

INCLUSIVE SKILLS FOR INNOVATIVE ENTERPRISE DEVELOPMENT IN THE AFTERMATH OF COVID-19 IN THE AGRIBUSINESS SECTOR

Final Report

Report drafted by Ergon Associates for the European Training Foundation and the European Bank for Reconstruction and Development.

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PREFACE

The research project “Inclusive skills for innovative enterprise development in the aftermath of COVID-19 in the agribusiness sector” was launched in September 2020 as a response to the outbreak of the COVID-19 pandemic and its subsequent impact, including economic downturns, labour market contraction and new challenges for enterprises.

While the pandemic has widened existing inequalities, including the digital and the gender divides, it has also served to accelerate structural and operational changes across diverse economic sectors with far-reaching implications for the future of work. Companies have faced enormous challenges, but they also saw new opportunities emerging. Some companies have deployed their innovation capability as well as inclusive skills development practices, to adapt their business and organizational models, their products and services thus enhancing their resilience and longer-term sustainability. Their example can provide useful information for other companies and policy makers for further action.

The European Training Foundation (ETF) and the European Bank for Reconstruction and Development (EBRD) launched this research project to (i) gather evidence on practice of innovative enterprises in the agribusiness sector that aim at inclusive skills development, (ii) draw lessons from this practice, and (iii) provide recommendations to policy makers and enterprises to strengthen inclusive skills development at company and sector level. The study covered five ETF and EBRD partner countries: Georgia, Morocco, Serbia, Turkey, and Uzbekistan. The research project produced 5 national reports and a cross country report.

The cross-country report aims to strengthen the knowledge base around innovation and skills development in and for the agribusiness sector, to support and guide knowledge sharing and peer learning among relevant stakeholders, and to disseminate best practices in policy and private sector initiatives to promote the sustainable growth of agribusiness across the EU neighbourhood and Central Asian countries through and beyond the COVID-19 recovery.

The report provides an overview of challenges, opportunities, and current policy and private sector experiences concerning innovation and inclusive skills development for sustainable agribusiness development in five countries: Georgia, Morocco, Serbia, Turkey, and Uzbekistan. In particular, it examines the practices and experiences of a range of agribusiness companies in each country, from (M)SMEs to international retailer brands. Although it considers wider trends across global and national agri-food systems, its principal focus is on downstream agri-food processing, trade, and retail. The report also examines some of the public policy implications of the industry trends and specific private sector experiences examined and provides some broad ‘pointers’ for further policy and private sector interventions to promote innovation and inclusive skills development in and for enterprise development in agribusiness.

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The study and report benefitted from inputs provided by ETF experts Manuela Prina, Anastasia Fetsi, Lida Kita, Romain Boitard, Ian Cumming and Timo Kuusela, and from EBRD economists and policy specialists, including Margherita Calderone, Biljana Radonjic Ker-Lindsay, Dragana Marjanovic, Anar Nurbayeva and Mehmet Uvez.

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EXECUTIVE SUMMARY

This report provides an overview of challenges, opportunities, and current policy and private sector experiences concerning innovation and inclusive skills development for sustainable agribusiness development in five countries: Georgia, Morocco, Serbia, Turkey, and Uzbekistan. It examines the practices and experiences of a range of agribusiness companies in each country, from (M)SMEs to international retailer brands. Although it considers wider trends across global and national agri-food systems, its principal focus is on downstream agri-food processing, trade, and retail. The report also examines some of the public policy implications of the industry trends and specific private sector experiences examined, and provides some broad 'pointers' for further policy and private sector interventions to promote innovation and inclusive skills development in and for enterprise development in agribusiness.

Context

Agribusiness is a strategic sector for all five countries, making important contributions to GDP and providing a key source of employment for a substantial share of the national populations. While primary agriculture remains nationally important in both respects, downstream agri-food processing, trade, and retail are becoming increasingly significant in the context of ongoing structural transformation towards more manufacturing and service-oriented economies. The sustainable and inclusive development of agribusiness offers strong potential to generate new opportunities for decent employment along downstream segments of the agri-food value chain.

The development of sustainable agri-food systems – meeting food security needs and sustaining livelihoods while reducing the environmental footprint of the sector – requires innovation, powered by ideas. Innovation happens not only through R&D but through changes in practice within businesses. These changes are well-served by a workplace where diverse individuals with different ideas can collaborate and constructively challenge one another, provide insight into different consumer perspectives and product needs, and promote different ways of working.

Skills are an important entry point to build resilience, support innovation, and create inclusive economic opportunities for the future. A skilled workforce is a driver of innovation, and a prerequisite for the development and adoption of new technology. Further, adapting employees' skills and roles to new ways of working, and new market realities, in the aftermath of the Covid-19 pandemic will be crucial to building operating-model resilience.

At the same, innovation itself is a key driver of inclusive growth in agri-food systems. The introduction of new technologies and other forms of innovation drive demand for a wider range of higher-skilled, higher-value jobs and create opportunities for a broader base of workers to improve their livelihoods.

Agribusiness also has broader relevance for inclusion in transition countries. Agribusiness sustains the livelihoods of some of the most vulnerable population groups (including women, youth, minorities, and migrant workers); it is often the only economically viable activity in rural and remote areas; and it can be a key source of formal, flexible working options for women with unpaid care responsibilities, as well as entry-level jobs for youth. Inclusive skills practices that expand opportunities for underserved groups may offer particular benefits, both in terms of addressing persistent socioeconomic exclusion (that impedes the realisation of wider economic development objectives), and in terms of expanding the labour force to address skills shortages and deliver the business benefits of workforce diversity.

Innovation

Innovation is central to the sustainable transformation of agri-food systems and the agribusiness sector to support higher quality jobs in agri-production and more and better jobs in downstream agribusiness. The world's population is growing and becoming more prosperous, creating enormous global demand for food, land, energy, water, and other resources. At the same time, climate change and sustainability concerns necessitate that meeting such demand will require a fundamental shift in the way the agri-

food (and wider agribusiness) sector is organised and operates. The development of more sustainable agribusiness sectors, including the growth of higher-value downstream agribusiness industries, implies the need for technological and other forms of innovation that can drive productivity and sustainability enhancements.

Technological innovations have, for the most part, driven a transformation of the agri-food systems towards higher value, more diverse, and better-quality products. These products are marketed at the global level by agri-business enterprises and supply chains that increasingly exhibit a trend towards vertical integration and consolidation. Digital and automation technologies have facilitated the increased adoption of precision farming methods and enhanced food processing, packaging, distribution, and tracing operations that has contributed to an expansion and diversification of agri-products and markets.

The rate of adoption of technological and other innovations has been slow across agri-food industries in the five project countries. The limited adoption of technological innovation across the agri-food industries overall represents a significant constraint on the development of the agribusiness sector and the increase in productivity and profitability that can support better jobs and wages. Limited external finance and weak commercial incentives contribute to the low number of agri-food enterprises investing in research and development across project countries.

However, there is a shared recognition among stakeholders that the adoption of new technologies and upgrading of business processes is both necessary and inevitable. In all project countries, stakeholders broadly agree that the agri-food sector will benefit from modernising mid- and downstream activities through both enterprise- and policy-level interventions (and enhanced coordination between the two) – including in relation to mechanisation and automation, digitalisation, upgrading human capital, and targeted public policy initiatives to support and enable industry-led innovations (such as ‘smart specialisation’ strategies).

Positive trends for innovation in agri-food

Technological innovation, mainly related to improving efficiency, reducing costs, and raising productivity levels has been increasing in all countries under consideration. However, technology has yet to have a sector-wide breakthrough effect, and investment cost still represents a significant barrier for many smaller actors. However, there are a number of emerging focus areas for innovation in food processing technologies, packaging and preservation, supply chain management and sales:

- Processing and food safety technology: transformation technologies (drying, conversion, stabilisation and separation), technologies to test, diagnose, and profile products
- Automatisations, artificial intelligence, and robotics: processing, measurement, packing and transportation, and using data analytics to self-modify equipment
- Packaging: reduction, recyclable, biodegradable, compostable, smart packaging
- Digitisation of production and sales, including supply chain and e-commerce retail
- Traceability: blockchain offers huge opportunities for increased traceability, improved efficiency and waste avoidance

Changing consumer preferences and evolving market-access requirements (especially for exports) has spurred innovation in product development, quality, production processes, marketing, and sales. A number of agri-food firms reported shifts in the lifestyles and preferences of consumers in both domestic and international markets, especially new demands for higher quality and specialised products (e.g., organic and provenance-based), which has opened new market opportunities and stimulated innovation in product development and diversification. Enhanced access to external export markets – for example, via the expansion of trade agreements – has significantly expanded access to new and diverse customers bases. Moreover, the demands of export markets in particular – both in terms of consumer preferences and regulatory standards on food safety, quality, production methods, and business practices – have been an important driver of innovation among firms seeking enhanced access to external markets.

Long-term sustainability is also an important driver of innovation, including the positive reputational effects associated with improved sustainability performance with customers, regulators, and potential

employees. At the enterprise level, this means expediting the transition to enhanced business practices that will enable long-term competitiveness by reducing the environmental and social footprint of agribusiness, meeting regulatory, stakeholder, and consumer expectations. Agri-food enterprises increasingly identify environmental issues, in particular, as a priority area for innovation and action, responding to both regulatory standards and consumer preferences. Specific fields of sustainability innovation relate to energy efficiency, water efficiency, circular production (reintegrating production waste into the production cycle), and addressing food waste. In addition to commercial benefits, enterprises also see enhanced sustainability credentials as a means of attracting new talent in a competitive labour market.

In many cases, the Covid-19 pandemic has ‘forced’ innovation. Agribusiness actors have needed to respond to extraordinary challenges – restrictions on movement of people, supply, and distribution – that has stimulated adaptations in business systems and approaches (organisational and process innovation). Many of these adaptations have accelerated and/or benefit from digitalisation and increased connectivity – with supply chain partners, public authorities, as well as internally across business units and among staff. Public health measures have also ‘forced’ innovations in relation to traceability, packaging, and customer-facing business practices.

The Covid-19 crisis has also brought changes in consumer trends and behaviours that are likely to extend beyond the pandemic itself and that require innovative responses from agri-food enterprises. For example, an increased focus on sustainability and health incentivises product and business-process innovation, while agribusiness are also investing in digital innovations in response to a rapid expansion of demand for e-commerce and platform-based agri-food operations. Many agri-food companies in project countries have embarked on a permanent shift towards a more sustained and visible digital presence for the end consumer, typically accompanied by the implementation of home delivery through an online or app-based platform. The pandemic's impact on supply chains also increased direct-to-consumer initiatives in agri-food, including the development of direct sales channels between producers and consumers. Several specialised agri-food firms indicated that e-commerce channels can support expansion into new international markets.

Enhancing coordination and integration within agri-food value chains is a particularly important area of focus for public and private sector initiatives to promote innovation. In the context of highly fragmented agri-food systems across the project countries, there have nonetheless been some limited, but important, initiatives to create integrated and mutually-reinforcing ‘innovation eco-systems’ for agri-food sectors. Regional clusters, such as *agropôles* in Morocco, concentrate various agri-food actors in a single geographical location to promote collaboration and facilitate the dissemination of innovation, develop economies of scale, and contribute more broadly to local economic development (with further positive economic multipliers). Participation in cooperation networks can stimulate and reinforce innovative attitudes and behaviours within firms, as actors access a wider set of information and knowledge and are exposed to more circumstantial diversity.

Barriers to innovation in agri-food

Across the project countries, agri-food sectors are typically divided between a few large, vertically integrated firms and a large number of (M)SMEs, including a high proportion of subsistence producers. The former typically employ modern technologies and business practices and are increasingly integrated into international as well as domestic markets. However, most MSMEs face significant financial and human capital constraints that limit their capacity to innovate and upgrade operational practices in ways that can enhance productivity and access to new markets.

Internal capabilities are a key variable for agri-food enterprise innovation, including the availability of entrepreneurial skills, experience, attitudes, and education; managerial, technical, and collaborative skills of the workforce; and investment in knowledge and technical know-how. Although agribusiness firms surveyed for this report focused on different skills shortages (e.g., technical skills gaps concerning digital technologies, or the need for enhanced managerial competences) the overall picture is one of a significant, albeit varied, ‘skills-drag’ on agribusiness innovation.

Financing is also a significant constraint. Technological innovation remains limited by companies’ reliance on internal financing, and perceived constraints on buying in external expertise. (Many

companies reported that consultancy and external expertise was a significant boost to their innovation trajectory.)

Access of agribusiness operators to the innovation eco-system is key. Few agri-food SMEs innovate in isolation. Innovation activities need to be integrated into a network of different actors and supported by a conducive institutional and policy framework. For SMEs, innovation outcomes depend on the flexibility of the enterprises and its ability to interact with private sector partners and other third parties in order to overcome 'internal' constraints relating to firm size, scale and capacity. However, there are currently limited partnerships between the private sector, research institutions, and other key contributors to successful 'innovation eco-systems'. Public policy has a vital role to play in facilitating such partnerships and cooperation.

Skills

A skilled workforce is a driver of innovation and a prerequisite for the development and adoption of new technology. Developing workforce skills is therefore essential to enabling innovation-led growth of higher-value agri-food systems (skills supply) and, by extension, promoting the creation of decent employment opportunities throughout agri-food value chains. Furthermore, in the aftermath of the Covid-19 pandemic, adapting employees' skills and roles to new ways of working, and new market realities, will be crucial to building operating-model resilience.

Positive trends for skills development in agri-food

Labour shortages and the absence of necessary skills within the labour market are a central concern for many agri-business enterprises. A range of agribusiness companies reported challenges in recruiting workers with the skills and experience required for innovation and technology adoption, including skills related to the development and use of new technologies, (digital) sales and marketing, supply chain management, and skills adequate to the demands of new and emerging occupations (such as roles relating to supply chain traceability). Companies also noted shortages of recruits with adequate managerial skills to support innovative business-process, organisational, and human capital innovations.

Many agribusiness enterprises, especially larger firms, have established their own skills development initiatives. A number of factors contribute to agribusiness firms' decision to develop workforce skills within their own operations. In several project countries, there are overarching concerns among employers that national TVET systems do not produce graduates with skills that are relevant or up-to-date with agribusiness needs. In this context, many employers consider internal training programmes, including work-based-learning initiatives, are better equipped to develop the precise skillsets required by the business. Additionally, increased focus on in-company training can contribute to improved retention and workforce stability, as well as supporting inclusion objectives (for example, where firms have developed professional development programmes that can promote women's career progression).

However, there are important efforts on the part of private and public sector actors to enhance coordination and collaboration of skills development for agribusiness. Such efforts are key to better communication of demand-side signals (i.e., from employers) to skills and education providers (i.e., universities, TVET, and relevant policymakers) and the dynamic development and alignment of educational curricula to evolving labour market needs. Recent efforts focusing on private-public partnerships have attempted to create more 'buy-in' of the private sector in skills development. For example, several countries have introduced sectoral skills organisations that provide an institutionalised structure through which private sector companies can input into the development of national skills frameworks. There are also important initiatives to establish formal partnerships between agribusiness and higher-education institutions (HEIs) to enhance cooperation on teaching and curricula development and expand work-based-learning opportunities (responding to employer concerns about insufficient practical training and experience among new recruits).

An increasing number of agribusiness enterprises are making skills planning a priority component of their business strategy. Increased attention on human capital development reflects a growing recognition of the key role of that skills play in facilitating innovation to enhance productivity and competitiveness in

the context of wider (sectoral) transformation. Skills planning at enterprise-level enables firms to better communicate their current and anticipated needs to cross-sector platforms and TVET providers, contributing to an improvement in quality and relevance of national training programmes. There is scope for employers to give greater weight to educational qualifications (including TVET qualifications) in recruitment, not only to formalise and streamline recruitment processes (with additional benefits in terms of ensuring equal opportunities), but also to raise the prestige and perceived relevance of sector-specific TVET qualifications. Furthermore, firms with frameworks for skills classification and development can gain ground in promoting equality of opportunity through implementing skills-based decisions in recruitment, reward and promotion: the basis for non-discriminatory and inclusive hiring and development of staff is to base employment decisions on individuals' capacity to do the job.

Barriers to skills development in agri-food

Lack of consistency and quality of outputs from national TVET systems is an overarching constraint on skills development across project countries. Stakeholder concerns focus variously on the quality of teaching, the adequacy of qualification and certification frameworks, lack of coordination with the private sector, and overall capacity on educational systems to meet demand (especially in rural areas). Employers consistently express concern that public education and skills programmes are limited in their relevance to the agribusiness sector, including in relation to over- or under-emphasis on skills for specific occupations (which may not correspond to the distribution of job opportunities in the sector); lack of coverage of new and emerging skills needs related to new occupations and specialisation (key for driving innovation); and insufficient focus on technical and practical instruction, including a lack of direct work experience built into training programmes.

Few smaller agribusiness enterprises have the capacity to provide their own training and skills development programmes, or respond proactively to potential employment displacement effects. Constraints include both financial and human resource (knowledge, expertise) limitations to develop and deliver in-house training programmes, to develop skills-based recruitment and progression processes, or to identify strategic skills priorities for business growth and development. A particular concern of smaller enterprises relates to the high fixed-costs associated with participation in collaborative work-based learning initiatives. Failure to formalise skills requirements into objective job requirements contributes to perpetuating a perception among students and potential new recruits that skills are not required or in demand.

Agri-food (and agri-TVET) is commonly not perceived as an attractive career option for youth due to prevalent associations of the industry with low-wage and low-skill work, and few career development opportunities. Unfavourable perceptions about careers in the sector contribute to low enrolment rates in sector-relevant TVET programmes, while they may also contribute to (not only derive from) poor quality TVET provision for the sector. Employers' tendency not to formalise skills and qualification requirements into job requirements (see above) reinforces the perception of agri-food careers as low-skilled and low prestige, and undermining efforts to enhance the quality (and perceived relevance) of sector-specific TVET programmes.

Inclusion

Agricultural and agri-food employment is critical to inclusion outcomes, not least because agri-food sectors represent such a significant source of employment across project countries, and particularly amongst the poorest and most vulnerable segments of society (including women, youth, and rural communities). Inclusive growth of agri-food sectors can also help address wider social and economic marginalisation (by providing new and better employment opportunities for economically marginalised groups, including women and youth), mitigate geographic isolation and poverty (by expanding income-generating opportunities in poorer rural areas), and enhance national food security (by enhancing agricultural and agri-food productivity).

Positive trends for inclusion in agri-food

A key driver of inclusion and diversity for agribusiness companies is the need to meet labour and skills shortfalls. In particular, a lack of sufficient technical skills in the workforce has led many agribusiness firms to bolster outreach activities and establish partnerships with educational institutions to ensure

that the enterprise benefits from as wide a pool of talented candidates as possible. Several companies surveyed for this report have sought to improve access to employment and career development through internships and apprenticeships (focusing on youth, women, and rural communities), as well as the adoption of inclusive recruiting and hiring practices based on principles of non-discrimination and equal opportunity to ensure inclusion and workforce diversity.

Companies have sought to support inclusion in employment by identifying and fast-tracking high-potential talent from a broad pool to promote equal opportunity in professional development. Women employees, for example, have benefitted from additional support for career development, including through dedicated mentoring and coaching programmes. Accessible and inclusive career trajectories based on skills and experience are in place, and agribusiness companies have taken steps to address the 'glass ceiling' relating to women's access to more senior, managerial positions, including by supporting the development of women's professional networks.

Reputational concerns also drive companies' interest in inclusion and diversity. Agribusiness firms surveyed for this report note that a strong commitment to equal opportunity throughout the employment process has contributed to the company's image as an 'employer of choice', helping the company secure the best talent. In addition, initiatives to improve the accessibility of services offered, particularly in the retail subsector, serve to increase the company's customer base. In many cases, inclusion and diversity initiatives have been pursued as part of broader Corporate Social Responsibility activities. Investor expectations also play a key role in many agribusiness enterprises instituting equal opportunity policies.

In some contexts, broader shifts in society have stimulated private sector efforts to support inclusion. For example, large young populations in several project countries have led some agri-food enterprises to prioritise youth recruitment. Similarly, where the share of rural population is high, companies operating beyond urban centres offer significant employment opportunities for rural workers.

Companies have also taken steps to address the supply-side barriers to inclusion, including by providing flexible forms of working to accommodate work-life balance, supporting employees' child and elder care responsibilities, as well as providing forms of paid leave for carers (including male carers). In light of technical and soft skills shortages frequently reported in the agribusiness sector, many companies have turned to developing their internal talent pipeline to fill skills gaps.

Barriers to inclusion

Overall, companies report that women make up a smaller share of the workforce compared to men and are particularly under-represented in technical roles. In part, this reflects women's lower participation in agribusiness-related fields of study, including technical education, which limits the number of highly-skilled female candidates for recruitment.

Unpaid domestic and care responsibilities disproportionately affect women, impacting on their economic engagement. Social norms which situate women as responsible for care and household tasks can work to discourage women's entry into paid employment, divert women away from private sector employment and towards public sector roles seen as 'a better fit' with family duties, or toward a restricted range of part-time or flexible roles, as well as limiting opportunities for professional development, including training or promotion into management roles.

Where women are well-represented in the workforce, men nevertheless tend to predominate in more senior and high-skill positions. In contrast, women across the agribusiness enterprises engaged as part of this research are typically concentrated in primary production as farmers or in lower-skill jobs with low earning potential and little prospect of professional development and growth. Such vertical and horizontal segregation serves as a key barrier to inclusion and diversity at all levels of the workforce.

Rural-urban gaps in access to education and employment are a further barrier to inclusion in agribusiness. Agribusiness firms report that skills deficits tend to be greater in rural and remote regions where there is limited provision of higher education services, making it more difficult to find qualified staff and ensure regional inclusion.

The limited attractiveness of agribusiness employment is a challenge to building a more diverse agribusiness sector workforce. In particular, firms observe that agribusiness employment and education are unpopular among young people, who tend to view the sector as offering a less attractive career path than other sectors with a similar demand for skills.

Impacts of Covid-19

Overall, the agribusiness sector has been relatively well insulated from the worst effects of the crisis, with food production continuing largely uninterrupted, in many cases backed by significant government support to ensure continued food supply. However, some agribusiness sub-sectors have been significantly affected by quarantine measures, including enterprises which cater to tourism and hospitality. In other cases, stricter inspection and sanitary measures have restricted international trade and dampened exports, and a number of firms experienced temporary logistical challenges in adapting to social distancing and other public health requirements.

Given the unpredictable trajectory of COVID-19, including the potential for recurring lockdowns and restrictions, agribusiness firms have needed to transition the workforce to new forms of operations. This has frequently been accompanied by workforce skills development in order to develop internal capacity and create a more flexible and agile workforce that is better positioned to respond to rapid change. Some firms identify the prospect to implement positive changes to working practices borne out of crisis-response necessity, focusing on processes and practices which spur innovation and inclusion, whilst also taking into account the impact of COVID-19 on vulnerable groups in the workforce (e.g. increased care responsibilities for women).

As agribusiness firms have responded to the short and medium-term consequences of COVID-19, there have been opportunities to introduce changes based on a longer-term perspective, allying business and employment priorities by seeking to become an employer of choice in the 'new normal'. This includes taking a longer-term approach to workforce upskilling and recruitment, offering workers sufficient opportunity and security so as to realise returns on investment in skills development; strengthening worker engagement and communications strategies on the basis of lessons learned during the pandemic, and ensuring that equal opportunity in the talent pipeline is integrated into longer-term human capital development.

Across the five project countries, COVID-19 has prompted huge shifts in how people consume and purchase food, in turn prompting agribusiness enterprises to rethink fundamental aspects of their operations.

- *E-commerce:* Agribusiness enterprises identified that the most significant impact of the COVID-19 pandemic has been changes to the way in which people buy and consume food. For retail companies this has hastened the introduction of e-commerce tools to allow consumers to purchase food via web platforms without physically entering a store. A shift to e-commerce has been observed in differing degrees in food retail across the project countries, including in those where online retail and delivery services were previously significantly underdeveloped. Enterprises further down the supply chain have also introduced e-commerce (including online consultations) and delivery services aimed at their clients.
- *Digitisation of business processes:* A number of firms have reported how the expedited adoption of digital technologies are rapidly transforming how the company works and are already generating benefits by reducing the costs of information, transactions and supervision.
- *Scaling up remote learning:* Across the countries of study, firms report a scaling up of online training, increased access to remote skills development tools, and boosted use of digital solutions for distance learning.
- *Impacts on recruitment strategies:* For those firms with integrated value chains, including cultivation operations whose seasonal labour requirements are typically met by migrant labour, Covid-19-related restrictions on internal and cross-border movement brought a range of challenges in ensuring labour supply. Good practice responses have included planning

proactively; engaging with legitimate, trusted third parties in the recruitment process; absorbing increased costs of transport and additional employment; segregating new arrivals for the initial quarantine period; and coordinating with local authorities on the movement of migrant workers.

- *Repositioning agribusiness employment:* In some cases, the significant disruption to other segments of the economy presented opportunities for the agri-production sector to position itself as an employer of choice, including to 'white collar' urban workers who would never usually consider a job in agribusiness – several Georgian agribusinesses reported being able to offer job stability, and a 'COVID-secure', outdoor employment. Equally, several firms reported that retailers were able to create new job opportunities for qualified people who lost their jobs in service and hospitality sector.
- *Product innovation:* Agribusiness firms also report exploring new product offerings, responding to consumer demand and renewed interest in health and nutrition, and local food.

Policy responses – a window of opportunity?

The private sector is meaningfully engaged in human capital development efforts relating to agribusiness in the countries under consideration in this study. However, there is scope to support more systematic resilience and recovery where these efforts are linked to policy measures attuned to the inclusive skills dimension.

An overarching theme identified in this research – which purposefully brings together a multi-faceted range of policy fields – is the scope to improve the coherence and transparency of policy packages by integrating agri-food policies into economy-wide programmes, such as those related to labour markets and social protection, the environment, transportation and communication, trade and other infrastructure. The challenges facing food systems are considerable, and better policies are urgently needed to meet the 'triple challenge' of ensuring food security and nutrition for a growing population, providing livelihoods for actors along the agri-food value chain, and ensuring environmental sustainability.

The structural question for transition countries is how to create practical pathways to higher-productivity, higher-value agri-systems, which sustain and promote demand for a higher skills base. This requires a strategic focus on 'skills', simultaneously pursuing actions which raise demand for skills in the agribusiness sector, boost the supply of skills for the sector, and facilitate frictionless matching between the two. The fundamental policy challenge is how to create practical pathways to higher-productivity, higher-value agri-food systems, which sustain and promote demand for a higher skills base.

Covid-19 create windows of opportunity for public policy relating to skills, inclusion and innovation in agribusiness. COVID-19 has forced both the pace and scale of workplace innovation and there is an opportunity to build on 'enforced' innovations introduced in response to the COVID-19 pandemic. The COVID-19 pandemic has acted as a catalyst for innovation in agri-food industries, creating incentives to introduce new business processes and technological developments. This includes innovations that have were already under consideration for some time (such as e-commerce and delivery), but for which there has previously been insufficient commercial incentive; as well as other innovations (such as automation and flexible work arrangements) that have developed in direct response to the crisis. As economies and societies emerge from the COVID-19 health and economic crisis in coming years, there is a unique opportunity for the agri-food industry, with the support of policymakers, to continue to develop new technological and other innovations that can bring lasting productivity and profitability benefits in the longer term. In particular, increased responsiveness and flexibility of education and life-long learning systems in the wake of the Covid-19 pandemic can play a significant role in helping economies recover from the impact of the pandemic.

INTRODUCTION

This report provides an overview of challenges, opportunities, and current policy and private sector experiences concerning innovation and inclusive skills development for sustainable agribusiness development in five countries: Georgia, Morocco, Serbia, Turkey, and Uzbekistan. In particular, it examines the practices and experiences of a range of agribusiness companies in each country, from (M)SMEs to international retailer brands. Although it considers wider trends across global and national agri-food systems, its principal focus is on downstream agri-food processing, trade, and retail. The report also examines some of the public policy implications of the industry trends and specific private sector experiences examined, and provides some broad 'pointers' for further policy and private sector interventions to promote innovation and inclusive skills development in and for enterprise development in agribusiness.

Chapter 1 presents a summary overview of key trends in the global agri-food sector, as well as recent impacts of the Covid-19 pandemic, in order to situate the opportunities that agribusiness presents for inclusive and sustainable development, as well as the challenges and dilemmas to be addressed in order to capitalise on these opportunities. Specific reference is made to notable practice in the EU and other contexts in order to frame subsequent analysis of agribusiness in the five focus countries in the following Chapter.

Chapter 2 provides a high-level overview of downstream agribusiness sectors in Georgia, Morocco, Serbia, Turkey and Uzbekistan. It surveys the key characteristics of agri-food value chains across the five project countries and assesses their implications for innovation, inclusive skills development, and the wider sustainable development of agribusiness at the national level (including, in particular, implications for employment and economic inclusion). It also highlights key drivers and challenges affecting agribusiness enterprises and other stakeholders across these three thematic domains, and overviews some notable trends in policy responses.

Chapter 3 draws on case studies of 25 agribusiness enterprises, which look in detail at the practices and experiences of a range of agribusiness companies in each country, from micro-SMEs to international retailer brands in downstream agribusiness. This section provides an overview of prevailing practices and key challenges at the enterprise level relating to pursuing innovation, developing skills to promote agribusiness resilience and innovation, and integrating inclusion into skills development practices.

Chapter 4 presents the linkages that can form a virtuous circle of innovation, inclusion and skills in sustainable agribusiness development. As a bridge between the findings of the research in previous chapters, and the 'policy pointers' in the final section, the remainder of this section looks briefly at some key characteristics of policy orientations that respond to specific opportunities and challenges identified across the project countries.

Policy pointers are advanced in the final section, directed both to policy-makers and private agribusiness firms. Although this report identifies the meaningful engagement of the private sector in human capital development efforts relating to agribusiness, there is scope to support more systematic resilience and recovery where these efforts are linked to policy measures attuned to the inclusive skills dimension. The policy pointers are not intended to serve as recommendations per se, but rather indications toward positive and constructive directions of travel that are more broadly applicable to the range of economies with which the ETF and the EBRD work.

1. GLOBAL AGRI-FOOD: TRENDS AND FUTURE PROSPECTS

This section presents a summary overview of key trends in the global agri-food sector, as well as recent impacts of the Covid-19 pandemic, in order to situate the opportunities that agribusiness presents for inclusive and sustainable development, as well as the challenges and dilemmas to be addressed in order to capitalise on these opportunities. Specific reference is made to notable practice in the EU and other contexts in order to frame subsequent analysis of agribusiness in the five focus countries (Chapter 2).

In the past half century, agri-food systems have undergone rapid transformation and achieved significant progress towards meeting the food security and nutrition needs of an expanding world population. Large increases in global food production have been achieved with a disproportionately small expansion of agricultural land, highlighting impressive productivity enhancements in primary agriculture driven, primarily, by the introduction of new technologies and production processes. Technological and other innovations in downstream agri-food activities – food processing, packaging, trade, and marketing – have similarly contributed to substantial improvements in global food security and the diversification of diets, products, markets, and trade in agri-food (FAO, 2020a; OECD, 2021).

Moreover, agri-food systems continue to provide a vital source of employment and support the livelihoods of a substantial proportion of the world's population, including many of the most economically vulnerable. While primary agriculture remains important in both respects, 'downstream' agri-food processing, trade, and retail are becoming increasingly significant in many emerging and developing economies in the context of ongoing structural transformation towards manufacturing and service-oriented economies. Across national contexts, agri-food systems sustain the livelihoods of some of the most vulnerable population groups – including women, youth, minorities, and migrant workers – and agri-food production is often the only economically viable activity in many rural and remote areas (FAO, 2020a; OECD, 2021). However, there remain outstanding challenges. Food insecurity and nutritional deficiencies remains and global concern, the quality of agri-food employment remains a concern, and agri-food systems are a significant source of environmental harm and adverse climate impacts.

- As much as one third of the world population continues to experience food insecurity and the global population continues to expand, while the prevalence of nutrition-related health conditions – including obesity and micronutrient deficiencies – are expanding at the global level (FAO, 2020a).
- Employment in agri-food sectors often includes poor working conditions (including hazardous work) and low pay, and the sector increasingly struggles to attract the most talented workers that can drive further innovation. Moreover, achieving the further productivity enhancements that are essential for the long-term sustainability of agri-food sectors also implies a potential loss of agricultural employment, with negative implications for livelihoods.
- Additionally, while agri-food systems ultimately rely on the sustainability of natural resources, the adverse environmental impact of agri-food activities is substantial, including deforestation, soil and water pollution, reductions in biodiversity, and increased greenhouse gas emission (from trade and manufacturing, as well as deforestation).

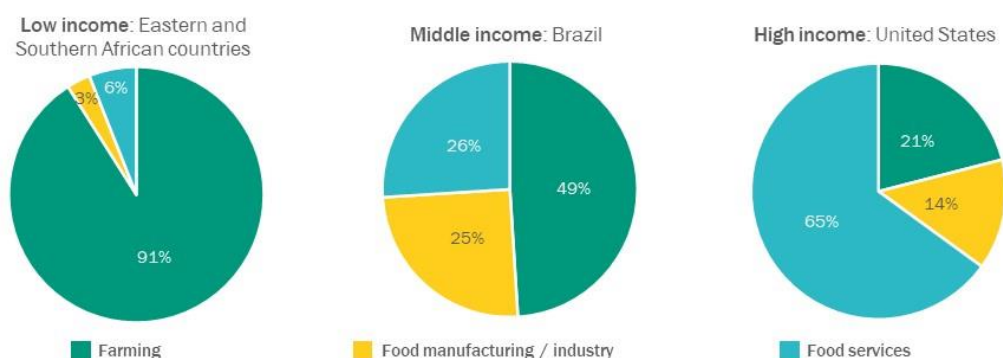
- Finally, weak and fragmented governance of agri-food systems constrains effective policymaking and coordination between public and private sector actors to support innovation and inclusive development of agri-food systems. Combined with declining public investment in agri-food, these trends highlight the increasing importance of private agribusiness firms and relevant intermediaries (including sectoral bodies, financial institutions, and education providers) in driving the transformation of agri-food systems (FAO, 2020a).

Addressing these challenges is fundamental to meeting global Sustainable Development Goals (SDGs). Indeed, agri-food systems are relevant to the realisation of multiple SDGs, including those related to hunger, nutrition, health, jobs, livelihoods, and economic growth (and therefore poverty), environmental sustainability, and global partnerships. Their achievement will require significant efforts to increase further productivity and create more sustainable food production systems.

Especially in developing and emerging economies, the sustainable development of downstream agribusiness, and productivity enhancement along the full agri-food value chain, are key to accelerating structural transformation at the macroeconomic level; that is, the shift away from reliance on primary agriculture towards economies based on higher-value manufacturing and services sectors that can support better jobs and incomes (World Bank, 2017b). The development of more sustainable agribusiness sectors, including the growth of higher-value downstream agribusiness industries, implies the need for technological and other forms of innovation that can drive productivity improvements, as well as the development of human capital (skills) to support innovation and the growth of new downstream industries. From a social and economic development perspective, inclusive approaches to skills development are vital to ensure that the benefits (and short-term risks) of resulting labour market structural change (e.g., a reduction in labour demand in primary agriculture and an increase in demand for downstream workers) are shared across national populations and do not function to exacerbate existing socioeconomic or geographic inequalities. An inclusive approach to skills development also ensures that agribusiness enjoys access to the widest possible pool of potential talent to meet emerging skills needs.

The speed and scope of this agricultural transformation, contributing to and led by the expansion of downstream agribusiness sectors, is uneven across countries and regions (for example, see Box 1). Some less developed and emerging economies – including some of those analysed in this report – face pronounced technical, institutional, and resource constraints that limit local actors' capacity to adapt and upgrade productive and organisational structures and practices in order to compete in the global marketplace.

Box 1: Examples of the composition of jobs in the food system in low-, middle- and high-income countries



Source: World Bank, 2017

Moreover, in all economies, the short- and medium-term adjustments associated with agricultural transformation, particularly in labour markets, have to be managed. A reduction in the overall number of jobs in primary agriculture as a result of technology uptake can be at least

partially offset by the expansion of off-farm employment opportunities (World Bank, 2017). Downstream agri-food industry and services plays an important role in sustaining and generating these off-farm opportunities, although jobs in food processing are themselves at some risk of automation. The 'off farm' jobs created are typically of higher quality (in terms of pay, working conditions, and occupational safety and health) compared to traditional occupations in primary agriculture, and they require a wider range of skills and expertise, opening up potential employment opportunities to a more diverse pool of workers.

To optimize the opportunities the agri-food system offers while brokering the transition to higher-productivity, more sustainable agri-food systems, three broad areas demand attention.

- Increasing productivity and boosting inclusive value chain development
- Proactive measures to maximise the benefits from agricultural digitisation
- Managing the global transition to *fewer and better jobs* in primary agriculture, and *more and better jobs* in agribusiness

All of these items require significant policy attention and investment in promoting innovation in agribusiness sectors (including but not limited to technological innovation) and in inclusive skills development initiatives (in particular, digital skills) to overcome human capital constraints on productivity-enhancing innovation and ensure that the social and economic benefits for agricultural transformation are felt across national populations.

1.1 Innovation in agri-food

Innovation is a broad concept and for the purposes of this work is defined as the process whereby individuals or organisations bring new or existing products, processes, or ways of organising into use for the first time in a specific context in order to increase effectiveness, competitiveness, resilience to shocks, or environmental sustainability and thereby contribute to food security and nutrition, economic development, or sustainable natural resource management.

Innovation is central to the sustainable transformation of agri-food systems and the agribusiness sector. The world's population is growing and becoming more prosperous, creating enormous global demand for food, land, energy, water, and other resources. At the same time, climate change and sustainability concerns necessitate that meeting such demand will require a fundamental shift in the way the agri-food (and wider agribusiness) sector is organised and operates in order both to maintain the essential environmental resources on which agri-food production relies and mitigate the adverse social and economic impacts of environmental harm (OECD, 2019).

In this context, the development and adoption of new technologies, as well as innovative business models and practices, will play a central role in expediting the transition to enhanced business practices that can enable greater competitiveness and sustainability of agri-food systems in the longer term (WEF, 2018). In this way, innovation in agri-food systems can play an important role in stimulating green and socially inclusive economic growth, mitigating geographic isolation, and avoiding economic and social marginalisation.

Innovation in agri-food: a strategic priority for the EU

Over 15 million people in the EU have agri-food jobs. The sector is a key driver of employment, particularly in peripheral or structurally disadvantaged regions of Europe. The EU is the world's largest exporter of agri-food products, amounting to over 17% of the EU's exports and generating a trade surplus of almost €30 billion (EIB, 2019).

However, the European agri-food sector is facing challenges regarding growth, fragmentation, low innovation spending and the slow uptake of new technologies. In addition, there are the bigger societal challenges like demographic growth, competition for resources and climate change.

Fewer than half of all agri-food companies in the EU undertook innovation activities over the past three years, while only 9% innovated in core areas such as technology, products and processes. Demand for food is projected to increase by 98% by 2050, while the situation of available arable land and other natural resources is expected to remain unchanged or even deteriorate – creating a big demand for innovation across the entire food system (EIB, 2019). There is a lot of potential in the sector for invention by using a new set of digitalisation-driven technologies in areas such as precision farming, sustainable packaging and blockchain-based food tracing.

The need to accelerate innovation in agri-food and the wider agribusiness sector has been recognised by EU policymakers. The European Commission's 2017 communication on The Future of Food and Farming (EC, 2017) emphasizes the importance of promoting uptake of modern technologies and promoting innovation for 'smart, resilient, and environmentally sustainable' agriculture. The European Commission's FOOD 2030 initiative emphasises the importance of research to create more sustainable, circular, inclusive, competitive and healthy food systems - and calls for a better approach to innovation that deploys solutions for key issues such as food waste, which equals 20% of EU production. Finally, the EU's 2020 [Farm to Fork Strategy](#) outlines plans for the transformation of the food system to centre around future resilience, health and sustainability. Farm2Fork's objective to increase production of organic food by 25% inevitably requires the uptake of new digital and technical solutions and, in turn, of new skills and partnerships.

[EIT Food](#) is the agri-food 'innovation community' established by the European Institute of Innovation & Technology (EIT), to drive innovation and entrepreneurship across Europe. The EIT Food [2018-2024 Strategy](#) sets out 6 strategic objectives:

- 1: Overcome low consumer trust
- 2: Create consumer-valued food for healthier nutrition
- 3: Build a consumer-centric connected food system
- 4: Enhance sustainability through resource stewardship
- 5: Educate to engage, innovate and advance
- 6: Catalyse food entrepreneurship and innovation

EIT Food has been assisting the EU agri-food sector during the pandemic to help the development of a resilient and sustainable food future. As part of the EIT's Crisis Response Initiative, EIT Food is delivering over EUR 10 million in funding for high impact start-ups and projects to support the European agri-food sector through the pandemic.

Sources: EIB, 2019; EIT-Food, n.d.

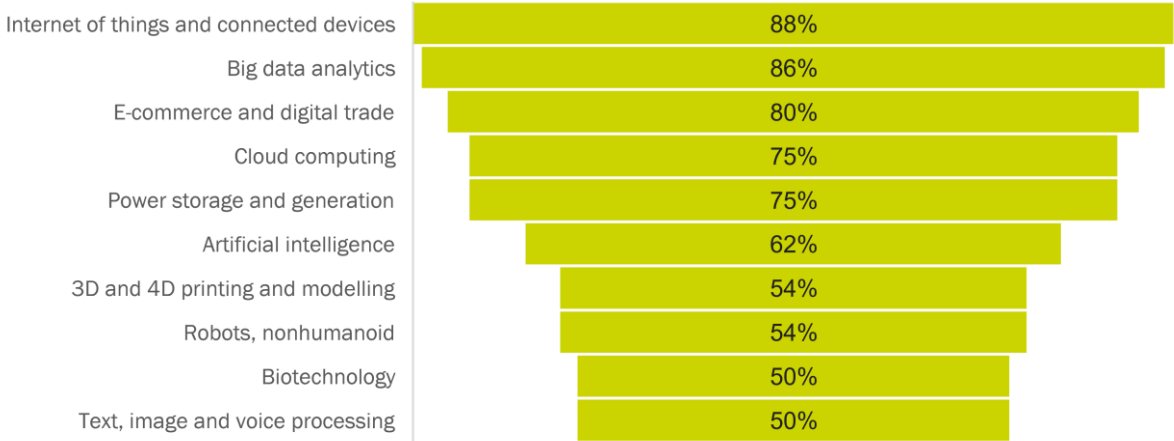
Technological innovations have, for the most part, driven a transformation of the agri-food systems towards higher value, more diverse, and better quality products that are marketed at the global level. These trends have contributed to and facilitated the increasing vertical integration and consolidation of agri-food enterprises and supply chains (FAO, 2020a; Finco et al, 2018).

Digital and automation technologies have facilitated the increased adoption of precision farming methods and enhanced food processing, packaging, distribution, and tracing operations.¹ Key emerging areas of technological innovation include:

<p><i>Processing and food safety:</i> transformation technologies (drying, conversion, stabilisation and separation), technologies to test, diagnose, and profile products.</p>	<p><i>Automatisation, artificial intelligence (AI), and robotics:</i> processing, measurement, packing and transportation, and using data analytics to 'smartify' equipment.</p>	<p><i>Packaging:</i> reduction, recyclable, biodegradable, compostable, smart packaging.</p>
<p><i>Digitisation of production and sales:</i> supply chain, inventory management and e-commerce retail.</p>	<p><i>Traceability:</i> Technologies such as blockchain offer huge opportunities for increased traceability in agricultural supply chains, helping to identify areas of unsustainable practices, improve efficiency and avoid waste and over-production.</p>	
<p><i>Food waste:</i> addressing food waste is also an emerging driver of innovation, including in relation to dedicated food waste recycling or new start-ups that offer discounted sale of surplus food to wholesale and private customers (often via web- and app-based platforms).</p>	<p><i>Energy efficiency:</i> facilities run with energy efficient systems, or reintroduction of production waste within the production cycle (such as the reuse of agricultural scraps for heating).</p>	

Digital technologies are projected to be among the most important new technologies adopted by agribusiness enterprises in the short to medium-term future. Technologies related to energy generation and efficiency, as well as biotechnology, are similarly identified as key areas for new technology uptake (see Box 2).

Box 2: Emerging technologies likely to be adopted in the 'Agriculture, Food and Beverages' sector by 2025 (share of companies surveyed)



Source: WEF, 2020

¹ For example, distributed ledger technologies ('blockchain') hold considerable potential for all segments of the agri-food value chain. The technology can simplify and integrate agricultural supply chains, enhance food safety, reduce risk in trade finance and promote inclusive trade, increase access to agricultural financial services, and generate smarter market information (FAO, 2018).

Beyond new technology, changing consumer preferences and evolving market-access requirements has spurred in product development, quality, production processes, marketing, and sales. Shifts in the lifestyles and preferences of consumers, especially new demands for higher quality, specialized, and healthier food products has stimulated innovation in product development and diversification across agri-food systems. The expansion of international trade in agri-food products and services has also led to product and business-process innovations in response to export market regulations and access to a more diverse consumer base. Similarly, increasing sustainability concerns – both in terms of greater consumer attention to sustainability credentials and fundamental business continuity considerations (for example, concerning energy supply / efficiency or conservation of natural resources) – has incentivized innovations in product development and marketing as well as business processes. While these trends underline the importance of investment in skills development to drive and sustain innovation, they also serve to highlight (and reinforce the value of) existing human capital in global agri-food systems; for example, the value of local knowledge and production methods that are integral components of new niche and provenance-based products.

However, the potential for innovation – and for related job-creation – in agri-food industries remains largely under-exploited (OECD, 2019). Several overarching characteristics of agri-food systems impede innovation: the agri-food sector is dominated by small and medium-size enterprises (SMEs) that typically lack resources to pursue technological and other forms of innovation; in many cases, price remains the principal point of competition, rather than product innovation or quality; and there are significant challenges in terms of workforce skills to support innovation across diverse agri-food industries.

- *Fragmentation and weak value chain integration:* Despite trends towards vertical integration and consolidation, SMEs continue to predominate in the agri-food sector. At the global level, there has been increasing vertical co-ordination of agri-food markets and an increased role for multinational companies; however, worldwide, SMEs and MSMEs predominate in numerical terms (OECD, 2021). Compared with larger enterprises, most SMEs struggle to achieve economies of scale that can support (and make profitable) technological and other operational or process-oriented innovations to enhance productivity and long-term sustainability. There is a particular challenge in bridging the gap between large enterprises, which are well-placed to develop and adopt innovative technologies, and small enterprises that face significant challenges in doing so (OECD, 2019b, WEF, 2021).
- *Price:* Price remains the primary focus of market competition among most agri-food enterprises, reducing incentives for enterprises to invest in product innovation or quality enhancements. Businesses in the agri-food sector are interdependent and generally compete more on price than on quality, innovation or environmental impact. Price competition, in combination with low margins and long payback periods, limits the appetite and possibilities for innovation. However, growing demand for more diverse types of food from wealthier consumers offers opportunities to compete on quality rather than only on low prices in traditional large markets as well as smaller niche markets. Equally, this requires improved traceability along the agri-food chain.
- *Skills deficits:* There are challenges in recruiting workers with the right skills to support and advance innovative business practices for many agri-food enterprises. In the context of low-productivity, low-investment agriculture, demand for skills – and for investments in skills development – is also limited, which itself serves to entrench productivity shortfalls (see 0).

Innovation in agri-food systems raises new questions that require coordinated responses from policymakers and industry actors for an inclusive and sustainable development of agri-food systems. For example, digital technologies create important opportunities for business-process efficiencies, new product offerings, and access to new markets and consumers, but they also imply the need for updated governance frameworks (for example, concerning data privacy) and risk entrenching existing

inequalities if policies and practices do not ensure equitable access to technologies and relevant skills. Bio-technological innovations offer the potential for significantly increasing agricultural production and resilience, but they may also raise environmental sustainability concerns. More generally, weaknesses in key infrastructure to support agri-food systems – for instance, in relation to logistics and storage – may constrain the scope of benefits derived from enhanced agri-food production, acting as a brake on innovation as well as contributing to increasing levels of food loss and waste (FAO, 2020a).

1.2 Skills and labour market implications

Innovation and technology uptake in agri-food systems both rely on and are likely to promote particular trends and priorities in relation to workforce skills development and broader labour market conditions.

On the supply side, difficulties in recruiting workers with the requisite skills is a key challenge for agri-food enterprises worldwide and a barrier to sustainable, inclusive and innovative growth for the sector. The application of innovation and technology is highly dependent on the availability of a skilled workforce with the capacity to develop, operate, and implement technological and business innovations. Successful agri-food businesses require not only technical skills to support the use of new machinery and technologies, but also the soft skills to develop and adapt technologies, integrate them into business practices, and promote and deliver innovations related business processes and marketing.

The results of WEF's 2020 Future of Jobs Survey² (WEF, 2020) indicate that skills gaps both in the local labour market and within firms are important barriers for companies looking to innovate through the adoption of new technologies. 52.9% of surveyed companies identified both skills gaps in the local labour market, and an 'inability to attract specialised talent' as one of the most significant barriers.

Box 3: Barriers to adoption of new technology in the 'Agriculture, Food and Beverages' sector (share of companies surveyed)



Source: WEF, 2020

On the demand side, the introduction of new technologies can create demand for a broader range of skilled workers. These demands not only relate to technical or specialist workers that operate and

² Note that target companies were specified as the largest multinational and national companies, significant in terms of revenue or employee size. The threshold was set at companies with 100 employees or more as questions concerning technology absorption and its consequential impact on employee planning are most relevant for larger companies with a significant share of employment.

maintain specific new machinery and other technological devices, but also extend to a wide range of workers in existing agri-food occupations that will be required to master the interface with new technologies (from production workers to retail sales workers to human resources managers).

The new skills demands associated with innovation in agri-food is not restricted to the use of new technologies. For example, innovations related to product development and diversification, quality improvement, exports to foreign markets, and upgrades along the value chain rely on a wide range of skills that include – but exceed – the use and manipulation of new technologies (for example, human resource professionals who can attract and retain suitable workers, business managers who can manage investments and financing, and international sales and consultancy staff). Entirely new professions are also likely to emerge, typically at the boundary between disciplines and related to the new niche markets that will emerge; other emerging specialisations are those related to the improvement and control of quality and processes such as manufacturing and packaging managers.

As well as creating new opportunities, the introduction of technology and innovation is also associated with weakened demand for skills and labour, particularly among lower-skilled occupations. It is generally accepted that increasing productivity in the agribusiness sector will lead to an overall shift in the labour force away from primary agriculture, which necessitate increasing focus on re-skilling – as well as social protection efforts – to support reallocation to other parts of the economy, including but not limited to downstream agri-food segments.

The WEF (2020) estimates a 35.8% average skills instability in the agriculture, food and beverage sector – calculated as the difference in expected core skills in the next four years compared to the present. The changes in job role demand in the ‘Agriculture, Food and Beverages’ sector is demonstrative of a number of ongoing sectoral developments:

There is increasing demand for roles that require analytical and critical thinking skills, and that make use of emerging technologies, such as digital marketing and e-commerce

Increasingly redundant roles reflect the growing adoption of emerging technologies which automatise key tasks of these roles.

Top 5 emerging job roles in ‘Agriculture, Food and Beverages’

1	Data Analysts and Scientists
2	Car, Van and Motorcycle Drivers
3	Digital Marketing and Strategy Specialists
4	Database and Network Professionals
5	Cashiers and Ticket Clerks

Top 5 increasingly redundant roles in ‘Agriculture, Food and Beverages’

1	Data Entry Clerks
2	Administrative and Executive Secretaries
3	Business Services and Administration Managers
4	Accounting, Bookkeeping and Payroll Clerks
5	Internet of Things Specialists

Source: WEF, 2020

However, the introduction of technology is not necessarily or automatically associated with job destruction. At the global level, the WEF estimates a 47.6% redeployment success rate of displaced workers in the agriculture, food and beverage sector (WEF, 2020). In some circumstances, capital investments to enhance productivity are associated with better and longer-term employment opportunities, even in primary agriculture; for example, the use of greenhouses in place of outdoor production can replace more precarious seasonal work with year-round employment.

Life-long learning tools from the European Food and Drink Industry

Although the European food and drink manufacturing and processing sector had shown considerable resilience during the post-2008 economic and financial crisis, it was not seen as an attractive choice by many potential employees and therefore had difficulty recruiting some of the skills needed to improve the sector's productivity and international competitiveness. The sectoral social partners - FoodDrinkEurope and EFFAT – therefore joined forces to identify bottlenecks in recruiting new and skilled employees and to tackle challenges arising when companies have an ageing workforce. The resulting [Toolbox](#) is structured around three priority areas: attracting new talent, managing an ageing workforce and improving the sector's image. The tools include a range of company case studies covering lifelong learning, upskilling, apprenticeships, family-friendly working, innovation and female leadership.

Source: [FoodDrinkEurope and EFFAT, 2016](#)

Matching labour and skills demand from agri-food is a growing issue in many countries. Agriculture-related education in particular can contribute by becoming more attractive to students, anticipating new and market-relevant skills demand and adapting courses accordingly, as well as offering life-long training to all workers in the sector. Training and re-training programmes will need to adapt to respond to emerging needs, including for digital, environmental and management skills, and cover all workers, including migrant workers, women and seasonal workers.

EU-wide sector coordination on agribusiness skills - FIELDS

At EU level, there is a new sector skills initiative FIELDS (Addressing the current and Future skills needs for sustainability, digitalization, and the bio-Economy in Agriculture: European skills Agenda and Strategy), aiming to develop a sectoral skills strategy and to establish an Agriculture and Forestry Sector Skills Alliance. Key project focus areas are: sustainability, digitalisation, bio-economy, soft-skills, new technologies and training in agriculture, forestry and related sectors (agri-food and forest-based industries).

Source: FIELDS, n.d.

However, the prevalence of low-productivity, low-investment agri-business in many emerging economies continues to act as a significant constraint on such demand-side drivers of skills development. In turn, the lack of demand for skills upgrades, and thus the lack of investment in skills development, works to reinforce productivity deficits and perpetuates the cycle. Investing and building capabilities in agri-food industries (production, processing, preservation and other handling processes, as well as packaging and marketing) has significant potential for creating quality jobs, but remains largely under-exploited (OECD, 2018).

Recognising existing skills and knowledge, especially those derived from informal learning and prior experience, can contribute to addressing both supply and demand-side challenges. Informal learning through prior experience – including direct work experience as well as accumulation of local knowledge and practices through socio-cultural means – can constitute an important dimension of human capital for agri-food enterprises. Improving mechanisms through which such informal learning can be validated and recognised – for example, through formal certification of skills and knowledge related to particular production methods – can contribute to supply-side skills challenges (demonstrating skills in the existing workforce that might not otherwise be evident) as well as demand-side challenges (enhancing perceptions about the sector as an employer of skilled workers).

1.3 Inclusive agribusiness

Agribusiness contributes a significant share of jobs in all countries. In developing and transition economies, the majority of this employment is concentrated in primary agricultural activities. In developed economies a larger share of employment is accounted for by 'off-farm' activities including food processing and retail.

Agribusiness has broad relevance for inclusion, because it sustains the livelihoods of some of the most vulnerable and is often the only economically viable activity in rural and remote areas. Innovation and new technology drives demand for higher-skilled, higher-value jobs and creates opportunities for a broader base of workers to improve their livelihoods. For example, new technological innovations in ICT offer inclusion benefits by connecting small-scale farmers to markets, while developments in solar power are associated with the creation of new job opportunities for agri-processing in remote and off-grid areas (World Bank, 2017).

Agribusiness is also a key source of formal, flexible working options for women with unpaid care responsibilities and of entry-level jobs for youth. For example, jobs in food retail, distribution and retailing are often dominated by women and young workers. Rural youth are particularly well-placed to benefit from agribusiness innovation, since they are more likely to own mobile phones, have higher ICT capabilities and are better placed to adopt financial, training, and extension services which use digital platforms (World Bank, 2017).

However, women are generally concentrated in lower-skilled occupational segments, with fewer opportunities for promotion and career development. In agriculture, men tend to be more concentrated in higher-technology, higher-skilled occupations, such as in mechanised farming and land cultivation. Sectors where women are most likely to be concentrated include in dairy production (both in primary farming and processing) and crop management. Women are also more likely to work in informal occupations and unpaid subsistence farm work (ADB, 2019). Even in female-dominated sectors, women are less likely to occupy management or higher decision-making positions and have often less opportunities for promotion and career advancement (ADB, 2019).

Empowering Women in EU agribusiness: EIT Food and SmartAgriHubs

In 2016, women accounted for only 28% of the top positions in agricultural and livestock farms in the European Union (EIT Food, 2020). The lack of representation of women in rural areas not only affects entrepreneurship; women face obstacles that prevent them from fully developing and choosing positions of responsibility in rural companies. Therefore, and especially in rural areas, female creativity and entrepreneurial potential are an under-exploited source of economic growth. In 2020, therefore, EIT Food launched its 'Empowering Women in Agrifood' (EWA) programme to motivate early stage female entrepreneurs to harness their power, understand their innate ability to succeed and overcome any obstacles, equip them with the appropriate knowledge, confidence and networks to successfully start and develop sustainable businesses.

Also in the EU, SmartAgriHubs and Internet of Food & Farm 2020 are working together to ensure that their respective ecosystems, as well as affiliated organizations, are gender-balance aware and inclusive. Agricultural Knowledge and Innovation Systems (AKIS) can play a key role in achieving a gender inclusive digitalisation of the agri-food sector. The AKIS encompasses all actors involved in the generation, transfer and use of knowledge and innovation in agriculture, including farmers and their organisations, researchers, advisors, policymakers, industry and consumers. Starting from the assessment of digitalisation needs, and the understanding of specific gender-related barriers and attitudes towards ICT uptake, all AKIS actors will need to implement a gender lens in their activities in order to generate and transfer ICT-related knowledge and innovation that specifically caters for women's needs, thus paving the way for an inclusive digitalisation of the sector.

Source: SmartAgriHubs (nd), EIT Food (2020)

Overall, focusing on inclusion offers significant benefits for agribusiness enterprises and the wider sector, particularly in the context of labour shortages. Expanding employment opportunities to under-served groups can play a crucial role in meeting skills shortages and ensuring that firms are able to recruit a sufficient number of workers.

AgriSkills: Agri-food skills for youth inclusion in the EU

The AgriSkills project intends to develop and improve the level of key competencies and skills among young unemployed adults (aged 15-29) in rural areas and areas with a high concentration of young, unemployed adults, with the purpose of helping them find employment or develop their own businesses in agriculture-related fields. In some partner countries, inmates and those recently released from prison facilities will also be targeted, due to the fact that agriculture skills can be a great help in reintegration. This project also intends to support skills that will help young adults create their own profitable businesses by providing them training materials related to business and entrepreneurship.

Source: AgriSkills, n.d.

Similarly, **inclusive business practices can contribute to improved resilience of agribusiness enterprises and agri-food systems.** From the perspective of agribusiness enterprises as employers, there is compelling evidence that diversity in workforces improves business performance and organisational resilience – diverse teams mitigate the dangers of ‘groupthink’ and have been shown to be more innovative, more productive, and better at anticipating, coping with, and adapting creatively to unexpected events, including evolving market and operating conditions as well as crises such as the Covid-19 pandemic (e.g., Duchek, Raetzke, and Scheuch, 2019; Hunt, Layton, and Prince, 2018). Inclusive approaches to supply chain development and management can also have positive impacts on resilience, enhancing mutual understanding among producers and processors and diversifying the pool of suppliers of core products in order to adapt to supply chain disruptions.

Inclusion may also have a central role in generating the particular ‘value’ of specific products. For example, in the case of provenance-based products, a core element of the product’s value is derived from its association with local producers and communities, and their specific knowledge and skills. Thus inclusive value chains that incorporate diverse local producers are fundamental to the successful marketing of provenance-based products in both local and international markets. Similarly, an increased preference among some consumers for products associated with positive social and environmental impacts, including those whose production benefits marginalised socio-economic groups, is a further means by which inclusive business practices link directly to product value.

1.4 The effects of the COVID-19 pandemic

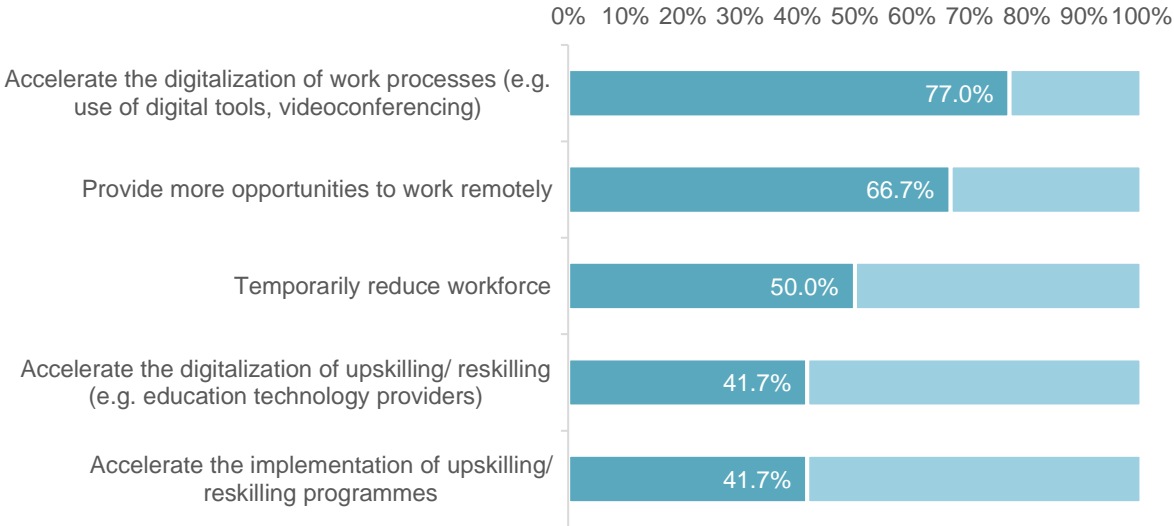
The COVID-19 crisis has had a significant but uneven impact on the agribusiness sector and on agri-food systems more broadly. Some agribusiness sub-sectors, particularly food retail, have seen a significant surge in demand during the pandemic period, while others, such as hospitality and agri-tourism, have been decimated by the crisis. Enterprises across the value chain have had to adjust rapidly to new commercial and regulatory realities, including challenges in labour availability, requirements to abide by new sanitary norms, health and safety regulations, and the need to adapt to new consumer preferences. Some disruption to agri-food supply chains has resulted in shortages (and consequent price increases) in certain food products, with potential implications for food security among the most vulnerable segments of the population (FAO, 2020a).

Within the EU, EIT Food launched a €10m COVID-19 Rapid Response Call for Innovation, seeking to identify and support innovative thinking and ways of partnering to face the immediate challenges of the pandemic as well as the future recovery, and focusing on improved nutrition, managing supply chain disruption and food safety risks. EIT Food reports that food waste and food security have become some of the most pressing concerns for the EU agri-food sector, and processes including digitalisation

and decentralised manufacturing were fast-tracked to reduce the risk of supply disruption and to avoid panic among consumers (EIT Food, 2020b). Consumer trends and behaviours in the EU also changed as a result of the impacts of the pandemic: an EIT Food survey of 5,000 consumers found that Covid-19 impacted consumer food behaviours in a variety of ways, including an increased focus on health, buying produce locally, cutting costs, and eating a larger variety of food (EIT Food, 2020c).

Some agribusiness enterprises report that COVID-19 has acted as a catalyst for innovation and created incentives to introduce new business processes and technological developments. This has included innovations such as e-commerce and delivery which had been under consideration for a while, but for which there had previously been insufficient commercial incentive, and some, such as automation to reduce face-to-face work, which developed in direct response to the crisis. In other respects, enterprises have identified that the COVID-19 pandemic has been an impediment to innovation, forcing companies to cut back on planned expenditures and adopt more conservative business plans.

Box 4: Share of companies in the ‘Agriculture, Food and Beverage’ sector looking to adopt these business strategies as a result of COVID-19



Source: WEF, 2020

COVID-19 has had a mixed impact on labour supply – exacerbating shortages in some areas, principally as a result of restriction on worker mobility, but alleviating issues in other areas. Migrants play a substantial role in agri-food systems. Measures affecting the movement of people (internally and internationally) and resulting labour shortages have had an impact on agricultural value chains, and on the livelihoods of migrant workers (FAO, 2020b). In the EU, a range of ‘innovative solutions’ to Covid-19-induced labour shortages were provided to [SmartAgriHubs](#), including:

FRANCE: an agri-skills matching platform created by the main agricultural trade union, the French agency for employment and the association for employment and training in agriculture, in collaboration with Wizifarm Mission
<https://desbraspourtonassiette.wizi.farm> –

ITALY: a worker-farmer matching platform initially piloted by Coldiretti in the Veneto Region but subsequently authorised by the Minister of Agriculture for the entire Italian territory
<https://lavoro.coldiretti.it/Pagine/default.aspx> -

GERMANY: a placement platform assisting workers to match up with farmers subject to labour shortage of up to 300,000 workers
<https://www.ruv.de/ratgeber/unternehmen/landwirtschaft/ernte Helfer>

Source: SmartAgriHubs, 2020

The COVID-19 pandemic has created many additional challenges for the TVET system and prompted a huge shift in the way that agricultural vocational training is organised and delivered. While in the short-term the pandemic has presented serious challenges for the TVET system, there are also indications that there is potential for the upheaval to result in greater effectiveness and inclusiveness. A key insight is that the shift to remote learning in ongoing vocational training – necessitated by Covid-19 - can be maintained and expanded for agribusiness TVET, and a blended model of in-person and distance learning could facilitate better inclusion of those in rural or remote areas, and those with caring or family responsibilities.

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2. OVERVIEW OF AGRIBUSINESS SECTOR IN GEORGIA, MOROCCO, SERBIA, TURKEY, UZBEKISTAN

This section provides a high-level overview of downstream agribusiness in Georgia, Morocco, Serbia, Turkey and Uzbekistan, and highlights key policy responses relating to innovation, skills and inclusion in the sector.

2.1 Focus on agribusiness: A strategic sector

Agribusiness is a strategic sector for all five countries: Georgia, Morocco, Serbia, Turkey, Uzbekistan. Agri-food sectors make important contributions to GDP and providing a key source of employment for a substantial share of the national populations. While primary agriculture remains nationally important in both respects, downstream agri-food processing, trade, and retail are becoming increasingly significant in the context on ongoing structural transformation towards more manufacturing and service-oriented economies. This structural transformation relies on effective and sustainable harnessing of finite natural resource potential to support primary agriculture, while shifting to higher-value, higher-productivity primary output and boosting the development of value-addition and export potential in more innovative downstream agribusiness. This strategic process – responding to the ‘triple challenge’ of maintaining food security and nutrition, ‘greening’ agricultural production, and sustaining employment and livelihoods – has been articulated by recent policies and strategies in all five countries.

Box 1: Overview of national strategies relevant to agribusiness in Georgia, Morocco, Serbia, Turkey and Uzbekistan

Country	Sectoral strategies and initiatives
Georgia	The Agriculture Sector Strategy (2012-2022) of Georgia includes a focused priority aimed at increasing the competitiveness of agricultural employment and improving the attractiveness of agriculture TVET programs, including by improving the quality of vocational education and higher education in the agriculture sector.
Morocco	Morocco’s new ‘Generation Green’ Strategy for the agriculture sector, in place until 2030, focuses particularly on human capital development, increasing revenues of farmers through investments, and widening access to social protection for workers in the sector. The strategy also aims at promoting the sector towards youth, attracting young people towards work and entrepreneurial activities in agriculture. The strategy further supports the creation of new agricultural organisations and cooperatives and the adoption of new technologies in all agricultural activities. The Industrial Acceleration Plan (2020-2030) targets the creation of new jobs in industrial sectors, and the agro-industrial sector has made a strong contribution. The 2020-2030 plan is considered a key driver for the agri-business sector in the coming years. The Contract Program 2017-2022 for agri-industry (contrats-programme) focuses on the development of seven value chains considered the most important for sectoral development.
Serbia	The National Agriculture and Rural Development Strategy (NARDS) 2014–2024 targets an efficient and innovative agri food sector based on knowledge, modern technologies and standards, offering high quality products to domestic and foreign markets, and sustainable development of the natural resources, environment and cultural heritage of the rural areas, providing economic activities and employment opportunities and quality of life for young people and other rural inhabitants.
Turkey	The Eleventh Development Plan (2019-2023) of Turkey outlines a road map for Turkey’s social and economic development and highlights the industries which have high potential to grow. The

	Development Plan expects the agriculture sector to grow 3.1 percent on average by 2023. The Plan also identifies R&D-driven innovation as key to development and competitiveness. The 2019-23 Strategic Plan of the Ministry of Agriculture and Forestry (MoAF) was also established in line with the Development Plan. It sets seven strategic objectives for the agricultural sector, including increasing food production, quality and safety. Turkey adopted a National Strategy Document and Action Plan on Prevention, Reduction and Management of Food Losses and Waste in 2019.
Uzbekistan	Uzbekistan's Strategy for Agriculture Development (2020-2030) sets ambitious targets for agribusiness development, including \$20 billion in agricultural exports by 2030, up from a total of \$2.3 billion in 2018. The Strategy also identifies the need for delivering a range of agricultural public services, including applied agricultural research and development and extension/advisory services.

There are positive growth prospects for agri-food processing and retail in all five countries. In particular, the expansion of international trade has enhanced access to higher-value external markets.³ The prospects to capitalise on these opportunities differ by country and region. Turkey, the main exporter of agri-food products to the Middle East and central Asia, has significant potential to produce food efficiently – for instance, through investment in trade logistics – and to increase export that can benefit net food-importing regions, including North Africa. Georgia, Morocco, and Serbia stand to gain from further raising food quality and safety standards, which can improve supply to both local and higher-value export markets such as the European Union. Morocco can also improve resource use (land, water, energy) through adoption of technology and promote private sector participation to focus on higher-value added crops. Uzbekistan can further improve productivity through the adoption of technology and developing value-adding agricultural clusters that can maximise export benefits under the EU's GSP+ programme.

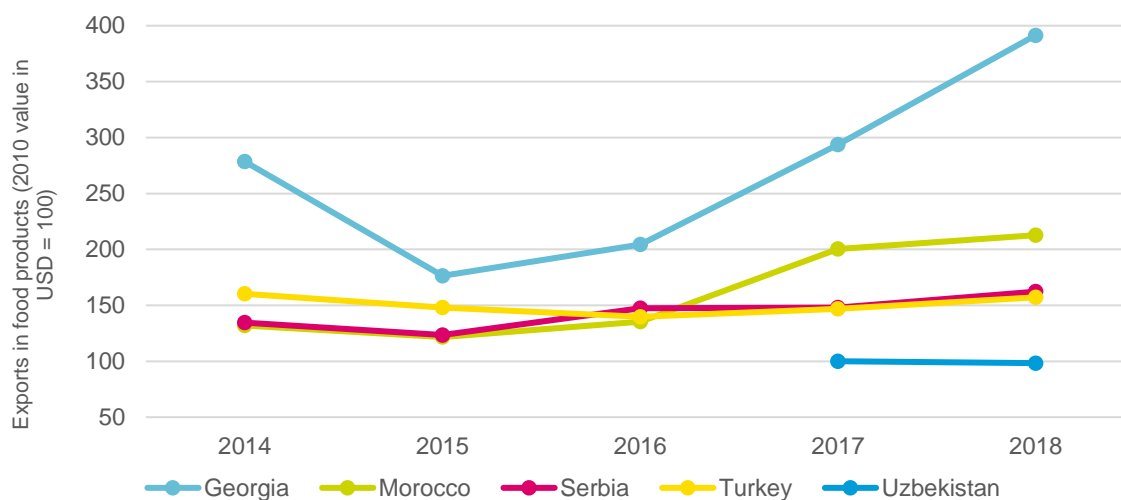
In all cases, investment in innovations that enhance productivity, promote the upgrade and diversification of products and business-processes, and – crucially – that drive the development of requisite skills and human capital is key to ensuring the sector's sustainable development.

Several project countries – notably Georgia and Morocco – have significantly expanded their exports of food products in recent years, reinforcing the potential (and ongoing) growth of downstream agribusiness industries. Georgia has seen particularly strong growth of food exports in recent years, with exports doubling between 2016 and 2018 after the implementation of the DCFTA with the EU. All project countries have seen notable increases in food export value since 2010, with Morocco achieving the most notable growth (more than 100 per cent since 2010).⁴

³ Specifically, all five countries are trading partners of the EU under a range of trade agreements and arrangements: Georgia - [Association Agreement / DCFTA](#), Morocco - [Association Agreement / Agreement on additional liberalisation of trade in agricultural products](#), Serbia - [Stabilisation and Association Agreement](#) (the SAA constitutes the legal instrument for alignment to the EU acquis and progressive integration into the EU market), Turkey - [Customs Union](#) and Uzbekistan - [GSP+](#).

⁴ There are no data on Uzbekistan prior to 2017 (see note to Box 2).

Box 2: Food products export index (2010 = 100)



Source: World Integrated Trade Solutions (WITS), Food product exports by country and region, 2010-2018, online: <https://wits.worldbank.org/countrystats.aspx?lang=en>. Retrieved April 2021. Uzbekistan is indexed from 2017, as there is no data available between 2010 and 2016.

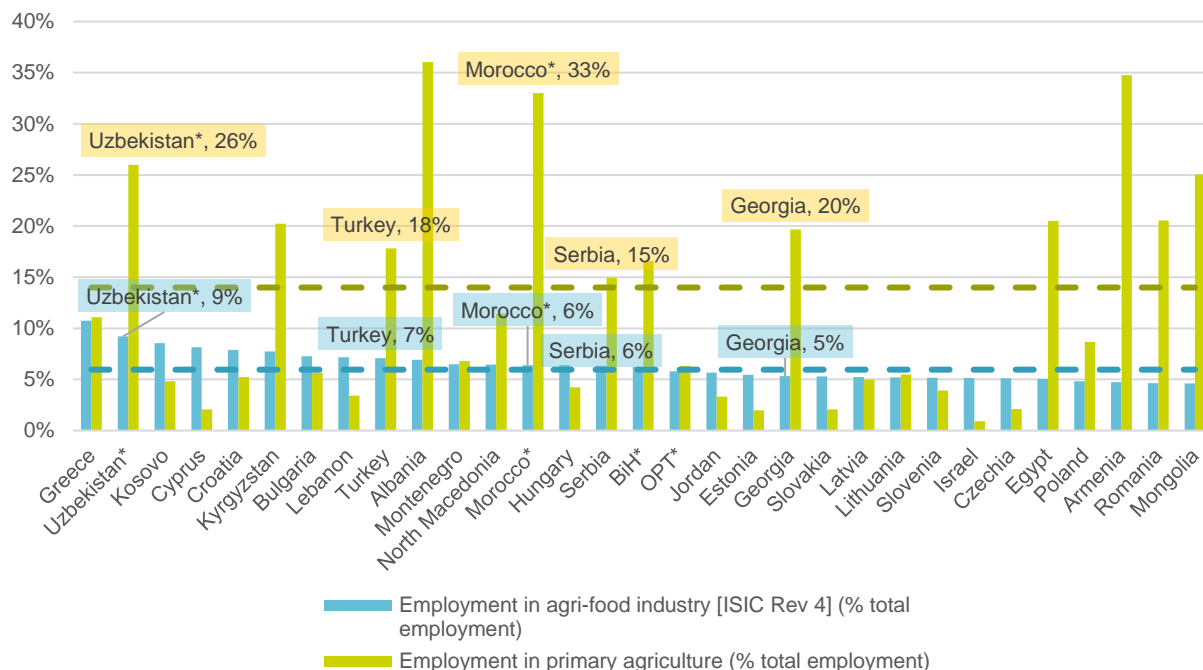
Despite variation, the productive composition of agri-food industry across the five countries shares some broad characteristics. In particular, agri-food sectors are typically divided between a few large, vertically integrated firms and a large number of (M)SMEs, including a high proportion of subsistence producers. While the former typically employ modern technologies and business practices and are increasingly integrated into international as well as domestic markets, most MSMEs face significant financial and human capital constraints that limit their capacity to innovate and upgrade operational practices in ways that can enhance productivity and access to new markets.

The result is a tendency towards highly fragmented agri-food industries that are not conducive to coordinated action on innovation and skills development, and thus the persistence of productivity shortfalls for the sector as a whole. In this context, productivity-enhancing innovation (whether technological or related to products, processes, operations, or human capital) is typically limited to larger international enterprises, creating some 'islands of excellence', but leaving a majority of smaller agri-food enterprises locked into a low-productivity and low-investment model of agribusiness.

2.2 Jobs in agribusiness

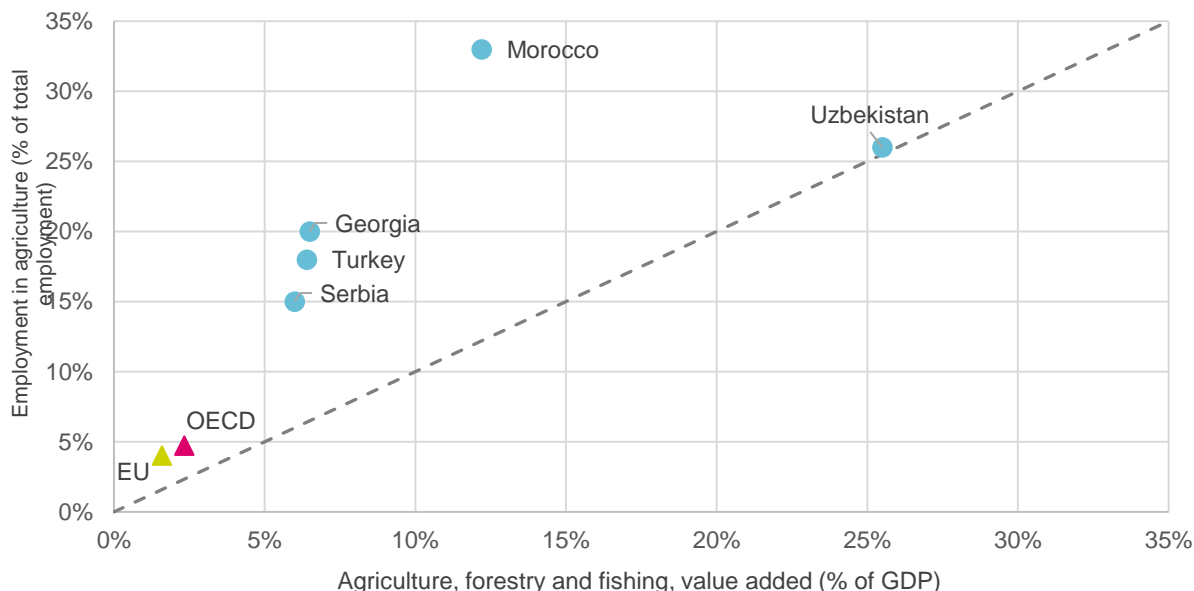
Primary agriculture and downstream agribusiness are key sources of employment in all five project countries. Primary agriculture remains a predominant source of employment in most project countries, accounting for between 15 per cent (Serbia) and 33 per cent (Morocco) of total employment and above the average for EBRD / ETF partner economies (see Boxes 3 and 4). In contrast, downstream agri-food sectors contribute an important, but smaller, share of jobs across all countries for which data are available; 5 per cent in Georgia, 6 per cent in Serbia, and 7 per cent in Turkey, estimates that are broadly in line with the average across other EBRD/ETF partner countries (see Box 3). Taken together, the distribution of employment along agri-food value chains highlights both the overall importance of agri-food systems for employment and livelihoods, as well as the significant potential to accelerate broader processes of structural transformation, with the aim of creating *fewer but higher-quality jobs* in primary agriculture and *more and better jobs* in higher-value downstream agri-food activities.

Box 3: Employment in primary agriculture and agri-food industry (% total employment, EBRD and ETF partner countries)



Note: Data for Uzbekistan and Morocco are based on ILO modelled estimates of employment in agriculture and World Bank Survey estimates of employment share in the 'food' industry. 'BiH' refers to Bosnia and Herzegovina, 'OPT' refers to the Occupied Palestinian Territory.

Box 4: Relation between employment in agriculture (% of total employment) and agricultural value added as a % of GDP



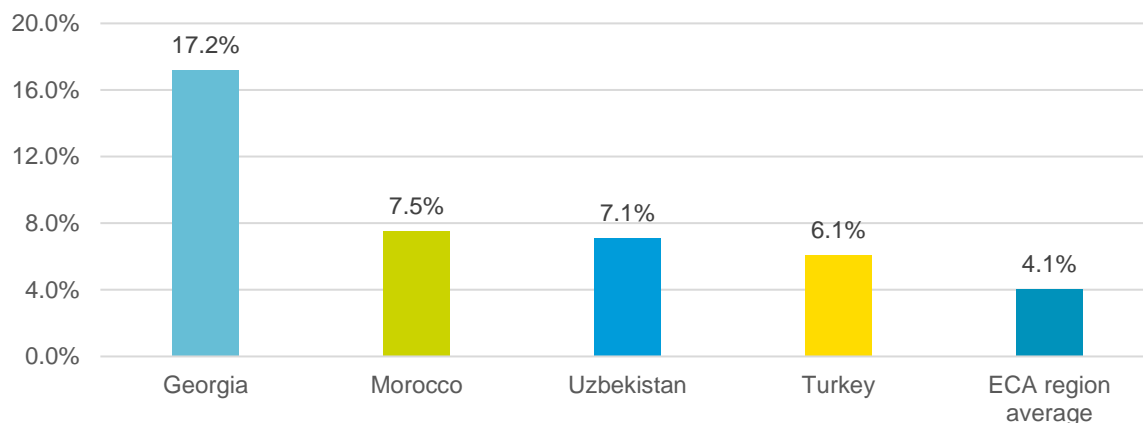
Source: ILOSTAT, Employment by sex and economic activity (most recent year available). Industry definition for agriculture is based on ISIC Rev. 4, 01 - Crop and animal production, hunting and related service activities; World Bank, World Bank Open Data, online: <https://data.worldbank.org/>; ILOSTAT, Employment in agriculture (% of total employment) (modelled ILO estimate); World Bank, 2020, Enterprise Survey. Retrieved April 2021.

While primary agriculture represents a substantial share of total national employment in the project countries, the scale of employment is not commensurate with the sector's GDP contributions. This disparity of input (labour) with outputs (value of finished goods) highlights a significant productivity challenge for agriculture relative to other economic sectors and an associated constraint on the creation of decent jobs. As Box 4 illustrates, primary agriculture represents a significant share of total employment in all project countries – well in excess of EU and OECD averages. Yet a higher share of employment is associated with only modest increases in the sector's contribution to GDP across all project countries (with the exception of Uzbekistan).⁵

While enhancing agricultural productivity is vital for longer-term economic development, it has important implications for employment and jobs. On the one hand, given the national importance of agriculture as a source of employment, productivity gains achieved through a reduction in labour have potentially severe adverse implications for the livelihoods of agricultural workers and farmers. However, low productivity relative to other sectors implies significant constraints on the sector's capacity and resources to support any increase in job quality and wages. Failure to address productivity challenges implies the perpetuation of low productivity, low investment, and low wage agriculture that is likely to become increasingly unsustainable in the face of international competition.

However, although increased productivity necessarily implies a reduction in the number of primary agriculture jobs, more productive (primary) agriculture can also support job creation elsewhere along the agri-food value chain. Downstream industries – such as food processing, logistics and storage, hospitality, and retail (as well as services that support downstream enterprises) – can benefit from increased volumes, quality, and supply reliability of raw materials at lower cost. Upstream industries and services – including the production of seed, fertilizers, and feed, machinery and technology manufacture and maintenance, as well as agronomic and other service providers – can benefit from increased demand from midstream producers with more capital to invest in productivity enhancing goods and services.

Box 5: Net job creation in 'food' sector (% , most recent year)



Source: World Bank, 2020, Enterprise Surveys. Retrieved April 2021. Scope of countries includes those where breakdown of 'food' as an industry was available.

This places a strategic focus on downstream agribusiness to drive demand for the creation of more and better jobs. According to recent World Bank data, downstream agri-food sectors across the project countries have exhibited significant jobs growth in recent years, ranging from net jobs increase of 6.1 per cent in Turkey to as much as 17.2 per cent in Georgia (see Box 5). A recent diagnostic study on

⁵ The implied productivity challenge is not limited to the project countries but also extends to EU and OECD economies. The relationship between agriculture's employment share and its contribution to GDP is broadly comparable across the four project countries (excluding Uzbekistan) – GDP contribution between 33 and 40 per cent of employment – and not substantially different from EU and OECD averages (between 40 and 49 per cent).

the agri-food sector in Uzbekistan estimated that productivity gains in primary agriculture could add more than half a million jobs in food and light manufacturing sectors over the next decade, primarily new jobs in fruit and vegetable processing, meat processing, dairy, feed production, and textile and apparel industries (World Bank, 2020). These trends suggest that at least some jobs lost in primary agriculture due to productivity enhancements can be offset by new employment opportunities created in downstream agri-food activities (the growth of which is enable, in part, by productivity gains in primary agriculture). However, policymakers also have an important role to play, both in supporting labour reallocation (for example, through training and reskilling programmes) and providing short- and medium-term security via targeted social protection measures.

2.3 Key innovation, skills and inclusion dimensions of agri-food sectors of the five project countries: Summary overview

The main innovation, skills and inclusion challenges and opportunities for the agri-food sector in project countries are summarised below.

Box 6: Key innovation, skills and inclusion dimensions of agri-food sectors in Georgia, Morocco, Serbia, Turkey and Uzbekistan

Country	Innovation	Skills	Inclusion
Georgia	<p><i>Challenges</i></p> <ul style="list-style-type: none"> High costs associated with investment in innovation, particularly investment barriers for SMEs (including establishment and maintenance of e-commerce) Lack of suitable technical and digital skills supply Insufficient value chain infrastructure (including for e-commerce operations) Preponderance of subsistence farming <p><i>Opportunities</i></p> <ul style="list-style-type: none"> Meeting export standards a key driver of innovation COVID-19 creating incentives for technological and business process innovation 	<p><i>Challenges</i></p> <ul style="list-style-type: none"> Labour shortages High levels of outward migration, particularly from rural areas Limited (formal, higher-skilled) job creation Agribusiness not perceived as attractive career option <p><i>Opportunities</i></p> <ul style="list-style-type: none"> Establishment of sector skills association Agro-Duo Revised framework for work-based learning and some company take-up Private-public partnerships focused on 'buy-in' of the private sector in skills developments 	<p><i>Challenges</i></p> <ul style="list-style-type: none"> Women and youth are a significant part of the agribusiness workforce, but few activities aimed at improving inclusion outcomes Youth unemployment Women's labour force participation dampened by social norms High share of non-productive self-employment in subsistence agriculture <p><i>Opportunities</i></p> <ul style="list-style-type: none"> TVET reforms have targeted youth, including NEETs 'Youth Worker' initiative focused on rural areas TVET programmes in agriculture "pioneers" for disability inclusion
Morocco	<p><i>Challenges</i></p> <ul style="list-style-type: none"> Value chain infrastructure not well co-ordinated High capital investments needed to acquire new technologies - out of reach for smaller companies Shortage of skills required to manage ongoing changes <p><i>Opportunities</i></p> <ul style="list-style-type: none"> Government policy supporting technological innovation and 	<p><i>Challenges</i></p> <ul style="list-style-type: none"> Relatively low levels of human capital development Mismatches in outputs of the education / training system and private sector skills needs Fragmentation in TVET delivery Large informal sector Insufficient job creation <p><i>Opportunities</i></p>	<p><i>Challenges</i></p> <ul style="list-style-type: none"> Young people and women not well integrated into labour market Women's labour force participation is limited and has decreased in recent years 'Public sector preference' for women's employment persists <p><i>Opportunities</i></p>

	<p>upstream and downstream collaboration (through <i>agropóles</i>)</p> <ul style="list-style-type: none"> • Environmental sustainability as strong driver of innovation 	<ul style="list-style-type: none"> • Recent agri-food skills analysis (Dept. of Vocational Training) • Collaboration between FENAGRI (industry association) and Dept. of Vocational Training 	<ul style="list-style-type: none"> • Regional inclusion being fostered under aggregation activities • Development of thousands of women's cooperatives, with positive knock-ons for women and girls
Serbia	<p><i>Challenges</i></p> <ul style="list-style-type: none"> • Fragmented agribusiness sector, with many (M)SMEs <p><i>Opportunities</i></p> <ul style="list-style-type: none"> • Digitisation of agricultural production a priority at policy level • Technological innovation driven by agro-holdings, start-ups and specialised research institutes • Production process innovation due to changing demand and social preferences 	<p><i>Challenges</i></p> <ul style="list-style-type: none"> • Limited internal mobility • Fragmented TVET infrastructure with limited private sector input • More efforts needed to develop trusted systems for validating non-formal and informal learning <p><i>Opportunities</i></p> <ul style="list-style-type: none"> • New agri-sector skills council • New Law on Dual Education • EBRD-funded study on skills needs in agri-food 	<p><i>Challenges</i></p> <ul style="list-style-type: none"> • Difficult youth access to labour market opportunities <p><i>Opportunities</i></p> <ul style="list-style-type: none"> • National Employment Service programmes for employment promotion of vulnerable groups • Women's Innovative Entrepreneurship programme supports female entrepreneurship
Turkey	<p><i>Challenges</i></p> <ul style="list-style-type: none"> • Significant innovation gap between large globally-integrated agribusinesses and SMEs • SMEs highly constrained in innovation • Impediments include access to finance, political instability and prevalence of informality <p><i>Opportunities</i></p> <ul style="list-style-type: none"> • Policy focus, HEI engagement on agribusiness innovation • Meeting export standards a driver of process and system innovation • Opportunities to modernise farming via mechanisation and smart specialisation strategies • Scope for marketing innovation via specialisation in higher-value provenance-related branding and digital commerce channels 	<p><i>Challenges</i></p> <ul style="list-style-type: none"> • Formal job creation – and thus skills demand - limited to large enterprises (private sector skills investment concentrated within one third of Turkish firms) • High rates of informality and precarious employment • Limited supply of market-relevant skills • Rural areas disadvantaged in reach /quality of state education, leading to basic skills gaps <p><i>Opportunities</i></p> <ul style="list-style-type: none"> • High levels of education and skills among youth • MoNE promoting role of private enterprises in VET delivery • Establishment of Sectoral Centres of Excellence 	<p><i>Challenges</i></p> <ul style="list-style-type: none"> • Low female labour force participation • Women's employment often seasonal, informal • High youth unemployment, barriers in VET-to-work transition • Regional disparities in economic and human capital (east-west, rural-urban) <p><i>Opportunities</i></p> <ul style="list-style-type: none"> • Leading agribusinesses are keen to attract young talent and many have developed collaborations with universities • Private and public (Kagider) initiatives to promote equal opportunity for women in workplace
Uzbekistan	<p><i>Challenges</i></p> <ul style="list-style-type: none"> • Lack of high-quality public and private sector infrastructure, institutions and services to support innovation 	<p><i>Challenges</i></p> <ul style="list-style-type: none"> • Policies depressed wages and created rural labour surpluses • Skills gaps and mismatches 	<p><i>Challenges</i></p> <ul style="list-style-type: none"> • High youth unemployment and informal employment. • High economic inactivity rates and long-term unemployment

<ul style="list-style-type: none"> • Lack of voluntary, private sector-led industry groups / associations • Current level of adoption of modern technology is low <p><i>Opportunities</i></p> <ul style="list-style-type: none"> • Shift from cotton and wheat to horticulture driving demand for new technology, digital tools (also, mechanisation of cotton harvest) • Efforts to establish private sector associations in new subsectors • Growth of e-commerce 	<ul style="list-style-type: none"> • Lack of coordination of TVET providers and private sector • Limited supply of technical skills • Limited labour mobility • Few Uzbek companies offer formal training programmes <p><i>Opportunities</i></p> <ul style="list-style-type: none"> • Recent establishment of sector skills council • Recent innovations in remote learning due to Covid-19 	<ul style="list-style-type: none"> • Women's overall labour force participation below men's • Women engaged in (lower-paid and lower-skilled) work in early stages of value chains <p><i>Opportunities</i></p> <ul style="list-style-type: none"> • Opportunities to increase women's employment in higher-value subsectors such as horticulture • Longstanding role of Women's Councils within enterprises
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2.4 Agribusiness innovation

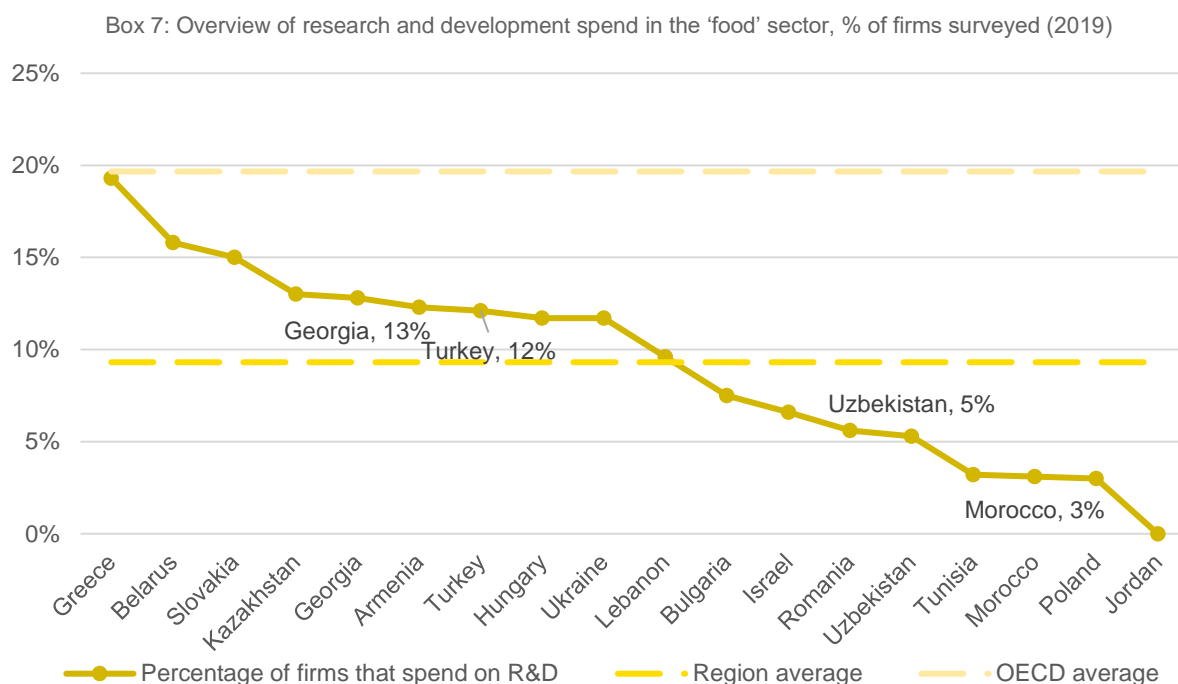
Innovation is central to the sustainable transformation of agri-food systems and the agribusiness sector to support *higher quality jobs in agri-production and more and better jobs in downstream agribusiness*. The world's population is growing and becoming more prosperous, creating enormous global demand for food, land, energy, water, and other resources. At the same time, climate change and sustainability concerns necessitate that meeting such demand will require a fundamental shift in the way the agri-food (and wider agribusiness) sector is organised and operates. The development of more sustainable agribusiness sectors, including the growth of higher-value downstream agribusiness industries, implies the need for technological and other forms of innovation that can drive productivity and sustainability enhancements. Covid-19 has been a key driver of rapid innovative adaptations in the fields of product, process, organisation and marketing (see Section 2.7 and Chapter 3).

2.4.1 State of progress

The rate of adoption of technological and other innovations has been slow across agri-food industries in the project countries, and absorptive capacities are limited in large parts of the sector. The limited adoption of technological innovation across the agri-food industries overall continues to represent a significant constraint on the development of the agribusiness sector and the increase in productivity and profitability that can support better jobs and wages. Limited external finance and weak commercial incentives contribute to the low number of agri-food enterprises investing in research and development across project countries. Based on data from the World Bank's Enterprise Survey, the share of agri-food enterprises in project countries that report investment in research and development is well below the OECD average, although both Georgia and Turkey compare favourable to the average spend across other EBRD/ETF partner countries in the sample (see Box 7).

However, there is a shared recognition among stakeholders that the adoption of new technologies and upgrading of business processes is both necessary and inevitable. In all project countries, stakeholders broadly agree that the agri-food sector will benefit from modernising mid- and downstream activities through both enterprise- and policy-level interventions (and enhanced coordination between the two) – including in relation to mechanisation and automation, digitalisation, upgrading human capital, and targeted public policy initiatives to support and enable industry-led innovations (such as 'smart specialisation' strategies). In Turkey, for instance, a National E-Agriculture Strategy is currently being drafted by the Ministry of Agriculture and Forestry, and FAO and EBRD are carrying out a study to identify promising digital technologies in agriculture, focusing on private sector-driven technologies (ITU and FAO, 2020). In Morocco, the support of digitalisation in the agri-food sector is part of the 'Generation Green' strategy and is complemented by the action of the Moroccan Digital Development Agency (ADD), which is developing a 'smart factory' to help with the digital transition is partner of the

industry supporting digital education; the Ministry of Commerce and Industry has also launched a 'project bank' for entrepreneurs to support research and development and introduction of technology in agribusiness (BritCham, 2020).



Source: World Bank, 2020, Enterprise Surveys. Retrieved April 2021. Scope of countries includes those where breakdown of 'food' as an industry was available among ETF and EBRD partner countries. 'Region average' refers to average across ETF / EBRD partner countries (where data was available).

Moreover, despite constraints, it is clear that innovation is increasing across the project countries. For example, data from Serbia's national statistical office suggests that the share of 'innovative enterprises' engaged in primary agriculture (defined as enterprises that have introduced a new product, process, organisational, or marketing innovation) has increased from 23 per cent for the period 2012–2014 to 49 per cent between 2016–2018. Additionally, an estimated 58 per cent of manufacturing firms were 'innovative' during the 2016–2018 period, and 43 per cent of retail and hospitality enterprises, at least some which are likely to be engaged in the agri-food value chain (Statistical Office, 2019).

To date, most innovation at the enterprise level is focused on enhancing manufacturing and production methods. There is less evidence of innovation in relation to the development of new products or services, or in relation to logistics and supply chain management. A recent study of the Serbian agri-food sector indicated that more than 85 per cent of firms had introduced new or improved methods of manufacturing or production in recent years, but less than half (47 per cent) had introduced any initiatives to improve logistics or distribution operations (Mosurović-Ružičić et al., 2018). Similarly, the World Bank found that the most innovation among Georgian agri-food enterprises focused on manufacturing methods while the least common was logistics and supply chain management and/or services (World Bank, 2018).

Enhanced access to external markets is also contributing to innovation in product quality and design, as well as (export-related) business processes and sales and marketing innovation. In Uzbekistan, the State Agency for the Implementation of Projects in the Field of Agroindustry and Food Security has taken a number of measures to encourage business development towards meeting European and global production quality and safety standards, principally GlobalGAP (Focus group with national stakeholders, December 2020). In several project countries – notably Georgia, Morocco, and Serbia – access to a more diverse customer base in export markets has provided previously absent commercial

incentives to develop higher quality products that can appeal to niche consumer demands (for example, in relation to GI-registered products). Consumer and regulatory demands of export markets are also driving innovation in production processes, sales and marketing (including e-commerce), and human capital development (for example, in relation to technical and administrative requirements to meet export standards).

Governments in all project countries have also taken steps to enhance the policy environment to promote innovation in agri-food. There is increasing emphasis on innovation in agri-food at the policy, strategy, and programming level across most project countries. There is a particular focus on research and development, technology transfer, and human capital development targeted toward agribusiness segments and sub-sectors that display the greatest innovation and export potential. Policy responses include:

- Simplification of administrative procedures and better tools to support agribusiness exports (for example, Morocco’s ‘Easy Food Export’ project, a digital platform aimed at simplifying export formalities) (CFCIM, 2020)
- Sector strategies that set long-term objectives to promote the uptake of new technologies and support human capital development in agri-food, as well as dedicated funding for research and development, including a focus on agri-food industries (see Box 8, below)
- The development of agribusiness ‘hubs’, ‘clusters’, and other mechanisms to enhance horizontal and vertical integration of agri-food value chains and improve cooperation between government, research institutes, private sector enterprises to promote knowledge and technology transfer (notable examples include Morocco’s *agropôles* and agri-technology hubs in Georgia and Turkey)
- Direct support to businesses, including technical and advisory services for agri-producers, grants and loans to farmers for technological upgrades, or assistance for companies to meet export standards (for example, the government’s Agricultural Advisory and Professional Services of Serbia (AAPSS) trains advisors to with agribusiness enterprise on technological development and the upgrading business operations and practices, including to meet export standards (Ministry of Agriculture, Nature and Food Quality of the Netherlands, 2021; Development Agency of Serbia, 2021).

Box 8: National innovation strategies relevant to agribusiness in Georgia, Morocco, Serbia, Turkey and Uzbekistan

	Agribusiness-relevant innovation national strategies and initiatives
Georgia	<p>The overarching strategy of the new Ministry for Environmental Protection and Agriculture (MEPA) includes a three-pronged approach on skills, innovation and sustainable agriculture.</p> <p>Georgia’s SME Development Strategy 2016-2020, identifies 33 priority actions to be taken in important areas for SME development, such as improving legislation, institutional frameworks, and the operational environment, as well as widening access to finance, developing entrepreneurial skills, broadening internationalisation, and supporting innovation activities.</p>
Morocco	<p>Agricultural production sites (<i>agropôles</i>) have been developed to strengthen links between agricultural production and agribusiness, including through creation of training centres.</p> <p>The Ministry of Commerce and Industry has also launched a ‘project bank’ for entrepreneurs to support research and development and introduction of technology in agribusiness. A ‘smart factory’ is also being developed with the Digital Development Agency (ADD) to help with the digital transition.</p> <p>Building on Maroc Digital 2020, ADD has launched a 2025 roadmap to promote an inclusive society through digitalisation, digital administration platforms for citizens and businesses and digital and innovative ecosystems for a competitive economy.</p>

Serbia	<p>Serbia's Strategy on Scientific and Technological Development 2021-2025 envisages increased investment into science-technology parks, centres of excellence and research institutes, including in the agri-food sector. The accompanying Action Plan 2021-2023 specifies that technological capabilities will be expanded through support to start-ups and high-tech companies, as well as by stimulating cooperation between the economy and the scientific community.</p> <p>The Industrial Policy Strategy 2021-2030 also aims at enhancing competitiveness of domestic industry through the development of skill advantage and knowledge-based industries.</p> <p>The Smart Specialisation Strategy, adopted in February 2020, identifies four vertical priority areas, including food and beverage production and processing, which covers areas such as high-tech agriculture, value added food, and sustainable agricultural and food production.</p>
Turkey	<p>The Department of Agricultural Technologies and Mechanization within the Ministry of Agriculture and Forestry works with public and private sector actors and universities on the digital transformation of agriculture and is responsible for the development of policy on the use of advanced technology and mechanisation in agriculture.</p> <p>A National E-Agriculture Strategy is currently being drafted by the Ministry of Agriculture and Forestry in collaboration with FAO. Ministry of Agriculture recently launched the Digital Agriculture Market (DITAP), which covers the entire chain from food production to consumption.</p>
Uzbekistan	<p>The Strategy for Innovative Development of Uzbekistan (2019–2021) and its implementation Roadmap aim at the development of human capital through improved quality and coverage of education and the development of a system of lifelong learning. Measures to strengthen research potential and increase investment in innovative development are also envisaged.</p>

Governments are also supporting other forms of business process and product innovations; for example, through the development of regulations and standards to establish geographic indications. Provenance-based commodities are increasingly in demand in major export markets and offer a particular opportunity for smaller agri-food producers to develop markets for higher-value niche products. In Turkey, legislators have looked to support provenance-based product development through new legislation (Law No. 6769 on Industrial Property) that provides for geographical indications and traditional product names in line with EU standards (WIPO, 2017).

In several project countries, higher education institutions and/or industry associations have taken leadership positions in agribusiness innovation, focusing on both the development of new technological applications for agri-business and providing training directly to agri-producers and downstream enterprises.

- Turkey's Boğaziçi University has also developed an Innovative Agriculture and Food Management Platform (Bountarım) that aims to encourage vertical and horizontal connections among agri-food enterprises and stakeholders and support the integration of new technologies and digital transformation for the sector (Bountarım, 2020)
- Serbia's Novi Sad University has a BioSense Institute which promotes ICT solutions for agribusiness, including training and advice for producers (BioSense, n.d.)
- In Morocco, the National Institute for Agronomic Research (INRA) works closely with private sector agri-business partners on research and development projects related to higher value product development and new crop varieties (ITC, 2020).

Industry associations, such as Serbia's Association for Livestock and Processing of Livestock Products, are also active in several project countries in support agri-producers to enhance production processes and meet environmental and other requirements for national and export markets (Chamber of Commerce of Serbia, n.d.).

EIT Food's [Regional Innovation Scheme](#) (RIS) aims at strengthening those regions in Europe which are modest and moderate in terms of innovation in agri-food sector: this includes Georgia, Serbia and Turkey. The outreach scheme is open to innovators that are not partners of EIT Food and provides targeted support to EIT RIS stakeholders through a portfolio of projects. For example, EIT Food has established an Impact Hub in Istanbul which aims to support food and agriculture entrepreneurs in Turkey by raising awareness of cooperation opportunities for local players representing education, business and research areas. EIT Hubs also liaise with the relevant national, regional and local authorities and facilitate the sharing of EIT Innovation Community expertise with them (EIT Food, 2020).

However, there remains a significant 'innovation gap' between the small number of commercial, large agri-food enterprises and small and medium-sized enterprises that dominate the sector. Innovation, including the introduction of new technologies and upgrades to business processes and human capital development, is typically concentrated in the larger agri-food enterprises that are integrated into international markets, while smaller agri-food enterprises face self-perpetuating constraints of low innovation, low productivity, and resulting barriers to international markets (EBRD, 2019). There are limited links between larger and smaller enterprises to support any transfer of innovative technologies, knowledge, or practices (see below).

Limited value chain infrastructure and services may also impede growth and innovation in agri-food sectors in some project countries. Constraints extend to both physical and services infrastructure. Limited physical infrastructure may impede, or reduce the commercial benefits derived from, enterprise-level innovation in relation to product development (for example, for export markets) and operational and marketing practices (for example, e-commerce).

In Georgia, several agri-food producers noted that inadequate specialist infrastructure for food transport and storage constrained their capacity to develop direct-to-consumer e-commerce operations during the Covid-19 pandemic (EBA, 2020; World Bank, 2018). Infrastructure constraints may also affect firms' access to export markets, reducing the incentives for innovations linked to the diverse opportunities and demands of export market (see above)

In Uzbekistan, stakeholders note the lack of both public and private sector infrastructure and/or services to support the development of quality export markets, including the absence of wholesale markets and logistical support centres, laboratories and quality assurance systems to ensure producers can meet international quality standards and requirements, and equipment at customs/border points for export products (EC, 2020).

Enhancing coordination and integration within agri-food value chains is therefore a particularly important area of focus for public and private sector initiatives to promote innovation. In the context of highly fragmented agri-food systems across the project countries, there have nonetheless been some limited, but important, initiatives to create integrated and mutually-reinforcing 'innovation eco-systems' for agri-food sectors. Participation in cooperation networks can stimulate and reinforce innovative attitudes and behaviours within firms, as actors access a wider set of information and knowledge and are exposed to more circumstantial diversity.

Regional clusters, such as *agropôles* in Morocco or Uzbekistan's production clusters for cotton and horticulture supply chains, aim to concentrate various agri-food actors in a single geographical location to promote collaboration and facilitate the dissemination of innovation, develop economies of scale,

and contribute more broadly to local economic development, with further positive economic multipliers (ITC, 2020; Murotaliyevich, 2020).⁶

In Turkey, there are some successful examples of large enterprises acting as ‘anchors’, supporting small producers in the value chain to become more efficient and profitable through targeted upskilling and human resource development as well as technical support for upgrading food production processes, raising quality standards, and compliance with mandatory product label regulations (UNDP, 2014; Focus Group Interviews - Turkey). A further relevant and recent third-sector development is the advent of the ‘Kök Projekt’ - an agri-food start-up accelerator and innovation partner for food and agriculture companies in Turkey (Kök Projekt, 2020).

However, despite some state policy and programs to promote innovation in agri-food, most innovation is still firm-led, and links between state and private initiatives are often weak. Across the project countries, most examples of innovations have been developed by the firms themselves rather than as a result of cooperation or involvement with government programmes. In general, innovations are often driven by the purchase of new machinery, equipment, or software and rely less on the acquisition of external knowledge. Even for knowledge-based innovations, many agri-food enterprises report that information provided within their own enterprise is the most important, while information received from government or public research institutes has limited impact on innovation at the enterprise level (Mosurović-Ružičić et al., 2018). These trends reflect, in part, the limited scope of existing partnerships and cooperation between the private sector and research institutions across the project countries (EBRD, 2019).

2.5 Skills in agribusiness

A skilled workforce is a driver of innovation and a prerequisite for the development and adoption of new technology. Developing workforce skills is therefore essential to enabling innovation-led growth of higher-value agri-food systems (skills supply) and, by extension, promoting the creation of decent employment opportunities throughout agri-food value chains. Furthermore, in the aftermath of the Covid-19 pandemic, adapting employees’ skills and roles to new ways of working, and new market realities, will be crucial to building operating-model resilience.

Matching labour and skills demand from food and agriculture is a growing issue in all five countries under consideration. Skills required by agribusiness are evolving and becoming more diverse, and sometimes less specific to the sector (such as digital and managerial skills). Agribusiness-related TVET in particular can contribute by becoming more attractive to students, anticipating new skills demand and adapting curricula, as well as offering life-long training to agribusiness workers and career guidance to students. Training and re-training programmes need to respond to agribusiness needs, including for digital, environmental and management skills, and cover all workers, which require closer engagement between public and private sectors to identify long-term needs.

There have been important efforts to support skills development for agribusiness development in all five countries. These efforts have variously focused on:

- The inclusion on an express skills and employment dimension in national agriculture strategies
- The development of sector skills councils, and other initiatives to foster closer linkages between public and private sector actors in the sector, so as to enable better skills anticipation, curriculum relevance and revision;

⁶ Morocco’s Green Morocco Plan has also promoted interprofessional collaboration in agri-food systems, bringing together both production professionals and manufacturing professionals to improve the quality of final products (MAPMDREF, 2020).

- Efforts to coordinate between line ministries, specifically between ministries with lead responsibilities for TVET, innovation, and agriculture;
- Encouraging a greater role for agribusiness firms in TVET delivery, including enhancing work-based learning and the private sector role in dual education
- Developing forms of internship and apprenticeship to facilitate youth entry into the sector
- Training TVET staff to upgrade and update skills relevant to emerging agribusiness needs
- Promoting broader access to agribusiness-relevant TVET, including to rural youth and women, including through distance learning.

Box 10: Skills strategies and initiatives relevant to agribusiness in Georgia, Morocco, Serbia, Turkey and Uzbekistan

	Agribusiness-relevant inclusive skills strategies and initiatives
Georgia	<p>The National Agency for Vocational Skills “Skills Georgia” is being established, as a result of a multi-stakeholder effort (from private and public sectors) to facilitate further development of qualifications in the country and coordinate work-based learning processes across the private sector.</p> <p>The agricultural Sectoral Skills Organization (SSO) “Agro-Duo” fosters public and private collaboration by establishing educational programmes in collaboration with the private sector, whereby students acquire competitive skills that respond to and closely align with labour market demands.</p>
Morocco	<p>The National VET Strategy 2017-2021 provides for the creation of 12 <i>Cités des Métiers et des Compétences</i> (CMC) to help bridge the gap between school and work for local youth, identify future skills needs at local level, and support skills development in occupations of the future. 10 of the CMCs will offer training in agri-food fields, with a focus on innovation, precision agriculture, organic agriculture and product quality control in line with the objectives of “Generation Green”.</p>
Serbia	<p>The Strategy for Education Development in Serbia served as a framework for education sector reform until 2020, aiming at increasing efficiency and relevance of education as well as ensuring the provision of high-quality education for all, and improving educational coverage and attainment.</p> <p>Policy initiatives to improve the skills development process have included the promotion of dual education, development of the national qualifications framework together with employers, and the establishment of sectoral skills councils. A new Education Strategy until 2030 is currently being developed.</p> <p>The Sector Skills Council for Agriculture, Food Production, Forestry, Fishery and Veterinary sectors supports skills development in the agribusiness sector.</p>
Turkey	<p>The Education Vision 2023 strategy aims to bring Turkey’s education system in line with EU and international standards so that learners can be equipped with skills for the future, as well as addressing skills shortages, including in agribusiness. Activities under the strategy have included efforts to increase the value attributable to VET, increase access to careers guidance for TVET students and develop new curricula.</p> <p>The Turkish Economic Reform Programme 2020–2022 also outlined a series of reform measures for the skills sector, including updating curricula in vocational and technical education.</p>
Uzbekistan	<p>The Concept of Public Education System Development until 2030, envisages updating the content of the system of continuing education, as well as improving teaching methods, introducing modern ICT in public education, and developing public-private partnerships.</p>

The Education Sector Plan of Uzbekistan (2019-2023) contains actions around vocational education, based around three strategic policy goals: (1) enhancing access and participation; (2) Enhancing quality and relevance, and (3) improving governance and management. Sectoral Skills Councils have recently been created to develop occupational skills standards for each economic sector.

Particular progress is being made in establishing sector skills councils (SSCs) in several project countries to address skills mismatches and promote coordination around skills development, including for the agri-food sector. Sector skills councils for the agribusiness sector are established in Georgia and Serbia, while Uzbekistan is in the processing of developing its own SSCs (ADB, 2020). The mandate of skills councils varies across countries, but typically includes a broad coordinating role on skills development for the sector, including in relation to the planning and delivery of TVET programmes and establishing qualifications frameworks and standards. Councils are typically composed of representatives from government, educational institutions, and the private sector and thus constitute an important response to the previous fragmented approach to sector skills development and, in particular, limited engagement with the private sector.

Box 11: Sector skills council in agribusiness – examples from Georgia and Serbia

Agri-sector skills councils in Georgia and Serbia

Skills development in the Serbian agribusiness sector is supported by the Sector Skills Council for Agriculture, Food Production, Forestry, Fishery and Veterinary sectors, which includes of representatives of numerous institutions and private sector. The body is active in developing new qualifications as well as broadening existing ones to address employers' skills needs. Stakeholders have observed, however, that private sector representation in the Council could be increased since it is currently limited to one representative. The Council is currently defining its work programme for 2021.

In Georgia, a key recent development has been the establishment in 2019 of the agricultural SSO 'Agro-Duo', developed in the context of the UNDP 'Modernisation of VET system related to agriculture in Georgia' project. The primary objective of Agro-Duo is to foster public and private collaboration by establishing educational programmes in collaboration with the private sector, whereby students acquire competitive skills that respond to and closely align with labour market demands. Previously, sectoral skills councils were run on an ad hoc basis without an administrative or legal structure, had low levels of perceived legitimacy and little capacity to implement real changes (Focus Group with National Stakeholders, October 2020).

However, agri-food industries across the project countries face important supply- and demand-side skills challenges. Persistent skills mismatches – the non-alignment of educational and training outputs (skills supply) with the skills profile required by employers (skills demand) – persist across labour markets in all five countries, including in relation to agri-food sectors. Skills mismatches leave employers in agri-food with a shortage of suitable workers to fill vacancies, while graduates are frequently unable to find employment that is commensurate with their qualifications. Skills mismatches impede job creation and are considered a key contributor to youth unemployment, informality, and productivity shortfalls that constrain growth.

Moreover, skills shortages remain an overarching constraint on the development and absorption of new technologies and innovative business practices in the agri-food industries of most project countries. Skills shortages relate to both specialist technical skills (for example, in relation to the operation of new machinery and technologies) as well as a wide range of job-specific and soft skills related to new business practices and processes (for example, in relation to e-commerce, online marketing, data management, food safety standards for export markets, and so forth). Recent ETF research in Morocco (ETF, 2021) found that not only are professional and technician jobs vulnerable to technological change, but also medium-skilled occupations related to day-to-day farming such as

pump operators. The impact of technological change will increasingly affect people working at all levels in the sector.⁷

Skills and knowledge gaps may constrain the effectiveness of broader sector-promotion initiatives in some cases. Although overarching skills shortages and gaps derive primarily from the underperformance of national education and TVET systems (see 2.5.1), the lack of sufficient guidance and capacity-building for agri-food producers around specific regulatory or administrative requirements is an additional challenge in some project countries. For example, although several project country governments have invested heavily in facilitating access to external markets for agri-food enterprises (including harmonisation of food safety regulations with external market requirements and building the capacity of national food safety and control agencies) limited understanding of export requirements, and limited internal capacity to adapt production and business processes, on the part of many agri-food businesses impedes the effectiveness of export-promotion initiatives (World Bank, 2018).

2.5.1 Supply-side skills challenges in agribusiness

Supply-side skills challenges are identified across all project countries and derive variously from sub-optimal educational and training outcomes (both in terms of overall quality of education / training and relevance of programmes with labour market skills need), as well as unfavourable perceptions about careers in the agri-food sector among potential new recruits.

There are particular concerns related to the consistency and quality of outputs from national TVET systems in some project countries. Concern focus variously on the quality of teaching, the adequacy of qualification and certification frameworks, lack of coordination with the private sector, and overall capacity to meet demand (especially in rural areas).

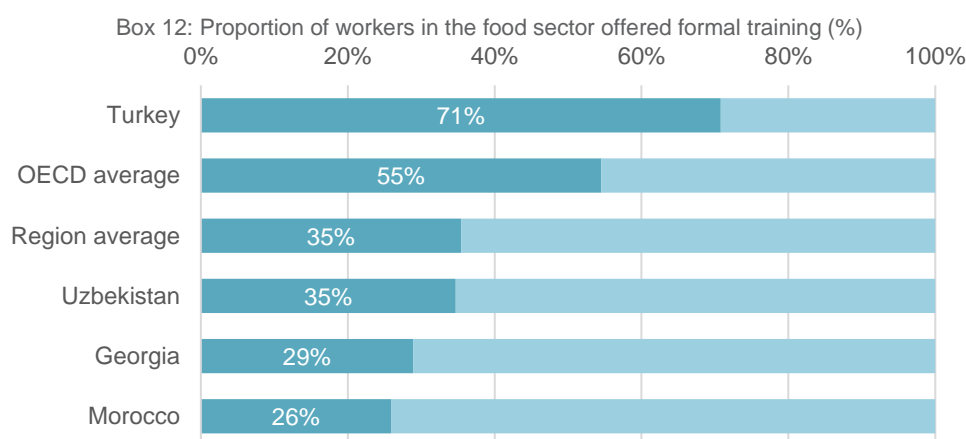
- Stakeholders in Uzbekistan and Morocco considered that TVET institutions typically focused too much on theoretical material and gave insufficient time to technical and practical instruction, while many teachers lack an up-to-date knowledge of the industry (Focus groups in Uzbekistan and Morocco).
- Opportunities to gain direct work experience through internships and other work-based-learning initiatives are often insufficient (Focus groups in Uzbekistan, Morocco and Turkey).
- In Morocco, certain areas of the national education and training framework are yet to be formalised (including the National Qualifications Framework - NQF), while few Georgian agri-food employers use formal TVET qualifications in their recruitment due to unfavourable perceptions about quality and relevance (Focus groups in Georgia).
- Across project countries, private sector engagement with local authorities and educational institutions on skills development, curricula revisions, and work-based-learning opportunities was deemed inadequate and uneven (World Bank, 2018b; ETF, 2020).

⁷ The jobs identified as likely to be most affected by technological change were: (1) technical or technology-related occupations, such as engineers and technicians in various technological areas (especially those related to value chain, quality control, maintenance, and energy efficiency); data analysts and computer programmers; agriculture-related professionals such as agronomists, soil and plant scientists, irrigation specialists and food scientists; certain categories of machine operators, tradesmen, and agricultural and transport labourers; and (2) business services and related occupations, such as renewable energy consultants and representatives; food managers, different types of production team leaders – agronomic crop, horticulture, fruit - and horticulture production managers.

- Capacity constraints on student numbers are a further challenge for TVET systems in some project countries, including Uzbekistan and Morocco, especially in rural areas (World Bank, 2020b; Focus groups in Uzbekistan).

Investment in TVET resources is a further constraint. In Uzbekistan, workshop equipment and industrial practice within TVET institutions is reportedly outdated, while teaching staff are often insufficiently trained to prepare students for work in the private sector, with many lacking private sector work experience. In Morocco, a key challenge is that while TVET teachers tend to have private sector work experience, they lack formal training in pedagogy and teaching techniques. A recurring concern is that the low status and salaries associated with teaching exacerbates the difficulties in recruiting teachers with relevant and up-to-date experience and expertise (Focus groups in Uzbekistan and Morocco).

Although some larger agri-food enterprises provide their own formal training programmes, few smaller enterprises have the requisite capacity. Constraints include both financial and human resource (knowledge, expertise) limitations to develop and deliver in-house training programmes. A particular concern of smaller enterprises relates to the high fixed-costs associated with participation in collaborative work-based learning initiatives. These constraints mean that many agri-food workers do not have access to formal (internal) training opportunities. According to the World Bank Enterprise Survey, just 26 per cent of agri-food workers across enterprises of all sizes were offered formal training in Morocco, and 29 per cent and 35 per cent for Georgia and Uzbekistan, respectively. This frequency of training provision falls well below the OECD average of 55 per cent (although is comparable with the average across other EBRD/ETF partner countries). Turkey is the outlier, at least based on these data, with more than 70 per cent of workers reporting offers of formal training (see Box 12).



Source: World Bank, 2020, Enterprise Surveys. Retrieved April 2021. Scope of countries includes those where breakdown of 'food' as an industry was available. 'Region average' refers to average across ETF / EBRD partner countries (where data was available).

Agri-food (and agri-TVET) is commonly not perceived as an attractive career option for youth due to prevalent associations of the industry with low-wage and low-skill work, and few career development opportunities. Unfavourable perceptions about careers in the sector may contribute to low enrolment rates in sector-relevant TVET programmes (for example, in Uzbekistan), while even among students in agriculture colleges, many reportedly expect to work in 'office-based' jobs and do not consider jobs in operational roles in agri-production or processing as desirable (Focus Groups, Georgia). In Georgia, stakeholders maintain that adverse perceptions about careers in the sector contribute to (not only derive from) poor quality agri-TVET provision (EBA Georgia, 2020). In some countries, employers' tendency not to formalise skills and qualification requirements into job requirements (in part, due to a lack of confidence in the quality and relevance of TVET programmes) reinforces the perception of agri-food careers as low-skilled and low prestige, and undermines efforts to enhance the quality (and perceived relevance) of sector-specific TVET programmes (Focus Groups, Georgia).

Additionally, stakeholders across project countries report inadequate contact points between young people and the agribusiness sector prior to labour market entry. Lack of outreach to young people and educational institutions on the part of agri-food enterprises, as well as limited awareness-raising or positive messaging about the sector on the part of public and sectoral bodies, contributes to limiting the visibility of agri-food as an (attractive) career option. Stakeholders in several project countries noted that there is important scope to increase opportunities for young people to visit farms and downstream agri-food enterprises to raise awareness of the range of potential career options and to reposition the industry as an employer of choice.

2.5.2 Skills mismatches in agribusiness

There are mismatches between outputs of the education and training system and those required in private sector agribusiness. Across the five project countries, agribusiness enterprises report that they cannot find workers with the skills that their businesses require, while at the same time students with sector-specific qualifications face difficulties in finding suitable job opportunities. This misalignment between skill supply and skill demand reflects a lack of well-functioning skills anticipation mechanisms and/or insufficient policies and systems to support active intermediation and matching between labour supply (education/training and life-long learning) and labour demand (economic/private sector development).

Policy measures and initiatives to address skills mismatches rely on the provision of adequate and reliable information on existing and future skills needs. Well-functioning labour market information systems are able to anticipate changes in labour markets and inform stakeholders (including policymakers and education / training providers) of expected shifts in labour and skills demands. There have been some relevant initiatives to assess skills and labour demand in the project countries; for example, recent assessments of skills needs in agri-food have been conducted in Morocco (SEFP, 2017) and Serbia (FREN, 2020). However, this type of analyses is not typically integrated into regular data collection, analysis, and dissemination activities, limiting the supply of up-to-date information on skills supply and demand in and for agri-food sectors.

Agri-food skills mismatches – including shortages – derive from both field-of-study mismatches (students opting for non-sector-relevant fields of study) as well as poor alignment of educational and training curricula with specific industry skills needs (see Box 13).

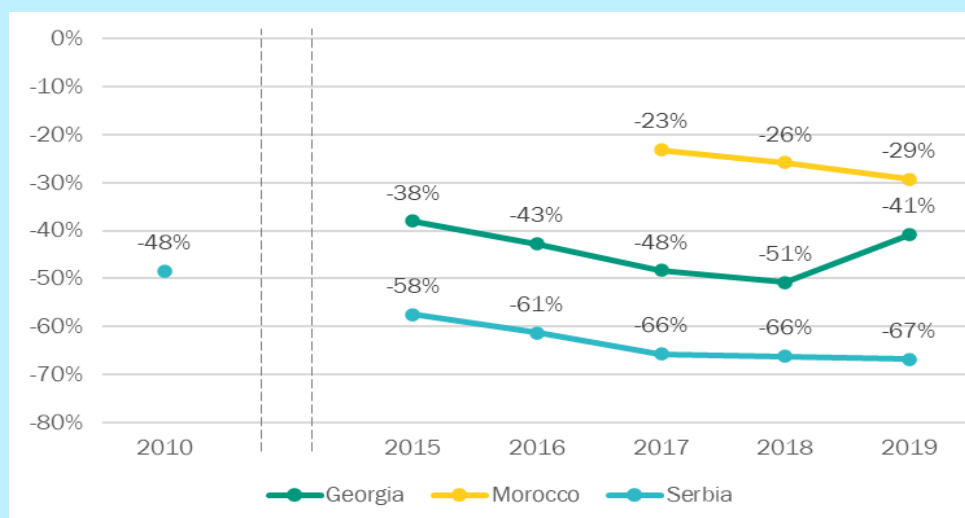
Box 13: Agri-food skills mismatches in project countries

Agri-food skills mismatches in project countries

Field-of-study mismatches means that many graduates acquire qualifications and skills for which there is limited labour market demand that are not easily transferable to alternative career pathways.

- In several project countries, there has been a significant rise in the proportion of young people opting for higher education. However, the rising share of the labour force with higher education qualifications does not necessarily correspond to labour market demand. For example, a high proportion of the unemployed in Georgia have higher education qualifications, but the majority of job vacancies do not require post-secondary qualifications and the two largest sectors – agriculture and trade – have very limited demand for workers with higher education qualifications (OECD, 2017; Focus group, Georgia).
- Fewer young people are opting to study in technical fields that can support the development of new and more productive sectors, including more productive agri-food operations. Across most project countries, there is a general trend towards higher proportional enrolment in tertiary (university) education compared to TVET. For example, the percentage-point difference between gross enrolment ratio in tertiary education and in TVET has declined steadily over recent years in Morocco, Serbia, and Georgia (see Box 14). Once again, it is not clear that higher rates of tertiary educational qualifications correspond to actual labour market demand, in the agri-food sector and wider economy.

Box 14: Percentage-point difference between gross enrolment ratio in tertiary education and in TVET



Source: World Bank, Education Statistics, 'Gross enrolment ratio for tertiary education, both sexes (%)' and 'Gross enrolment ratio, post-secondary non-tertiary, both sexes (%)'. Retrieved April 2021. [No data available for Turkey or Uzbekistan. No data available for Georgia for 2010; no data available for Morocco for 2010, 2015 and 2016.]

- Similarly, in Turkey, there is a tendency among students at the tertiary level to favour subjects such as business administration and law, while just 20 per cent of new university entrants are choosing the STEM subjects that are increasingly in demand across the labour market and vital for promoting innovation in agri-food (EBRD, 2019). Similarly, decreasing numbers of students in Morocco opt for technical training that could benefit the needs of growing sectors, including agri-food operations (World Bank, 2020b).

Poor alignment of education and training curricula and specific employer needs creates skills mismatches within fields of study relevant to agri-food.

- Some mismatches relate to an over- or under-emphasis on skills related to specific occupations along the agri-food value chain, which may not correspond to the distribution of job opportunities in the sector. For example, agribusiness stakeholders in Turkey noted a particular shortage of graduates with specialist skills related to agri-production because most sector-relevant TVET programmes focused on skills for food processing activities (Focus Groups, Turkey). A recent study in Serbia identified the lack of marketing skills in particular is among the most important impediments to increasing sales for Serbian fresh fruit and vegetable farmers, coops and SMEs (Cardno, 2019).
- Other mismatches derive from failure to tailor and update programmes in response to industry developments (especially in relation to the skills needs of new and emerging professions and specialisations). For example, in Morocco, stakeholders identified the need for training focused on specialists for olive oil and dairy value chains, while stakeholders in several project countries noted limited coverage in existing education and training programmes for emerging skills needs related to (sector-specific) supply chain management, environmental sustainability, and digital technologies.
- The lack of tailoring of educational curricula to industry needs is evidenced by the low proportion of TVET graduates that find employment in their field of study across the project countries; for example, less than half of Turkish graduates from Agriculture, Forestry, Fisheries and Veterinary programmes work in their field of specialisation (OECD, 2018), while less than 2 per cent of graduates from a agriculture VET programme between 2008 and 2014 went on to work in the sector (Özer, 2019). In

Uzbekistan, it is estimated that less than half of all graduates from TVET institutions between 2014 and 2019 found jobs in their field of specialisation (ETF, 2020).

The matching of skills with jobs is further hindered by limited job placement services and information. Such information failures relate to both insufficient information for graduates and workers about current vacancies that may fit their skills profile, as well as broader systematic weaknesses in terms of data generation and analysis on changing labour market demands and skills supply. In Uzbekistan, for example, job advertisements posted on online recruitment and job search platforms, run by private companies and state employment agencies, are not regularly updated (ADB, 2020). Labour market infrastructure tends to be under-developed with few job offer websites, limited access to the Internet to search individual company websites, and few places where job offers are physically displayed, such as VET schools and employment centres. This creates high transaction costs for SMEs when it comes to expressing their resource needs and identifying suitable candidates, and makes things more difficult for job seekers (OECD, 2018).

Greater uptake of technology throughout value chains has important implications for the existing workforce, including the need for re-skilling / up-skilling and continuous on-the-job training. For example, across agri-food sectors, but especially for downstream retail enterprises, the growth of e-commerce and online retail platforms implies a significant shift in workforce skills needs towards 'new economy' digital skills. Similarly, uptake of digital technologies is likely to alter the required skills composition of service providers along agri-food value chains, with business-to-business services increasingly delivered through virtual and online means. Technological transformation not only implies the need for enhanced digital skills in the existing workforce, but may also imply an overall reduction in labour demand for both skilled and unskilled workers (for example, services delivered virtually may allow providers to operate with a smaller centralised pool of experts rather than via regional offices).

In this context, re-skilling and up-skilling workers is an important and ongoing priority for both employers and policymakers. Overarching structural transformation (away from primary agriculture towards more downstream agribusiness) as well as ongoing technological transformation of agri-food systems, enterprises, and operations implies constantly evolving skills needs. In addition to changing preferences and demands for new recruits, re-skilling and up-skilling the existing workforce to meet new job requirements, or to enable redeployment elsewhere within the company or sector, is a priority concern for policymakers (for example, in relation to TVET reform) and employers (in relation to organisational and operational structure, as well as human capital development) across the project countries.

2.5.3 Demand-side challenges in agribusiness

In addition to these supply-side challenges, the structure of agri-food industries across the five project countries also contributes to demand-side challenges. The prevalence of SMEs within a low productivity and low investment agri-business environment restricts the scale and scope of (formal) job creation, wage growth, and innovation-drive transformation, all of which dampens demand for skilled workers.

The structure of agri-food sectors in most project countries, and the underlying challenges, create significant demand-side challenges for skills development. In particular, formal job creation – a key driver of skills demand (including ongoing in-work development of skills) – is typically limited to a small number of larger enterprises. Agri-food sectors overall are dominated by SMEs that adhere to a low productivity and low investment business model that exhibits only weak and often seasonal demand for skills (often met by internal migrant labour). The skills profile of the agri-food workforce in the project countries itself reflects muted current demand for skills development.

- In Georgia, the preponderance of small-scale subsistence agriculture, with professional investor-driven large-scale enterprises comprising only a very small proportion of Georgia's overall agricultural output, resulting in little demand for formal wage labour or higher skilled (permanent) workers. Stakeholders raise concerns that agribusiness employers' lack of

consideration for – and formalisation of - occupation-specific skills requirements both depresses demand for these skills, and further sustains a perception that such skills are not required or in demand (Focus Groups, Georgia).

- Much agri-food employment in Morocco is concentrated in relatively low skill, low value work which has proven difficult to change (ETF, 2021). According to the Haut Commissariat au Plan, among the active population that did not complete compulsory education (6.248 million people in 2018), almost half of them (3.106 million people in 2018) work in agriculture, forestry and fisheries, constituting the vast majority (82.2%) of the total employment in this sector in 2018 (HCP, 2020).
- The share of Serbian agribusiness employees engaged in high skilled jobs is relatively low. According to FREN (2020), 70-80% of workers in the 100 agricultural companies surveyed performed simple to less complex manual jobs, such as physical labour in the fields and at the production lines in manufacturing facilities. In the processing of agricultural products, simple tasks accounted for around 55% of jobs on average, although machine operator jobs in production and processing, characterized by a higher level of complexity, accounted for 23% (FREN, 2020). Overall, most new hires in agribusiness are in lower to intermediate complexity jobs in production,⁸ and demand for new workers is most prevalent in simple occupations (FREN, 2020).
- The structure of Turkish agribusiness, and its underlying challenges, mean that formal job creation in agribusiness is limited to a small number of large enterprises. Meanwhile in the sector as a whole, which is dominated by low-productivity, low-innovation small and medium enterprises, there is weak demand for skills. There are some reports that the supply of skills to primary agriculture is constrained by the level of wages (typically set by Chambers of Agriculture).
- In Uzbekistan, the legacy of the state production system has distorted and weakened demand for skills in agriculture. In particular, requirements and incentives to engage in wheat and cotton production regardless of local growing conditions has artificially dampened demand for labour in other sub-sectors such as horticulture which are better placed to support jobs. While recent reforms have made significant progress in dismantling these structures, the resulting employment distortions remain a prominent feature of the agricultural labour market. Without improvements in overall productivity and increases in the quality and diversity of production and value-added activities, agribusiness is likely to continue to experience difficulty in attracting qualified candidates (European Commission, 2020). Uzbekistan's agribusiness sector remains largely focused on low-skill primary agriculture, although automation and adoption of labour-saving technologies are projected to increase, requiring enterprises to manage workers' skill gaps and invest in reskilling and upskilling (World Bank, 2020).

Agri-food is not perceived as an attractive career option for youth due to prevalent associations of the industry with low-wage and low-skill work, and few career development opportunities. According to some stakeholders, adverse perceptions about careers in agri-food both contribute to and derive from poor quality TVET provision for the sector (EBA Georgia, 2020). These perceptions lead many employers in

⁸ These include workers in production, fruit pickers, plant harvesters, fish farmers, animal caretakers, farmworkers, dairy farm workers, warehouse keepers, manual workers, field workers, stokers, and similar (FREN, 2020).

agri-food sectors not to require formal TVET qualifications for employment, reinforcing the perception of careers in the industry as low-skilled and low prestige (Focus groups, Georgia).

Overall, these structural conditions dampen incentives and undermine efforts to pursue the sectoral transformation towards a higher productivity, higher value agri-system that can support and promote demand for a higher skills base.

2.6 Inclusion in agribusiness in project countries

Agricultural and agri-food employment is critical to inclusion outcomes, not least because agri-food sectors represent such a significant source of employment across project countries, and particularly amongst the poorest and most vulnerable segments of society (including women, youth, and rural communities). Inclusive growth of agri-food sectors can also help address wider social and economic marginalisation (by providing new and better employment opportunities for economically marginalised groups, including women and youth), mitigate geographic isolation and poverty (by expanding income-generating opportunities in poorer rural areas), and enhance national food security (by enhancing agricultural and agri-food productivity).

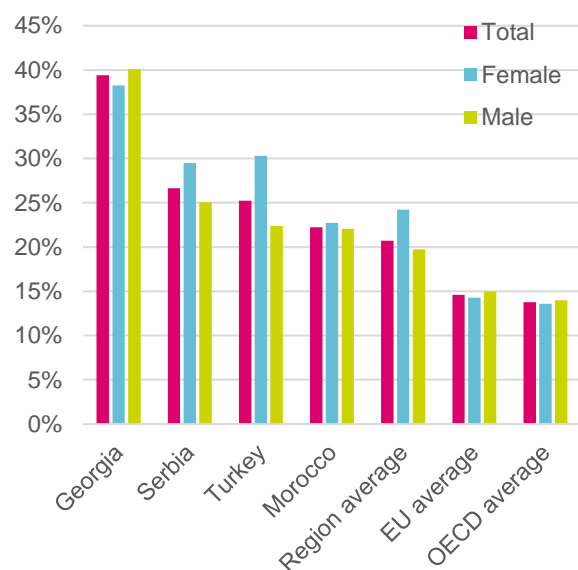
Across project countries, there are notable inclusion challenges – in agribusiness and the wider economy – in terms of youth, women, and rural populations. At the national level, un(der)employment and economic inactivity rates are disproportionately high among young people in all project countries, while female labour force participation lags behind the rates for men. In agribusiness in particular, youth and women are also more likely to engage in low pay, precarious informal employment. In several countries, including Morocco and Turkey, there are pronounced regional and/or rural-urban disparities in terms of employment, education, and standard of living.

2.6.1 Youth

Economic inclusion of youth is a key issue across all project countries. Youth unemployment rates are above EU and OECD averages in all project countries with reliable data (excluding Uzbekistan), as well as above the regional average for ETF / EBRD partner countries.⁹ Similarly, the proportion of youth not in employment, education or training (NEET) exceeds EU and OECD averages in all project countries, while only Serbia has a lower rate than the ETF / EBRD partner country average. Youth unemployment disproportionately affect women in Serbia and Turkey, while women are similarly over-represented among NEET youth in Turkey and especially Uzbekistan (see Box 16). These figures underline significant barriers to economic inclusion for youth (especially women) in project country labour markets.

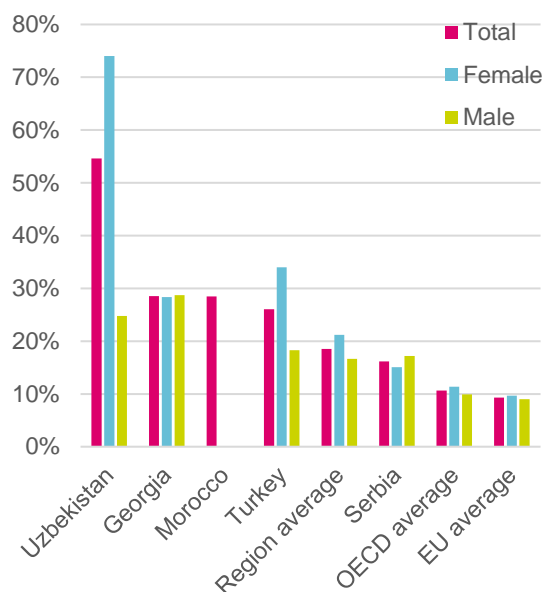
⁹ There are no comparable data for Uzbekistan. National statistical sources estimate the unemployment rate for young people aged 16-30 at around 15 per cent in 2019 (State Committee on Statistics, 2019a – Uz).

Box 15: Youth unemployment rate (%) (15-24 year olds, most recent year)



Source: ILOSTAT, Unemployment rate (%). Retrieved April 2021. 'Region average' refers to average across ETF / EBRD partner countries (where data was available). Due to data limitations, no figures were identified for Uzbekistan.

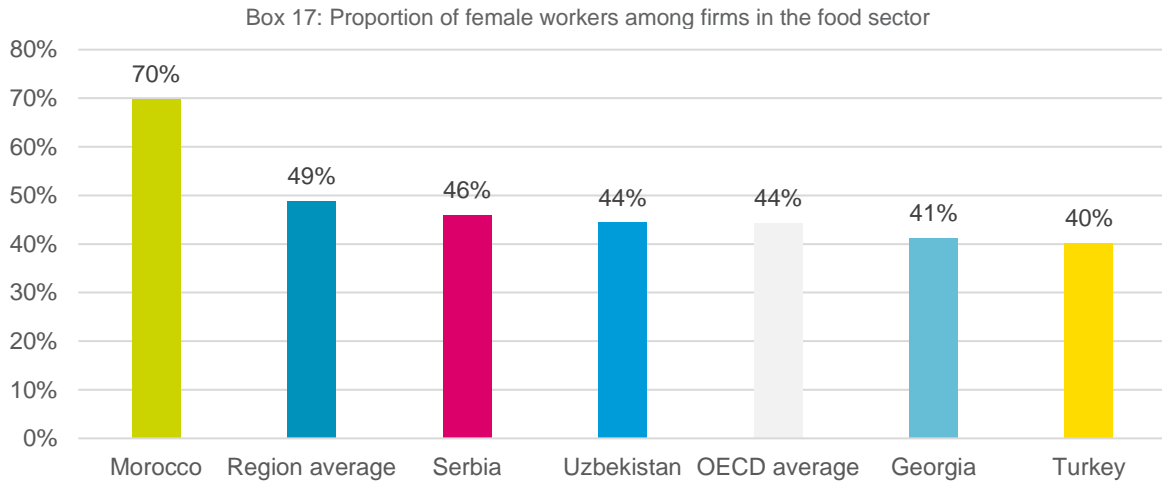
Box 16: Proportion of youth not in education, employment or training (% of total youth)



Source: ILOSTAT, "Proportion of youth not in education, employment or training (NEET), Annual." Retrieved April 2021. 'Region average' refers to average across ETF / EBRD partner countries (where data was available).

However, despite youth inclusion challenges – and the considerable potential for agri-food industries to benefit from higher skilled young workers – the sector continues to face challenges in attracting youth. For example, just 36 per cent of youth employment in Georgia is in agricultural work, while the sector accounts for 49 per cent of total employment (ETF, 2018). In Serbia, just 15 per cent of workers under 30 are employed in agribusiness, with lower shares in agri-production (fisheries and animal and crop production) compared to retail and manufactured food products (FREN, 2020). Agri-food enterprises in Turkey and Morocco report specific challenges in attracting younger workers, in part due to the perceived 'unattractiveness' of careers in the sector, especially for higher skilled graduates. Skills mismatches – in particular, the increasing tendency for young people across project countries to pursue fields of study that are not relevant to agri-food – is a related barrier to youth inclusion in agri-food (see section 2.5 above).

2.6.2 Women



Source: World Bank, 2020, Enterprise Surveys. Retrieved April 2021. Scope of countries includes those where breakdown of 'food' as an industry was available. 'Region average' refers to average across ETF / EBRD partner countries (where data was available). For Serbia, the data is retrieved from ILOSTAT, "Employment by sex and economic activity [ISIC Rev. 4." Industry definition for agribusiness includes 10 - Manufacture of food products, 11 - Manufacture of beverages and 56 - Food and beverage service activities.

Agriculture and agri-food industries are an important source of employment for women across project countries. The agricultural labour force – which accounts for a between 15 per cent (Serbia) and 33 per cent (Morocco) of total employment – has a disproportionately high share of female workers relative to other sectors, with women representing between one-third and more than a half of agricultural employment.¹⁰

Female share of downstream agribusiness employment is comparable or even superior to shares in primary agriculture. For example, according to data from the World Bank Enterprise Survey, women represent as much as 70 per cent of total employment in the downstream agri-food industry,¹¹ and between 40 per cent and 46 per cent across the remaining four project countries.¹²

However, although women are well-represented in agri-food employment overall, there are persistent inclusion challenges related to occupation, career progression, and pay. In particular, women are generally concentrated in lower-skilled occupational segments of agri-food employment, with fewer opportunities for promotion and career development and lower job security.

- Across project countries (and elsewhere), women are often concentrated in the early stages of agri-food value chains – in lower skilled, low productivity jobs in primary agriculture, including informal work and work as contributing family workers for low or no wages (ADB, 2019 –

¹⁰ For primary agriculture, data from ILO [ISIC Rev. 4] indicate that women comprise 44 per cent of the agricultural labour force in Turkey, 39 per cent in Serbia, and 37 per cent Georgia. Other sources indicate that women account for 55 per cent of agricultural workers in Uzbekistan (EC, 2020) and more than half of farm workers in Morocco ((ILO and IFAD, 2018).

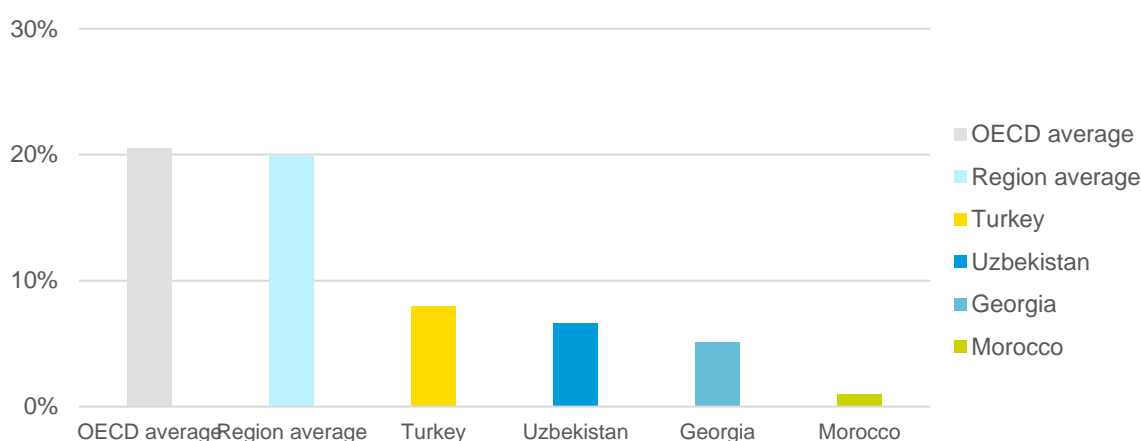
¹¹ Defined as 'food' industries.

¹² Estimates from different data sources vary. In comparison with data from the World Bank Enterprise Survey represented in Box 17, estimates from the ILO [ISIC Rev. 4] suggest that women account for 49 per cent of downstream agri-food (excluding primary agriculture) employment in Georgia, 46 per cent in Serbia, and 25 per cent in Turkey. In the case of Serbia, national data suggest even higher female workforce share – 56 per cent overall and as much as 70 per cent in retail (FREN, 2020). However, notwithstanding these discrepancies, it is clear that downstream agribusiness (as well as primary agriculture) represents a disproportionately significant source of employment for women across project countries.

Georgia; ILO and OECD, 2020 – Morocco; ILO and IFAD, 2018 – Morocco; World Bank, 2020 - Uzbekistan). In contrast, men tend to dominate in higher-technology and higher-skilled occupations, such as mechanised farming, transport, trade, and marketing, as well as occupying the majority of management and decision-making roles across most agri-food sectors – including in female-dominated subsectors such as horticulture or retail (ADB, 2019 – Georgia; FREN, 2020 – Serbia; Solidarity Center, 2019 – Morocco; World Bank, 2020 - Uzbekistan).

- Moreover, data from the World Bank Enterprise Surveys suggest that women are severely under-represented in top management positions in the downstream agri-food sector. Survey results show that just 8 per cent (Turkey), 7 per cent (Uzbekistan), 5 per cent (Georgia), and 1 per cent (Morocco) of food sector firms have female top manager, shares that are significantly below the OECD average of 20 per cent for the sector (see Box 19).
- Horizontal (occupational) and vertical (career progression and leadership) segregation, as well as the higher proportion of women engaged in unpaid and informal work, contribute to a significant gender pay gap across project countries (see above).

Box 18: Women in managerial positions (% of surveyed firms in the food sector)



Source: World Bank, 2020, Enterprise Surveys. Retrieved April 2021. Scope of countries includes those where breakdown of 'food' as an industry was available. 'Region average' refers to an average calculated across ETF / EBRD partner countries (where data was available).

Uneven educational outcomes for women and men may contribute to gender disparities in agri-food in some project countries. There are notable examples in the case of Uzbekistan, where women's level of educational attainment is particularly low in rural areas (attributed to early marriage, families prioritising boys' education, and costs associated with higher education), leaving many rural women without the technical skills and business literacy to access higher-paid agri-food employment (World Bank, 2020). Meanwhile, in Turkey, less than 10 per cent of students enrolled in agriculture TVET programmes are women (ETF, 2020b), highlighting a significant bottleneck for increasing women's participation in higher skilled agri-food employment. In Morocco, a government-backed initiative to support female-led MSMEs to upgrade production techniques and marketing capacities achieved mixed outcomes, attributed in part to high illiteracy rates among rural women (Focus groups, Morocco).

Uneven access to (child)care services is an additional potential barrier to women's economic participation across the labour market, especially in rural areas (where agri-food is a key source of employment). For example, the low coverage of kindergartens and nurseries is believed to contribute to women's low

labour force participation in Uzbekistan (ADB, 2020). A lack of adequate facilities to provide care for children and the elderly was also cited by stakeholders as an important barrier to women's labour market participation in Turkey and Morocco (Focus groups, Morocco and Turkey). In Turkey, research has highlighted both the limited access to, and use of, childcare facilities in rural areas (World Bank, 2015) and the strong 'employment multiplier' effects of increasing investment in childcare provision, with particularly notable impacts for labour-intensive sectors such as agri-production and retail (Kim, Ilkkaracan, and Kaya, 2017, in the case of Turkey).

Sociocultural norms may also constrain women's access to more specialist occupations in agri-food. For example, many higher skilled jobs in agri-food value chains are located in or near larger population centres or the job itself requires travel. For rural women in particular, the resulting demand for geographic mobility may be incompatible with sociocultural norms that impose a disproportionate share of unpaid care and household responsibilities on women, or that otherwise make it difficult for women to work and travel away from home (e.g., FAO, 2020). For example, survey data from Morocco suggests that a majority of women defer decisions about their employment to male family members (USAID, 2018), while across North Africa as a whole, one-third of the population reports that it is not acceptable for women to work outside the home for pay and two-thirds believe children suffer when their mothers work (OECD, 2020).

2.6.3 Rural populations

Agriculture and agri-food are especially important as a source of employment and income-generation in rural areas. However, rural and poor areas, which tend to be more dependent on agri-food industries for employment, are often disadvantaged in terms of reach and quality of state education. With the partial exception of agriculture TVET colleges, most educational institutions across the project countries are located in urban centres and few offer (affordable) accommodation facilities (for example, World Bank, 2020b).

As a result, rural youth – especially women – have limited access to relevant education and training, resulting in large parts of the rural and agricultural workforce lacking basic skills (EU, 2019; World Bank, 2020b). Skills gaps restrict access to higher-paid occupations in agriculture and other sectors for many rural workers. For example, youth unemployment in Morocco is lower in rural compared to urban areas, yet young workers in rural areas typically experience poorer working conditions and lower pay than their urban counterparts (ILO and IFAD, 2018). A lower-skilled rural workforce also constrains productivity and innovation.

2.6.4 Migrant workers

In some project countries – notably Turkey and Morocco – a significant proportion of the agricultural workforce is made up of seasonal migrant workers. In Turkey, a recent assessment estimates that around 500,000 people – mostly from Eastern and South-eastern provinces – are engaged in seasonal migrant agricultural labour across the country, primarily in low paid, low skilled occupations (Kalkınma Atölyesi, 2020). In some contexts, migrant workers may face particularly barriers in gaining access to education and skills development opportunities due to features of national immigration rules and work permit conditions.

2.6.5 Opportunities to enhance inclusion in agribusiness

Women and youth already make up a substantial share of employment in agribusiness and thus efforts to expand and upgrade employment opportunities in downstream sectors can have positive inclusion outcomes.

There is significant potential for the agri-food sector to help mitigate youth inclusion challenges by providing entry level employment opportunities at various skills levels. Across project countries, the agri-food sector shows potential for significant growth and, as challenges related to innovation and skills are addressed, the generation of a wider range of well-paid formal jobs at different skills levels. For example, estimates for Uzbekistan suggest that agribusiness sectors have the potential to generate over 1 million new jobs each year over the next decade (World Bank, 2020c), while the current

underrepresentation of youth in agribusiness employment in several project countries (such as Georgia and Serbia) suggests that concerted efforts to change negative perceptions about the sector can have a strong positive impact on expanding youth employment along agri-food value chains.

Box 19: training, skills development, and outreach to vulnerable youth in agribusiness

Youth: training, skills development, and outreach

Some of the most promising approaches have focused on training, skills development, and outreach to vulnerable youth. For example, Morocco's 'Generation Green' Strategy proposes a range of measures – including financial and land grants, training, and other support – to promote youth entrepreneurship in agri-production. The Strategy will be supported by a new roadmap for TVET provision in agri-production (MAPMDREF, 2020b).

In Georgia, the Ministry of Education's 'Youth Worker' initiative has focused on linking young people with industry professionals and specialists, including from agri-food sectors, to enhance young people's access to career guidance and employment services. The initiative focused on groups less likely to engage such services on their own accord, including rural youth enrolled in TVET programmes as well as young people outside employment and education (Youth Platform, 2020).

Several project countries have also implemented measures to enhance access to agri-food employment – and related skills and training opportunities – among other vulnerable groups, including people with disabilities and linguistic / ethnic minorities. In Georgia, TVET programmes in the agriculture sector have been identified as 'pioneers' in terms of inclusion for persons with disabilities, including through ensuring access to students with disabilities across all programmes. Work is also ongoing to integrate students with disabilities into agribusiness enterprises. There are also significant outreach efforts to national and linguistic minorities, including opportunities to sit entrance exams in minority languages and undertake free preparatory Georgian language classes, with the aim of enhancing access to agri-food careers across all population groups (Focus groups, Georgia). In Serbia, the National Employment Service runs programmes focusing specifically on greater economic engagement and employment of persons belonging to vulnerable groups, including Roma and people with disabilities, amongst others. Additionally, the Ministry of Finance has reportedly developed a programme to offer loans to Roma who want to start business in agriculture with the aim of promoting inclusive entrepreneurship in the sector. There are also donor-funded programmes to enhance access to technical training, including for agri-food, targeting Syrian refugees in Turkey.

Although the majority of female entrepreneurs in agri-food sectors own micro-enterprises in low productivity subsectors (especially primary agriculture), there are some positive examples of female entrepreneurship and leadership in more productive downstream sectors. For example, survey data from Serbia indicate that women have a larger ownership and management share in specific agri-food subsectors compared with Serbian firms overall. The 2019 survey indicated that women owned 33 per cent of agribusiness enterprises in fruit and vegetable processing, were managers in 60 per cent and CEOs of 42 per cent (USAID Serbia, 2020).

There are also promising initiatives focused on upgrading production and marketing capacity among female (micro-)business owners and women's cooperatives to enhance market access. For example, the Moroccan government has been supporting rural women and cooperatives to develop value-adding processes related to local-provenance products, including through training on production techniques, unit management, marketing, and technical requirements to access new markets. These initiatives have helped an increasing number of women's cooperatives transition from (only) primary producers to entities that also engage in value-adding downstream activities – segments of the agri-food value chain in which women are traditionally under-represented – enhancing revenue and stability of income.

2.7 Impacts of Covid-19 on agribusiness in project countries

Overall, the agribusiness sector has been relatively insulated from the worst effects of the Covid-19 crisis, with food production continuing largely uninterrupted, in many cases backed by significant government support to ensure continued food supply. However, some agribusiness sub-sectors have been significantly affected by quarantine measures, including enterprises which cater to tourism and hospitality. In other cases, stricter inspection and sanitary measures have restricted international trade and dampened exports, and a number of firms experienced temporary logistical challenges in adapting to social distancing and other public health requirements.

The impacts of the Covid-19 pandemic differed both by agribusiness segment and by country. Overall, the impacts on the demand side – specifically a decline in out-of-home consumption entailing a collapse in demand from hospitality sector (which includes some higher-value products from primary production and processing) – were more significant than supply-side impacts.

- For those economies such as Turkey, which incorporate a significant tourism and hospitality sector, the knock-on effects of macro-economic shock were more significant, despite the introduction of several government programmes and funding assistance schemes designed to maintain business continuity in the agribusiness sector. While COVID-19 has placed stringent pressures on a range of agribusiness actors in Turkey it has also forced innovation and change in response to rapidly shifting realities and norms. In some cases, this has precipitated nascent developments, such as e-commerce. E-commerce was already identified in the government's 'Digital Transformation Programme' as a crucial development, subject to incentives and training programmes, especially to boost exports (National Development Plan, 2019).
- For Georgia, the Covid-19 crisis and resulting economic shock significantly accentuated existing labour market challenges – including lagging job creation, non-productive self-employment in subsistence agriculture, and high urban unemployment. During the peak of the crisis in the second quarter of 2020, more than one-third of employed people were unable to work and an estimated 8 per cent of jobs were lost (World Bank, 2020). However, survey data from April 2020 suggest that Georgia's agri-food sector had been the sector least affected by job reductions, with 70 per cent of companies in the sector reporting no headcount reductions (PWC, 2020).
- While less impacted than other sectors, Moroccan agro-industry has not escaped the impact of COVID-19. Sector association FENAGRI reports that Moroccan agri-food companies have suffered losses in terms of turnover up to 30 per cent. Those enterprises more dependent on imported raw materials were affected more (BritCham, 2020). Despite the difficult context of lockdown, however, the agri-food sector has demonstrated strong resilience and succeeded in ensuring continuous supply to the market without repercussions on prices.
- For Serbia, the economic significance of agriculture and food processing helped the national economy mitigate the wider adverse impacts of Covid-19. Serbia experienced only a 6.4 per cent year-on-year contraction in GDP in the second quarter of 2020 and a 9.2 per cent decline in GDP when compared to the previous quarter. In contrast, the EU has seen, on average, a 14.4 per cent year-on-year contraction in GDP and a decline of 11.9 per cent compared to the first quarter of 2020 (UNDP, 2020).
- Similarly, in Uzbekistan, the Covid-19 outbreak has brought new attention and emphasis to the value of jobs in agriculture, as the sector has been much more resilient to the economic

effects of the outbreak than other sectors (World Bank, 2020). Small and micro agricultural enterprises have been among the least affected by business closures, with only 18 per cent forced to cease operations as a result of restrictions related to Covid-19 (ILO, 2020). Favourable agricultural conditions also helped offset a sharp fall in industry and services activity as a result of the pandemic, and robust agricultural production is expected to drive recovery in the months to come (World Bank, 2020d). Overall, however, poverty is also projected to increase as a result of the pandemic, after a long-term decline (World Bank, 2020), and almost 60 per cent of Uzbekistan's self-employed population – much of which is engaged in agri-food activities – suffered complete or substantial loss of income during quarantine (ILO, 2020).

Impacts on agribusiness segments were also differentiated. For primary production, labour shortages were widely reported, principally resulting from restrictions on labour mobility for those primary production segments requiring seasonal labour inputs. In several countries, national and local government responded with specific initiatives to facilitate recruitment of agricultural labour (see Box 21). In downstream agri-food segments, operational and business activities have been significantly affected by both public health measures and significant shifts in how people consume and purchase food. These shifts in consumer preferences and behaviour, in turn, have prompted agribusiness enterprises to rethink fundamental aspects of their operations (see below).

Box 20: Covid-19 and restrictions on agricultural labour mobility in Turkey

Turkey: challenges and responses to Covid-19-induced restrictions on agricultural labour mobility

The Turkish Ministry of Agriculture and Forestry introduced special measures in March 2020 to ensure that seasonal migrant workers could continue to work. In April 2020 Seasonal Agricultural Workers Coordination Boards (MTİK) were set up in order to determine arrangements for recruitment, transport, registration, accommodation and work of season agricultural migrant workers.

However, supply of labour to primary agriculture experienced structural issues due to its physical intensity and dependence on migrant workers. Strict border controls and temporary closures had negative implications on the gathering of produce. For instance, the Black Sea region's tea producers typically rely on seasonal Georgian migrant labour, which was effectively blocked as borders were sealed, and internal migrants were impeded through inter-city travel bans (Cohen, 2020).

Exports of agricultural products were principally impacted by lower demand and logistics challenges, though in all countries there were national efforts to promote domestic consumption of local agricultural products. For instance, stakeholders report that the efforts of the Moroccan government to increase agricultural self-sufficiency in the past decades have proved by the pandemic to be effective. During spring 2020, when COVID-19 had its first impact, the Moroccan agricultural sector was able to provide the domestic market with an abundant supply of food (BritCham, 2020).

In processing segments, most companies implemented new measures to keep factories open and workers safe. The pandemic forced a renewed focus on employee health and safety, and the potential of new working forms, primarily remote working – which can themselves accommodate greater flexibility, including for those with unpaid work and care responsibilities. Indeed, the pandemic has brought about an uptick in remote working and online training for office staff across the sector – particularly among larger and more developed agri-businesses. Re-organisation of physical workspaces and adapted health and hygiene measures for on-site production roles have been common responses. Many enterprises report that production lines have not been significantly affected by the virus, with no reduction in workforce or significant slowdowns.

Agribusiness firms in all countries indicate that, through the pandemic, safety and traceability have become the main drivers in maintaining food exports. However, there are significant disparities in uptake of digitalisation and traceability – and no reported experience of implementing blockchain

solutions to supply chain and inventory management. However, digitalisation of the supply chain – already underway in many larger firms before the pandemic – has been accelerated, thereby sharpening the competitive divide between larger and smaller firms.

The agri-food retail sector has also reported significant challenges to the smooth-running of operations, particularly in terms of responding to higher demand, while at the same time abiding by new sanitary norms, health and safety regulations and restrictions on operating hours. For agri-food businesses in the retail sectors, this has hastened the introduction of e-commerce tools to allow consumers to purchase food via web platforms without physically entering a store. Enterprises further down the supply chain have also introduced e-commerce (including online consultations) and delivery services aimed at their clients, while some up-stream service providers have introduced digital and other technological solutions to continue providing client services with reduced face-to-face interaction. More generally, enterprises across agri-food sectors have accelerated efforts to build their digital and online visibility and capacities.

The experience and response to the pandemic has engendered a shift in mindset in agribusiness, toward increased resilience and innovation. As EIT-Food (2020b) notes, with limited resources and a sense of urgency, agri-food operators have been obliged to innovate. This has also tested the existing operating resilience of firms, benefiting those companies which already had in place processes and human capital to respond and adapt to the emerging situation. In Georgia, surveyed companies with DCFTA-compliant standards in relation to sanitary and food safety standards reported that they were better positioned to mitigate the risks of COVID-19 and comply with new regulations introduced by the government during the pandemic (EBA Georgia, 2020).

There is an opportunity to build on ‘enforced’ innovations introduced in response to the COVID-19 pandemic. The COVID-19 pandemic has acted as a catalyst for innovation in agri-food industries, creating incentives to introduce new business processes and technological developments. This includes innovations that have been already under consideration for some time (such as e-commerce and delivery), but for which there has previously been insufficient commercial incentive; as well as other innovations (such as automation and flexible work arrangements) that have developed in direct response to the crisis. As economies and societies emerge from the COVID-19 health and economic crisis in coming years, there is a unique opportunity for the agri-food industry, with the support of policymakers, to continue to develop new technological and other innovations that can bring lasting productivity and profitability benefits in the longer term.

The COVID-19 crisis has also prompted a huge shift in the way that agricultural vocational training is organised and delivered. In Georgia, the imposition of a state of emergency meant that vocational education colleges were required to close and learning was either suspended or moved online. While some of these restrictions have now eased, a process has been launched to draft new legislation and regulations governing distance learning, with an expectation that elements of distance learning will become a permanent feature of vocational education programmes (Focus Group with National Stakeholders, October 2020).

The COVID-19 pandemic has created many additional challenges for the TVET system and prompted a shift in the way that agricultural vocational training is organised and delivered. Many agribusiness enterprises stopped offering placements to students due to difficulties in adapting to new work patterns, and concerns about potential health and safety implications. In the longer term, the economic uncertainty created by the crisis has led to enterprises scaling back commitments to take on students. There has also been considerable variation between institutions – while some have rapidly adopted online learning capabilities, others have suspended teaching altogether. In Georgia, the imposition of a state of emergency meant that vocational education colleges were required to close, and learning was either suspended or moved online. While some of these restrictions have now eased, a process has been launched to draft new legislation and regulations governing distance learning, with an expectation that elements of distance learning will become a permanent feature of vocational education programmes (Focus Groups, Georgia).

While in the short-term the pandemic has presented serious challenges for national education and training systems, there is also potential for permanent change towards training models that can offer

greater effectiveness and inclusiveness. In particular, ‘enforced’ adoption of ‘blended’ models of in-person and distance learning could facilitate better inclusion of those in rural or remote areas, and those with caring or family responsibilities. In Uzbekistan, for instance, the pandemic is reported to have had a positive impact on the development of digital education and use of ICT, and there is an expectation that it will support greater outreach to remote regions. Demand for distance learning in Uzbekistan soared as a result of the pandemic. Although the expansion of distance learning implies infrastructure challenges to ensure widespread access to ICT services and devices (in Uzbekistan and other project countries), most countries already have a reasonable foundation for providing e-learning for skills development (for example, a recent survey found that 70 per cent of colleges in Uzbekistan had internet connections, 76 per cent of teachers regularly used digital tools as part of instruction, and students in 47 per cent of colleges already use ICT tools and devices to complete assignments) (ADB, 2020).

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3. KEY CHALLENGES AND PROMISING PRACTICES AT ENTERPRISE LEVEL

This chapter provides an overview of prevailing practices in agribusiness and key challenges at the enterprise level relating to pursuing innovation, developing skills to enhance agribusiness resilience and innovation, and promoting inclusion in skills development practices. It draws on case studies of 25 agribusiness enterprises, which look in detail at the practices and experiences of agribusiness companies in each project country – Georgia, Morocco, Serbia, Turkey, and Uzbekistan. The case study sample of companies ranges from small and medium-sized enterprises (SMEs) to international retailer brands, with a focus on downstream agribusiness.

3.1 Pursuing innovation

3.1.1 What are the drivers of innovation for agribusiness firms?

Across the agribusiness enterprises survey for this project, the overarching driver of innovation is the **pursuit of new market opportunities**. In particular, enterprises draw attention to the importance of new export market opportunities – for example, via the proliferation and/or expansion of international trade agreements. The demands of export markets – both in terms of consumer preferences for higher quality and niche products, as well as regulatory standards on food safety, quality, production methods, and business practices – are an important driver of innovation among firms seeking enhanced access to these higher value markets. For example, Gold Dried Fruits Export Ltd, an Uzbek processor of agricultural products, has found that obtaining certifications and upgrading production standards has increased international sales opportunities in markets such as the EU and US. More generally, where agri-food enterprises can secure higher prices and thus greater profitability via access to export markets, increased revenue can support technological innovation to enhance productivity and efficiency. Even those agri-food enterprises that produce only for the domestic market are increasingly required to upgrade their production and operational processes to meet export-level standards because governments across the project countries have increasingly looked to harmonise national regulatory standards with key export markets.

Marketing innovation may be further driven through **specialisation on higher-value provenance-related branding and digital commerce channels**. In particular, the introduction of geographic indication (GI) labelling for specialist agri-food products is a key innovation that can support higher prices for smaller producers and enhance value chain integration. New GI designations for specialist and niche products – for example, wine (Georgia), saffron (Morocco), or cabbage (Serbia) – has helped small producers obtain significantly higher prices and enhanced incomes. Access to more remunerative markets for GI registered products not only benefits local agri-producers, but also contributes to enhanced revenues, productivity, and growth throughout the value chain, bringing wider positive impacts for rural development. Moreover, the expansion of GI-based product development and marketing is an important strategic focus for governments, donors, and development agencies (including the EBRD and FAO) in several project countries. Commercial incentives related to provenance-based commodities has contributed to a compositional shift in patterns of mid- and downstream agri-food production towards an increasing focus on higher value, specialised, and niche products for export (EBRD and FAO, 2018).

Changing consumer demand is also creating new market opportunities for agri-food enterprises. Changing consumer preferences, in both domestic and international markets, offer new opportunities for product and marketing innovation. For example, an increasing number of consumers are linking food to health and wellness, creating opportunities for agri-food producers to develop and market new products that emphasize positive health effects of consumption. Similarly, an increasing consumer interest in provenance (see above), and transparency more generally, creates incentives for agri-producers to develop GI-registered products and for downstream processors, retailers, and exporters to enhance traceability and supply chain monitoring, including in relation to environmental and social standards.

Long-term sustainability is also an important driver of innovation, including the positive reputational effects associated with improved sustainability performance with customers, regulators, and potential employees. At the enterprise level, this means expediting the transition to enhanced business practices that will enable long-term competitiveness by reducing the environmental and social footprint of agribusiness, meeting regulatory, stakeholder, and consumer expectations. Agri-food enterprises increasingly identify environmental issues, in particular, as a priority area for innovation and action, responding to both regulatory standards and consumer preferences. Specific fields of sustainability innovation relate to energy efficiency, water efficiency, circular production (reintegrating production waste into the production cycle), and addressing food waste. In addition to commercial benefits, enterprises also see enhanced sustainability credentials as a means of attracting new talent in a competitive labour market. Sustainability is also important for agribusinesses with regard to future-proofing their supply chains, by supporting the smaller producers on which they depend. For instance, Nectar Group, a leading Serbian fruit and vegetable processing company, recently announced a new initiative for digitalization of agribusiness value chain by launching a database and app for improved direct communications with local farmers and provision of online support from company experts.

In many cases, the Covid-19 pandemic has ‘forced’ innovation. Agribusiness actors have needed to respond to extraordinary challenges – restrictions on movement of people, supply, and distribution – that has stimulated adaptations in business systems and approaches (organisational and process innovation). Many of these adaptations have accelerated and/or benefit from digitalisation and increased connectivity – with supply chain partners, public authorities, as well as internally across business units and among staff. Public health measures have also ‘forced’ innovations in relation to traceability, packaging, and customer-facing business practices.

The Covid-19 crisis has also brought changes in consumer trends and behaviours that are likely to extend beyond the pandemic itself and that require innovative responses from agri-food enterprises. For example, an increased focus on sustainability and health incentivises product and business-process innovation, while agribusiness are also investing in digital innovations in response to a rapid expansion of demand for e-commerce and platform-based agri-food operations. Many agri-food companies in project countries have embarked on a permanent shift towards a more sustained and visible digital presence for the end consumer, typically accompanied by the implementation of home delivery through an online or app-based platform. The pandemic's impact on supply chains also increased direct-to-consumer initiatives in agri-food, including the development of direct sales channels between producers and consumers. Several specialised agri-food firms indicated that e-commerce channels can support expansion into new international markets.

3.1.2 Barriers to innovation at enterprise-level

Overall, the rate of adoption of technological and other innovations has been slow across agri-food industries in the five project countries. The limited adoption of technological innovation across the agri-food industries overall represents a significant constraint on the development of the agribusiness sector and the increase in productivity and profitability that can support better jobs and wages. However, limited uptake of new technologies to date also highlights the significant scope of opportunities for agribusiness enterprises to increase their productivity and profitability through the adoption of new technology and other innovations.

Across the project countries, key constraints on innovation for agri-food enterprises derive from:

- Prevalence of SMEs and sector fragmentation
- Shortfalls in skills required to absorb and exploit new technology
- Financial constraints and limited access to finance
- Limited access of agribusiness operators to the innovation eco-system.

Prevalence of SMEs and sector fragmentation

Across the project countries, agri-food sectors are typically divided between a few large, vertically integrated firms and a large number of (M)SMEs, including a high proportion of subsistence producers. The former typically employ modern technologies and business practices and are increasingly integrated into international as well as domestic markets. However, most MSMEs face significant financial and human capital constraints that limit their capacity to access and benefit from innovation in the sector and to upgrade operational practices in ways that can enhance productivity and access to new markets. In order for the agri-food sector as a whole to become more efficient and sustainable, smaller operations will need to overcome barriers relating to affordability, economies of scale and access to resources.

Weak integration of agri-food value chains inhibits capital investment and knowledge transfer that can support technological and other forms of innovation. Integration along the agri-food value chain is constrained by the prevalence of SMEs. Smaller agri-producers often struggle to provide the supply of raw materials at consistent and satisfactory quality levels and in sufficient quantity that downstream processors require, pre-empting the development of stable, long-term commercial relationships. The fragmented value chain that results inhibits longer-term capital investments in innovative technologies and practices on the part of agri-producers, while it also reduces the attractiveness of the sector to external investors (World Bank, 2018; Enterprise Georgia, 2020). Similarly, many processing and packaging enterprises operate at insufficient scale to invest in specialised sorting, calibration and packaging equipment, resulting in low quality packaging that can damage products and result in transportation losses. In turn, this means that products need to be sold in the lowest price segment of the market, cutting into potential profit margins that might fund innovation (World Bank, 2018).

Skills

Internal capabilities are a key variable for agri-food enterprise innovation. Innovation relies, *inter alia*, on the availability of entrepreneurial skills, experience, attitudes, and education; managerial, technical, and collaborative skills in the workforce; and the level of investment in knowledge and technical know-how. A number of firms, including AgroCity in Uzbekistan (see case study below), also identified language skills needs to work with new markets. Although agribusiness firms surveyed for this report focused on different skills shortages (e.g., technical skills gaps concerning digital technologies, or the need for enhanced managerial competences) the overall picture is one of a significant, albeit varied, 'skills-drag' on agribusiness innovation. These challenges were highlighted in practice by a small, yet innovative olive oil producer in Morocco, Huiles de Saïss. The company reports that many of the more innovative activities it would like to engage in are currently not financially viable for the company, and the skills to develop and integrate such technologies are often limited within the domestic labour market.

Financing

Financing is also a significant constraint. Technological innovation remains limited by companies' reliance on internal financing, and perceived constraints on buying in external expertise. Many companies reported that consultancy and external expertise, where available and affordable, was a significant boost to their innovation trajectory.

The high costs (and thus financial risk) associated with introducing new technologies and other innovations are untenable for many of the SMEs that predominate in agri-food sectors. The introduction of new technologies typically requires significant up-front capital investment that puts technological transformation out of reach for many smaller enterprises (ETF, 2021). The high costs of technologies and/or technical services also impede implementation of non-technological innovation related to upgraded business processes and practices – for example, in relation to e-commerce (EBA Georgia, 2020; ETF, 2021; UNCTAD, 2020).

Cost-related barriers to innovation are reinforced by limited external finance options. Across the project countries, innovation in agri-food is primarily funded by the private sector and most enterprises rely on

internal financing. These trends point to distinct but related constraints on funding innovation in agri-food: limited access to viable external financing, especially for SMEs; and insufficient public investment in innovating-driving initiatives.

Moreover, the commercial incentives of significant investment in technological or product innovations are not obvious for many SMEs. In the context of low productivity and low investment agri-food industries, many SMEs do not perceive a clear commercial benefit associated with investment in innovation. In most cases, SMEs compete primarily on price, not quality or diversity of product, in which context the scope for significant commercial benefits from investment-heavy innovations (e.g., in production methods that enhance product quality) is limited.

Access to the 'innovation eco-system'

Access of agribusiness operators to the innovation eco-system is key. This research suggests that few agri-food SMEs innovate in isolation. Innovation activities need to be integrated into a network of different actors and supported by a conducive institutional and policy framework. For SMEs, innovation outcomes depend on the flexibility of the enterprises and its ability to interact with private sector partners and other third parties in order to overcome 'internal' constraints relating to firm size, scale and capacity. However, there are currently limited partnerships between the private sector, research institutions, and other key contributors to successful 'innovation eco-systems'. Public policy has a vital role to play in facilitating such partnerships and cooperation.

3.1.3 Positive progress in innovation at enterprise-level

This research has identified a range of innovation in the agribusiness sectors across the project countries, expediting the transition to enhanced business practices which will enable competitiveness over the longer term. Given the importance of SME and MSME activities in agribusiness in the project countries, the current research has looked beyond traditional measures of innovation – such as research and development investment or patent applications – to include an exploration of diverse forms of 'early-stage' innovation (responding the technical and organisational requirements of export-led safety, quality and sustainability standards, for instance) which are typically more relevant to most agribusiness enterprises in the countries under examination.

Technological innovation

Technological innovation, mainly related to improving efficiency, reducing costs, and raising productivity levels has been increasing in all counties under consideration. However, technology has yet to have a sector-wide breakthrough effect, and investment cost still represents a significant barrier for many smaller actors. However, there are a number of emerging focus areas for innovation in food processing technologies, packaging and preservation, supply chain management and sales:

- *Processing and food safety technology*: transformation technologies (drying, conversion, stabilisation and separation), technologies to test, diagnose, and profile products
- *Automatisation, artificial intelligence, and robotics*: processing, measurement, packing and transportation, and using data analytics to self-modify equipment
- *Packaging*: reduction, recyclable, biodegradable, compostable, smart packaging
- *Digitisation of production and sales*, including supply chain and e-commerce retail
- *Traceability*: blockchain offers huge opportunities for increased traceability, improved efficiency and waste avoidance

Agrocitry, Uzbekistan – technology-driven innovation

Agrocitry is a Tashkent-headquartered company specialising in the processing, wholesale and export of beans and legumes. A relatively young enterprise, the company was established in 2015. Agrocitry sources its products through has long-standing relations with a number of farms located on the outskirts of Tashkent.

In terms of innovation, Agrocitry considers itself a sectoral leader in terms of high-end technology production. The technology used allows the company to merge processes including drying, cleaning, peeling, calibration, filtering, separation, polishing, photo-sorting, weighting and packing of ready products. It also creates a more uniform process, that has allowed more effective quality control of products.

Nevertheless, the sophistication of the equipment means a reduced requirement in terms of human resource – with only two staff members required to oversee the process and a total full-time employee headcount of 12 - including management, processing, supply and logistics. Despite being a small company in terms of human resources, the combination of high processing capacity of the factory with efficient smart management has allowed the company to secure a 5% total market share of bean processing in Uzbekistan.

Product innovation

Changing consumer preferences has spurred innovation in product development, marketing, and sales. A number of agri-food firms reported shifts in the lifestyles and preferences of consumers in both domestic and international markets, especially new demands for higher quality and specialised products (e.g., organic and provenance-based), which has opened new market opportunities and stimulated innovation in product development and diversification. The Covid-19 pandemic has enhanced broader trends towards increased consumer interest in the health and nutrition benefits of food products.

In Turkey, grain and pulse processor Yayla Agro and honey producer Balpalmark has noted increased interest in their products as a result of rising health awareness and interest among consumers, both domestically and internationally. A number of Moroccan agri-food firms reported shifts in the lifestyles and consumer preferences of Moroccans, especially new demands for quality (organic) and clean and safe products (with less or no use of chemical products), which potentially opens up new market opportunities and would foster further innovation. Life Aloe, an aloe vera based soft drinks producer in Uzbekistan, developed its innovative product range after identifying the success of such products on the international market.

Yayla, Turkey – innovating healthy and convenient food options

Yayla Agro Food Industry and Transportation Inc (Yayla) is an Ankara-headquartered company and leading food manufacturer, specialising in pulses and rice.

Using state-of-the-art technology and facilities, Yayla produces high-quality food products without the need to resort to cold-chain technology. A key recent innovation of Yayla has included the development and distribution of convenience, primarily 'ready-to-eat', food products. Yayla's ready-to-eat production facility in Mersin was launched in 2018 and paved the way through launching innovative, healthy products into the Turkish market. These easily accessible and healthy products have proved popular, with a marked rise in demand as a result of the COVID-19 pandemic.

E-commerce

Many agribusiness surveyed are investing in digital innovations in response to expanding demand for e-commerce and platform-based agri-food operations. These longer-term trends have been accelerated by the extraordinary restrictions on mobility and in-person business and consumer interactions in the context of the Covid-19 pandemic. Many agri-food companies surveyed in this research have embarked on a permanent shift towards a more sustained and visible digital presence

for the end consumer, typically accompanied by the implementation of home delivery through an online or app-based platform.

The pandemic's impact on supply chains also increased direct-to-consumer initiatives in agri-food, including the development of direct sales channels between producers and consumers. Several specialised agri-food firms – such as AgroCity (Uzbekistan) and LCM (Morocco) – also see the development of e-commerce channels as vital in supporting their expansion into new international markets.

In particular, the Covid-19 pandemic (and responses to the crisis) has given a significant boost to online agri-food retail in all five countries. Agri-food retail chains have been at the forefront in meeting the challenges brought by the pandemic, including a growth in retail sales for home consumption, particularly in purchases through e-commerce and development of home distribution infrastructures, including in countries where these were previously significantly underdeveloped, such as Georgia (Nikora Trade) and Uzbekistan (korzinka.uz).

Agrifood e-commerce in Turkey: massive expansion reveals new opportunities and existing challenges

Trade Ministry data suggest that the Turkish e-commerce market grew by 64% year-on-year during the first half of 2020, including a 434% boost in online food sales, and that consumers continued shopping online during the normalization process as well when many restrictions in the country were lifted. UNCTAD reports that 60% of Turkish consumers are expected to shop online more frequently in post-COVID-19 Turkey, and national stakeholders confirm this shift. However, UNCTAD also notes that some 60% of survey respondents in Turkey perceived that small business and local producers were not sufficiently equipped to establish e-commerce operations. In March 2020, the Ministry of Trade launched an 'E-Commerce Information Platform' providing online e-commerce training to some 24,000 people to date.

Retailers which already provided e-commerce options, such as Migros, significantly expanded during the pandemic from a previous reach of 58 provinces to cover all provinces. Other retailers, such as Macrocenter launched their own platforms, and e-commerce sites such as Morhipo and Trendyol have also added online market platforms to their sites.

Marketing and organisational innovation

Along agribusiness value chains, marketing and organisational innovations are increasingly important for many enterprises. Changing consumer preferences and evolving market-access requirements (especially for exports) has increased the importance of quality control and monitoring and traceability through supply chains, as well as related innovations concerning packaging, labelling, and sales and marketing more generally. The Covid-19 pandemic has also required agribusinesses to respond to extraordinary challenges – restrictions on movement of people, supply, and distribution – that has stimulated adaptations in business systems and approaches, including in relation to marketing and business processes. Public health measures have also 'forced' further innovations in relation to traceability, packaging, and customer-facing business practices.

In Morocco, for instance, Les Conserves de Meknès (LCM) has highlighted the importance of achieving a structured value chain, for improving controls and quality along the chain from production to distribution, and reducing the widespread presence of the informal market. LCM has developed its olive oil business with organic production and improved traceability standards to meet foreign demand and requirements.

Sustainability innovation

Enterprises increasingly identify environmental issues as a pressing concern, and as a priority area for innovation and action. Incentives include both increased pressure from consumers and regulators to uphold higher environmental sustainability standards, as well as a direct response to environmental impacts on companies' own operations. In the former case, the digitalisation of services will be a necessary development in the food supply system as traceability and transparency become crucial to

consumer purchasing decisions and expectations on sustainability continue to emerge as important priorities.

In Georgia, Tbilvino wineries plan to adopt energy-efficient technologies on production lines and using new techniques to clean and conserve water, and Adjara Group intends to develop a sustainable approach to waste management, energy use and transportation and identified the need for staff with the appropriate knowledge and expertise to develop and implement these initiatives.

In Morocco, a number of innovations have been required to cope with the climatic situation due both to droughts and to climate change. A small, high-quality olive oil producer, Huiles de Saiss, hopes to adopt more innovative irrigation and water management techniques in order to face climate change-related challenges, as well as install renewable energy solutions.

Across the countries of study, addressing food waste is also an emerging driver of innovation.

Oreka, Turkey – addressing food waste as a driver of innovation

Turkish start-up platform [Oreka](#), launched in the wake of COVID-19 in September 2020, is an app-based marketplace where restaurants, bakeries, cafes, and groceries sell their surplus foods to consumers at a 50% or more discount. Oreka generates sales for food retailers while introducing them to new customers, provides fresh and tasty foods at good value for consumers and protects the environment through reducing food waste.

The cost of Turkey's food loss and waste is estimated at €23 billion per year.

3.1.4 Network effects and clustering

Inter-firm linkages and integration in multi-actor 'innovation eco-systems' – for example, inter-institutional networks, industrial clusters, sector-specific technology 'hubs' – are critical enabling factors for innovation and enhancing competitiveness, especially in the case of smaller agri-food companies.

Regional clusters, such as *agropôles* in Morocco or Uzbekistan's production clusters for cotton and horticulture supply chains, aim to concentrate various agri-food actors in a single geographical location to promote collaboration and facilitate the dissemination of innovation, develop economies of scale, and contribute more broadly to local economic development, with further positive economic multipliers. Participation in cooperation networks can stimulate and reinforce innovative attitudes and behaviours within firms, as actors access a wider set of information and knowledge and are exposed to more circumstantial diversity.

Agropôles, Morocco – boosting innovation and investment through regional clusters

In line with the integration approach that has driven investments and innovation in the sector, Moroccan authorities have been developing agricultural production sites (*agropôles*) in some key regions, to strengthen upstream and downstream collaboration among relevant stakeholders and attract agri-food investments (including foreign investments).

The creation of these *agropôles* has created a bridge between agriculture and agri-food. The regions of Fès-Meknès and Berkane, in northern Morocco, have already their *agropôles*, supported by the public Caisse de Dépôt et de Gestion that finances territorial development activities in the whole country. Four additional sites are planned for the central regions of Tadla and El Haouz and for the coastal regions of Agadir and Gharb. Each *agropôle* is designed to offer the following elements:

- an area of agro-industrial activities where food production companies are located;
- an area of logistics and service companies including business incubators;
- an area dedicated to distribution and trade activities;

- a pole of R&D and food quality control authorities;
- a dedicated training centre;
- an area dedicated to specific tertiary activities, such as banks, insurance companies, catering and other relevant services

Case study enterprise LCM has been conducting a pilot project to bring together organic olive producers in the Moulay Idriss Zerhoun region, in collaboration with the Olivier-ENA *agropole*. Since 2016, the aggregation project has produced certified organic olives for national and international market. Following this experience, LCM has further developed the aggregation model in the industrial tomato sector.

Engaging the sector and value chain in innovation

A major structural challenge to innovation in agribusiness is the productive composition of the sector – that is, a small number of modern, globally-integrated agribusiness firms who are significantly more innovative – and productive – than the high number of SMEs and micro-SMEs who dominate the sector in numerical terms.

There is a need to harness these ‘islands of excellence’ in order to connect them with other parts of the value chain to share and transfer their experience and approach to innovation and inclusive skills development. A practical example can be found in the Georgian dairy sector. Sante and Soflis Nobati are subsidiaries of multinational companies (Lactalis and Pepsico) which have supported local companies in transferring their knowledge, experience and innovative approaches into local businesses. This suggests important scope for innovation skills transfer through sectoral and value chain vectors. Further, where innovation is driven by the need to meet higher standards – such as export safety and quality standards – this can drive a broader swathe of innovation across segments, as it becomes an important differentiator of competitiveness.

3.2 Skills development

3.2.1 What are the drivers for skills development at enterprise level?

Labour shortages and the absence of necessary skills within the labour market are a central concern for many agri-business enterprises. A range of agribusiness companies reported challenges in recruiting workers with the skills and experience required for innovation and technology adoption, including skills related to the development and use of new technologies, (digital) sales and marketing, supply chain management, and skills adequate to the demands of new and emerging occupations (such as roles relating to supply chain traceability). For example, Gold Dried Fruits Ltd, an Uzbek processor of agricultural products, reported difficulties in identifying local agronomists and trainers with experience of their modern technologies, as well as laboratory staff, responsible for food safety control. As a result, companies can end up sending staff abroad for training, or contracting international consultants for support. Companies also noted shortages of recruits with adequate managerial skills to support innovative business-process, organisational, and human capital innovations.

Many agribusiness enterprises, especially larger firms, have established their own skills development initiatives. A number of factors contribute to agribusiness firms’ decision to develop workforce skills within their own operations. In several project countries, there are overarching concerns among employers that national TVET systems do not produce graduates with skills that are relevant or up-to-date with agribusiness needs. In this context, many employers consider internal training programmes, including work-based-learning initiatives, are better equipped to develop the precise skillsets required by the business. Additionally, increased focus on in-company training can contribute to improved retention and workforce stability, as well as supporting inclusion objectives (for example, where firms have developed professional development programmes that can promote women’s career progression). For example, Uzbek supermarket chain Korzinka considered that investment in in-house

training and professional development programmes contributes to their prestige and attractiveness as an employer.

3.2.2 Barriers to skills development at enterprise-level

Lack of consistency and quality of outputs from national TVET systems is an overarching constraint on skills development across project countries. Stakeholder concerns focus variously on the quality of teaching, the adequacy of qualification and certification frameworks, lack of coordination with the private sector, and overall capacity on educational systems to meet demand (especially in rural areas). Employers consistently express concern that public education and skills programmes are limited in their relevance to the agribusiness sector, including in relation to over- or under-emphasis on skills for specific occupations (which may not correspond to the distribution of job opportunities in the sector); lack of coverage of new and emerging skills needs related to new occupations and specialisation (key for driving innovation); and insufficient focus on technical and practical instruction, including a lack of direct work experience built into training programmes. In Morocco, for examples, LCM and Huiles de Saiss both reported specific skills shortages in relation to new supply chain traceability requirements, themselves related to export market standards and expectations.

However, few smaller agribusiness enterprises have the capacity to provide their own training and skills development programmes, or respond proactively to potential employment displacement effects. Constraints include both financial and human resource (knowledge, expertise) limitations to develop and deliver in-house training programmes, to develop skills-based recruitment and progression processes, or to identify strategic skills priorities for business growth and development. A particular concern of smaller enterprises relates to the high fixed-costs associated with participation in collaborative work-based learning initiatives. Failure to formalise skills requirements into objective job requirements contributes to perpetuating a perception among students and potential new recruits that skills are not required or in demand.

Agri-food (and agri-TVET) is commonly not perceived as an attractive career option for youth due to prevalent associations of the industry with low-wage and low-skill work, and few career development opportunities. Employers report that the sector is often perceived as offering a less attractive career path than other sectors which have a similar demand for skills. Perceptions affect both employers' efforts to recruit people with the skills needed to adapt to technological change, as well as the uptake of sector-relevant fields of study among students. Among skilled workers, many new labour market entrants perceive the agri-food sector as relatively unattractive – in terms of pay, career progression, and prestige – compared with careers and jobs in other sectors with similar skills requirements (ETF, 2021; Focus groups in Morocco and Georgia). Furthermore, Sojaprotein, a soy processing company based in North Serbia, reported that it can be difficult attracting high skilled workers to the rural areas where processing plants in agribusiness are often located.

In addition, there is commonly limited integration of skills frameworks into company's recruitment and employment processes. Where occupation-specific skills requirements are not formalised as a job requirement, this can serve to depress demand for these skills, and can further sustain a perception that such skills are not required or in demand. In particular, specific concerns are raised in relation to the absence of formal skills specification in recruitment processes, including advertisement of vacancies. A shift is needed across the sector to align companies' internal human resources systems to the notion of skills and workforce training, and to build a better understanding of the case for internal skills assessment procedures.

Lastly, some agri-food firms report a 'Catch-22', whereby providing training can make it more likely that workers will leave, either to larger competitors who are better placed to offer higher wages, or to sectors that are seen as more prestigious and/or can offer higher wages. Several Serbian agribusiness companies expressed concern that investing in training and skills development is risky due to the high levels of outward labour migration – particularly among young people and Roma – who often occupy the lower-skilled roles on which some upskilling and professional development programmes are likely to focus.

3.2.3 Positive experiences in skills development at enterprise-level

In-company training through company training centres

A significant proportion of larger agribusiness firms engaged have established their own formal process and infrastructure for continuing training and professional development of their workforce. Typically, this takes the form of a company 'academy' or training centre and has often entailed expansion to remote e-learning, particularly in the wake of Covid-19. In Uzbekistan, supermarket chain Korzinka noted an uptick in employee engagement with training in the wake of their shift to a new online, accessible format.

TAB Gida, Turkey – setting standards for fast-food skills in Turkey

Operating in the food sector in Turkey since 1994, TAB Gida is the country's leading quick service restaurant operator with 1,200 restaurants across the country.

TAB Gida runs the TAB Academy as a training and development platform for its employees. The training initiative is intended support and develop human capital and ensure that TAB Gida employees are fully equipped with skills to develop themselves and the company.

TAB Academy serves as a continuous personal, professional, and managerial development platform for its employees providing promotion opportunities for successful employees. TAB Academy brings together the latest content and current topics in its field in an academic e-learning platform. The content of TAB Academy trainings are designed, developed, and constantly updated by experienced academic professionals and then transferred to an e-learning system by the Educational Technologies Department of TAB Gida. Through this platform, TAB Gida has created an opportunity to reach a large number of employees quickly and simultaneously. The academy has a wide range of skills development content, from personal development courses, executive and leadership development programs, to technical areas such as brand representation, product preparation, and OHS training.

In-company continuing training can be an important vector for gender inclusion, where it enables professional development and career progression for women in segments that are traditionally subject to a high degree of vertical segregation, such as supermarket retail. In Turkey, Balpalmark and AEP highlighted their efforts in promoting more inclusive value chains, providing targeted training to women working throughout their agri-food supply chains.

JSC Nikora Trade, Georgia

JSC Nikora Trade is a retail company operating one of the largest supermarket chains in Georgia, employing over 5500 employees of which 4050 are women.

Within the reformed Georgian Work-Based Learning framework, JSC Nikora Trade has developed its own VET training centre, 'Nikora School', which focuses on providing tailored work-related trainings to the company's workforce. The centre's programme includes regular, intensive training for retail employees in particular, such as store managers, cashiers and consultants, with the objective for these employees to further develop their competences, as well as enhance performance and the quality of service provided. The centre is also in a position to offer advice and assistance to employees in relation to career development and guidance.

The company has seen positive outcomes around retention, which it believes is a result of the strong career advancement and continued professional development opportunities offered by the company's training programme.

Public-private coordination and collaboration on agribusiness skills

There has been important progress in scaling up coordination and collaboration on skills development among agribusiness employers and state actors. In some cases, such as Georgia, agri-food is a pioneer sector. The Sector Skills Association model has been piloted in the sector in the form of 'Agro-Duo', recognising the crucial role of private sector participation, to foster better and closer ties between industry and policymakers focusing on agriculture and agribusiness. Such efforts are key to better communication of demand-side signals (i.e., from employers) to skills and education providers (i.e., universities, TVET, and relevant policymakers) and the dynamic development and alignment of educational curricula to evolving labour market needs. More generally, employers' see sector skills councils as an important mechanism for involving the private sector in the development of the national (and sectoral) skills frameworks, and creating more 'buy-in' of the private sector in skills development overall.

There are also important initiatives to establish formal partnerships between agribusiness and higher-education institutions (HEIs) to enhance cooperation on teaching and curricula development and expand work-based-learning opportunities (responding to employer concerns about insufficient practical training and experience among new recruits). For example, Serbia has introduced new legislation on dual education, providing work-based learning for secondary vocational education students, including in the agribusiness sector. For Serbian agribusinesses, developing stronger connections with the educational system and contributing to the development of skills for the next generation is key to securing future skills for the sector.

Yayla, Turkey – workforce development through university collaboration

Yayla Agro Food Industry and Transportation Inc (Yayla) is an Ankara-headquartered company and leading food manufacturer, specialising in pulses and rice.

Yayla recently launched an internship initiative in collaboration with TOBB-ETÜ and Mersin University for their students. This program entails for students to alternate each academic trimester between university courses and their work placement, which helps to foster integration in the students' practical and academic learning experiences. However, due to the Covid-19 pandemic, the collaboration has paused, whereby internships are on hold while students are limited to online learning via the university.

Looking forward, Yayla plans to use this new higher education collaboration as an opportunity to develop their skilled workforce, particularly for their planned opening of a food plant in Nudge, first through student internships, which the company hopes to lead to recruitment of graduates where the internship is successful. The company is particularly hopeful to fill technical skills gaps through this approach to workforce development, such as for food engineers and gastronomy graduates to contribute to product research and development (R&D) within the company's growing "ready-to-eat" line. Although the company is looking for experienced technical workers, it also recognises the potential for in-house development of technical skills graduates.

The company recognises the potential mutual benefits of such collaboration between the private sector and higher education, which can serve to assist the private sector in meeting gaps in higher skilled workforce, while also enabling the educational institutions to better integrate the needs of the private sector within their own programs through continued interactions between the private sector and the institution stemming from these integrated work placements.

Linkages between agribusiness and higher-education institutions (HEIs) can bring multiple benefits for agri-food enterprises. Partnerships with HEIs not only help to 'feed' the talent pipeline, but enhance cooperation also to enables HEIs to provide better skills upgrading and training programmes, and to increase their entrepreneurial and innovation capacity. Such partnerships might facilitate different forms of cooperation and collaboration – from internships, to graduate programmes, to company staff delivering lectures. However, all such initiatives serve to increase the visibility of the firm as an

employer and contribute to raising awareness and enhancing the profile of agribusiness as a viable and attractive career option for young people.

Agromir, Uzbekistan – developing management expertise in partnership

JV Agromir group of companies, established in 2003, is a Food and Beverage manufacturer, recognised as the largest juice producer in Uzbekistan.

Rather than technical skills, the most notable skills gap faced by Agromir in recent years has been in the area of finance and business management. Owing to this, Agromir's office in Tashkent established a cooperation agreement with Tashkent Finance Institute and Tashkent University of Economy for senior staff from Agromir management and HR to provide guest lectures at the University – in order to create stronger ties and promote the company among students. Agromir regularly offer student internships.

In addition to the above collaboration in Tashkent, Agromir's offices in Samarkand also collaborate with the Samarkand Commercial Institute to develop employees in business management and sales, as well as with the Samarkand Medical Institute for development of technical research and development staff in chemical analysis.

Integrating skills into business decision-making

An increasing number of agribusiness enterprises are making skills planning a priority component of their business strategy. Increased attention on human capital development reflects a growing recognition of the key role of that skills play in facilitating innovation to enhance productivity and competitiveness in the context of wider (sectoral) transformation. Skills planning at enterprise-level enables firms to better communicate their current and anticipated needs to cross-sector platforms and TVET providers, contributing to an improvement in quality and relevance of national training programmes.

LCM, Morocco – integrating skills planning into business innovation

Les Conserves de Meknès – Aïcha (LCM) is a long-standing Moroccan brand, established in 1929, focusing on the production of preserved foods, catering both to the domestic and the international markets. The company is certified Global GAP - one of the most important international certifications - and must respect the relevant high standards and requirements.

LCM is conscious that innovation, such as promoting new management models, for public-private partnerships and aggregations, or introducing new technologies, requires dedicated HR strategies and human capital development to maximise the benefit. Therefore, for any new projects and innovations, LCM analyses its competence and personnel needs during the planning stage.

There is scope for agribusiness employers to be more selective in terms of recruiting staff based on adequate qualifications. More selective recruitment, including giving more weight to TVET qualifications, can only help formalise and streamline recruitment processes (with additional benefits in terms of ensuring equal opportunities), but also to raise the prestige and perceived relevance of sector-specific TVET qualifications.

Furthermore, firms with frameworks for skills classification and development can gain ground in promoting equality of opportunity, through implementing skills-based decisions in recruitment, reward and promotion. The basis for non-discriminatory and inclusive hiring and development of staff is to base employment decisions on individuals' capacity to do the job, and the implementation of clear and objective skills-based recruitment and promotion mechanisms is a key tool for ensuring equal opportunities.

TAB Gida, Turkey – integrating skills into HR decision-making: recruitment and promotion

TAB Gida performs regular skills assessment for its staff and employees. The company uses occupational profiles for each position identified by the Training and Brand Standards Department. Face-to-face competence-based training has been provided by the company prior to the pandemic. Currently, TAB Link platform is used for training provision. When a team member is recruited for restaurants, they are provided with a career progression and training plan.

3.3 Integrating inclusion into skills development practices

Women and young people make up a significant and important part of the workforce in agribusiness, especially in retail and distribution. However, agribusiness enterprises surveyed in this research report few specific programmes or practices aimed at improving inclusion outcomes. Similarly, although a small number of companies have taken steps to include people with disabilities, rural workers, and other vulnerable groups as part of their workforce (see below), initiatives focused expressly on inclusive skills development remain limited.

Putting inclusion into practice: on-the-job training in Serbian agri-food firms

A review of the on-the-job training programs of 10 Serbian firms was commissioned by the World Bank in 2019 to identify examples of well-designed training programs at top-performing, diverse firms, understand how much firms invest in their employees, analyse skills gaps in new hires that workplace training addresses; and examine company approaches to PPPs (World Bank, 2020c). Participating companies included a range of agribusiness firms in beverage production, supermarket chain management and food production.

The study identified a range of good practice in inclusive skills development. About half the companies interviewed provided new hires with a more senior 'mentor' or experienced staff member from the same department (a 'buddy' program). Many companies have talent pipelines for training individual staff they would like to put on a higher management track. There is significantly more investment in these employees, with the focus being to generate a mix of technical, job-related skills, and soft skills. Most firms provided almost all training internally, though many outsourced most of their soft skills training. In most of the firms training for blue-collar workers was more intensive and structured than training for white collar workers. Most training was face to face, practical, and hands-on. All but one stated training were not directly linked with promotions. Employers commented on the lack of job-readiness of recent graduates as well as lack of socioemotional skills. The skills mentioned by all employers were: team work, work ethic, communication skills and other professional skills such as timeliness (World Bank, 2020c).

3.3.1 Drivers of inclusion and diversity at enterprise level

A key driver of inclusion and diversity for agribusiness companies is the need to meet labour and skills shortfalls. In particular, a lack of sufficient technical skills in the workforce has led many agribusiness firms to bolster outreach activities and establish partnerships with educational institutions to ensure that the enterprise benefits from as wide a pool of talented candidates as possible. For example, in Turkey, Anadolu Etap's farmer training programme has specifically targeted women farmers to increase their participation in the workforce as skilled workers. Other companies have sought to improve access to employment and career development through internships and apprenticeships

(focusing on youth, women, and rural communities), as well as the adoption of inclusive recruiting and hiring practices based on principles of non-discrimination and equal opportunity to ensure inclusion and workforce diversity. These initiatives are driven, in part, by recognition of the positive business benefits of a diverse workforce. For example, Georgia's Cartlis Agrosystems has found professional development and progression processes based on equal opportunities is positively associated with higher productivity and retention among women employees.

Reputational concerns also drive companies' interest in inclusion and diversity. Agribusiness firms surveyed for this report note that a strong commitment to equal opportunity throughout the employment process has contributed to the company's image as an 'employer of choice', helping the company secure the best talent. In addition, initiatives to improve the accessibility of services offered, particularly in the retail subsector, serve to increase the company's customer base. In many cases, inclusion and diversity initiatives have been pursued as part of broader Corporate Social Responsibility activities. Investor expectations also play a key role in many agribusiness enterprises instituting equal opportunity policies

In some contexts, broader shifts in society have stimulated private sector efforts to support inclusion. For example, large young populations in several project countries have led some agri-food enterprises to prioritise youth recruitment; for example, in the case of supermarket chain Korzinka in Uzbekistan. Similarly, where the share of rural population is high, companies operating beyond urban centres offer significant employment opportunities for rural workers.

3.3.2 Barriers to inclusion at enterprise-level

There are significant constraints on women's role and participation in agribusiness employment. Generally, companies report that women make up a smaller share of the workforce compared to men and are particularly underrepresented in technical roles. In part, this reflects women's lower participation in agribusiness-related fields of study, including technical education, which limits the number of highly-skilled female candidates for recruitment.

Unpaid domestic and care responsibilities disproportionately affect women, impacting on their economic engagement. Social norms which situate women as responsible for care and household tasks can work to discourage women's entry into paid employment, divert women away from private sector employment and towards public sector roles seen as 'a better fit' with family duties, or toward a restricted range of part-time or flexible roles, as well as limiting opportunities for professional development, including training or promotion into management roles.

Where women are well-represented in the workforce, men nevertheless tend to predominate in more senior and high-skill positions. In contrast, women across the agribusiness enterprises engaged as part of this research are typically concentrated in primary production as farmers or in lower-skill jobs with low earning potential and little prospect of professional development and growth. Such vertical and horizontal segregation serves as a key barrier to inclusion and diversity at all levels of the workforce.

Rural-urban gaps in access to education and employment are a further barrier to inclusion in agribusiness. Agribusiness firms report that skills deficits tend to be greater in rural and remote regions, making it more difficult to find qualified staff and ensure regional inclusion. It is also necessary to tailor training to groups in view of broader cultural and language factors – for instance, developing Uzbek-language training in rural areas of Uzbekistan. (Lack of familiarity with the operating language of the business was also cited as a brake on employees' professional development.) In Serbia, agribusinesses such as Delta Agrar, part of Delta Holding, find rural locations also have an aging workforce – which can be reluctant to take on roles requiring use of new technologies.

The limited attractiveness of agribusiness employment is a challenge to building a more diverse agribusiness sector workforce. In particular, firms observe that agribusiness employment and education are unpopular among young people, who tend to view the sector as offering a less attractive career path than other sectors with a similar demand for skills. In Serbia, this situation is further exacerbated by the high rates of outward labour migration, particularly of young people and ethnic minorities, such as Roma, to EU and neighbouring markets.

3.3.3 Positive experiences of inclusion at enterprise-level

Agribusiness enterprises report a number of positive experiences of inclusion and inclusive skills development at company-level.

Identifying and fast-tracking high-potential talent from a broad pool

Companies have sought to support inclusion in employment by identifying and fast-tracking high-potential talent from a broad pool to promote equal opportunity in professional development. Women employees, for example, have benefitted from additional support for career development, including through dedicated mentoring and coaching programmes. Accessible and inclusive career trajectories based on skills and experience are in place, and agribusiness companies have taken steps to address the 'glass ceiling' relating to women's access to more senior, managerial positions, including by supporting the development of women's professional networks. Additionally, Sojaprotein in Serbia reports providing experienced internal mentors to support workers from more vulnerable groups – such as people with disabilities and Roma – in their roles.

Migros, Turkey – inclusion and innovation in modern retailing

Turkish retailer Migros has developed a 'Leadership Path' which supports high-potential employees with executive coaching and personal development plans. 42% of programme participants are female managers. Migros also participates in the inter-company 'Women on Board Mentoring Program' which aims to increase the number of women on Boards of Directors.

The Migros Women's Club is a social platform that aims to drive engagement among female employees working in stores and administrative positions, and share experience from women leaders in the company. Finally, the Female Employee Retention Project Group has been working on boosting female employee retention in 2019, tailoring working conditions and taking on board women employees' feedback to help Migros position itself among the companies that women prefer to work for the most in Turkey.

Developing the internal talent pipeline

In light of technical and soft skills shortages frequently reported in the agribusiness sector, many companies have turned to developing their internal talent pipeline to fill skills gaps. Ensuring that all employees have access to such training has allowed companies like Georgia's Tbilvino to benefit from the competitive advantages associated with a more diverse workforce.

Tbilvino, Georgia – developing the internal talent pipeline

Tbilvino is a leading wine producer in Georgia, focusing on producing high-quality wines for export, and has been a family-led business since 1999.

The majority of the workforce are women, who are present across all levels of the company, including in senior management positions. The company is keen to recruit and promote women within their workforce, having had very positive experiences with innovative practices introduced by female employees.

Recruiting employees who have the necessary technical skills has been a particular challenge for the company. As a result, the company developed a comprehensive recruitment, training and retention strategy to build the skills of their staff in-house. The company has developed a formal human resources department which is responsible for recruitment and training. The company's recruitment process includes formal interviews as well as the completion of specific tasks during an employee's initial probation period, following by an assessment for final recruitment. This process has been identified as very helpful for the company to select employees who have significant potential to further develop within the company, even when they do not have the skills prior to starting their employment at the company. Although the company faces some labour shortages, the company has a significant retention rate, which reflects positively the company's important efforts towards staff development and human resources.

The company also provides seasonal internships both at the wine materials workshops and in the vineyard, and sometimes winemaking assistants. In the context of this program, one of the students continued to become assistant to the chief winemaker at the company. Staff development from more junior to senior positions primarily occurs through promotion and training, such that even the current chief winemaker was began as a student and was gradually promoted to their current senior position. Students are also encouraged to join the company during wine-picking season, which has often been a recruitment opportunity to identify new talent and offer other employment opportunities to successful graduates.

Enhancing visibility and perceptions of agribusiness employment

Given the importance of improving perceptions of agribusiness employment for companies' ability to attract a diverse workforce, firms have sought to increase outreach to particular groups, including through active outreach and partnerships with educational institutions. Such efforts serve to address the supply-side challenges faced by the agribusiness sector.

JSC Nikora Trade, Georgia – active youth outreach

One of retailer JSC Nikora Trade's recruitment focus areas is partnership with educational institutions, at both secondary and tertiary levels, including providing first employment opportunities to high school pupils during the summer period. Nikora Trade has been working closely with educational institutions for several years, including most notably with the Free University and the Agrarian University in Tbilisi, as well as 'New Wave' vocational college in Kobuleti. In 2019, the company also formed a new partnership with Georgia Bank University. Through these partnerships, Nikora offers scholarships to students in agribusiness-related programs, internships and practical training for students to take place at the company and employment opportunities for program graduates. One of the key programs for the company includes the Food Processing Technology program at the Agrarian University.

These partnerships are also key to providing practical training and skills development opportunities for students in remote regions, which helps develop their competitive profile within the labour market and increase their employability. The company, in return, has the opportunity to recruit from a wider pool of qualified applicants for its regional branches and supermarkets.

Providing these opportunities to students is essential to the company's human capital development strategy, as it creates visibility of the company to students who are orienting their careers towards the agribusiness sector. The company's approach includes recruiting people with an affinity for the sector, supported by skills and knowledge acquired through their educational training, with the objective to complement this with Nikora's workforce training program at 'Nikora School'. Nikora Trade reports that a considerable supermarket workforce have been recruited as a result of these institutional partnerships. Those who are recruited are likely to fill positions such as cashiers, assistants, food technologists or food quality monitors.

The company has also recently signed a Memorandum of Understanding (MoU) with the Ministry of IDPs from the Occupied Territories, Health, Labour and Social Affairs (MoIDPHLSA). The purpose of the MoU is for Nikora to participate in job fairs organised by the Ministry's Employment Support Agency, with the objective to promote employment in the agribusiness value chain, including in food processing and retail. The fairs provide an important opportunity for Nikora Trade to be visible to the student recruitment pool and directly apply its youth-focused recruitment strategy.

Using flexibility in employment to broaden access

Companies have also taken steps to address the supply-side barriers to inclusion, including by providing flexible forms of working to accommodate work-life balance, supporting employees' child and elder care responsibilities, as well as providing forms of paid leave for carers (including male carers). This has also been an important factor in the successful inclusion of people with disabilities at companies such as Delta Holding – which is considered best practice example in Serbia – creating flexibility and adaptability in roles for its employees with disabilities.

Korzinka, Uzbekistan - inclusiveness and flexibility of employment

Korzinka.uz (Korzinka) is a major supermarket chain operating in Uzbekistan since 2005, with women representing 35% of the company's full-time staff and the average age of staff estimated at around 32. The company reports that women are particularly predominant in some of their in-store roles – such as packers.

In line with its inclusive approach, Korzinka also aims to be a flexible employer. The company takes a personalised approach to training courses, which are accessible from home or special training units. The same time for elder and senior staff members, company provides offline courses and specially tailored capacity building assistance. For parents and students, Korzinka offers flexible hours conditions to help them to combine job with other duties or studies.

Korzinka also operates a company-wide policy that requires that 10% of vacancies in store to be available for university students to work part time. Students work mostly in evenings – which also tend to be peak hours for supermarkets. This policy is therefore mutually beneficial – easing pressure of peak hours and providing much-needed employment to youth. Another benefit of this policy is that students tend to be well educated and require minimum training and supervision. Students and young people also tend to be more familiar and comfortable with innovative online models of self-training.

Furthermore, part-time employment of students can be considered as an initial internship, leading some to join the company upon graduation. In addition to part-time roles, Korzinka offers formal internships at HQ for students each year, and many interns return for full-time employment at the company, upon graduation.

Improving access to employment and career development through internships and apprenticeships

To improve access to agribusiness sector employment, firms have pursued inclusive recruiting and hiring practices based on principles of non-discrimination and equal opportunity. Targeted or outreach-based recruitment or paid apprenticeships and internships are also offered to ensure inclusion and workforce diversity.

LCM, Morocco - creating entry points for youth through internship programmes and partnerships

A major challenge for LCM, when developing new products and processes, is that the competences required are often lacking in the local labour market and need to be developed internally. This was recently the case when the company was required to develop traceability systems for the international export market for olive oil. Common skills gaps relate to irrigation management, the horticulture crops and plant protection knowledge. At the processing level, key competences relating to more technologically advanced materials and machine management are often sought.

To source many competences the company turn to partnerships. For example, for management competences, LCM hosts several interns every year with students from the university of Fes-Meknes. For broader technical competences, LCM has relationships with ENA (École Nationale d'Agriculture de Meknes), the University of Fes-Meknes, and IAV (Institut Agronomique et Vétérinaire) Hassan II.

Internship programmes are a significant component of these partnerships: every year several students work in the company and at the end of the internship period, several interns are usually hired upon graduation.

Migros, Turkey – supporting life-long learning as well as youth access

Externally, Migros collaborates with several universities for training and internship opportunities. The company offers long-term training and certificate programs in collaboration with Boğaziçi University, Anadolu University, Koç University, Ege University, Karadeniz Technical University, Uludag University and Georgia State University.

With the Migros Retailing Associate and Undergraduate Program developed in cooperation with Anadolu University, Migros employees who have not completed their university education are considered to have the opportunity to gain university credit and undergraduate degrees. To date, 43 employees have successfully completed this program and graduated from an associate or bachelor's program. The mid-level managers participate in KÜMPEM (Koç University Migros Retail Training Forum) Executive Development Program, which Migros developed in cooperation with Koç University. As of the end of 2019, a total of 372 Migros employees completed the program.

In 2019, Migros participated in 58 career events in Turkey to meet university students. The company also implements its Smart Long-Term Internship Program for undergraduates across disciplines. The award-winning programme aims to prepare university students for business life. Within the framework of an 8-month internship program, students are offered vocational orientation, mentoring, training and development programs and gain professional experience.

Marbo, Serbia – nurturing graduate talent

Marbo (Pepsico West Balkans), a Serbian snack producer and member of multinational Pepsico, invests in talent development through its internship program aimed young university graduates without prior work experience. The “Go Challenge” program is managed by the Pepsico Talent Acquisition Team, which is responsible for recruitment and selection of candidates. Selected candidates are engaged in a two-year internship program at Marbo, which is tailored to include a range of skills development practices, in accordance with the interns’ agreed career development plans. The number of interns is currently limited depending on projected needs for new hires. To date, the programme has resulted in 100% employment of all interns that participate in the programme.

In addition to its graduate programme, Marbo has also established a one-month program, Agro Academy, which provides practical opportunities for final year agriculture students at the universities of Belgrade and Novi Sad. Through Agro Academy, selected students are offered training and lectures from Marbo company experts, as well as practical experience through company work placements, gaining insight into Marbo’s operations throughout its value chain - from cultivation to production lines and packaging. The program is supported by the Ministry of Agriculture, Forestry and Water Management in Serbia.

Boosting regional inclusion through value chain engagement

Efforts to support regional inclusion have also included agricultural value chain engagement. In all the countries studied here, (M)SMEs and small-scale producers constitute a significant proportion of the local value chain, and downstream agribusiness is well positioned to initiate buyer-driven value chain integration.

A number of firms identified skills shortfalls in value chains as a competitive disadvantage, particularly in the context of supply chains which require full accountability and transparency to meet export standards. There is therefore a positive case to identify where quality and resilience of supply could be

enhanced through investment in training and skills, including strengthening links with farmers and producers.

LCM, Morocco – value chain aggregation to support regional inclusion

Les Conserves de Meknès – Aïcha (LCM) is a long-standing Moroccan brand, established in 1929, focusing on the production of preserved foods, catering both to the domestic and the international markets.

In terms of inclusion efforts, LCM has actively promoted public-private partnerships and aggregation models (the latter also within the context of the Green Morocco Plan) as successful strategies to support local and rural development in Morocco, and establish more modern and efficient agricultural value chains.

The aggregation models begin with a validation phase, during which the company signs partnership agreements with individual farmers; then during the industrialization phase, a full-scale supply contract is put in place with SODEA (Société de Développement Agricole) and SOGETA (Société de Gestion des Terres Agricoles), which provide both farmer-level financing and training. Currently, LCM is producing a range of crops under various subsidiaries using this model – such as peaches and plums, figs, apricot and citrus and cereals.

Delta Agrar, Serbia – future-proofing supply chains through smallholder support

Delta Agrar, a diverse agribusiness, is part of Delta Holding, a major Serbian holding company. Delta Holding and its related companies are engaged in a broad range of CSR activities, including through projects supporting local communities in primary production activities.

For example, in 2018-2019, Delta Holding piloted a project called “Our Village” in two villages in Eastern Serbia. Delta Agrar experts and specialists supported owners of 40 local farms, engaged primarily in horticulture and livestock production, through advice and technical trainings in primary production, including introducing management systems and certain standards, such as GLOBAL GAP. In addition, the company offered financial support through a local financial institution to create finance opportunities for participating farmers in the project. Delta purchased goods produced under the project.

Through investing in the development of local communities and producer skills, Delta Agrar hopes to establish a more resilient agribusiness sector in Serbia, strengthen cooperation with local farmers, and make agriculture more attractive to younger generations, thus ensuring business continuity for years to come.

3.4 Responses to COVID-19 context at enterprise level

Overall, the agribusiness sector has been relatively well insulated from the worst effects of the crisis, with food production continuing largely uninterrupted, in many cases backed by significant government support to ensure continued food supply. However, some agribusiness sub-sectors have been significantly affected by quarantine measures, including enterprises which cater to tourism and hospitality. In other cases, stricter inspection and sanitary measures have restricted international trade and dampened exports, and a number of firms experienced temporary logistical challenges in adapting to social distancing and other public health requirements.

Given the unpredictable trajectory of COVID-19, including the potential for recurring lockdowns and restrictions, agribusiness firms have needed to transition the workforce to new forms of operations. This has frequently been accompanied by workforce skills development in order to develop internal capacity and create a more flexible and agile workforce that is better positioned to respond to rapid change. Some firms identify the prospect to implement positive changes to working practices borne out of crisis-response necessity, focusing on processes and practices which spur innovation and inclusion, whilst also taking into account the impact of COVID-19 on vulnerable groups in the workforce (e.g. increased care responsibilities for women).

As agribusiness firms have responded to the short and medium-term consequences of COVID-19, there have been opportunities to introduce changes based on a longer-term perspective, aligning business and employment priorities by seeking to become an employer of choice in the 'new normal'. This includes taking a longer-term approach to workforce upskilling and recruitment, offering workers sufficient opportunity and security so as to realise returns on investment in skills development; strengthening worker engagement and communications strategies on the basis of lessons learned during the pandemic, and ensuring that equal opportunity in the talent pipeline is integrated into longer-term human capital development.

Across the five project countries, COVID-19 has prompted huge shifts in how people consume and purchase food, in turn prompting agribusiness enterprises to rethink fundamental aspects of their operations.

3.4.1 E-commerce

Agribusiness enterprises identified that the most significant impact of the COVID-19 pandemic has been changes to the way in which people buy and consume food. For retail companies this has hastened the introduction of e-commerce tools to allow consumers to purchase food via web platforms without physically entering a store. A shift to e-commerce has been observed in differing degrees in food retail across the project countries, including in those where online retail and delivery services were previously significantly underdeveloped.

- In Uzbekistan, delivery service platform Express24 has reportedly seen a 500% growth in demand for food delivery following introduction of quarantine measures in March 2020. Equally, the number of grocery delivery orders placed through e-commerce service LeBazar increased threefold.
- Responding to the challenges of the COVID-19 pandemic in Morocco, Cafés Carrion developed e-commerce and digital marketing solutions and has also put in place new strategies to reach the final consumer directly, for example with new services dedicated to espresso coffee in households and workplaces. Thanks to these innovations the company achieved a better performance than the average of its direct competitors.
- Serbian holding company, Delta Holding, which has a range of interests in agribusiness has also responded to the pandemic with the planned launch of its own e-commerce activities, aiming to become a leading online retailer for the Balkans.

Enterprises further down the supply chain have also introduced e-commerce (including online consultations) and delivery services aimed at their clients.

However, enterprises in some countries who have attempted to introduce e-commerce have faced considerable constraints and it is unclear to what extent recent innovations will be pursued: this is particularly the case in Georgia (see Chapter 2).

Georgian agri-food: Challenges in maintaining e-commerce impetus

Agri-food companies in Georgia reported a number of constraints to the ability to launch and scale e-commerce operations. First, lack of investment in appropriate infrastructure: where consumers expect fresh products to be delivered rapidly, this requires new forms of infrastructure, including a nationwide network of storage, refrigerated storage and logistics solutions, and an on-call distribution network. Second, lack of skills and business knowledge relating to e-commerce: the shift to online sales and distribution requires a range of technical, marketing (including social media) and data management skills which were not available to many Georgian agribusiness, particularly smaller firms.

Few Georgian agribusiness enterprises were able to develop e-commerce platforms to promote exports during the crisis due to a range of obstacles including difficult logistical procedures, high bank fees for online payments, the lack of technical infrastructure for collecting payments and the absence of warehouse facilities. In addition, the absence of national legislation covering e-commerce transactions posed an additional hurdle.

These constraints have been widely confirmed by the response of many agribusinesses in Georgia to return to traditional modes of operation upon the lifting of lockdown measures. The European Business Association (EBA) conducted research earlier in 2020 exploring the challenges for companies after COVID 19 among a range of companies including agribusinesses in beverage and food processing. These companies identified their most problematic challenge in selling their products; the majority had shifted to e-commerce during the lockdown but, after the lifting of restrictions, the majority of companies reverted to standard operations without incorporating any elements of e-commerce (BM, 2020). Nevertheless, some enterprises have expressed an intention to develop measures, such as the development of regional storehouses, which will support delivery and e-commerce services long-term.

3.4.2 Digitisation of business processes

A number of firms, including Anadolu Etap in Turkey, reported how the expedited adoption of digital technologies are rapidly transforming how the company works and are already generating benefits by reducing the costs of information, transactions and supervision.

Anadolu Etap, Turkey – Covid-19 accelerates digital transformation

During the pandemic, the Anadolu Etap quickly adapted to the domestic and international markets by moving customer contact to the digital platforms. For white-collar positions, the company switched to teleworking and a rotating model, strengthening technological infrastructure to facilitate these remote operations.

The Covid-19 pandemic has accelerated the digital change and transformation process in the company, ensuring fast integration with the digital systems through time and location independent working model. Furthermore, employee business travel has been reduced and remote working has increased – resulting in cost-saving and efficiency increases. With digitisation, the company feels as if its geographic reach has increased; and by moving key marketing events, such as fairs and exhibitions online, the company has not only saved time but also reduced its environmental impact.

In terms of regional inclusion, in the context of rural-urban gaps, this research has identified a number of examples of pandemic-induced innovation through digitalization, which both draws on and serves to promote inclusion.

Cosumar, Morocco – implementing digital solutions through ‘Attaissir’

The COSUMAR Group is at present the sole sugar producer in Morocco and operates through five companies: Cosumar SA, Surac, Sunabel, Suta and Sucafor. The company extracts, refines, packages, distributes and exports sugar.

The company reports that COVID-19 has led to the acceleration of the introduction of digital working methods and increased mechanisation of the company's operations. This has included strengthening virtual communications with out-grower farmers and experimental use of technologies such as drones, for future consideration.

Most notably, Cosumar distinguished itself during COVID-19 crisis with the implementation of a digital solution called ‘Attaissir’ in partnership with the ADA (*Agence pour le Développement Agricole*). All programming operations – from sugar harvesting, automatic encoding of plots, allocation of agricultural machinery, transportation and delivery of sugar plants, to payment by bank transfer to farmers – have been digitalized with the ‘Attaissir’ system.

The initiative saw Cosumar receive an award from the FAO for the best initiative for the protection of farmers and vulnerable groups against the pandemic in the MENA Region. ADA intends to draw on the Attaissir experience to support other aggregation projects in digital transformation and enable small, aggregated farmers to benefit from agricultural digitisation which occupies a prominent place in the 2020-2030 Generation Green strategy.

3.4.3 Scaling up remote learning

Across the countries of study, firms report a scaling up of online training, increased access to remote skills development tools, and boosted use of digital solutions for distance learning.

Korzinka, Uzbekistan – developing online training

A key feature of Korzinka's Covid-19 response has been an intensification of its learning and development activities online by introducing the project ‘I-spring’. The transition to online learning was initiated in January 2020 and introduced in April 2020 – just at the start of the pandemic.

Staff training is now available 24/7 online for all employees. Moving training online has seen an increase in interest – with it simply being more accessible to more staff. Currently all training is delivered via e-learning, including the employee induction training. Employees are expected to conduct training at home or from stores.

Post-pandemic, Korzinka will restart in-person in portions (esp. for older people unfamiliar with technology), however, the company will maintain the online component, which is considered to be highly effective among younger staff. While most content is now online, Korzinka continues to formalise certain courses and moving them online. All policies and procedures will be available through e-learning shortly.

Among training changes, Korzinka also launched an online program which helps to develop “universal” employees who can easily move between positions – giving staff a chance to study different departments within the store and cover for each other when needed. Employees receive bonuses for becoming “universal”, and this creates greater flexibility for Korzinka as an employer.

Overall, the company reports that the pandemic has expedited change and innovate elements (automatization, e-learning, in-touch platform) which were already underway at Korzinka.

3.4.4 Impacts on recruitment strategies

For those firms with integrated value chains, including cultivation operations whose seasonal labour requirements are typically met by migrant labour, Covid-19-related restrictions on internal and cross-border movement brought a range of challenges in ensuring labour supply. Good practice responses have included planning proactively; engaging with legitimate, trusted third parties in the recruitment process; absorbing increased costs of transport and additional employment; segregating new arrivals for the initial quarantine period; and coordinating with local authorities on the movement of migrant workers.

Anadolu Etap, Turkey – safeguarding seasonal labour supply

AEP Anadolu Etap Penkon Food and Agricultural Products Industry Trade Co. Inc is a major Turkish juice producer, engaged in both the primary production and processing of fruit. AEP was founded as a result of a merger in 2010.

AEP's operations have been affected by Covid-19. Notably, there has been considerable difficulty in finding skilled work force and accessing technology and know-how. Many of the company's orchards use local labour from nearby villages, however a few of their orchards are heavily reliant on thousands of internal migrant workers from different regions of the country.

In March 2020, anticipating the forthcoming disruptions being caused by outbreaks of Covid-19, the company took the decision to recruit its migrant workforce well in advance of the harvest season to ensure that they had the workforce in place in the event of national travel restrictions. For those workers that were recruited this meant an additional month and a half of employment and pay prior to the beginning of the fruit harvest.

This meant quickly reaching out to licensed intermediaries to help identify and recruit workers. The company also hired a consultancy specialising in health and safety to undertake free medical checks for all workers prior to their arrival on site. Additionally, despite the significant increase in internal travel costs, they also paid for all workers to be transported directly to the site.

To reduce the risks of new arrivals transmitting Covid-19 to existing workers, the company required that all new arrivals be kept separate for an initial 14 days. This meant housing them in separate accommodation, arranging shifts so they did not work on the same sites at the same time, and lengthening lunch hours to maximise distancing between workers. To help manage the large workforce and ensure workers were in the correct areas at required times, coloured wristbands were given to different groups based on when they had arrived at site. All workers have also been provided with face masks, other PPE, and trainings and information on Covid-19. At the end of the 14-day period, additional medical checks were conducted to ensure there were no cases.

In addition, hygiene measures and OHS practices have been updated on all sites – providing workers with all the necessary PPE and implementing social distancing rules in worksites. An emergency action plan in line with state measures was launched by the company to provide a framework for the changes. A TSE Covid-19 Safe Production Certificate was obtained for the measures taken at the company's farming and packaging facilities and it was the first company in the sector to obtain the certificate.

3.4.5 Repositioning agribusiness employment

In some cases, the significant disruption to other segments of the economy presented opportunities for the agri-production sector to position itself as an employer of choice, including to 'white collar' urban workers who would never usually consider a job in agribusiness – several Georgian agribusinesses reported being able to offer job stability, and a 'COVID-secure', outdoor employment. Equally, several firms reported that retailers were able to create new job opportunities for qualified people who lost their jobs in service and hospitality sector.

3.4.6 Product innovation

Agribusiness firms also report exploring new product offerings, responding to consumer demand and renewed interest in health and nutrition, and local food. In Serbia, Nectar Group developed new vitamin and mineral enriched drinks as a result of COVID-19. Serbian sugar processor Sunoko invested in a new plant to produce alcohol gel in response to growing demand: molasses, a raw material used for alcohol production, was one of the company's by-products. In Turkey, grain and pulse processor, Yayla Agro, as well as honey producer, Balpalmark, also observed increased interest for their products owing to a rise in health concern among consumers.

Balpalmark, Turkey – developing new products to respond to consumer demand

As has been the case for many companies, Balpalmark had to swiftly adapt its health and hygiene and operational practices in response to the pandemic and in accordance with the Covid-19 Hygiene, Infection Prevention, and Control Guide prepared by the TSE. Balpalmark successfully passed all the relevant inspections and received the Covid-19 Safe Production Certificate. Action plans for procedures in each of the worksites were also developed.

Covid-19 has also reportedly increased the awareness and attractiveness for bee products as health foods and supplements, which in turn has led to an opportunity for Balpalmark to develop and invest in innovative and new products supporting the body's immune system.

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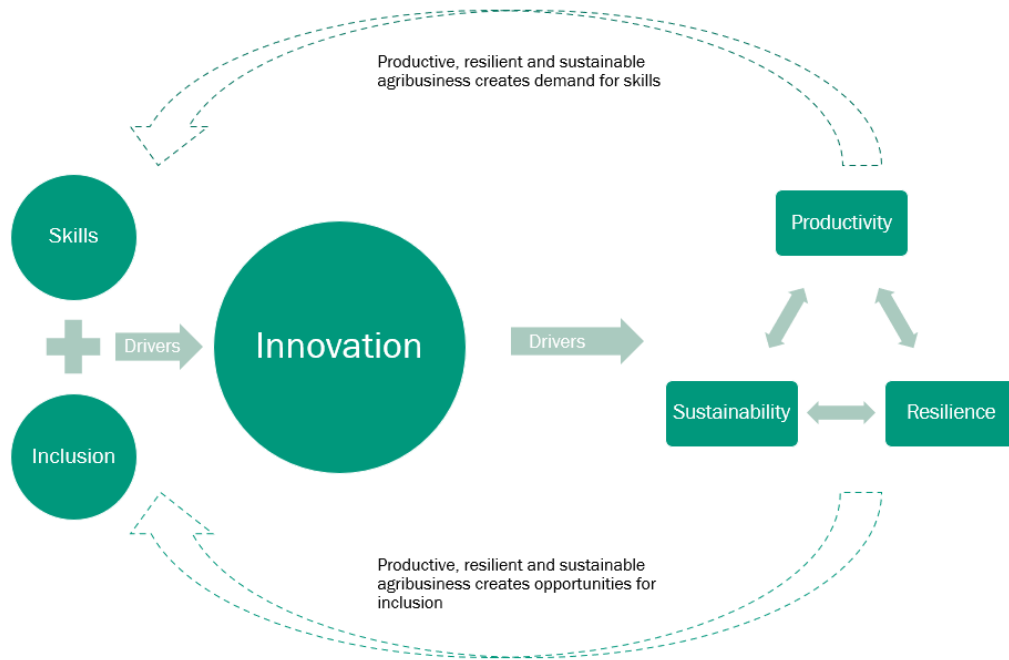
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4. POLICIES THAT SUPPORT SKILLS DEVELOPMENT AND INCLUSION IN AGRIBUSINESS

4.1 Framing the virtuous circle of innovation, inclusion and skills in sustainable agribusiness development



The development of sustainable agri-food systems (meeting food security needs while reducing the environmental and social footprint of the sector) requires innovation, powered by ideas. Innovation happens not only through research and development but also through changes in practice within businesses. These changes (or innovations) are well-served by a workplace that are diverse. There is compelling international evidence that workforce diversity is associated with more innovative teams, as well as better decision-making and leadership (Hunt, Layton, and Prince, 2018; Noland, Moran, Kotschwar, 2016; Rock and Grant, 2016). Workforce diversity means companies benefit from the ideas of different individuals that bring different approaches and perspectives to problem-solving and research and development activities. Diversity also improves companies' capacity to understand diverse consumer preferences and (potential) product uses, as well as drawing on the experiences and needs of diverse employees in developing innovative workplace practices.

Skills are an important entry point to build resilience, support innovation, and create inclusive economic opportunities for the future. A skilled workforce is a driver of innovation, and a prerequisite for the development and adoption of new technology. Further, adapting employees' skills and roles to new ways of working, and new market realities, in the aftermath of the Covid-19 pandemic will be crucial to building operating-model resilience.

At the same, innovation itself is a key driver of inclusive growth in agri-food systems. The introduction of new technologies and other forms of innovation drive demand for a wider range of higher-skilled, higher-value jobs and create opportunities for a broader base of workers to improve their livelihoods.

Agribusiness (and agricultural transformation) also has broader relevance for inclusion in transition countries. Agribusiness sustains the livelihoods of some of the most vulnerable population groups

(including women, youth, minorities, and migrant workers); it is often the only economically viable activity in rural and remote areas; and it can be a key source of formal, flexible working options for women with unpaid care responsibilities, as well as entry-level jobs for youth at a range of levels (for example, in distribution and retail). Inclusive skills practices that expand opportunities for underserved groups may offer particular benefits, both in terms of addressing persistent socioeconomic exclusion (that impedes the realisation of wider development objectives), and in terms of expanding the labour force to address skills shortages and delivery the business-performance benefits associated with diversity (see above).

However, as our research in the five project countries has demonstrated, agribusiness sectors in many transition countries are often characterised by the opposite dynamics; that is, the prevalence of low innovation, low productivity enterprises and business models that struggle to support decent work opportunities, and where the SMEs that dominate the sector lack the skills capacity or commercial incentives to invest in innovation.

Therefore, the fundamental policy challenge – especially for transition economies – concerns how to create practical pathways to higher productivity, higher-value agri-systems that can sustain and promote the demand for a higher skills base (and, by extension, sustain and promote high quality, formal employment opportunities for all). Meeting this challenge requires a strategic focus on skills, simultaneously pursuing actions that raise demand for skills along agri-food value chains; boost the supply of skills to the sector to promote innovation and growth; and facilitate the matching of supply and demand in the context of constantly evolving industry and labour market needs.

4.2 Policies that support skills development and inclusion in agribusiness

The preceding chapters highlight meaningful engagement by the private sector in efforts to develop human capital in and for the agri-food sector. However, more systematic linkages and integration of private sector activities and relevant national policy frameworks (including wider sector development plans as well as national and/or sector-focused skills development initiatives) can enhance prospects for inclusive skills development in agribusiness. Cooperation on inclusive skills development can play a particularly important role in supporting post-Covid-19 economic recovery – in the sector and nationally – and contribute to building the longer-term economic resilience of agri-food value chains.

This strategic objective is reflected in the first ‘policy pointer’ for inclusive agribusiness development, detailed in Chapter 5. The ‘policy pointer’ provides three potential areas of focus for policymakers in considering how to maximise inclusive skills outcomes for agribusiness, including through engagement and integration with private sector actors.

- **Industry and innovation policy:** consider how national and/or sectoral policies that promote innovation and industry development can harness existing inclusive skills developments in high-innovation agri-food firms (‘islands of excellence’), specifically in terms of facilitating linkages with other enterprises up or down the value chain to share and transfer experiences and approaches to innovation and inclusive skills development.
- **Agricultural Policy:** locate inclusive approaches to skills development within broader strategies for agribusiness ‘greening’, productivity enhancement, and innovation, including consideration of potential scope for mid- and downstream agribusiness to incorporate workers displaced from primary agriculture, as well as from other sectors adversely affected by Covid-19.
- **Digital economy policy:** include e-skills and inclusion in policy responses seeking to optimise the potential of e-commerce, targeting agribusiness and agri-food retail, and provide support and incentives for inclusive skills development within the platform economy.

As a bridge between the findings of the research in previous chapters, and the ‘policy pointers’ in Chapter 5, the remainder of this section looks briefly at some key characteristics of policy orientations that respond to specific opportunities and challenges identified across the project countries.

4.2.1 Covid-19 – a window of opportunity for public policy

The importance of ‘windows of opportunity’ created by crisis situations, such as the current Covid-19 pandemic, is well recognised (OECD, 2021). Consistent with this view, many countries have announced their ambition to ‘build back better’ following the Covid-19 pandemic, focusing on economic recovery plans that improve sustainability and resilience and seizing on the pandemic as an opportunity to promote inclusive growth and innovation in a more sustainable way. In particular, increased responsiveness and flexibility of education and lifelong learning systems can play a significant role in helping economies recover from the adverse impacts of the pandemic (World Bank, 2020).

This research has identified a number of areas where the impacts of, and responses to, Covid-19 create ‘windows of opportunity’ for public policy interventions relating to skills, inclusion, and innovation in agri-food.

Skills, inclusion, and human capital development: agility, rapid reskilling, digitisation, and focus on women and youth

There is increasing impetus behind a new narrative that the global pandemic has served to ‘accelerate the future of work’, boosted by a ‘technological tailwind’. Evidently, many workers, including agribusiness workers, have needed to rapidly adapt to changing circumstances. Such ‘enforced’ adaptability can foster both a stronger ‘learning mindset’ and employees’ amenability to acquire new skills, as well as agility – exploring what can be done outside companies’ traditional processes.

COVID-19 has accelerated the pace and scale of workplace innovation and there is an opportunity to build on ‘enforced’ innovations introduced in response to the pandemic. The COVID-19 pandemic has acted as a catalyst for innovation in agri-food industries, creating incentives to introduce new business processes and technological developments. This includes innovations that have been already under consideration for some time (such as e-commerce and delivery), but for which there has previously been insufficient commercial incentive; as well as other innovations (such as automation and flexible work arrangements) that have developed in direct response to the crisis. As economies and societies emerge from the COVID-19 health and economic crisis in coming years, there is a unique opportunity for the agri-food industry, with the support of policymakers, to continue to develop new technological and other innovations that can bring lasting productivity and profitability benefits in the longer term.

However, it is important to acknowledge that the pandemic has also exposed and widened existing divisions: the digital divide, the gender divide, the generational divide, the formality divide, and the skills divide. The ILO has estimated that only 18 per cent of the world’s jobs can be done remotely, and this number falls to 15 per cent in developing and emerging economies (ILO, 2020). For many workers facing the pandemic worldwide, income earning options either ceased or became a much riskier endeavour. In agribusiness value chains, and in the rural economy more widely, this includes some of the most vulnerable workers with the least employment security and the fewest protections.

The economic impact of Covid-19 has again concentrated attention toward youth employment. In the wake of the 2008 financial crisis, a number of economies saw an entire generation of young people face a future with far fewer opportunities. There are credible concerns, and some emerging empirical evidence, that youth unemployment will be disproportionately affected by Covid-19, not least because many of the retail and service jobs most affected by the pandemic are typically held by younger people (ILO, 2020b; UN-DESA, 2020).

However, digital technology has played an important role in fostering and enabling adaptation and alternative coping strategies, particularly for younger people more likely to be connected to and possessing ICT familiarity and skills. From re-allocation of service sector workers to the digital economy, through to entrepreneurial use of online sales and e-commerce, through to the development of remote learning, digital platforms have been key to Covid-19 responses in the agribusiness sector.

Many of these innovations stand ready to be consolidated and further expanded; for example, by further enhancing the digital skills of trainers and educators, and developing formal recognition frameworks for skills acquired digitally (such as through micro-credentials and ‘open badges’).

Similarly, Covid-19 has served to highlight once again the unequal distribution of unpaid work, which falls disproportionately on women and remains a barrier both to fuller economic participation and societal returns on investment in women’s education and skills. As education and care facilities closed as a result of public health measures, the burden of meeting these unpaid care responsibilities has not been equally shared, reducing the time women have available for paid work. As a result, women have faced disproportionate pressure to leave their jobs, a pressure exacerbated by the fact that labour market segregation means women are often concentrated in occupations and sectors that are not conducive to remote work (including many lower-skilled roles in agri-production and retail). This disadvantage is compounded by women’s unequal access to and use of digital technology (IFC, 2020).

Supply chains: fragility and resilience

Findings from the agribusiness sectors surveyed in this report suggest that diverse (including localised) sourcing and digitisation will be the key to building stronger, smarter, supply chains in agri-food systems. Action by governments to designate agri-food as an essential sector, combined with entrepreneurial responses among food producers and distributors – often supported by digital technology – has helped mitigate operational disruptions in agri-food supply chains (albeit with the consequence of raising prices in some contexts). However, the pandemic has served to highlight both the potential and the fragility of food systems in multiple dimensions. In particular, it has highlighted:

- The scope for policies to incentivise the production of sustainable, safe, healthy, and nutritious food, and prevent food waste;
- The need for policies to strengthen the regionalisation and localisation of food systems and supply chains, while managing the risks for emerging economies of ‘deglobalisation’;
- An increased focus on traceability – and the scope for digital (specifically blockchain) technologies to enhance traceability – in the context of increased consumer demand, enhanced food safety and quality demands, and transparency to promote sustainability of food value chains;
- A rapid increase in awareness and uptake of technology, particularly digital technology, throughout food systems, from pre-production through to consumer engagement.

4.2.2 Policy coherence

A further overarching theme identified in this research – which purposefully brings together a multi-faceted range of policy fields – is the scope to improve the coherence and transparency of policy packages. In particular, policy coherence across the distinct but overlapping domains of agribusiness development, innovation, and skills development can be enhanced; and strategic objectives for the development of agri-food systems can be integrated into broader policies including those related to active labour market policies, social protection, the environment and digitisation. The challenges facing food systems are considerable, and more effective and integrated policies are urgently needed to meet the ‘triple challenge’ of ensuring food security and nutrition for a growing population, providing livelihoods for actors along the agri-food value chain, and ensuring environmental sustainability (OECD, 2021).

Agricultural policies

The human capital and labour market needs and implications of agribusiness (and agribusiness development) can be further integrated into wider agricultural and agribusiness policies, recognising that agribusiness development is a vector of significant social and economic transformation.

- Higher agricultural productivity implies lower labour demand in agriculture. Worldwide, millions of people have left agriculture for jobs in other sectors, including but not limited to downstream

agribusiness. For those with the requisite skills, this transition can offer an improvement in earnings and skills development potential, but labour re-allocation is neither automatic nor seamless. Public policy, therefore, has an important role in terms of incorporating skills components into strategies for agribusiness ‘greening’, productivity enhancement, and innovation. Such policy interventions must consider how best to manage the trade-offs between supporting the creation of better quality jobs and the risks of eroding existing income-generating opportunities. This context necessitates a parallel policy focus on both skills development to meet the needs of a more productive, innovative agribusiness sector, and on reskilling – and social protection – support for those whose employment or income sources are unlikely to continue in their current form.

- Reductions in employment in primary agriculture can exacerbate demographic trends, including rural-to-urban migration. It is therefore important that policies – including those relating to technology adoption in agribusiness – are mindful of employment intensity relative to long-term market trends, and seek to promote employment in high-value agriculture in response to shifting demand. As the OECD notes, *‘the most powerful strategies to improve rural well-being focus on raising the productivity of rural areas through investments in skills, digitisation, innovation, and internationalisation of small and medium-size enterprises, and on delivering strong public services’* (OECD, 2021)
- Policies, therefore, need to focus on investments in human capital, alongside infrastructure, to create an enabling environment that supports the transition to higher-value, higher-productivity agribusiness. But across the 54 countries covered by the OECD Agricultural Policy Monitoring and Evaluation 2020 report, only a small share of total support to agriculture goes to general services such as R&D or infrastructure (OECD, 2020). Lack of policy (and funding) attention reduces resilience and impedes productivity growth, in addition to contributing to environmental problems (OECD, 2021). By contrast, investments in building a strong agriculture and agribusiness knowledge and innovation system can make food systems more productive, more sustainable, and more resilient.
- Inclusion of youth and women into agri-food labour markets is central to delivering broader socio-economic development objectives, and for social stability. For example, in the five project countries, people under 14 years account for between 16 per cent (Serbia) and 29 per cent (Uzbekistan) of the national population (World Bank, 2021). Although a young population can contribute an important ‘demographic dividend’, such demographic trends also imply a pressing need to address current challenges related to youth un(der)employment.
- Key to inclusion of youth and women – and to innovation – in agri-food value chains is the development of skills and facilitating job matching. More educated and skilled individuals are more likely to adopt and effectively use modern technologies, respond to market opportunities, and increase their earnings. Policies which seek to prepare individuals for jobs in a transforming economy need to design age-differentiated interventions that address constraints, from basic education through to job-search frictions. Well-educated rural youth and women trained in business development and vocational skills are likely to benefit from the increasing knowledge intensity of the food system, with significant opportunities in high-value agriculture and associated agri-food processing and value addition.
- More broadly, skills upgrading is central to facilitating agri-food system transformation. The current curriculum of many agricultural universities and agri-TVET institutes in the five countries studied here has not fully incorporated the changes in the technology landscape and advent of ICT tools in agribusiness, which most young people are using in their daily lives. In addition, skills beyond agricultural production, including in food storage, grading, processing, and alternative energy, also need to be developed to facilitate food systems transformations and private

investment in response to changing consumer demand. Specifically, focus areas for agribusiness skills upgrading include: incorporating more entrepreneurial and technology content in the curriculum of agriculture universities and training institutes; encouraging education and TVET institutions to develop food hubs and incubate development of enterprise and business ideas; improving accessibility through distance learning through digital approaches, and supplementing investment in higher education with more attention to vocational education training for skills needs, particularly in downstream agribusiness.

- Developing an innovation and entrepreneurship ecosystem can help facilitate private sector growth and improve the quality of jobs in agri-food value chains. This requires an enabling environment for the private sector and (M)SMEs, including access by entrepreneurs to business development services (BDS), business enablers (such as incubators), as well as upgrading business, management, and technical skills.

Industrial and innovation policies

Innovation is key to improving productivity, sustainability and resilience in agri-food value chains. The economy-wide environment for science, technology, and innovation determines the underlying incentives and dis-incentives in all sectors, including agribusiness, and therefore broader policies on innovation and digitisation are of direct relevance to the development of innovative, sustainable and resilience agribusiness (OECD, 2015). This research has identified a number of areas where further integration can be pursued between innovation and digitisation policies, and those relating to agribusiness, human capital and inclusion.

- There is potential to make public policy on innovation more relevant to private agri-food sector needs, including SMEs. The public sector continues to be the main source of funding for agriculture-related R&D, whether performed in public or private organisations. Business investment in R&D is normally driven by market demand, but governments can also provide different kinds of incentives, including fiscal rebates. Policy can enable or even drive innovation, but this in turn can necessitate innovation in policy. This research indicates that there is scope to support a more demand-driven system that is responsive to the needs of ‘innovation consumers’ – agribusiness companies. It is also critical to support the diffusion of innovation to small agri-food firms.
- It is crucial to expressly link – and provide policy incentives for private companies to link – agribusiness innovation to sustainability outcomes, specifically those relating to climate (OECD, 2019). The findings of this research suggest that while the drivers of agribusiness innovation are multiple, many reflect the pressing need to reduce the environmental footprint of the sector, and to adapt to changing environmental realities.
- Partnership and coordination – either based around clusters or hubs, or inter-institutional linkages - can reinforce connections between agribusiness actors and assist in matching the supply of research to demand, facilitate technology transfer, and increase the impact of public and private investments. Vitally, public policy can act to create a pre-competitive space for innovation and skills transfer in agribusiness – both horizontally, where the sector is characterised by the co-existence of a small number of highly innovative, international firms and a numerical majority of SMEs, and vertically, where supply chain integration is at an early stage and there is significant potential to cascade innovations down through the value chain.
- Partnerships can also facilitate multi-disciplinary approaches that can generate innovative solutions to some problems. International co-operation on agribusiness innovation offers universal benefits, and it is noted that there are already such linkages between countries under consideration here – for instance, between Turkey and Uzbekistan (TAGEM, 2020). The benefits of international co-operation for national systems stem from the specialisation it allows and from

international spill-overs. In countries with limited research capacity, scarce resources can then focus on better taking into account local specificities.

- Particular attention can usefully be paid to skills development and advisory services that can facilitate the transfer and successful adoption of innovation. The potential benefits of innovations are only realised if effectively implemented. The capacity of the agri-food sector to derive maximum benefit from innovation – whether driven by market demand and opportunity, ongoing digitisation, organisational change or the climate crisis – depends on the availability of skills to facilitate the introduction, use, and maintenance of new technologies.
- Innovation is not automatically inclusive: innovation can increase inequalities in income and opportunities of different groups, particularly in view of access to digital communications technologies. Innovation can impact ‘industrial inclusion’, where ‘islands of excellence’ – highly innovative businesses – co-exist with weak performers. These innovation and productivity gaps can in turn impact on social inclusiveness. And innovation and its policies can affect regional inclusion - the geographic dimensions of industrial and social inequalities – for instance, where innovation support is concentrated in larger urban centres.

Digital economy policies

As OECD (2019b) notes, public policy can significantly shape the impacts of digital transformation on innovation and inclusion outcomes in agribusiness:

- In terms of regulatory lag or uncertainty – as technology evolves rapidly, regulatory frameworks are often not able to quickly adjust to new technological conditions and challenges. This can open regulatory breaches and create uncertainty for innovators and users, as is the case with the employment status of platform economy workers. As noted throughout this report, the platform economy has played an important role in the adaptation of agribusiness – and agribusiness workers - to the impacts of Covid-19.
- In terms of regulatory shortfalls and fragmented regulatory frameworks –mistrust in the capacity of systems to enforce laws for digital economy innovation may limit progress, as has been noted in the experience of agribusiness e-commerce development in a number of countries studied here - where producers and consumers noted either the absence of a regulatory framework for e-commerce, or an effective cybersecurity infrastructure for online payment and data protection.

Agribusiness responses to the pandemic have highlighted the need for a regulatory framework and infrastructure to support the digital economy. These has taken two principal directions: firstly, the burgeoning of e-commerce as a means to serve a growing but less mobile consumer base; second, the significance of the platform economy in a range of ways – providing up-to-date agronomic and marketplace information to producers, linking up actors in the value chain, but also providing means for displaced or inactive workers to supplement their incomes through platform work.

Harnessing the potential of e-commerce necessarily requires addressing a broad range of factors – the regulatory framework, digital access, as well as cyber-security and user confidence. But this research suggests that it is equally important to focus on the skills needs of enterprises (e-skills) in moving more of their operations online. More broadly, a lack of digital skills and learning opportunities in the context of lifelong learning systems create a digital divide exacerbating social exclusion (ETF, 2020).

Equally, there is scope to promote skills development within the platform economy (ILO, 2021). The nature of the tasks involved in the platform economy varies, but platform work will typically include repetitive micro-tasks that do not provide opportunities for workers to grow with their experiences, nor formal training. There are however market drivers for platforms to enhance service offering, and improve their ‘stickiness’ to (retention of) workers, through supporting skills development – including through in-app videos and tutorials.

Challenges in accessing data and proof of upskilling accompany the need to provide training opportunities, including digital literacy, as a means for attracting workers, ensuring brand quality and maximising impact for platforms. Some platforms, are starting to provide training for their workers, understanding the business value of upskilling for levelling up company standards and retaining the workforce (Caribou Digital and Mastercard Foundation, 2019).

4.2.3 Monitoring impacts and promoting evidence-based policies

A lack of empirical evidence – data and analysis – impedes systematic design and monitoring of interventions to enhance productivity, skills development, and inclusion in and for agribusiness. Information and knowledge gaps, and the wider absence of effective data collection, analysis, and dissemination frameworks (at both national and enterprise level), impede objective assessment of the extent and characteristics of key challenges facing the sector and the effectiveness, costs, and benefits of various policy responses (e.g., OECD, 2021). Additionally, there are gaps between the available scientific evidence and public perceptions. It is therefore essential for policymakers to invest in establishing and communicating policy-relevant evidence that can serve as the basis for a shared understanding of the facts – and the relative merits of distinct interventions – by all stakeholders.

There are a number of approaches that can improve the evidence base underlying policy decisions. These include: upgraded labour market information and analysis system (and national statistical capacities more generally) to provide consistent, regular, and accessible information and analysis; regulatory impact assessments; expert input (including empirical studies) from scientific advisory bodies, stakeholders, and policy research organisations; as well as more experimental (learning-by-doing) approaches.

As stakeholders across project countries have consistently emphasized, inclusive and genuinely participatory stakeholder consultation – including the full range of voices, such as SMEs and smaller producers as well as workers' representatives – is a powerful tool for policymakers to generate concrete data on key trends and challenges affecting different agribusiness activities and understand how and where policy interventions can be most effective (and how outcomes may differ across key groups). Indeed, much of the scope for coordination in highly fragmented agribusiness sectors (such as those in the five project countries covered in this report) will depend on the development of well-functioning platforms through which key actors can articulate their needs and concerns in a systematic yet flexible framework and process (for example, sector skills councils).

The generation of empirical data and knowledge, based on both quantitative and qualitative research, is a particularly pressing concern highlighted by this research. Specifically, in order to substantiate the business case for significant investment in inclusive skills to drive innovation (on the part of agribusiness enterprises and state actors), it will be necessary to develop a strong evidence base that can demonstrate return on investment (for example, concrete evidence of enhanced employee retention and production quality as a result of human capital investments).

A number of existing tools exist to assist government actors, businesses, and other stakeholders develop an evidence-based approach to agri-food policymaking. Of particular relevance is the OECD's Agro-Food Productivity-Sustainability-Resilience Policy Framework (PSR), which provides an evidence-based framework for assessing the suitability of the national and sectoral policy environment to achieving sustainable productivity growth in agri-food systems (and identifying policy barriers to realising such objectives).

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5. POLICY POINTERS

Previous chapters have identified the meaningful engagement of the private sector in human capital development efforts relating to agribusiness. However, there is scope to support more systematic resilience and recovery where these efforts are linked to policy measures attuned to the inclusive skills dimension. This section presents a series of suggested policy pointers which are directed to policy-makers, relevant intermediaries (for example, sector and industry associations, sectoral skills councils, TVET providers, business development service (BDS) providers), and private agribusiness firms. They are not intended as recommendations per se, but rather pointers toward positive and constructive directions of travel which can be more broadly applicable to the range of economies with which ETF and EBRD work.

5.1 Deepen linkages between inclusion, innovation and skills in policies targeting the agribusiness sector

Ensure that an inclusive skills dimension is integrated in sector strategies and policies relevant to agribusiness.

For policy-makers

- Industry and innovation policy: harness inclusive skills developments in high-innovation agri-food firms by facilitating connections between such 'islands of excellence' with other parts of the segment or value chain, including via and in collaboration with relevant intermediaries (such as industry associations and sector skills councils), in order to share and transfer experiences and approaches to innovation and inclusive skills development.
- Agricultural policy: locate inclusive approaches to skills development, including defined roles for intermediaries (industry associations, sector skills councils, agri-TVET providers), within strategies for agribusiness greening, productivity enhancement and innovation, looking to potential scope for mid-stream and downstream agribusiness to incorporate and include workers displaced from primary agriculture, farm work, as well as from other sectors impacted by Covid-19, and social protection support where this scope is limited.
- Digital economy policy: include e-skills and inclusion in policy responses seeking to optimise the potential of e-commerce, targeting agribusiness and agri-food retail (including through intermediaries as appropriate), and provide support or incentives for inclusive skills development within the platform economy.

5.2 Integrate an inclusive skills approach in short-term post-pandemic policy responses

Capitalise on adaptations and innovations necessitated by Covid-19, and recognise and pursue immediate opportunities for inclusive skills development.

For policy-makers

- Identify and follow-up areas where agribusiness firms and/or relevant intermediaries require policy support to maintain and/or facilitate ongoing positive adaptations and innovations spurred by the pandemic, including but not limited to business development services (BDS) and policy frameworks for e-commerce and digitisation, focusing on the needs of agribusiness SMEs with lower levels of access and capacity to ICT skills and infrastructure.

- Design new or expand current programmes to address emerging agribusiness skills needs, including digital and e-commerce needs, in collaboration with companies and intermediaries, and work in partnership with agri-business employers, sectoral bodies, and/or TVET providers to provide rapid and modular skills training to inactive or unemployed workers.
- Facilitate modular and flexible training in TVET and life-long learning for agribusiness, and continue to build on remote learning infrastructure and skills, including through support to build the operational capacity of key intermediaries (sector skills councils, industry associations, and public and private TVET providers).
- Structurally embed successful innovations from Covid-19 responses – such as remote or hybrid learning, recognition of prior learning during closures, or micro-credentialling – in skills development systems, including through updates to policies governing the activities of relevant intermediaries (for example, operational and qualifications frameworks for TVET).
- Refocus on lifelong education and reskilling in light of the likely labour market impacts of both Covid-19 and longer-term economic transformation of the agribusiness sector.

For intermediaries

- Support agribusiness firms maintain and further develop innovations initiated in response to the pandemic by providing, coordinating, or disseminating guidance and direct advisory support / services related to, inter alia, e-commerce and digitalisation, especially for SMEs that may lack key capabilities (industry associations, BDS providers).
- Emphasize to business partners the importance of skills development as a crisis-response and resilience measure, enhancing private sector interest and investment in skills and employers' deeper involvement in skills and TVET reform as a key means of accelerating crisis recovery and supporting longer-term transformation of the agribusiness sector (all intermediaries).
- Develop and/or deliver, in partnership with employers, new or updated education and training programmes that are aligned – and updated to remain aligned – to emerging and forecast agribusiness skills needs (including e-commerce and digital skills) and expand the offer of flexible, remote, and modular training that is more accessible for a wider range of students / employees (sector skills councils, TVET providers).
- Develop short courses in selected sectors, in cooperation with employers, to enable reskilling and upskilling of existing employees in the light of current and anticipated labour market impacts of Covid-19 and the longer-term economic transformation of the agribusiness sector (sector skills councils, TVET providers).
- Embed successful innovations from Covid-19 responses – such as remote or hybrid learning, recognition of prior learning, or micro-credentialling – in skills development programmes and systems (sector skills councils, TVET providers).

For enterprises

- Focus on business areas where Covid-19 forced rapid change and identify which elements of business process and systems change can be retained and upscaled, including digitisation of business processes and e-commerce development.
- Identify access and inclusion innovations in TVET delivery prompted by Covid-19 which could be maintained and scaled, including remote learning, digital skills development and shifts in working arrangements which create more – and more flexible – opportunities for young workers and women workers.

5.3 Foster agribusiness innovation

Actively support innovative development of private sector agribusiness, including early-stage innovation for the broader range of smaller firms, and foster express linkages between innovation activities, agribusiness sustainability and meeting consumer demand, including higher-value export opportunities.

For policy-makers

- Build linkages between state policy on innovation and agribusiness enterprise activities – including working with and through relevant intermediaries (including sector skills councils, industry associations, and/or regional initiatives such as EIT RIS Hubs)¹³ – and seek to showcase relevant and achievable innovation (technology absorption, export market development, e-commerce - including early stage-innovation) within private sector agribusiness, emphasising linkages to the skills necessary to enable and sustain this innovation.
- Identify and address barriers for agribusiness firms to invest in technology, knowledge and skills for innovation - financial, administrative, economic, logistical and attitudinal.
- Support the excellence agenda for research institutes and higher education institutions (HEIs) relevant to agribusiness and integrate them in the innovation ecosystem to provide better skills upgrading and training programmes, and to increase their entrepreneurial and innovation capacity.
- Seek to promote mobility and circulation of skills through agribusiness and academia in a continuous cycle of development, and support HEIs to respond to real-world challenges, emerging policy priorities, and operational processes.
- Support the dissemination of developments in agribusiness innovation to SMEs and lower-tier supply chain actors in the sector through establishing or scaling up agri-food innovation hubs, clusters or poles in order to support economies of scale, supporting and capacitating relevant intermediaries that can expand reach to SMEs, and potentially easing pre-financing requirements, simplifying rules, and providing information about co-financing opportunities.

For intermediaries

- Strengthen the case for private sector investment in innovation (and the skills required to enable and sustain innovation) by showcasing relevant and achievable innovation (and link to relevant skills needs) as a demonstration effect through highlighting successes of innovative agribusiness companies, including smaller start-ups, as well as practical examples of innovation, such as technology absorption, export market development, e-commerce (all intermediaries).
- Promote and support mobility and circulation of skills through agribusiness and academia in a continuous cycle of development, and support HEIs to respond to real-world challenges, emerging policy priorities, and operational processes (all intermediaries).
- Strengthen partnerships with private sector and other actors across the innovation ecosystem to enhance internal research and development capabilities and/or provide better skills upgrading and training programmes (TVET providers, research institutions, sector skills councils, BDS services).
- Support the dissemination of developments in agribusiness innovation to SMEs and lower-tier supply chain actors in the sector through establishing, supporting, facilitating access to, or participating directly in agri-food innovation hubs, clusters, or poles in order to support economies of scale (all intermediaries).

¹³ See <https://eit.europa.eu/our-activities/eit-regional-innovation-scheme-ris>

For enterprises

- Identify and operationalise direct links between business innovation requirements and skills requirements, focusing on technology uptake, e-commerce, management of compliance with export standards, data management and supply chain management.

5.4 Integrate approaches to agribusiness skills

Integrate and de-fragment approaches to agri-food skills development in order to deliver an ambitious vision of agri-food transformation, bringing together state, intermediary and private actors including smaller firms, to ensure that skills can drive innovation and productivity in the sector.

For policy-makers

- Consider developing a sector-specific agri-skills strategy with multi-stakeholder input, building on processes of social dialogue and including representatives of agri-business sector employers, workers, and key intermediaries.
- Support the institutionalisation of agri-food sector-focused public-private skills initiatives - ideally through establishment or activation of a sector skills council - to coordinate and scale up integrated forms of engagement between state and private actors relating to skills, ensuring representation of agribusiness SMEs.
- Develop and maintain mechanism to monitor, forecast and anticipate skills demand in agribusiness based on closer engagement with private sector agribusiness actors and key intermediaries (industry associations, sector skills councils, TVET providers) to modify training curricula to be dynamic and forward-facing.
- Identify and address skills shortages that constrain productivity in agribusiness, mapping sectoral skills shortages against high-potential (value- and job-creation) agribusiness sub-sectors and identifying how this information can be effectively communicated and incorporated into the curriculum and teaching of TVET institutions.
- Identify and expand access to business development services (BDS) for SMEs, including by capacitating relevant intermediaries, focusing specifically on rural SMEs' access to BDS, in recognition that SME skills shortfalls may include managerial and entrepreneurial skills.
- Improve the quality and responsiveness of institutional training providers for agri-food, including updating of training programmes (including elements of work-based learning), teacher training and infrastructure.

For intermediaries

- Promote closer engagement with private sector agribusiness actors to establish a clearer picture of future skills requirements and occupations, thereby enhancing alignment of education and training curricula and skills development programmes with industry-based forecasting (industry associations, sector skills councils, TVET providers).
- Facilitate and/or support private sector engagement in developing and hosting work-based learning programmes that can provide vital direct work experience and industry exposure to students pursuing relevant fields of study (industry associations, sector skills councils, TVET providers).
- Seek to expand access to BDS services for SMEs, especially rural SMEs, to address SME skills shortfalls related to managerial and entrepreneurial skills (BDS service providers).

- Expand outreach and increase support to SMEs and individual agri-producers that often lack the capacity to carry out administrative tasks required to participate in skills development programmes (industry associations, sector skills councils).
- Facilitating agribusiness networking – for example, providing a platform for exchange of knowledge and experience among companies, or programmes for knowledge development – to support the transfer and dissemination of innovative practices and support related skills enhancements through agribusiness value chains, with a particular focus on reaching SMEs (industry associations).

For enterprises

- Engage with the sector-based skills body to define occupational skills standards that are relevant to the needs and opportunities of agribusiness enterprises and to explore possibilities for to host work-based learning.
- Where relevant skills are lacking in the workforce or in the labour market, consider developing a more formal internal skills development programme, connecting these activities to a clear skills framework.
- Integrate skills planning and forecasting within broader business development strategy, and start to track key measures of business success against skills and innovation outcomes in order to understand the gains of investing in skills which can drive innovation – data collection should start with linking investment in training to improvements in employee retention (workforce turnover) and satisfaction (employee survey) outcomes.
- Professionalise recruitment and human resources management systems, focusing on the skills required by the business and including formal VET qualifications in selection criteria.
- Identify opportunities to work with suppliers on upgrading skills, by reviewing supply chain partnerships to identify where quality and resilience of supply could be enhanced through investment in training and skills, including strengthening links with farmers / producers.

5.5 Actively promote a more inclusive agribusiness

Actively promote a more inclusive agribusiness which can enhance innovation and productivity while reducing its environmental footprint, and drive demand for higher-skilled, higher-value jobs which create better opportunities for a broader base of workers to improve their livelihoods.

For policy-makers

- Broaden access to skills development for a wider range of students and workers, focusing on women and youth.
- Focus on internships and apprenticeships as drivers of inclusion in agribusiness: consider what public policy incentives can be put in place for agribusiness to provide high-quality training, apprenticeships and internships, and actively involve agribusiness sector representatives along with other intermediaries in the development of apprenticeship, internships, and other work-based learning programmes leading to certification of skills.
- Improve perceptions on career path / development in agribusiness for students in secondary and tertiary education, including for women and girls.
- Identify early learning opportunities for youth, particularly young women and girls, to develop awareness of a potential career path in agribusiness and ensure that TVET delivery itself is gender-sensitive.

- Identify and showcase concrete examples of diverse and inclusive business practice contributing to favourable business outcomes – focusing on skills development and retention, employee and consumer perceptions, and business decision-making.

For intermediaries

- Identify early learning opportunities for youth (and especially women) to develop awareness of potential career paths in agribusiness with the aim of improving the attractiveness of the sector among young people; for example, visits to enterprises and farms, facilitated by intermediaries with private sector cooperation (*industry associations, TVET providers*).
- Ensure that TVET delivery is gender-sensitive, that learning environments are motivating to women and girls, taking into account their specific needs, and that teaching and communications do not perpetuate preconceptions about gendered roles in the workplace and in professional development (*TVET providers, sector skills councils*).
- Promote, and/or provide practical support and guidance to implement initiatives in support of, equal opportunities and inclusive business practices among business partners, including through reinforcing the business case for inclusion, disseminating best practices, as well as the provision of practical guidance and tools (for example, templates for incorporating equal opportunities into human resources policies) (*industry associations*).

For enterprises

- Review how the enterprise's values, branding and communication speaks to potential employees as well as consumers, and evaluate how the firm can position itself as an employer of choice.
- Develop basic frameworks for skills classification and development at enterprise-level, and implement these in recruitment, reward and promotion decisions to promote non-discriminatory and inclusive hiring and development of staff.
- Identify the enterprise's responsibilities in trading relationships with higher-value markets where suppliers' 'Corporate Social Responsibility' and ESG practices are a requirement or a key differentiator, including compliance with all aspects of national law and fair and non-discriminatory employment practices.
- Assess workforce composition and identify particular barriers preventing employees from achieving their full potential, and identify scope to amend working practices – including family-friendly working arrangements – to make the most of the talent at the company's disposal.

LIST OF ABBREVIATIONS AND ACRONYMS

AAPSS	Agricultural Advisory and Professional Services of Serbia
ADA	Agence pour le Développement Agricole – Agricultural Development Agency (Morocco)
ADB	Asian Development Bank
ADD	Digital Development Agency
AEP	Anadolu Etap (Turkey)
AKIS	Agricultural Knowledge and Innovation Systems
BDS	Business Development Services
BiH	Bosnia and Herzegovina
CFCIM	Chambre Française du Commerce et d'Industrie du Maroc (Chamber of Commerce of Morocco)
CMC	Cités des Métiers et des Compétences – Professions and Competences Cities (Morocco)
DCFTA	Deep and Comprehensive Free Trade Areas
DITAP	Digital Agriculture Market
EBA	European Banking Authority
EBRD	European Bank for Reconstruction and Development
EC	European Commission
EFFAT	European Federation of Food, Agriculture and Tourism Trade Unions
EIB	European Investment Bank
ENA	École Nationale d'Agriculture de Meknes (Morocco)
ESG	Environmental, Social, Governance
ETF	European Training Foundation
EU	European Union
EWA	Empowering Women in Agrifood
FAO	Food and Agriculture Organization of the United Nations
FIELDS	Current and Future Skills needs for Sustainability, Digitalization and the Bioeconomy in Agriculture: European Skills Agenda and Strategy
FREN	Foundation for the Advancement of Economic
GDP	Gross Domestic Product
GI	Geographical Indications
GSP+	EU's Special Incentive Arrangement for Sustainable Development and Good Governance
HCP	Haut Commissariat au Plan (Morocco)
HEIs	Higher-education Institutions
HQ	Headquarters
IAV	Institut Agronomique et Vétérinaire (Morocco)
ICT	Information and Communication Technologies
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
ILO	International Labour Organization
INRA	National Institute for Agronomic Research of Morocco
ITC	International Trade Center

ITU	International Telecommunication Union
KÜMPREM	Koç University Migros Retail Training Forum (Turkey)
LCM	Les Conserves de Meknès - Morocco
MAPMDREF	Ministère de l'Agriculture, de la Pêche Maritime, du Développement Rural et des Eaux et Forêts (Ministry of Agriculture, Fishery, Waters, Forests, and Rural Development of Morocco)
MEPA	Ministry for Environmental Protection and Agriculture of Georgia
MoIDPHLSA	Ministry of IDPs from the Occupied Territories, Health, Labour and Social Affairs
MoU	Memorandum of Understanding
MSMEs	Micro, Small and Medium Sized Enterprises
NEETs	Neither in Employment or in Education or Training
OECD	Organisation for Economic Co-operation and Development
OHS	Office and Home solutions
OPT	Occupied Palestinian Territory
PPE	Personal Protective Equipment
PPPS	Public-Private Partnerships
PSR	Productivity-Sustainability-Resilience Policy Framework
PWC	PricewaterhouseCoopers LLC
RIS	Regional Innovation Scheme
R&D	Research and Development
SEFP	Southeast Enterprise Facilitation Project
SGDs	Sustainable Development Goals
SMEs	Small and Medium Sized Enterprises
SODEA	Société de Développement Agricole -Agricultural Development Society - Morocco
SOGETA	Société de Gestion des Terres Agricoles – Management of Agricultural Fields Society Morocco
SSO	Sectoral Skills Organization
STEM	Science, Technology, Engineering and Mathematics
TAGEM	Republic of Turkey Ministry of Agriculture and Forestry Central Fisheries Research Institute
TSE	Turkish Standards Institution
TVET	Technical and Vocational Education and Training
UNCTAD	United Nations Conference on Trade and Development
UN-DESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
VET	Vocational Education and Training
WEF	World Economic Forum
WITS	World Integrated Trade Solutions

ANNEX 1 – COUNTRY SUMMARIES

GEORGIA

Context and overview of the agribusiness sector

Despite strong economic growth during the past decade, the Georgian labour market features several structural problems: limited creation of (higher-skilled) jobs, a high share of non-productive self-employment in subsistence agriculture in rural areas, and a high level of urban unemployment, especially for youth. While economic growth averaged 5.3% per annum between 2005 and 2019 (World Bank, 2020), employment growth averaged just 1.4% between 2010 and 2018 (LMIS, 2018), and the unemployment rate was 11.6% in 2019 (Geostat, 2020).

In addition to sluggish jobs growth, the Georgian labour market is characterised by high levels of underemployment and informality, as well as far lower levels of wage employment and productivity than would be expected given the GDP level (World Bank, 2018). Many of these issues can be attributed to the fact that approximately half of the labour force is concentrated in agriculture.

The COVID-19 crisis and resulting economic shock has significantly accentuated these challenges. During the peak of the crisis in the second quarter of 2020, more than one-third of employed people were unable to work and an estimated 8% of jobs were lost (World Bank, 2020). However, according to a survey carried out in April 2020, Georgia's agricultural sector had been the sector least affected by job reductions, with 70% of companies in this sector reporting no headcount reductions (PWC, 2020). In particular, stakeholders report that food production has been continuously operational in order to ensure national food security and because the work processes tend to be time sensitive with limited scope for delaying tasks or introducing automation at short notice.

Overall, approximately 40% of Georgia's total employment is in agriculture (World Bank Data Bank, 2020), despite the fact that the sector only comprises around 6% of Georgia's overall GDP (GEOSTAT, 2020). An estimated 83% of those employed in agriculture are self-employed, and production activities are dominated by smallholders operating on small plots of land with limited skills, infrastructure and essential support services, resulting in extremely low levels of productivity (World Bank, 2018).

The Government of Georgia recognises the need to industrialise the agricultural sector and increase quality and productivity, primarily in view of the pressing importance of food security, exacerbated by the impacts of global pandemic (GoG, June 2020).

Innovation in Georgian agribusiness

Georgian agribusiness enterprises are broadly characterised by limited innovation, with stakeholders identifying several underlying challenges, including high costs and risks associated with new investments, together with a lack of suitable skills and adaptability in the labour force.

Georgia's domestic market is small, and stakeholders have identified that any significant expansion or development of the agribusiness sector needs to be predominantly export-led. Georgia has a particular export potential around niche, high-value agricultural products with provenance-led branding relating to Georgian food tradition. For example, FAO and EBRD are supporting the development of origin-linked labels and geographical indications for unique Georgian agri-food products (FAO, 2019).

An export-oriented agricultural sector poses some challenges, including the need for upgraded food safety standards, practices and certification, backed up by the appropriate technical skills. Innovation in meeting export standards also needs to be accompanied by the roll-out of supply chain management know-how and systems which document compliance through the value chain and

enhance traceability, as well as supporting infrastructure including testing facilities, laboratories and quality inspection services.

Efforts to meet export standards, particularly in the context of the DCFTA with the EU, have been identified as the key driver of innovation in recent years. Innovative companies which have the organisational capacity and skills to meet export-level food safety standards are able to command significantly higher prices for their products, and were much better placed to respond and adapt to new sanitary regulations adopted as part of the government's response to the COVID-19 pandemic.

In general, agribusiness enterprises report that COVID-19 has acted as a catalyst for innovation and has created incentives to introduce new business processes and technological developments. This has included innovations which had been under consideration for a while (such as e-commerce and delivery), but for which there had previously been insufficient commercial incentive, and some (such as automation and flexible work arrangements to reduce face-to-face work) which developed in direct response to the crisis. However further support and transformation of business practice – including relevant skills development – is required to sustain some of these innovations borne of necessity, including e-commerce.

Findings from enterprise surveys suggest that, in general, agribusiness enterprises whose operations are internationally integrated fared better in terms of preparedness and resilience (EBA Georgia, 2020). Few Georgian agribusiness enterprises were able to develop e-commerce platforms to promote exports during the crisis due to a range of obstacles including difficult logistical procedures, high bank fees for online payments, the lack of technical infrastructure for collecting payments and the absence of warehouse facilities (EBA Georgia, 2020). In addition, stakeholders indicate that the absence of national legislation covering e-commerce transactions posed an additional hurdle.

Skills supply and demand in Georgian agribusiness

A lack of active intermediation and matching between labour supply (education/training and life-long learning) and labour demand (economic/private sector development) has long been identified across the Georgian labour market, further aggravated by the lack of well-functioning skills anticipation and matching mechanisms (EC, 2017; EBA Georgia, 2020).

The structure of agribusiness, and its underlying challenges, mean that job creation is very limited and there is little demand for formal wage labour. Agricultural producers and processors are commonly slow to adopt technological innovation, further dampening demand for skilled labour. Furthermore, many of the most pressing skills-related issues facing agribusiness enterprises are outside of their immediate control, located further down the supply chain.

Stakeholders raise concerns that agribusiness employers' lack of consideration for – and formalisation of - occupation-specific skills requirements both depresses demand for these skills, and further sustains a perception that such skills are not required or in demand. In particular, specific concerns are raised in relation to the absence of formal skills specification in recruitment processes, including advertisement of vacancies. Stakeholders indicate that agribusiness employers can – and should – be more selective in terms of recruiting staff based on adequate qualifications. Increased appreciation of VET qualifications from the companies while recruiting staff is identified as one of the key mechanisms for increasing prestige and attractiveness of agri-VET programmes. Formal VET qualifications are not always used by enterprises in selection processes. In part, this is because enterprises have not been involved in developing and defining the qualifications, and do not always have oversight of their skills compositions.

On the supply side, agribusiness enterprises report that recruiting sufficiently qualified and experienced specialists is extremely challenging. In the agribusiness sector, with almost half the labour employed in low-productivity agriculture and possessing limited education and training, there is a shortage of skilled workers for processing, manufacturing and other activities which have potential for higher value-add (ADB, 2019). As a result, enterprises focus on recruiting staff with 'basic knowledge and skills' and then providing tailored on-the-job training to teach enterprise-relevant skills, as well as offering clear pathways to promotion and skills development for existing staff.

Inclusion

Georgian agribusiness enterprises report that women and young people make up a significant and important part of the workforce, particularly in the retail sector, but that there are few specific programmes or practices aimed explicitly at improving inclusion outcomes. However, enterprises increasingly recognise the importance of skills training, particularly given the challenges of recruiting suitably qualified workers, potentially creating significant opportunities for developing more formalised processes for skills development and advancement.

Youth are less represented in agricultural work than the general population – 36% of youth employment, vs 49% of overall employment is in this sector (ETF, 2018). This is in part because the sector is often perceived by young workers as ‘unattractive’ and offering poor career prospects. There is a poor perception of VET, compared to other forms of higher education, and agriculture is not seen as an attractive career path for youth (GFA, 2019).

Women are generally concentrated in lower-skilled occupational segments, both in agriculture and more widely across the labour market, with fewer opportunities for promotion and career development. In agriculture, men tend to be more concentrated in higher-technology, higher-skilled occupations, such as in mechanised farming and land cultivation. Sectors where women are most likely to be concentrated include in dairy production (both in primary farming and processing) and crop management. Women are also more likely to work in informal occupations and unpaid subsistence farm work (ADB, 2019).

Policy measures supporting inclusive skills for enterprise development in agribusiness

In recent years, there have been significant efforts from the Georgian government, supported by various donor institutions, to undertake a systematic reform of the Georgian national TVET framework.

A new institutional architecture for the VET system is currently being elaborated through active involvement of key stakeholders including the private sector, partner and donor organizations, public institutions and VET providers. According to the new legislation, two main streams of VET provision are envisaged: 1. Dual learning that is fully private-sector driven and, 2. Cooperative and college-based VET provision that is led by VET providers but involving private sector through different forms and scope.

The National Agency for Vocational Skills ‘Skills Georgia’ is being established, as a result of a multi-stakeholder effort (from private and public sectors) to facilitate further development of qualifications in the country and coordinate work-based learning processes across the private sector.

At the sectoral level, there have been important efforts to support skills development including the creation of Sectoral Skills Organisations (SSOs), of which the pilot is in the agricultural sector, ‘Agro-Duo’. The primary objective of Agro-Duo is to foster public and private collaboration by establishing educational programmes in collaboration with the private sector, whereby students acquire competitive skills that respond to and closely align with labour market demands. Agro Duo brings together up to 12 sectoral associations and after a year of functioning already elaborated around 11 short-term training/re-training courses and is actively involved in implementation of dual programmes. Thus it is expected that the sector will serve as a role model and a multiplier of accumulated good practices to other sectors and peer institutions.

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MOROCCO

Context and overview of the agribusiness sector

The Moroccan economy has performed particularly poorly in terms of the creation of formal jobs. Only 17% of the working age population has a formal job, and less than 10% has a formal private sector job (IFC, 2019). Unemployment and underemployment remain significant challenges, with youth, especially women, particularly affected (HCP, 2020).

Morocco has a young population: youth aged under 15 account for nearly 28% of the total population. Labour market integration for youth is a major challenge: of the 25-35 age group, only one in two Moroccans has a job, often informal and precarious (AFD, 2020). Youth unemployment is pronounced: unemployment remains at 26.8% among young people aged 15 to 24, with 14.3% among women and 17.8% among graduates (HCP, 2020).

Overall, the agricultural and agri-food sector employs more than a third of those in employment in Morocco. There has been a steep reduction in employment in primary agriculture: from 45% of total employment in 2006 to 38% in 2019. However, employment in agriculture remains much higher than the share of value-added it produces. Moroccan agriculture is divided between a modern industrial sector that primarily produces food for export, and smallholdings that produce food mainly for local markets and farmers' own subsistence (HCP, 2020b).

The development of agri-food processing has contributed to Morocco's strong growth over the past decade. In 2018 the agri-food industry was Morocco's second-largest industrial sub-sector, accounting for 27% of the total industrial GDP. The sector's revenues stood at over 100 billion MAD (€9 billion), accounting for over 2 % of industrial revenues (EC, 2020).

The agri-food industry is a strategic sector for Morocco because of its economic and social importance. It is a key sector for the Moroccan economy in terms of security, job growth and foreign trade. It contributes more than 27% of GDP and brings together nearly 27% of all industrial units – representing around 2,000 companies. Industry association FENAGRI reports that the sector employs 153,000 people – 22% of the national industrial workforce (BritCham, 2020).

While less impacted than other sectors, agro-industry has not escaped the impact of COVID-19 in Morocco. FENAGRI reports that Moroccan agri-food companies have suffered losses in terms of turnover up to 30%. Those more dependent on imported raw materials were more greatly affected (BritCham, 2020). Despite the difficult context of lockdown, however, the sector has demonstrated strong resilience and succeeded in ensuring continuous supply to the market without repercussions on prices. Most companies included in this study reported that production was largely unaffected and that issues related more to drops in demand for certain products or distribution and logistics challenges.

Innovation in Moroccan agribusiness

The Moroccan agri-food sector is undergoing a period of advanced technological change. However, there are range of potential constraints to growth in the agri-food sector, from the high capital investments needed to acquire new technologies - which are out of reach for smaller companies - to the shortage of skills needed to manage ongoing changes.

In Spring 2020, the Moroccan government launched a new strategy for agriculture, 'Generation Green' which aims to support the development of a 'rural middle class' through the creation of 350,000 jobs, while boosting Morocco's agricultural exports to \$6 billion and increasing agricultural GDP to \$25 billion (Agri Maroc, 2020a; 2020b). This new strategy in place until 2030 aims to build upon the achievement of the Green Morocco Plan, further consolidating the growth and social improvements in the sector. It focuses particularly on human capital development, increasing revenues of farmers through investments and widening access to social protection for workers in the sector. The strategy

also aims at promoting the sector towards youth, attracting them towards work and entrepreneurial activities in agriculture.

In line with the integration approach that has driven investments and innovation in the sector, Moroccan authorities have been developing agricultural production sites (*agropôles*) in some key regions, to strengthen upstream and downstream collaboration among relevant stakeholders and attract agri-food investments (including foreign investments). The creation of these Agropôles has created a bridge between agriculture and agri-food. Agropôles play an important role in the frame of the partnership with universities for transferring technologies.

Technological innovation, mainly related to improving efficiency, reducing costs and raising productivity levels has been increasing over the last ten years due to government measures such as Green Morocco Plan (Plan Maroc Vert). However, technology has yet to have a breakthrough effect in the Moroccan agri-food sector, and investment cost still represents a significant barrier for many smaller actors. Some innovations have been introduced in the past decade, mainly to cope with the climatic situation due both to droughts and to climate change.

Skills supply and demand in Moroccan agribusiness

There are structural weaknesses that remain to be addressed in the Moroccan labour market, including relatively low levels of human capital development and mismatches between the outputs of the education and training system and those required in the private sector; rigidities in the labour market which impede job creation and are seen to be a determinant of relatively high levels of youth unemployment (bearing in mind the population is a relatively young one); and the persistence of a significant informal economy.

While many Moroccan graduates are unable to find jobs commensurate with their educational training, employers report skills shortages and mismatches. Industrial skills that could benefit the needs of growing sectors are not always prioritised, and skills that graduates acquire are often not transferrable to any real-world working environment, causing gaps between skills supply and demand (World Bank, 2020). Several enterprises report that candidates often have insufficient practical experience through internships or direct experiences in the workplace – particularly agronomists and agricultural engineers.

Stakeholders identify a range of demand-side challenges relating to skills and human capital development in Morocco's rapidly-developing agri-food sector. Hiring people with the skills needed to adapt to technological change can prove difficult because of the relatively low attractiveness of the sector compared with positions in the public sector that require similar levels of skill, and a continued public-sector employment preference; many highly skilled workers (including engineers) leave the country to work abroad; and, in some regions, agri-food establishments are far from centres of population. Equally, Moroccan agribusiness companies value soft skills: thus, the debate on future skill needs is not just about technical skills but the mix of technical and soft skills (ETF, 2020).

On the supply side, Morocco compares unfavourably with the EU on some key measures related to human capital development, with relatively low levels of educational attainment on exit from the education system which stymies the further development of human capital (ETF, 2020). A large share of the Moroccan active population did not complete compulsory education, accounting for around 6.480 million people in 2018. The share of people without a qualification is even higher among the self-employed, that represent more than 40 % of the employment in the agricultural sector in 2018 (La Tribune, 2020).

Inclusion

Creating more and better rural jobs is a priority for Morocco's agricultural transformation. Morocco's agricultural sector currently lies between the transition and urbanised agriculture stages in its agricultural transformation process: as such, it has yet to reach its full export and production potential, which could further boost economic inclusion.

Identified deficits in terms of youth inclusion in the labour market include skills mismatch relative to labour demand and job supply, high levels of unemployment and underemployment. The extent and nature of these challenges differ significantly between rural and urban areas, between men and women and depending on education level. Overall, around one-quarter of Moroccan youth are not in any form of employment or education (GIZ, 2019).

Women's labour force participation is limited and has decreased in recent years; according to modelled ILO estimates, only 21% of formal jobs are held by women, compared to 26% in 2004 (IFC, 2020). Women in Morocco continue to face important barriers to labour market access and inclusion, including social barriers and discrimination (OECD, 2020). A key issue is women's lack of participation in private sector employment. Around half of formally employed women in Morocco are employed in the public sector, which is considered more socially acceptable and tends to be associated with higher job security, a safer work environment and a better fit with family duties (ILO and OECD, 2020).

Policy measures supporting inclusive skills for enterprise development in agribusiness

One of the main challenges facing the provision of TVET in Morocco is the high degree of fragmentation in the delivery of these programmes across agencies, ministries, and other entities and associations in the country. Different TVET pathways fall under the aegis of different government agencies, governance and regulatory arrangements, quality control and certification mechanisms and are linked or articulated across these different systems of TVET provision (World Bank, 2020).

In recent years, the government has provided a range of measures to support higher agricultural education and VET. The four public institutions providing higher agricultural education have coalesced into a polytechnic pole, with the aim of pooling resources and coordinate actions and curricula among themselves and with other relevant stakeholders (including VET providers), as well as operate with more transparency and rationality.

Stakeholders report that COVID-19 has boosted the use of digital solutions for distance learning. The OFPPT (*Office de la Formation Professionnelle et de la Promotion du Travail*) has recommended a model of hybrid education, where the theoretical part is carried out online and the practical part (up to 30 % of the students' time) is undertaken in person. For the next semester, the institute IAV Hassan II is preparing a platform for providing the courses entirely online.

The Moroccan agri-food industry has a range of institutions which coordinate actions around skills. INRA (*Institut National de la Recherche Agronomique*) and ONCA (*Office National du Conseil Agricole*) collaborate in developing joint skills development programmes. GIAC-AGRO (*Groupement Interprofessionnel d'Aide au Conseil du secteur agroalimentaire*) helps companies in defining strategies for skills and competences development. GIAC-AGRO was founded by eight food industry associations, and promote on-the-job training, educates businesses on the importance of skills development to improve competitiveness, and support business to apply for financial assistance for skills development. INRA provides consultancy regarding the quality issue for the product of the territory that is linked directly to the value-added transformation of products that the sector is pursuing. Several enterprises, such as LCM, Cosumar and Huiles de Saiss reported collaborating with INRA on R&D projects.

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SERBIA

Context and overview of the agribusiness sector

Positive economic growth in the past decade, alongside a decline in total population, has engendered an improving labour market situation, with an overall decrease in unemployment and increased activity and employment rates. . Labour force participation of Serbia's working-age population increased from 59.5% in 2011 to 68.1% in 2019. In the same period, the rate of employment rose from 45.4% to 60.7%, while unemployment rates declined from 23.6% to 10.9% (Statistical Office of the Republic of Serbia, 2020a; ILO, 2020).

However, challenges remain in relation to youth access and participation to the labour market. While the youth unemployment rate and the share of youth not in education, employment, or training (NEET) have both fallen, to 26.5% and 15.7% respectively (ILOSTAT, 2019a; Statistical Office, 2020b), slow school-to-work transition and difficulties in finding employment still lead many young Serbians to migrate to neighbouring European countries with better job prospects.

Agriculture accounts for 15.6% of total employment in Serbia, though the share of agriculture in employment is declining (ILOSTAT, 2019b). Overall, around 204,199 people were estimated to be employed in Serbia's agribusiness sector in 2018. Youth are under-represented in the agribusiness workforce, and workers under 30 years of age represent just 15% of the agribusiness sector workforce (FREN, 2020).

Unmet labour demand in Serbian agribusiness is estimated at around 18,000 workers. In 2018, agribusiness sector employers reported the need for 11,283 workers, with around 75% of vacancies in the retail and horticulture subsectors. Job quality is also a constraint on demand. Informal employment represents 17.3% of overall employment and is particularly widespread in agriculture, where it is estimated at 59.8% (FREN, 2020).

Overall, Serbian agriculture still needs to gain efficiency, contributing more modestly to value-added than its share of total employment in the economy. However, the agribusiness sector accounts for the largest sectoral share of Serbia's GDP in 2018, contributing approximately 10-13% of gross value added (GVA).

The productive composition of Serbian agribusiness reveals a high degree of fragmentation of both primary production and processing, with much of this fragmented chain operating in the traditional, subsistence, rather than commercial realm. Some 87% of Serbian agribusinesses are microenterprises and 12% SMEs. However, nearly 45% of the agribusiness workforce are employed at large companies, which represent less than 1% of total companies active in the sector (FREN, 2020).

The agricultural and food sectors were among the least affected by the COVID-19 pandemic. The significance of agriculture and food processing in the Serbian economy mean that it is less dependent on the sectors hardest hit by COVID-19 (UNDP, 2020).

Innovation in Serbian agribusiness

Innovation is in the ascendent in Serbian agriculture, and digitisation is a key policy priority for the sector. According to national data, the share of innovative enterprises in the agriculture, forestry and fishing sector was 49% in the period 2016-2018, with innovative firms defined as those that have introduced a product, process, organizational, or marketing innovation in the period in question (Statistical Office, 2019). The Ministry of Agriculture, Forestry and Water Management offers a number of programmes and services through 'Agricultural Advisory and Professional Services of Serbia', aimed at promoting innovation in the sector. Agri-food producers currently benefit from the support of sixteen specialised institutions across the country, which focus on introducing technologically-advanced production.

Process-related innovation in Serbia's agri-food sector primarily tends to involve the introduction of new or improved methods of manufacturing or producing goods or services, particularly in the processing and export of frozen fruit and vegetables, linked to the HACCP (Hazard Analysis and Critical Control Points) certification as well as to the broader implementation of the EU *acquis* on food safety. Key areas for innovation cover food safety management, product standardisation, and small-scale farmer and SME integration into the value chain.

The path to agri-food innovation remains relatively fragmented, however, and public policy support not always aligned to industry realities. Process innovations introduced in the agri-food sector tend to be firm-led, rather than as a result of cooperation with other companies and institutions. Most agri-food innovations are driven by the acquisition of machinery, equipment and software, while only a small proportion are due to the acquisition of external knowledge, though higher education institutions are viewed as an important source of information for technological innovation (Mosurović-Ružičić et al., 2018).

A number of opportunities for further innovation are identified throughout the agribusiness sector, accelerated by the impacts of Covid-19. While Serbian agribusiness has been less impacted by the effects of the COVID-19 pandemic than other economic sectors, the crisis has disrupted processes across all segments of the agri-food industry, somewhat changing the 'rules of the game' (EIT Food, 2020). Opportunities for growth and innovation within the agri-food industry have arisen in a number of areas, including digital supply chain management, rapid and massive expansion of consumer e-commerce, and product development reflecting consumers increased attention to the nutritional value of their food purchases.

Skills supply and demand in Serbian agribusiness

Skills mismatches are observed across the economy. It is estimated that around 22% of Serbians with degrees are mismatched in their jobs, with the majority of skills mismatches occurring among those with upper secondary and tertiary qualifications. Almost a quarter of Serbia's unemployed have completed tertiary education, yet employers report a lack of relevant skills as the main obstacle to hiring (World Bank, 2020c). Employers and graduates alike believe that the country's educational institutions do not equip students with important soft skills like teamwork and decision-making, or with higher-order cognitive skills, such as problem-solving.

Across the agribusiness sector, only 73% of workers have a level of education that is appropriate for their position. The share of over-qualified workers amounts to 15%, while underqualified workers represent 12% of agribusiness employees (FREN, 2020). Lack of experience is a key challenge companies face when filling vacancies in skilled agriculture. This leads to an over-qualification risk for skilled agricultural workers where insufficient skills and practical experience lead higher education graduates to take jobs below their formal qualifications.

Overall, the share of agribusiness employees currently engaged in high-skilled jobs appears relatively low, with recent survey data suggesting that 70-80% of workers in agricultural companies perform 'simple' to 'less complex' manual jobs. Overall, most new hires in agribusiness are in 'lower to intermediate complexity' jobs in production, and demand for new workers is most prevalent in 'simple' occupations (FREN, 2020).

Among the demand-side challenges identified by stakeholders is the low attractiveness of the sector, with working conditions and the expectation of higher wages in other sectors (or abroad) perceived as major obstacles to both hiring in agriculture and engaging student in agri-food TVET.

Outward labour migration and limited internal labour mobility pose skill supply challenges for Serbian agribusiness. Migration abroad, particularly among young people and ethnic minorities, creates difficulties for securing low-skill workers, such as seasonal workers. Whereas, limited internal labour mobility is an obstacle when seeking to attract higher-skilled employees to production sites in more rural areas.

However, demand for a number of high-skill occupations in the agribusiness sector is expected to grow in the coming years. Employers recognise that greater automation and mechanisation of production processes will increase demand for mechatronics engineers with specialist knowledge of automation, mechanics and electronics, as well as food technology. Demand for technologists with a focus on food or fruit/vegetable production is also set to increase, as is demand for environmental protection engineers.

Four universities and 26 secondary schools offer agri-food education in Serbia, yet employers report that the skills acquired in upper secondary and tertiary education do not correspond to their needs. The weak connection between higher education and labour market demand is attributed to a reliance on traditional and outdated teaching methods, obsolete curricula, limited opportunities to gain practical skills, and insufficient integration of university research and innovation. A further supply-side constraint is the low internal mobility of the Serbian population, which – combined with the gradual dissipation of skills and other traditional sector resources – has contributed to quality skills being ‘thinly spread’ (Udovički, 2018).

The Serbian authorities have taken numerous steps to mitigate these challenges, including through the adoption of a Law on Dual Education and the development of a new 2030 Education Strategy, currently under consultation. However, companies’ level of engagement remains low. Similarly, while a national qualifications framework based on the principle of embedded social partnership has been established, the development and updating of qualifications remains strongly dependent on external support.

Concerns have also been raised regarding the lack of stakeholder coordination and the rather fragmented institutional landscape on skills development. There is a wide range of bodies with discrete agendas involved in the skills development process but collaboration between these has so far been limited. There is significant scope to improve coordination between the different stakeholders involved in agribusiness skills provision, focusing on the activation and integration of the now-established sector skills council.

Additionally, stakeholders observe a number of specific skills challenges for the numerical majority of smaller agribusinesses. While larger enterprises have the resources to introduce skills training programmes, smaller agribusinesses often lack the capacity to develop these, or engage extensively with educational institutions. A lack of marketing skills in particular is among the most important impediments to increasing sales for Serbian fresh fruit and vegetable farmers, coops and SMEs. Stakeholders have thus emphasised the need for initiatives to assist smaller-scale agribusinesses through the provision of relevant training, including on achieving standards in production and services, use of technologies, and access to large-scale retail supply chains.

Inclusion

Youth unemployment remains a continued challenge in Serbia and younger workers are significantly under-represented in the agribusiness workforce. Workers under 30 years of age represent just 15% of the agribusiness sector workforce. Moreover, insufficient relevance of skills acquired in upper secondary and tertiary education continues to lead to a lengthy school-to-work transition for young Serbians.

Difficulty in finding employment in Serbia is leading many young people to migrate to neighbouring European countries with better job prospects, with a third of over 11,000 Serbian college students surveyed by the government in 2018 planning to move abroad after completing their studies, 94% of whom cited economic reasons such as being unable to find a job in their profession or advance professionally (WFD and Institute for Development and Innovation, 2019).

Women represent more than 55% of the Serbian agribusiness workforce. Women predominate in the retail subsector, accounting for 70.5% of workers and horticulture (54%), which employ the vast majority of agribusiness sector workers in Serbia. It also appears that women have a larger ownership and management share in agribusiness, fruit, and vegetable companies (including specialty-food enterprises) compared with Serbian firms overall (USAID, 2020a). This finding is partially attributed to

the agribusiness sector requiring less money to function as compared to other industries, as well as the agribusiness sector being more conducive to innovation where women have excelled.

A key concern for Serbia is the educational and economic participation of Roma people, who constitute one of the largest minority groups in Serbia and comprise an ever-growing share of new labour market entrants. Given Serbia's objectives of economic competitiveness and EU accession, it is essential that minorities such as the Roma are equipped with the skills needed for the jobs of the future, including in key sectors such as agribusiness.

A review of the on-the-job training programs of ten diverse Serbian firms was commissioned by the World Bank in 2019, including a range of agribusiness firms in beverage production, supermarket chain management and food production (World Bank, 2020c). The study identified concrete and replicable good practice in inclusive skills development, including: providing new hires with a more senior 'mentor' or experienced staff member from the same department (a 'buddy' program); and developing talent pipelines for fast-tracking high-potential individuals to a higher management track.

Policy measures supporting inclusive skills for enterprise development in agribusiness

Policy initiatives to improve the relevance of VET and the overall skills development process in Serbia have included the promotion of dual education, development of the national qualifications framework together with employers, and the establishment of sectoral skills councils. Until 2020, the reform process was supported through the *Strategy for Education Development in Serbia*. Development of a new Education Strategy until 2030 is currently underway and consultation in train, which provides an opportunity for agribusiness stakeholders to input their sector perspectives.

Work-based learning is currently offered as an optional 'dual education' track within the formal secondary vocational education system. While vocational practice is a mandatory part of VET curricula, in dual profiles it takes the form of work-based learning undertaken exclusively in companies and can account for 20-80% of the total number of programme hours. Alongside the MoESTD, Serbia's Chamber of Commerce plays a leading role in the implementation of dual education.

To support research and innovation, the government's recently adopted *Strategy on Scientific and Technological Development 2021-2025* envisages increased investment into science-technology parks, centres of excellence and research institutes. The synergistic development of the ICT and agriculture sectors is a key priority for Serbia, with numerous multidisciplinary institutes dedicated to research and development of IT in biosystems, as well as conducting modern applied and market-oriented research in agri-food.

The *Industrial Policy Strategy from 2021 to 2030* also aims at enhancing competitiveness of domestic industry, putting emphasis on replacing the current model of cost-advantage competitiveness with a skill-advantage model. A *Smart Specialisation Strategy* was adopted in February 2020 and identifies four vertical priority areas, including food and beverage production and processing, which covers areas such as high-tech agriculture, value added food, and sustainable agricultural and food production.

Disparities in human capital development are being addressed by Serbian policy-makers, but stakeholders report that developments are uneven across the country and measures are not always designed and tailored to well-identified needs. The National Employment Service runs programmes focusing specifically on greater economic engagement and employment of persons belonging to vulnerable groups, including women, youth, Roma, as well as the long-term unemployed, people living with disabilities, and others.

Skills development in the agribusiness sector is supported by the Sector Skills Council for Agriculture, Food Production, Forestry, Fishery and Veterinary sectors, which includes representatives of numerous institutions and private sector. The body is active in developing new qualifications as well as broadening existing ones to address employers' skills needs. Stakeholders have observed, however,

that private sector representation in the Council could be increased since it is currently limited to one representative. The Council is currently defining its work programme for 2021.

A 'Tailor-made Internship Model' for the Serbian food processing industry has been piloted by USAID, alongside Youth for Impact (YFI) and Belgrade University's Centre for Career Development (USAID, 2019), aiming to develop a standardised model for internships in the sector. Internships were targeted to technologists, economists and merchandising positions, with participating companies appointing mentors for each student and offering some remuneration for students. The project developed a manual for implementation of the students' internship in food processing industry developed by YFI and the internship model has been promoted at events such as Agro Belgrade.

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TURKEY

Context and overview of the agribusiness sector

The Turkish labour market is characterised by high rates of informality and precarious employment, low female labour force participation, high youth unemployment and high heterogeneity between regions. While economic growth in the decade up to 2018 saw significant job creation across a number of sectors, the 2018 recession resulted in significant job losses and a stark rise in unemployment to 13.7% in 2019 (TURKSTAT, 2020a). While services now account for more than half of all employment, the industrial, agricultural and construction sectors have been in slow decline with accompanying reductions in employment growth, which has further been exacerbated by the Covid-19 crisis.

Turkey exhibits deep regional disparities in terms of wealth and human capital, including a significant east-west and rural-urban divide. Further, the significant influx of over four million Syrian refugees since 2011 has further created important economic and political strains (World Bank, 2020).

Despite employing around one quarter of the labour force, the agricultural sector's contribution to Turkey's GDP remains limited, at 6% in 2019 (World Bank Data Bank). This can be partially explained by the prevalence of subsistence agriculture in the sector, with unpaid family work and self-employment at much higher rates than in the wider labour market (TURKSTAT, 2020b). However, agriculture continues to play a fundamental role in Turkish society and economy, generating most of the income and employment in rural areas, safeguarding food security, and supplying inputs to industrial sectors.

Turkey is a regional hub for the production, processing and export of food to large European and Middle Eastern markets, and the agribusiness sector has significant potential for strong competitiveness and meeting growing demand for higher-value processed food products, both in the domestic and international markets (USDA, 2020). Recent growth and focus in the sector has been on industries such as fruit and vegetable processing, production of dairy products, animal feed, livestock and poultry, as well as cold chain construction and operation.

Innovation in Turkish agribusiness

There is a significant innovation gap between the small number of large globally-integrated agribusinesses enterprises, and the SME agribusinesses which dominate the sector and are highly constrained in innovation. Major impediments to innovation identified by agribusiness companies include access to finance, political instability and prevalence of informality.

Key business drivers for process and systems innovation in Turkish agribusiness are food safety and quality standards, alongside other environmental and social standards which constitute a de facto 'market access' requirement for higher-value export markets. Marketing innovation may be further driven through specialisation on higher-value provenance-related branding and digital commerce channels.

Industry R&D is focusing on food processing technologies, food science and food packaging and preservation. Stakeholders widely concur that the Turkish farming sector, with its large share of small and fragmented farms, could benefit from modernising its up- and downstream industries through mechanisation and smart specialisation strategies. Whilst the Turkish agribusiness sector presents significant potential for automation and digitisation, there has been slower adoption of these technologies than in other countries with similar potential.

While COVID-19 has placed stringent pressures on a range of agribusiness actors in Turkey it has also forced innovation and change in response to rapidly shifting realities and norms. In some cases, this has precipitated nascent developments, such as e-commerce. E-commerce was already identified in the government's 'Digital Transformation Programme' as a crucial development, subject to incentives and training programmes, especially to boost exports (National Development Plan, 2019). The advent, and

response to, global pandemic has given a significant boost to online grocery retail in Turkey. Trade Ministry data suggest that the Turkish e-commerce market grew by 64% year-on-year during the first half of 2020.

There is increasing emphasis on innovation in agriculture at the policy and strategy level. A Department of Agricultural Technologies and Mechanization was recently established, with a mandate to develop policies and strategies on the use of advanced technology and mechanisation in agriculture, and work with the public and private sectors and universities on the digital transformation of agriculture (ITU and FAO, 2020). The Ministry of Agriculture and Forestry is currently drafting a National E-Agriculture Strategy. R&D and human capital support is targeted toward agribusiness segments and sub-sectors which display innovation and export potential. A number of universities also have taken leadership positions in agribusiness innovation, aiming to contribute to the know-how that will improve innovative skills, support the technology integration and digital transformation of the agricultural and food sector (Bountarim, 2020).

The agri-food 'innovation community' of the European Institute of Innovation & Technology (EIT Food) is active in Turkey, under the auspices of its 'Regional Innovation Scheme' (RIS), which aims to strengthen economies which are modest and moderate in terms of innovation in the agri-food sector. EIT Food has established an Impact Hub in Istanbul which aims to support food and agriculture entrepreneurs in Turkey (EIT, 2020). A further relevant and recent third-sector development is the advent of the 'Kök Projekt' - an agri-food startup accelerator and an innovation partner for the food, agriculture and water sector companies in Turkey (Kök Projekt, 2020).

Skills supply and demand in Turkish agribusiness

While levels of education and skills are generally high, especially among youth, there is a pronounced mismatch between the supply and demand of skills on the labour market. Within agriculture and agribusiness, in particular, there is marked field-of-study mismatch in both tertiary and TVET transitions. Over 50% of graduates in the fields Agriculture, Forestry, Fisheries and Veterinary work in a job different from the field they specialised in (OECD, 2018).

The structure of agribusiness mean that formal job creation – and attendant skills demand - is limited to a small number of large enterprises, whereas the sector as a whole is dominated by low-productivity, low-innovation small and medium enterprises, which exhibit weak and mostly seasonal demand for skills (commonly met by internal migrant agricultural labour). With a large gap in technical knowledge and skills levels across the different regions in Turkey, larger agribusinesses face substantial challenges in recruiting and training employees.

On the supply side, agribusiness companies highlight natural resource management, supply chain management, environmental, economic and social sustainability, and digital technological skills as areas where they increasingly foresee skills gaps in the workforce. Surveys suggest that most Turkish agri-food workers cannot adequately use ICT tools, do not have a good understanding of modern management methods and lack awareness and knowledge about innovations in processing and marketing agricultural products (EU, 2019).

There are bottlenecks in the transition from VET to work, and particular concerns that a relatively high and increasing share of graduates aims to continue in higher education rather than join the labour force. Further, a significant proportion of the agricultural workforce is made up of seasonal migrant agricultural workers. A recent assessment estimates that around 500,000 people - mostly from Eastern and South-eastern provinces – are engaged in seasonal migrant agricultural labour in Turkey – specifically, soil preparation, sowing, planting, weeding, pest control, irrigation and harvesting (Kalkınma Atölyesi, 2020).

Inclusion

Given the large contribution of agribusiness to Turkey's rural economy, the sector has significant potential to generate employment opportunities and contribute towards inclusive growth. However, rural and poor

areas, which tend to be more dependent on agriculture, are often disadvantaged in terms of reach and quality of state education and access to social protections. These contextual challenges result in large parts of the rural and agricultural workforce lacking basic skills, and acts as a constraint on agriculture becoming a more inclusive and productive sector. Socio-economic background has a stronger influence on skills development of Turkish youth and tertiary education attainment than in most other OECD countries.

Turkey has a large youth population, with half of its citizens under the age of 32 in 2017, presenting significant opportunities to benefit from a ‘demographic dividend’, if properly managed. However, around 31% of Turkish youth (aged 20-34) were not in education, employment or training (NEET) in 2019 (Eurostat, 2020). Turkey’s high NEET rate is primarily accounted for by the extremely high NEET rate of women (44.7%).

While there have been some noted improvements in recent years, gender inclusion remains a significant issue and has been identified as one of the most important impediments to further economic development in Turkey (World Bank, 2019). Women’s labour force participation rate (38.7% in 2019) lags significantly behind that of men (78.2% in 2019) and is particularly low in rural areas where a large part of the female population never enters the labour market. Key bottlenecks to increasing the share of women in the labour market include entrenched cultural and social norms regarding women’s education and employment, and a lack of adequate facilities to provide care for children and the elderly. A rapid assessment by UN Women identified that women in Turkey were more likely to have lost their jobs during the pandemic and were more likely to have taken paid or unpaid leave (UN Women, 2020).

The agricultural sector is the largest employer of women, and women account for 44% of the agricultural labour force. Women are generally concentrated in lower-skilled occupational segments, both in agriculture and more widely across the labour market, with fewer opportunities for promotion and career development. A large proportion of women’s employment in the sector is seasonal, and the majority is informal. Less than 10% of students enrolled in agricultural VET courses are women (ETF, 2020).

Policy measures supporting inclusive skills for enterprise development in agribusiness

Education Vision 2023 has set new priorities in all areas of education, including VET, focusing in particular on market-relevant skills and dynamic engagement with industry. The past two years have seen an uptick in public-private collaboration relating to skills, including cooperation actions between MoNE and industrial sectors representing Food Technology, Food and Beverage Services and Industrial Automation Technology.

The last five years have seen declining numbers of new entrants to VET across all fields. Boosting the (real and perceived) return on vocational education, and the attractiveness of a career in agribusiness is key to reverting this trend.

Investments in skills development is concentrated within 31% of private sector companies in Turkey, a 5-percentage-points gap with the ECA average and a 7-percentage-point gap with the Upper Middle Income average. However, among the firms that reported to provide training, 71% of employees were reported to receive training, which is significantly higher than the ECA and Upper Middle Income averages, which are both 55% (World Bank, 2019).

MoNE intends to increase the role of private enterprises in VET delivery. The private sector share in VET remains quite low in Turkey at around 6%, although the government has put a range of incentives in place for the private sector to establish VTAH since 2012/3. VTCs, whereby on-the-job training is conducted intensively, provide an important opportunity to train people in line with labour market demand. Due to previous legal restrictions, private sector actors were permitted to establish VTAHs but not VTCs. In order to remove this limitation, legal arrangements are now envisaged which will allow private sector actors to establish VTCs with the approval of MoNE (Özer, 2019).

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UZBEKISTAN

Context and overview of the agribusiness sector

Job creation is a key priority for the government of Uzbekistan, as recent strong economic growth has not been sufficiently “jobs rich”. In the period 2000-2019 an average of 240,000 new jobs were created annually (on a net basis) – significantly below the 600,000 jobs needed to absorb new labour market entrants each year (State Committee on Statistics, 2019). This has resulted in high levels of out-migration of workers to neighbouring countries, including the Russian Federation and other members of the Commonwealth of Independent States (CIS), with over 2 million Uzbeks currently residing abroad (ADB, 2020). Other structural weaknesses in Uzbekistan’s labour market include disincentives to work, skills gaps and a limited supply of technical skills, high youth unemployment, high economic inactivity and long-term unemployment, and limited labour mobility.

Agribusiness is a key sector of Uzbekistan’s economy, accounting for 41% of GDP, 19% of exports and 30% of all employment in 2019 (World Bank, 2020). The export share of the agri-food sector in total exports has increased from 16% in 2017, largely as a result of growth in horticulture and textile / apparel exports (World Bank, 2020). Agriculture in Uzbekistan exhibits a dualistic structure – approximately 40% of farm labour is employed on commercial farms which collectively cultivate 85% of arable land and mainly produce wheat and cotton, while 60% of farm labour is on small, informal “dekhan” farms which largely produce horticulture and livestock products for subsistence.

Uzbekistan has set ambitious targets for the development of the agribusiness sector: the *Strategy for Agriculture Development in Uzbekistan for 2020-2030* targets \$20 billion in agricultural exports by 2030, up from a total of \$2.3 billion in 2018. One of the key objectives of the *Strategy for Agriculture Development for 2020-2030* is supporting research and development.

The legacy of the former state production system has distorted agricultural production and employment patterns. Incentives to engage in wheat and cotton production have constrained overall productivity and dampened demand in other sub-sectors such as horticulture which are better placed to support jobs (World Bank, 2020). While recent reforms have made significant progress in dismantling these structures, the resulting employment distortions remain a prominent feature of the agricultural labour market.

Overall, the COVID-19 outbreak has brought new attention and emphasis to the value of jobs in agriculture, as the sector has been much more resilient to the economic effects of the outbreak than other segments of the economy. Agriculture-sector small and micro enterprises have been among the least affected by business closures, Small and micro agricultural enterprises have been among the least affected by business closures, with only 18% forced to cease operations as a result of COVID-19 related restrictions (ILO, 2020). Food retailers have experienced significant expansions in demand and recruited additional staff to meet demand.

Innovation in Uzbek agribusiness

There is a lack of high-quality public and private sector infrastructure, institutions and services to support innovation in agribusiness. For example, there is a lack of availability of public quality infrastructure services and systems (veterinary, phytosanitary and food safety systems and services, including accredited laboratories) and private quality infrastructure systems (certification and advisory) that could support producers in reaching international quality standards needed to export to high-value markets.

Problems in accessing reliable agriculture knowledge and information services is aggravated by an absence of voluntary, private sector-led farmer groups / cooperatives / industry associations. There has been a strong support by the government in the last year to establish new Associations in many emerging sub-sectors. This offers some potential, particularly in areas where previous state involvement was largely absent (e.g., horticulture, fisheries and other higher value niche product

areas). However, many of these associations require mandatory membership and it is unclear what services these associations provide to their members.

So far, adoption of modern technologies in Uzbekistan's agriculture sector has been low, contributing to low land and labour productivity, as well as low farm profitability. Greater adoption of new technologies, including through public investment in agricultural knowledge and information systems, offers an opportunity to significantly increase profitability and grow the demand for labour. In the Uzbek context, crop diversification and adoption of new horticulture technologies such as greenhouses and intensive orchards may offer more stable employment opportunities. In addition, the Government has already taken steps towards the mechanisation of cotton harvesting, allocating additional funds for the purchase of cotton-picking machines by cotton and textile clusters and other economic entities in September 2020.

Quarantine measures have stimulated the development and growth of online retail and delivery services. Delivery service platforms have seen significant growth in demand for food delivery following introduction of quarantine measures in March 2020. The restrictions on movement have also led greater numbers of restaurants to introduce e-commerce and delivery services for their customers, including via restaurant-oriented platforms such as Bringo and through the use of apps like Telegram (Spot, 2020a).

The development of e-commerce has coincided with an increase in non-cash payments as more people have switched to paying for goods and services online. However, cash payments are still widespread including in rural areas and at dekhani food markets, in part due to a lack of technical infrastructure, unstable Internet connection and limited use of smart devices among rural residents (Spot, 2020b). Financial illiteracy and lack of trust in banks reportedly contribute to customers' reluctance to switch to non-cash payments, adding to the logistical challenges faced by agribusiness retailers seeking to grow e-commerce.

Skills supply and demand in Uzbek agribusiness

While levels of education and skills are generally high, there is a pronounced mismatch between the supply and demand of skills on the labour market. Across the economy as a whole, the mismatch between academic qualifications and labour market needs is particularly pronounced when it comes to graduates from vocational institutions – between 2014 and 2019 it is estimated that, on average, less than half of TVET graduates have found jobs in their field of specialization (ETF, 2020). The matching of skills with jobs is further hindered by information failure, with workers often having limited information on available jobs (ADB, 2020).

Uzbekistan's agribusiness sector is largely focused on low-skill primary agriculture, although automation and adoption of labour-saving technologies are projected to increase, requiring enterprises to manage workers' skill gaps and invest in reskilling and upskilling. In particular, demand for 'new economy' digital skills is expected to increase in the coming years, with local commentators suggesting that the COVID-19 pandemic is already growing demand for IT skills, particularly in areas related to online retail platforms, including delivery services.

COVID has further had a positive impact on the development of digital education and use of ICT in the education sector. Greater development and use of digital technology are expected to continue over the long-term and will support greater outreach of educational programmes, particularly to harder to reach regions. For example, it could be used to support work-based learning or dual learning programmes in the agribusiness sector in remote areas, allowing students to undertake work placements while maintaining close links to educational or vocational institutions (Focus group with national stakeholders, December 2020).

A key challenge to skills supply is the lack of coordination between TVET providers and the private sector. Although vocational colleges enter into mandatory agreements with employers and local authorities, colleges and firms do not interact sufficiently to address issues of skills development, curriculum revisions, and practical training. There are also concerns with regard to the quality of teaching at

TVET institutions, especially in rural areas, particularly with regard to the low amount of time dedicated to practical instruction.

Less than a quarter of all Uzbek companies offer formal training programs to their employees. In particular, small farms and firms rarely have the capacity to invest in staff training, making government efforts to raise the education and skills levels of the workforce particularly important (World Bank, 2020). The free flow of workers reportedly reduces incentives for enterprises to invest in skill improvement of their workers, creating market failures that could be corrected by the government through co-financing of training/retraining programs.

Inclusion

Agricultural employment has a stronger effect on poverty reduction than any other employment, as 80 percent of the Uzbekistan's poor reside in the rural areas (World Bank, 2020). The creation of inclusive and high-quality agri-food jobs in subsectors and industries with strong comparative advantages and market opportunities (such as horticulture) is key not only to poverty reduction, but also to enhancing Uzbekistan's food security and economic growth as a result of spill-over to regional and rural economies.

Young people in Uzbekistan are more likely to be unemployed or informally employed compared to other age groups. While the overall unemployment rate stood at 9% in 2019, the unemployment rate among people aged 16-30 is estimated at 15% (State Committee on Statistics, 2019; Research Centre for Employment and Occupational Safety, 2019). There is significant potential for the agribusiness sector to take a leading role in addressing this challenge as it is estimated that the sector has the potential to increase employment by between 19 and 32 percentage points by 2030, equivalent to the annual creation of 0.7-1.3 million jobs (World Bank, 2020a).

Women's overall labour force participation is significantly lower than that of men, with little change over the past 20 years. In fact, the female participation rate in 2019 was 26 percentage points below men's – nearly twice the average gap in high-income countries (15%) and much higher than in comparator countries such as Russia (10%) and Kazakhstan (12%) (ILOSTAT, 2019). This is partly attributed to the lack of high-quality childcare facilities (ADB, 2020). In addition, women are more likely to be unemployed, with the female unemployment rate estimated at 13% (Research Centre for Employment and Occupational Safety, 2019). In rural areas, women's low level of educational attainment poses an additional constraint. Low enrolment figures have been attributed to relatively early marriages, families prioritising boys' education, and the high economic costs of obtaining higher education. As a result, rural women often lack technical skills and have low financial capacity and low business literacy.

In agribusiness, women are more likely to be engaged in the early stages of value chains, including the generally lower-paid and lower-skilled cultivation, harvesting, and post-harvesting. For example, women represent 53% of all workers in primary agriculture and the agriculture sector remains the main provider of jobs for women in rural areas, although women hold only 5.5% of farms (European Commission, 2020). Where women also sell their products, they tend to do so at local markets and are generally disconnected from retailers and exporters, while higher-value activities, such as trade, transport, and marketing, are typically dominated by male farmers and specialised firms.

Policy measures supporting inclusive skills for enterprise development in agribusiness

Uzbekistan's TVET system is currently undergoing reform, in alignment with the country's *Strategy on Development of Uzbekistan in 2017–2021*. The 2017–2021 Strategy considers the 'social dimension', including education sector reform, as one of the key priorities for further progress, aiming to adapt educational programmes at all levels of education to the needs of the economy.

The Uzbek Government has recently embarked on an ambitious process to transform its agriculture sector into a competitive, market and export-oriented sector that will generate economic growth, improve incomes and create new employment opportunities. The *Strategy for Agriculture Development in*

Uzbekistan for 2020-2030 targets \$20 billion in agricultural exports by 2030, up from a total of \$2.3 billion in 2018. However, the strategy does not contain an explicit focus on jobs, and there is scope for further recognition and emphasis on the role of inclusive skills in sector development.

The Government is also seeking to develop occupational skills standards for each economic sector, including through the development of recently created sectoral Skills Councils. In addition, the National Research Centre for Employment and Labour Protection (under the Ministry of Labour) is responsible for identifying labour market needs, which will be key in future development of vocational education and training programmes. Developing educational programmes based on professional skills standards will be key to filling skills gaps (Focus group with national stakeholders, December 2020). A pilot project in competence-based teaching and learning has been successfully tested in tourism colleges with plans to extend it to construction, agriculture, textiles, and IT (ETF, 2020).

From January 2021 onwards, the professional qualifications of graduates of Ishga Marhamat monocentre and vocational training centres will be evaluated in accordance with the WorldSkills standard, with graduates receiving Skills Passports equal in status to an SSVE diploma (Kun.uz, 2020). It is envisaged that a single register of graduates with qualifications will also be established. In addition, the State Employment Assistance Fund provides a number of benefits to graduates who have undergone training at non-governmental vocational training institutions and acquired a Skills Passport.

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