countries. This report has analysed several challenges facing women-led MSMEs, which could be grouped under the five interconnected topics shown in Figure 26.

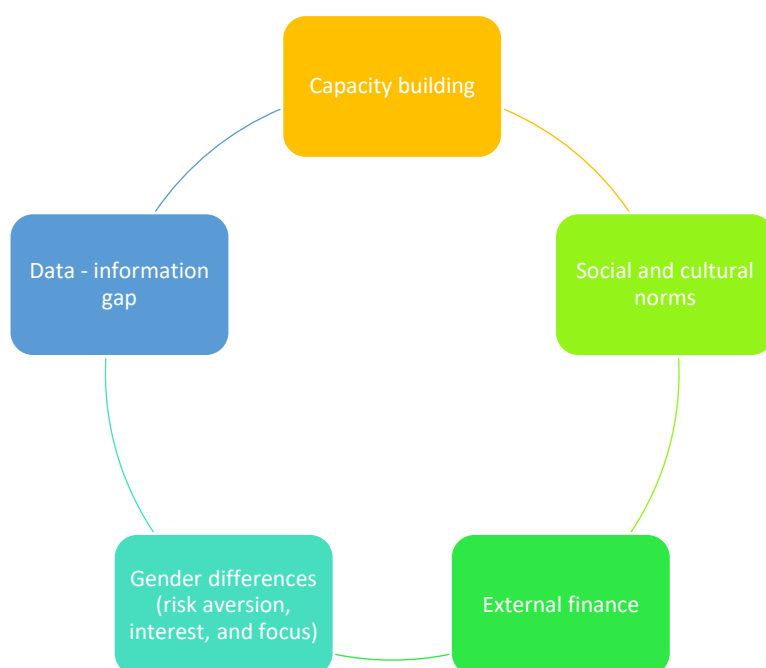


Figure 26 - Challenges facing women-led MSMEs.

It is critical to ensure that systemic gender bias does not hinder the economic development of women-led MSMEs. Men and women each account for about half of the potential workforce, so any such bias would limit the contributions of a substantial portion of the population. There are research data that indicate that innovation is more prevalent in women-led MSMEs. As economies wrestle with the COVID-19 crisis while already trying to drive climate change mitigation efforts and transition to a low-carbon economy, innovation is particularly important. By promoting environmental awareness and supporting an economic transition, women-led MSMEs can lead the change towards building a greener, gender-equal, and more sustainable economy. The natural resource management sector presents, perhaps, the most appealing, diverse, and impactful long-term opportunities. As non-renewable resources deplete, the natural resources industry is shifting away from the paradigm of “take, make, dispose”, towards integrated systems approaches to increase resource efficiency and reduce waste. Innovations such as these are knowledge-intensive, rather than capital-intensive, and hence particularly accessible to MSMEs. The natural resources sector directly ties into all 17 UN Sustainable Development Goals, and MSMEs have the potential to help countries achieve them while creating economic value.

The COVID-19 crisis has created challenges for MSMEs across all economic sectors in nearly all economies – even those in which less-stringent containment measures have been put in place. There

are also difficulties in accessing finance, infrastructure, data, and supporting governmental programmes, which limits the extent to which MSMEs, in particular led by women, can develop further. The COVID-19 pandemic has caused a dramatic shift in the business-as-usual approach and created new opportunities for “building back better” that includes innovation, green growth, and sustainable development. Female entrepreneurs are well-equipped to overcome some of the challenges described above and are becoming more inclined to seek external finance and innovate in the NRM sector.

Female entrepreneurs often feel out-of-place in an entrepreneurship discourse that is masculine in nature, which is one of the reasons why women are underrepresented in the NRM sector historically dominated by men. This report explores different pathways for women entrepreneurs to contribute to the NRM sector and describes opportunities that exist today.

The following are key findings of the study:

1. **There is an evident gender diversity problem in natural resources management.** For example, the oil and natural gas industry has struggled over the years to attract, retain, and promote women in the workforce, and it is important for this sector to decrease the gender gap as it is already facing employment challenges. The majority of NRM women entrepreneurs are in the agriculture sector.
2. **The COVID-19 pandemic simultaneously presents unprecedented challenges and unique opportunities to women-led MSMEs.** MSMEs in general, and women-led MSMEs in particular, have been especially vulnerable to the impacts of the pandemic. However, the pandemic has also caused a dramatic shift in the business as usual approach and paved the way for innovations, green growth, and sustainable development. Women-led MSMEs may be best equipped to take advantage of these opportunities.
3. **There are few policies to promote women entrepreneurship in NRM.** In part, this could be due to the lack of sufficiently detailed data. The severely limited amount of relevant data hinders analysis and makes it difficult to design public policies to promote the participation of female entrepreneurs in the sector.
4. **In recent years, the number of women studying science, technology, engineering, and mathematics (STEM) topics has increased.** An increase in women skilled in STEM topics should result in more women-led MSMEs taking advantage of opportunities presented by Fourth Industrial Revolution technologies, such as machine learning, cloud computing, and big data.

Recommendations

Recommendation a: Enabling business environment: Ensure stable, transparent legislation and policies that support all entrepreneurs, and women entrepreneurs in particular, including easy access to publicly available information on starting a business.

Recommendation b: Pro-growth tax systems: Ensure that tax systems foster rather than impede entrepreneurship and growth of start-ups.

Recommendation c: Labour market flexibility: Ensure that labour policy frameworks support flexible working approaches for women entrepreneurs and their businesses.

Recommendation d: Challenge social and cultural stigma: Empower women by helping them develop skills to build confidence to address cultural norms that may discourage women setting up an enterprise.

Recommendation e: Information and data distribution system: Collect and process up-to-date, relevant data on women-led MSMEs across all sectors that would allow the development of proper support policies.

Recommendation f: Disaster management strategy: A coordinated approach on planning rules, tax reforms, subsidies, and other measures to mitigate the impact of COVID-19 can be beneficial for identifying reform priorities and to implement new regulations that can be used to overcome consequences of future pandemics and other disasters.

Recommendation g: Non-discrimination: Ensure that property rights and access to finance, including for equity investment, do not discriminate by gender.

Recommendation h: Networking and mentoring: Find ways to support connections among female and male entrepreneurs, including through small business initiatives and connecting large and small business.

Recommendation i: Affordable childcare and healthcare: Access to quality affordable childcare and healthcare is critical for promoting women entrepreneurship in all sectors, including natural resource management.

Recommendation j: Capacity development: Provide opportunities for women to access training and education programmes that improve entrepreneurship and technical skills, to increase chances for success of women-led MSMEs in natural resource management.

Recommendation k: Green economic recovery: Financial investments in the natural resources sector supporting innovation, green growth, and sustainable development can create multiple opportunities for women entrepreneurs to “build back better” and promote low-carbon solutions during the socioeconomic recovery from the COVID-19 pandemic.

Recommendation l: Create a platform for MSMEs, policymakers, and financial institutions to support resilience of resource supply chains in the ECE region.

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