



Food and Agriculture
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PROVIDING INNOVATIVE AND GENDER-RESPONSIVE DIGITAL SUPPORT TO SMALLHOLDER FARMERS IN CHINA



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UN Women China and FAO China

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PREFACE

China has made impressive strides in poverty alleviation in recent decades. With targeted pro-poor national policies and market-based mechanisms, 800 million people have been lifted out of poverty in the last 40 years, half of which are women. In the recent two decades, rural e-commerce and digital finance have been a key strategic area of national policies and projects which have stimulated agricultural commerce and increased farmers' incomes. The National Rural Revitalization Plan (2018-2022) and the 14th Five-year Plan (2021-2025) continue to recognize digital transformation as a vital instrument for spurring rural economic growth in the next phase of development.

While the transformative impact of digital ecosystems on China's agriculture sector and rural markets has been widely recognized, the empirical evidence on rural women's specific experience of such developments has not been fully developed. Making up 70 percent of China's rural labour force, women are key agents of change to lead the revitalization of rural economy. This report therefore seeks to launch a discussion on the how digital finance and e-commerce could empower China's rural women to achieve better livelihoods, by documenting learnings from success stories as well as barriers, constraints, risks, and the extent to which they have been able to equitably share the much-lauded benefits of digital growth.

Among its conclusions, the report stresses the significance for e-commerce and digital finance companies to start addressing the specific needs of rural women and the barriers they face with finding economic opportunities along digital agricultural value chains, and develop innovative approaches that can serve them while maintaining commercial viability. It identifies the kinds of support needed to achieve this from relevant entities, including government departments, the

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Country Representative

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private sectors, and the United Nations (UN). We believe these actions would contribute to sustaining the remarkable results of poverty alleviation and lead to more inclusive and equitable rural growth in the future.

UN Women believes in leveraging inter-agency relationships and dialogues to promote gender equality, while drawing attention to technological solutions that can catalyze women's economic development. Working in partnership with the Food and Agriculture Organization (FAO), it hopes to mainstream gender-responsive approaches to agricultural e-commerce, rural value chains and digital financial inclusion. This paper aims to be a significant step in this direction.

The report is developed by UN Women China in collaboration with FAO China. Ms. Qing Wang and Ms. Jiayuan Wang from UN Women China, and Mr. Le Dong from FAO China lead on content development, technical revision, and all relevant coordination. This report benefits from valuable expertise and inputs from Mr. Qinfei Zhu from UN Resident Coordinator's Office in China. The principal authors are Prof. Libin Wang, Mr. Ruichang Dong, and Mr. Wenkai Wan from China Agricultural University. Fifteen interviewees also contributed their own institutional and/or individual perspectives from a range of organizations, including smallholder farmers who generously gave of their time and knowledge.

We look forward to continuing work with Chinese stakeholders and other development partners to ensure that these findings can further support the implementation of the 2030 Agenda for Sustainable Development, China's national Rural Revitalization Strategy (2018-2022) and Outline of Women's Development in China (2021-2030), in a collaborative effort to achieve shared prosperity for all.

Carlos Watson



FAO Representative in China

1. INTRODUCTION

Smallholder farmers and rural women in particular are essential to food security, rural livelihoods and economic development, and to sustainable development itself. Yet compared to men smallholders, women face different and disproportionate challenges to their well-being, including food insecurity, poverty and the need for climate change adaptation.

In China, rural women comprise more than 70 per cent of the agricultural labour force.¹ Empowering rural women helps to protect their human rights and well-being while benefitting their families, rural communities and the broader society. Women's empowerment is vital for economic productivity, given women's large presence in the agricultural workforce worldwide. While women make vital contributions to food security and nutrition, and improving rural livelihoods and overall well-being, they are at greater risk than men of falling into extreme poverty. Women have fewer opportunities to access financial resources, both traditionally and digitally.²

The development of digital technologies offers smallholders unique tools to overcome weak market links, high transportation and transaction costs, and price volatility that can exacerbate poverty. The rise of influential Chinese digital giants and e-commerce has generated tremendous social and economic impact in China and the rest of the world. The value of China's digital economy reached 45.5 trillion yuan (about \$6.3 trillion) in 2021,

accounting for 39.8 percent of the country's GDP.³ The coronavirus disease (COVID-19) pandemic has accelerated the rise of the digital economy worldwide.

Since 2002, widespread use of cell phones and mobile Internet in China enabled microfinancing platforms such as Ant Financial and CD Finance to support rural farmers in remote areas. Annual agricultural transactions on platforms such as Alibaba and JD are valued at billions of renminbi (RMB). During the outbreak of COVID-19 in China, stringent quarantine laws and movement controls suppressed sales of agricultural products offline, and more and more farmers turned to online channels and contactless technologies.

Many studies have demonstrated the gains from digital growth on the agricultural sector in China, but few have applied a gender lens to assess the impact on rural women. Meanwhile, international studies have shown that rural women have not benefited to the same extent as men from the development of rural e-commerce and digital financing.⁴

1.1 Social and economic inequalities faced by rural women

With most rural men migrating to join the urban labour force, rural women have become the backbone food production in China. Rural poverty reduction efforts under the National

1 State Council of China, 2015, China gender equality white paper.

2 Zhao, Q. and Wang, Y., 2011, Gender and women's anti-poverty, Beijing: Social sciences archive press.

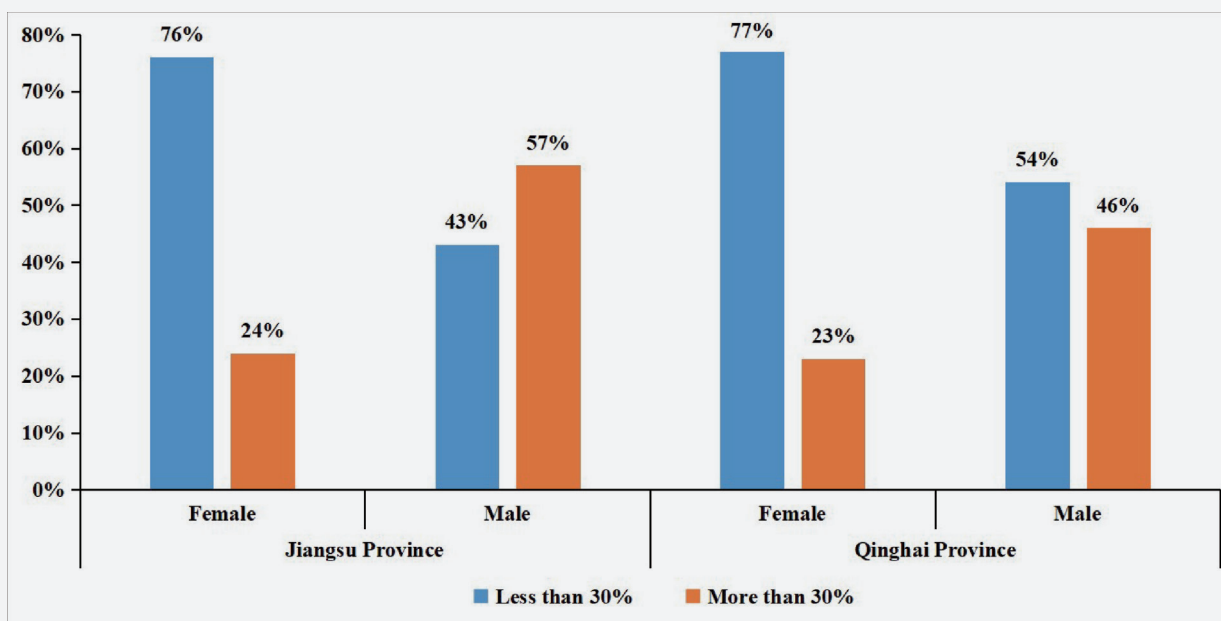
3 State Council of China, 2022, China's digital economy hits 45t yuan.

4 Demirgüç-Kunt, A., Klapper, L., Singer, D., Ansar, S. and Hess, J., 2018, The global finindex database 2017: Measuring financial inclusion and the fintech revolution.

Rural Revitalization Strategy may have reached more men than women. In rural regions, women commonly move to their husbands' villages after marriage and men are customarily the household heads. Men tend to retain control of land, property, finance and other important resources, and newly arrived women may find it challenging to build a social network or social capital. A survey conducted by the United Nations Entity for Gender Equality and the Empowerment of Women (UN Women) shows that approximately 24 per cent of women in Jiangsu Province have more than 30 per cent of

their household's land registered in their names, compared to 57 per cent of men. In Qinghai, this figure is 23 per cent and 46 per cent, respectively (figure 1). The proportion of women who qualify for a loan is 77 per cent lower than that of men, and there is a large gap between rural women and men in terms of average education level and decision-making at the family and community levels. Women are tasked with the care of children and older people, and other unpaid domestic work, which limits their time and opportunity to engage in formal economic activities.⁵

Figure 1. Household land distribution in selected provinces of China, by sex



Inequalities have created many barriers that prevent women from accessing traditional

financial services and selling agricultural products. This section contains an analysis of such barriers.

⁵ UN Women, 2016, Gender dimensions of vulnerability to climate change in China.

1.1.1 Barriers for rural women in selling agricultural products

Traditionally, products from smallholder farmers in China are purchased by traders and dealers in the field and pass through six or seven intermediaries before they reach the tables of urban consumers. Long supply chain channels result in the considerable loss of products, and dealers aim to maximize profit by keeping initial purchase prices as low as possible.

Women generally sell their products to dealers in their local community who are nearest their farmland. Social norms prevent rural women from using motorcycles or motorized tricycles – the most common forms of transport – to drive to markets in or beyond their hometown and county, and women tend to lack robust social networks. Those barriers prevent women from negotiating better prices for their products and reaching distant markets.

1.1.2 Barriers for rural women under traditional banking model

Following the Asian financial crisis in the late 1990s, state-owned banks in China abandoned the countryside and merged rural institutional outlets, which led to a lack of financial institutions in rural areas. For example the Agricultural Bank closed 244,000 outlets during this period.⁶

Rural women smallholders face further barriers to accessing traditional financial products and services. Compared to rural men, they are at a disadvantage in terms of asset ownership, social networks, physical mobility and financial literacy. Women rarely hold property under their names, and many have never dealt with financial institutions or opened a bank account; most transactions in rural areas are cash-based. Rural women are more likely to lack collateral

and credit guarantees, and they struggle more to obtain loans from formal financial institutions.⁷ For a variety of reasons, rural women may find it more difficult to both understand and access financial services. Furthermore, banks may be unable to establish credit files for rural women. It can be costly for traditional financial institutions to provide services in rural areas, due to the difficulty of navigating poor infrastructure in rural and remote areas and the small scale of capital demand.

1.2 Research scope and methodology

The following are included in the scope of the study:

- (1) To understand the scope and impact of digital technologies developed so far, especially digital finance and e-commerce, to support smallholder farmers;
- (2) To understand the accessibility of digital finance and e-commerce services among men and women, and identify good practices, via gender-responsive or transformative approaches;
- (3) To discuss the potential presence of a gender digital divide in relation to rural women in China and, should it be found, outline key policy recommendations, incentives and approaches to reduce it;
- (4) To document any challenges and/or bottlenecks faced by women as they leverage digital finance and e-commerce to improve their livelihoods and identify the kinds of support needed from various entities such as the government, private sector and United Nations organizations to address these.

⁶ Ling Yi Think Tank, 2017, China Rural Internet Finance Report.

⁷ CD Finance and China Rural Finance Survey Task Force, 2019, From poverty alleviation to rural revitalization-China rural microfinance survey.

The research included a desk review, online semi-structured interviews, online correspondence, indicator analysis and case studies. Online interviews and correspondence were conducted with 10 respondents of financial and e-commerce service providers (enterprises or organizations) and five women smallholder farmers to understand both institutional and individual perspectives. The selection of the former was based on their representation and influence in their field, and the institutional network of United Nations agencies in China. The smallholder

farmers were selected for their experience with e-commerce and digital finance based on the recommendations of the above institutions, while other rural women were selected via the network of United Nations agencies.

The present report contains a summary of gender-responsive approaches and mechanisms used in China and a checklist for future rural development projects involving digital transformation (annex I). The list of participating stakeholders can be found in annex II.

2. THE POSITIVE IMPACT OF E-COMMERCE ON RURAL WOMEN

2.1 Facilitating the sale of agricultural products

Major e-commerce platforms and local governments have cooperated to use the platforms' technology, big data and sales channels for publicity and promotion of local agricultural products. This has helped rural women to expand their sales.

In February 2020, Pinduoduo, one of China's largest agricultural product sales platforms, launched a programme to assist 400 agricultural areas and more than 230 impoverished counties to sell agricultural products. It provided RMB 500 million in subsidized services during the initial COVID-19 outbreak. On the first day of the launch, sales of agricultural products totalled more than RMB 6 million. During the event 26 per cent of women shopkeepers on the platform broadcasted live at home, attracting tens of millions of orders valued at RMB 2 million. For example, Wang Ning, deputy magistrate of Linshu County, launched a live broadcast campaign on Pinduoduo that sold more than 50,000 kg of purple potatoes.

2.2 Upgrading the agricultural industry

Rural e-commerce can provide information to agricultural producers on consumer demand

and market needs. Producers can use consumer information to increase their sales by adjusting production to meet demand.

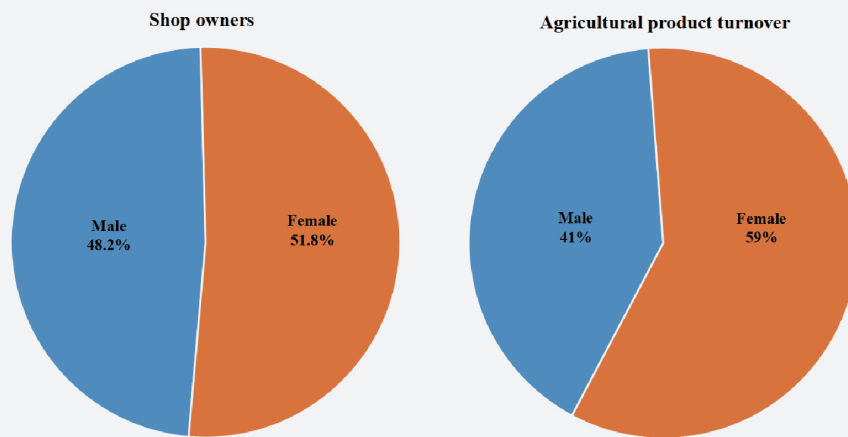
In an interview, Yan Shenglian explained the impact of having information about consumer demand, specifically "I have been engaged in animal husbandry since I was a child, but I never knew that meat can be sold as different parts. When online customers buy beef from me, many ask me for beef tendon and sirloin. One even sent me a segmentation diagram of cattle parts, and I now slaughter and sell the meat according to the diagram. Now I am very familiar with it. Selling beef in this way can create a high profit: 10–20 yuan more per kilogram."

2.3 Promoting rural women's entrepreneurship

E-commerce has solved the problem of information asymmetry in traditional sales, and rural women can now quickly obtain market information and connect directly with consumers. By the end of 2019, women accounted for 51.8 per cent of 586,000 active shops selling agricultural products on Pinduoduo. Women's shops accounted for 59 per cent of agricultural product turnover, which reached RMB 136.4 billion in 2019 (figure 2). The average annual sales of women shop owners was RMB 240,000.⁸

⁸ China Anti-Poverty Research Institute, Renmin University of China, 2020, New e-commerce and new women: Report on the participation of female entrepreneurs in internet agriculture.

Figure 2. Shop owners and their agricultural product turnover on Pinduoduo, by sex



2.4 Overcoming time and mobility constraints experienced by women

Online sales have enabled rural women to sell their products to larger and more distant markets and expand their sales channels. For example, the Youwo Specialized Farming Cooperative mainly produced black potatoes and eggs and sold them in small nearby supermarkets and shops. Only 20 or 30 per cent of their products were usually sold and the cooperative had been losing money. In 2015, Heifer Hong Kong, a non-governmental organization focusing on poverty reduction, helped the cooperative to connect with e-commerce platforms, and it began to sell on sites such as Poly, Meicai, WeChat shop and Douyin. The sales volume increased every year and the cooperative expanded from five to more than 50 members. They now sell up to 70 per cent of their produce online to customers in major cities in China, including as far as Shenzhen, some 2,500 km away.

2.5 Increasing the value of women's agricultural products

Products sold on formal e-commerce platforms are required to be branded and the availability of branded products can increase the trust of consumers. For example, Douyin launched a campaign to sell local sweet cherries in cooperation with Wenchuan county in Sichuan Province. They created a custom design and promotion package for the campaign and hosted a live broadcast event. The campaign reached 1.8 million viewers and sold more than 10,000 kg of sweet cherries valued at more than 1.1 million yuan. Women participants reported that 69 per cent of the volume their agricultural product was sold online in 2019.

In 2015, Heifer Hong Kong supported the establishment of an eco-tea women's group in a village in Yunnan Province. Heifer Hong Kong provided production guidance and helped them to establish a small tea processing workshop and register their brand name, Original Intention.

Changes were introduced to increase quality. The group produced less than half of their original output by weight, but the quality was much better and gross profit increased more than sevenfold. Within the first year of eco-tea production, the product had sold out.

Following the Heifer Hong Kong training, the Youwo Specialized Farming Cooperative created their own brand, Two Mountains and One Ditch, accompanied by exquisitely designed packaging. The brand has gained recognition and average profits increased by 10 per cent.

2.6 Incorporating women into the entire agricultural value chain

Most rural women are working in the production segment of the value chain, with greater occupational risks and a smaller share in the marginal profit in the sector. The development of e-commerce has enabled rural women to participate in the classification, processing, packaging, transportation, acquisition and sales of agricultural products. Women can be embedded in the entire industrial chain and share greater profit as a result.

For example, Meicai's agricultural product supply chain integrates warehousing, packaging, distribution, processing, transportation and information services, and it includes farmers in each stage. Rural residents make up 70 per cent of Meicai's employees, and women make up one

third of employees responsible for sorting and packaging, earning RMB 5,000 per month.

2.7 Empowering rural women with agricultural production and marketing skills training

To promote the development of rural e-commerce, local governments and major e-commerce platforms regularly organize e-commerce training. Kuaishou has offered 5,273 paid Massive Open Online Courses (MOOCs) covering a variety of agricultural fields, such as planting, virus control and breeding techniques. Among its paying students are nearly 50,000 farmers, who can then apply what they have learned to improve their work efficiency.

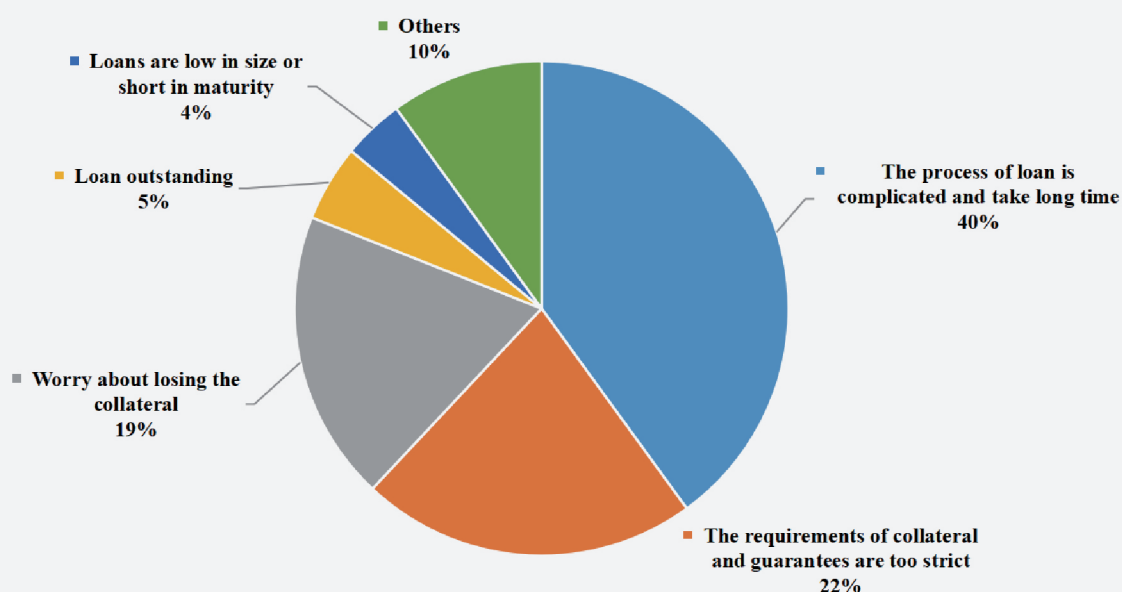
Training provided by Heifer Hong Kong and UN Women have empowered rural women smallholders to succeed in online sales. For example, Yan Shenglian of Xiaruo Yao Village, Huangyuan County, Qinghai Province, is a rural pig breeder. After receiving training on online sales from a UN Women project, she started to publish videos through the Kuaishou platform on subjects such as the breeding process and how to feed and medicate pigs. Her organic and ecological approach to farming resonated with customers who began to buy her products online. Now Yan Shenglian has expanded her product line to include piglets, beef and other products, which have become so popular that they are in demand in more distant provinces and are often sold out.

3. THE POSITIVE IMPACT OF DIGITAL FINANCE ON RURAL WOMEN

A survey of more than 4,000 farmers in 60 counties nationwide conducted by CD Finance in 2017 found that 31.39 per cent of respondents had wanted to obtain formal credit, but only 18.38 per cent had obtained bank loans. Among those who did not apply for bank loans, 40 per cent thought the application process was too complicated and took too long, 22 per cent thought that the

collateral and guarantee requirements were too strict, and 19 per cent worried about losing the collateral (figure 3).⁹ Hence, digital finance, which does not require collateral, guarantees or physical contact, can significantly lower the barriers to obtaining credit for farmers by reducing the transaction costs of approving and disbursing loans.

Figure 3. Reasons given by farmers for not applying for loans



9 CD Finance and China Rural Finance Survey Task Force, 2019, From poverty alleviation to rural revitalization-China rural microfinance survey.

3.1 Replacing traditional collateral requirements with alternative data

Most traditional financial institutions cannot establish the creditworthiness of rural women, but digital finance can offer innovative models of authenticating creditworthiness. With the development of rural e-commerce and the advancement of information technology, a vast amount of personal and social information, online transaction records, user ratings, online store operation and other data have accumulated on online platforms. Digital finance institutions can use big data technology to establish customer credit rating models and comprehensively judge the credit status of loan applicants, including for smallholders and customers in rural areas. They can provide unsecured loans to rural women that are backed solely by social credit data. Companies that have offered such products include MYbank, Kingfarm and CD Finance. The microloan product 'Jisudai' from CD Finance, for example, requires no credit history or collateral, and customers can apply for and receive the loan disbursement via a mobile application (app).¹⁰

3.2 Improving the availability of loans

Traditional banks and microfinance institutions have begun to digitalize at a faster rate. By the end of 2018, there were 612 million online bank account openings and 670 million mobile bank account openings in rural areas.¹¹ Newly emerging digital banks, such as MYbank (owned by the Alibaba Group) and Weizhong Bank (owned by the Tencent Group), have no physical branches or counter services and provide unsecured credit loans for small and medium-sized enterprises (SMEs). This has significantly boosted credit access and opportunities for rural women.

MYbank

Since 2015, the Alibaba Group has provided financing services of RMB 55 billion (\$7.8 billion) via MYbank to 7.5 million women SME operators, and more than RMB 100 million (\$14 million) in interest relief. As a result, women SME operators accounted for 40 per cent of MYbank loans during this period. The non-performing loan (NPL) ratio of loans to women is 23 per cent lower than that of men, indicating that women are often more creditworthy.

MYbank launched the Mulan Women Entrepreneur Digital Assistance Programme in 2020 to provide more than RMB 1 trillion (\$140 billion) in financial support to women operators nationwide, and billions of yuan in interest relief. It has established an online 'Mulan Classroom' to provide women operators with 100 different digital capacity development courses ranging from how to digitize an order, access digital channels and increase sales via digital media, to how to face sexism in business and find better work-life balance.

Kingfarm

Kingfarm has helped farmers to obtain loans totalling about RMB 1.2 billion. Wang Xue is the county-level Kingfarm president in Feixian, Shandong Province. She explained in the interview, "Kingfarm helps farmers to get loans and to purchase high-quality agricultural inputs and market agricultural products, which can increase the farmers' incomes by about 20 per cent. The loan procedures used to be very complicated, but now they are much more convenient. We just register with the mobile banking app and all the paperwork can be submitted online. The speed of loan approval is very fast, usually within two or three days, and the loan interest rate is much lower – about 40 per cent lower – than the physical financial institutions such as the local Rural Cooperative Credit. The farmers can repay the loans on their mobile phone at any time. I

¹⁰ CD Finance, <https://www.chongho.net/xiangzhu.html>.

¹¹ The People's Bank of China, 2019, China inclusive financial indicators analysis report (2018).

have assisted 70 or 80 farmers to apply for loans online and half of them are women."

CD Finance

The institution uses an offline joint guarantee group model comprising three to five women; rural loan officers provide on-site services to understand the applicant's needs and evaluate repayment ability and personal credit status. The joint guarantee groups are generally formed by women family members, friends or neighbours who share a credit need and can be jointly responsible for each other's liabilities. This mechanism incentivizes self-monitoring among group members and reduces potential adverse selection risk in the credit market.¹²

In 2011, CD Finance incorporated its loan recipient data into the central credit investigation system, providing credit information for those who did not have traditional records. In 2016, it gained access to the Ant Financial Credit Investigation System, which laid a data foundation for the online loan business. CD Finance launched its online service app in 2018 to provide customers with unguaranteed and unsecured small loans. Loan applications and approvals take 10 minutes, and the credit line ranges from RMB 2,000 to RMB 30,000. By the end of 2019, 1.44 million people had applied for credit, and almost 600,000 had successfully received credit (approval rate of 41.4 per cent). Data collected from December 2019 to May 2020 show women comprised more than 50 per cent of credit applicants, and in the highest month, they made up 65 per cent of credit recipients.

3.3 Improving the convenience and safety of transactions via online payment

Among non-bank payment institutions, Alipay (owned by Alibaba) and Tenpay (owned by Tencent) have grown rapidly in rural areas. In 2018, non-bank payment institutions provided a total of 289.8 billion in online payment services for rural areas totalling RMB 77 trillion. Of these, 274.9 billion were mobile payments totalling RMB 74.4 trillion.¹³ Mobile payment apps deliver convenient, efficient and safe payment services for rural residents. As observed by Yan Shenglian, "WeChat payment is convenient and safe. When I sell agricultural products face-to-face, I ask customers to scan my WeChat QR code to pay. After receiving the money, the mobile phone gives me voice prompts and informs me of the amount received. When I sell products to other places, I ask customers to transfer money to my WeChat in advance. I no longer have to worry about receiving the wrong amount or receiving fake money."

3.4 The combined impact of e-commerce and digital finance

Synergy between e-commerce and digital finance has promoted the development of the rural economy as a whole while having a positive impact on groups that were historically more excluded from both. E-commerce provides the personal credit information needed for digital finance, particularly among those without credit histories. In learning to shop online, many rural women have improved their digital capacity, laying a foundation for them to use digital finance. Meanwhile, digital finance has addressed the traditional lack of capital among many rural people, which impacts women in particular. Operating entirely online, digital finance can reduce financial transaction costs, assess the credit status of rural women and provide the financial support women need to engage in e-commerce.

12 CD Finance and China Rural Finance Survey Task Force, 2019, From poverty alleviation to rural revitalization-China rural microfinance survey.

13 China Finance Net, 2019, The Central Bank released the overall development of payment business in rural areas in 2018.

4. REMAINING BARRIERS AND UNTAPPED POTENTIAL OF DIGITAL FINANCE AND COMMERCE TO BENEFIT MORE RURAL WOMEN

Many more rural women can begin to enjoy the dividends of digital growth by removing barriers to access, improving physical and digital infrastructure to catalyse connections to markets and strengthening the safety and inclusivity of the digital ecosystem.

4.1 Remaining barriers

4.1.1 Low usage rate of internet among rural women

Improving Internet infrastructure in rural areas is a high priority of the Government of China. The proportion of households with access to optical fibre and 4G networks in villages exceeded 98 per cent in 2020, and broadband in impoverished villages exceeded 99 per cent. However, a large proportion of farmers have not used the networks, and recent data indicates that China's urban/rural digital divide is still large. As of March 2020, 71.8 per cent of Internet users in China were in urban areas, although approximately 60 per cent of the population of China live in urban areas; in contrast, rural users accounted for 28.2 per cent,

although they make up almost 40 per cent of the total population.¹⁴ Of the 496 million non-netizens in China, rural people accounted for 59.8 per cent.

Sex-disaggregated data for rural Internet users is not published by the Government, yet research has found that fewer rural women use the Internet compared to men due to their relative disadvantages in education, knowledge and skills.¹⁵

Taobao was the first e-commerce platform in China. As of 2019, there were more than 4,310 Taobao Villages in China, 34 per cent of online store owners were women and women comprised 49 per cent of online store staff.¹⁶ Women are underrepresented in the majority of professions in the e-commerce field (figure 4). Even where women's participation rates are highest they constitute less than half of the labour force in online customer service (49 per cent), online shop photography (48 per cent) and courier services (43 per cent). Professions dominated by men include operating online shops for other people (81 per cent), carrying out online store data analysis (77 per cent) and supplying online stores (75 per cent).¹⁷

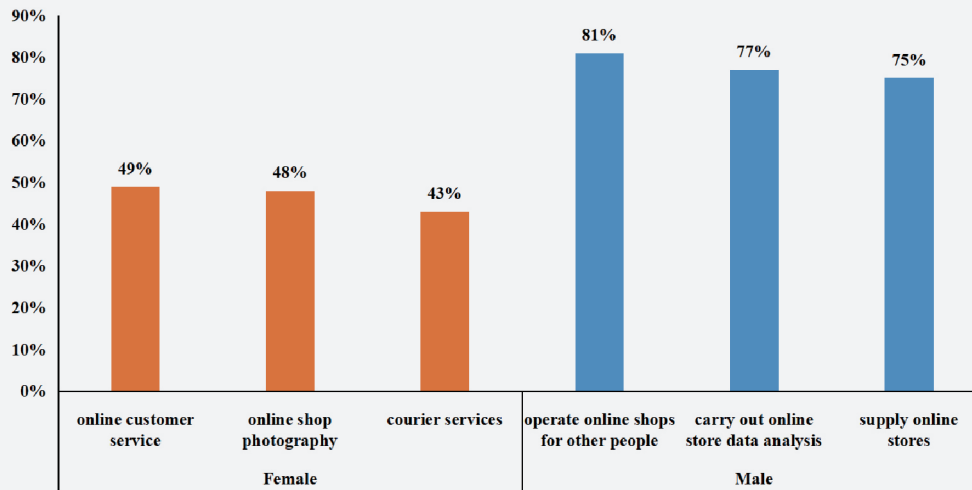
14 China Internet Network Information Center (CNNIC), 2020, The 45th China statistical report on internet development.

15 National Bureau of Statistics of China, 2019, Women and men in Chinese society.

16 According to China Taobao Village research report (2009 ~ 2019), Taobao Villages have e-commerce sales of at least 10 million yuan annually and at least 100 online stores or a number equal to 10 per cent of the number of households in the village.

17 World Bank and Alibaba Group, 2019, E-commerce development: experience from China.

Figure 4. Division of labour in Taobao Villages, by sex



Vertical job segregation results in a vertical gender pay gap despite the gains for women brought about by e-commerce jobs. Salary data posted by employers on Zhaopin.com, one of China's largest recruitment websites, shows professions dominated by men have significantly higher average salaries compared to those dominated by women. For example, e-commerce store operator jobs are advertised with an average monthly salary of RMB 8,000 – RMB 15,000 compared to RMB 4,000 – RMB 8,000 for customer service jobs.¹⁸

4.1.2 Low ownership rate of bank accounts among rural women

While China has the world's largest unbanked population at 225 million adults, data from 2017 show that 60 per cent of this population are women, and 35 per cent of these women said they did not have an account because other family members already had one.¹⁹

Opening a bank account enables access to a wide range of products and services, such as payment, credit, savings and insurance, and women have not equally benefited from rural inclusive financial policies implemented by the Government to promote bank accounts. For example, the Government of China disburses state benefits and subsidies to farmers through debit cards linked to bank accounts to increase bank account usage, and such benefits tend to be issued to heads of households, usually men.

4.1.3 Poor existing credit records on rural women

The healthy development of rural digital finance relies on a credit reference database. Despite continuous improvements to the central bank's credit reference database – which now covers all licensed financial institutions – and the increase in registered farmers, not all farmers are covered.

18 Zhaopin website, <https://www.zhaopin.com/>.

19 Demirgüç-Kunt, A., Klapper, L., Singer, D., Ansar, S. and Hess, J., 2018, The global finindex database 2017: Measuring financial inclusion and the fintech revolution.

By the end of 2018 the central bank established a database for 190 million farmers, accounting for 70.8 per cent of all farmers.²⁰ Since bank accounts are mostly owned by men in rural areas, women's representation in the database is much lower.

Moreover, additional credit information on rural residents tends to be distributed across different administrative agencies, e-commerce platforms and financial institutions, and data are not fully shared. Some large online finance platforms such as Ant Financial and JD Finance are able to analyse massive amounts of data accumulated on these platforms to judge creditworthiness, but they tend to serve microenterprises and farmers within their business ecosystem, and men have a greater presence across these platforms. Smaller Internet financial companies are reluctant to lend to rural women due to the lack of data available about them and the subsequent difficulty in mitigating risks.

4.1.4 Normative barriers at financial institutions for rural women to access finance

There is a strong demand for loans among rural women, and research commissioned by CD Finance has indicated women are more credible than men as loan recipients, with a higher awareness of responsibility and risk control.²¹ Yet many traditional rural financial institutions remain prejudiced against women, and such prejudice is a barrier to opportunity.

4.1.5 High cost of operating online stores

Opening online stores on some large e-commerce platforms can be too expensive for many rural women. There may be costs for production, packaging and publicity that require further

investment of capital. As explained by Yu Shuran, president of a farmer's cooperative in Inner Mongolia: "For one platform it takes RMB 100,000 to open a store, of which RMB 70,000 is a security deposit and RMB 30,000 is another kind of deposit. This puts pressure on our cooperative. Although another platform may not require a high deposit, we'd then need to invest a lot of money in promoting ourselves as a new store to achieve a high ranking, so sales are not guaranteed". In periods of market decline, business owners will face losses if high fixed costs exceed revenue.

The lack of differentiation among product and marketing approaches can also increase risk. Many business owners simply imitate the products and marketing strategies of other online businesses. As rural e-commerce has grown, this increasing homogenization of competitive strategy has led to a rapid decline in profitability, and rural entrepreneurs may find it increasingly difficult to recover their costs. Market prices for agricultural produce can be highly volatile, and failure to monitor this information and make timely adjustments may result in costly accumulation of unsalable inventory and significant loss.

4.1.6 Inadequacy of the rural cold chain logistics system

Although the logistics system in China covers every village, its rural cold chain logistics system remains weak and delivery costs are high. The distribution challenge of reaching the last mile is particularly prominent in China, especially in remote areas with poor transportation where many women have been left behind by out-migrated husbands. This challenge seriously restricts the ability of rural women to sell agricultural products online. In Qinghai Province, Yan Shenglian reports that her nearest express delivery point is 27 km away, and the delivery costs for fresh food is RMB 20 per kg with additional costs for packaging to

20 The People's Bank of China, 2019, China inclusive financial indicators analysis report (2018).

21 CD Finance and China Rural Finance Survey Task Force, 2019, From poverty alleviation to rural revitalization-China rural microfinance survey.

keep items fresh. Customers complained that the price was too high and so Yan Shenglian reduced sales revenue rather than passing the cost to customers.

4.1.7 Limited knowledge and skill base of rural women

Compared with rural men in China, rural women have generally spent less time in formal education and have fewer opportunities to travel far from their countryside homes to receive skill training.²² While their capacity for learning is not in question, their knowledge base and technological skills – for digital finance and e-commerce in particular – need to be enhanced to seize technological opportunities. For example, data from Pinduoduo and Taobao Villages show that users are disproportionately younger and educated. In 2019, 32.8 per cent of women shopkeepers on Pinduoduo were between 20 and 29 years old, while 38.7 per cent were between 30 and 39 years old; 78.9 per cent were educated to high-school level or above.²³ In Taobao Villages, the vast majority of shop owners, at 72 per cent, were between 26 and 35 years old, along with 14 per cent who were 25 or younger; 52 per cent were educated to high-school level or above.

The rural women interviewed for the study were hesitant to embrace emerging technology and they have more confidence in financial institutions with physical outlets. Face-to-face communication and paper loan contracts make them feel more at ease that the institution will be accountable. Internet fraud incidents in rural areas have increased women's concerns about online banking.

4.2 Unleashing untapped potential of digital ecosystems to serve more rural women

4.2.1 Building trust in digital finance and platforms by strengthening regulations for consumer privacy

The 14th Five-year Plan has set out to strengthen regulations on the use and transaction of personal data to build a digital ecosystem that is more open, healthy and safe. Awareness raising measures for rural populations, including women on personal information safety and cyber financial crimes will help rural populations to understand the risks of using digital platforms and how to stay safe, and thus help to build trust in digital finance and businesses.

4.2.2 Encouraging more entrepreneurship by providing safety net mechanisms against risk of investment loss

Rural women with few assets and few alternative livelihood opportunities are at particular risk of investment loss. Women have different needs than men for microfinance products, in terms of willingness to pay, perception of marketing approach and flexibility of policy. Enabling women to benefit from digital entrepreneurship requires gender-sensitive risk management products and policies.

The risks to women are magnified by the rise of financial fraud in rural areas. According to survey data released in 2016 by the search engine Rong

22 According to China population and employment statistics yearbook 2018, the gender gap in the illiteracy rate of the population aged 15 years and above in 2017 was notable in rural areas, at 73.6 per cent for women and 26.4 per cent for men. Regarding the number of years of education, the report from National Bureau of Statistics of China showed that in 2015, the average number of years of schooling for rural men and boys aged 6 and over was 8.1 years, compared to 7.3 years for rural women and girls.

23 China Anti-Poverty Research Institute, Renmin University of China, 2020, New e-commerce and new women: Report on the participation of female entrepreneurs in internet agriculture.

360, nearly 34 per cent of the rural population had suffered fraud losses, compared to 24.37 per cent of the urban population.²⁴ Fraudulent information often spreads rapidly through networks of rural acquaintances, and in some cases entire villages have been defrauded. In 2016, domestic media reported that 14 out of 16 townships in Henan – a national key county for poverty alleviation and development – were ‘looted’ by pseudo- or illegal peer-to-peer fundraising, and one village was defrauded of more than RMB 8 million.²⁵ Better protection against fraud is key to enabling women to benefit from the untapped potential of digital ecosystems.

4.2.3 Strengthening inclusivity of digital markets to benefit the most vulnerable rural women

Engaging in e-commerce requires digital proficiency and an entrepreneurial spirit, which are obstacles many older and less educated rural women, as shown by user data from Pinduoduo and Taobao Villages. The majority of entrepreneurial opportunities go to the relatively

privileged, particularly in the case of women. To ensure the development of rural e-commerce is more inclusive, targeted measures need to be in place to assist older women and the most disadvantaged women to gain digital and business management skills with dedicated training opportunities and infrastructure to access physical markets.

For example, a key problem for rural sellers is low recognition of their products by consumers. Targeted measures can be enacted to build the skills of rural women entrepreneurs with a low education base so that they can use tools such as Photoshop and develop the ability to produce live broadcasts and other marketing content to gain publicity and achieve business success.

The current provision of vocation training opportunities tailored for rural women must be expanded to fully meet their needs. A gender-sensitive approach is needed, even in the design of training courses. Gender blind courses fail to address existing gender inequality in access to digital education and skill development opportunities in rural areas.

24 Economic Daily, 2017, Eradicating the ‘cancer’ of illegal fund-raising and financial fraud in rural areas.

25 Titanium Media, 2017, P2P ‘scams’ are sweeping aunts and uncles of countryside.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Internet technology has enabled some rural women to use e-commerce platforms, access larger markets beyond their local communities, improve their market efficiency, increase the value of their products, find employment along e-commerce value chains and build the knowledge and skills to grow sustainable businesses. Digital finance requires neither collateral, guarantees nor physical interaction, and it is both more affordable and more efficient in approving and disbursing loans, while e-commerce can provide personal credit information that rural women often lacked. Those developments significantly improved women's access to capital and other financial services, while online payment technology has improved the convenience and safety of transactions.

Nevertheless, progress has been uneven and some women in rural areas have not benefitted from digital finance. Policymakers and industry professionals should use a gender lens to ensure that the development of digital finance is sustainable and equitable.

First, the rapid growth of digital finance and e-commerce has created inequitable opportunities and risks for different segments of the population. Older women and the least educated women have a lesser chance of benefiting from technological developments while having a greater risk of falling victim to fraud and losing their investments.

Second, in an increasingly competitive market, human capital has become a key differentiator for success. Rural women must develop digital competencies on a par with their urban and more

educated counterparts to be competitive in digital finance and e-commerce. Vocational training and skills networks for rural women can offset their existing disadvantage in formal education.

Third, the inadequacy of physical infrastructure in rural areas inhibits the impact of digital finance and e-commerce for rural women. The poorest regions need access to post-harvest handling and packaging technologies and facilities, last-mile cold chain and commercial express delivery services to leverage digital finance and commerce for market expansion. In the absence of such physical infrastructure, the benefits of digital commerce for rural women will be diminished.

Fourth, data can demonstrate the differentiated needs of rural women for digital support. Sex-disaggregated data that account for rural women's experiences of the labour market and investment risks can help to drive innovations that will answer their needs.

5.2 Recommendations

5.2.1 Recommendations for United Nations organizations

Develop tools and guidance for gender mainstreaming in digital financing policies, regulations and practices. Support gender mainstreaming within relevant government departments, e-commerce platforms and digital finance providers, drawing on international perspectives and promoting a cutting-edge vision on gender equality and leaving no one behind. This can be achieved by partnering with financial institutions on research and other projects and via capacity development activities.

Urge all the partners, including governments, e-commerce platforms, digital financial companies, and United Nations organizations to focus on strengthening women's capacities and independence as one of the key objectives. All agricultural and financial programmes should set targets for women's access to digital financing and marketing opportunities, as well as capacity development to increase their understanding of gender equality, knowledge of laws and technologies that are relevant to their livelihoods, and skills in relation to mobile phones, computers and other tools used for online shopping, payments, loans and sales.

Enhance international knowledge sharing and exchange, where applicable, via dialogues, knowledge and communications products. Review and share experiences from China on the promoting e-commerce and digital finance among smallholder farmers. Bring together national and international stakeholders to exchange knowledge and experiences on supporting e-commerce and digital finance for women smallholders, including working with financial institutions to mainstream gender into their work and programmes.

5.2.2 Recommendations for relevant departments of the Government of China

Fully mainstream gender equality into policymaking, in particular in rural e-commerce and digital finance, to advance opportunities for women and close the digital divide. In promulgating laws, formulating policies, collecting data, implementing plans and designing programmes, consider the needs and interests of women fully and equally. Put in place special provisions, measures and indicators to encourage e-commerce enterprises and digital finance providers to serve rural women.

Adopt a gender-transformative approach in e-commerce and digital finance policymaking by engaging with the complex norms, attitudes and wider structural constraints that limit opportunities and outcomes for women and men, and recognizing institutional barriers to equality, justice and the achievement of development outcomes.²⁶ As part of this approach:

- Ensure that all data collected by the government is disaggregated by sex and all progress surveys and evaluations of impact include a gender analysis, so that the inclusion or exclusion of women in all spheres is sufficiently understood.
- When granting agricultural subsidies, implement measures that will encourage women to open the accounts to receive the subsidies under their own names. This is critical as a broad measure for women's financial autonomy and to ensure their access to financial services but is valuable for those in particular with men family members who have migrated for work.
- Increase the level of coordination among decision makers, technical support staff working in the field and rural women farmers, in the planning and development of e-commerce and digital finance in rural areas. Encourage the growth of multifunctional financial service points at county, township and village levels to meet the needs of rural women and promote e-commerce, including via awareness-raising, technical support and conducting credit investigations. Regulatory institutions should include women policymakers to ensure the adequate representation of women and help to progress towards gender sensitivity in rural digital finance.
- Establish a risk-grading management and mitigation system for digital finance institutions that is gender sensitive. Among other factors, risk levels should be based on the amount

²⁶ Cole, S.M., Kantor, P., Sarapura, S. and Rajaratnam, S., 2014, Gender-transformative approaches to address inequalities in food, nutrition and economic outcomes in aquatic agricultural systems.

of capital held, credibility, business model, business performance and gender-specific rating variables. Policies and regulations pertaining to new financial formats should have sufficient flexibility and tolerance to allow digital finance institutions to serve their customers.

Encourage the development and expansion of cold chain infrastructure to better support agricultural e-commerce. Offer credit, discounted interest, subsidies and other rewards to the private sector to encourage investment in storage, preservation and cold chain facilities and digital technologies. For example: include cold chain equipment in the scope of agricultural machinery subsidies; encourage local governments, logistics enterprises and associations to set up intelligent cold chain logistics alliances in agricultural areas; establish a real-time database of cold storage and cold chain vehicles; support logistics enterprises to carry out online booking of cold chain vehicles; accurately connect supply and demand information; and improve service efficiency and reduce cold chain service costs.

5.2.3 Recommendations for financial institutions

Raise awareness on and account for the needs and characteristics of rural women in the design of financial services and products. Increase the proportion of women employees, including at management and senior management levels. Use sex-disaggregated data, such as the number, amount and purpose of loans by gender, and experience summaries from inclusive finance and rural financial services to adjust financial services for rural women.

Provide comprehensive financial knowledge and skills training for rural women, taking their needs and behaviours into account. This may include operating offline branches, business teams and

rural cash withdrawal service points, and teaching farmers how to operate smartphones, link their bank cards to e-commerce platforms and make online payments.

Improve and expand the collection and sharing of credit information across sectors and institutions. Share online and offline information between financial institutions to build credit files for rural women – as well as credit data, to reduce duplication and cost. Improve sharing between financial institutions and non-financial institutions, so that information, such as living expenses, travel, communication and the procurement of production inputs, can feed into a more comprehensive and systematic public credit information system in which information can be verified, and the accuracy and reliability of information can be improved to reduce risk.

Use a sex-disaggregated approach to the collection and publication of data to better document the financial needs of the least visible groups, such as rural and older women. Develop mechanisms to protect the data privacy of users and persecute financial fraud.

Accelerate the digitalization of traditional finance institutions, in particular rural credit cooperatives, agricultural banks and postal savings facilities. Develop innovative online financial products to help rural agricultural producers to expand their online operations. When traditional institutions administer government agricultural subsidies, provide online financial literacy training to women farmers via rural cash withdrawal service points and help them to use mobile banking for online payments and transfers.

Diversify products to account for different experiences of risk among customers. Develop rural women-centred insurance and credit products to protect users from the risk of investment or collateral losses.

5.2.4 Recommendations for e-commerce platforms

Reduce the expense via temporary special measures for rural women opening online stores. For example, reduce or waive the requirements for deposits and other capital investment for those in impoverished areas who start e-commerce businesses for agricultural products.

Invest in and expand infrastructure for agricultural e-commerce to improve rural service networks, and find solutions to infrastructure issues in rural areas, such as agricultural product standardization,

logistics, the cold chain system and warehousing.

Develop the e-commerce capacities of rural women, guide them on how to improve their products by standardizing production and provide training on agricultural product brands, packaging, publicity, planning and marketing for online sales.

Develop content governance protocols and staff capacities to end the harmful perpetuation of gender stereotypes. Develop guidelines and protocols for the collection and storage of user data to protect data privacy and reduce incidences of cyber fraud.

Annex 1. Checklist for gender mainstreaming in e-commerce and digital finance policies and programmes

The purpose of this checklist is to share minimum requirements for the integration of gender equality in the development, implementation, monitoring, and reporting of e-commerce and digital finance policies and programmes. The primary audience for this checklist is government, financial institutions, e-commerce platforms, and civil society organisations engaging in this progress.

1. Use gender disaggregated data:	
Ensuring gender-analyses with an intersectional lens and, at the minimum, sex, age, and ethnicity-disaggregated data conducted in all projects. When possible, disaggregate data to give visibility to LGBTI groups.	
Including gender-disaggregated indicators in project targets, monitoring and evaluation frameworks, and project management information systems.	
Tracking, at a minimum, sex, and age disaggregated data in implementation, monitoring, evaluation, and reporting, and encouraging disaggregation by other stratifies, such as ethnicity and disability dependent on context.	
2. Conduct gender analyses to build evidence and increase public knowledge and understanding of gender inequalities, including:	
Evidence of gender differences relating to economic roles and responsibilities, and the gendered division of labour.	
Evidence of gender differences relating to needs, priorities, and access to and control over resources.	
Evidence of gender gaps in knowledge, capacity and potential contributions in this field.	
Evidence of gendered constraints in the institutional, political, legal, social, economic, and cultural sectors.	
3. Enhance women's access to adequate resources, including:	
Equal access to infrastructure, facilities, and tools (such as the internet and cold chain infrastructure).	
Equal access to public and private services on training, employment, information, finance, and e-commerce.	
Equal access to knowledge and awareness about related project components and opportunities.	
Access to gender-specific project activities, budgets, and other resources.	
4. Enhance women's decision-making power by:	
Ensuring that rural women are represented in local project management bodies at all levels.	
Ensuring that women participate in the planning, implementation, monitoring, and evaluation of projects at all levels.	
Meaningfully consulting rural women in the development and implementation of projects.	
Supporting the establishment and running of women's groups and cooperatives.	

5. Promote women's economic empowerment by:	
Providing digital financial services for women to support e-commerce-based entrepreneurship and other forms of employment, such as microcredit and microinsurance products.	
Providing skills training for women to support e-commerce-based entrepreneurship and digital finance.	
Ensuring access to relevant financial and technological support, such as information and communications technology, mobile networks, e-commerce and digital finance.	
Promoting change to traditional perceptions about the roles of women and girls in the family and in society.	
Raising awareness about the importance of women's equal access to e-commerce and digital finance.	
6. Disseminate learning and influence policy by:	
Disseminating project lessons and good practices in promoting gender equality.	
Advocating for gender-sensitive policies and programmes in e-commerce and digital finance.	

Annex 2. List of interviews and correspondence

Enterprises

Representative of Kuaishou
 Representative of Meicai
 Representative of Pinduoduo
 Representative of Douyin
 Representative of MYbank

Organizations

Representative of Shanpin Commune, China Foundation for Poverty Alleviation
 Representative of Kingfarm
 Representative of CD Finance
 Project leader, Heifer Hong Kong Yunnan Baoshan Project
 Project leader, Heifer Hong Kong Neimenggu Kalaqin

Rural women

Owner of cherry shop on Douyin platform, Wenchuan County, Sichuan province
 Representative of the women president of Kingfarm
 Representative of the women cooperative leader in Kalaqin County, Inner Mongolia, supported by a Heifer Hong Kong project
 Leader of women's ecological tea planting group, Baoshan County, Yunnan province, supported by a Heifer Hong Kong project
 Rural woman representative in Qinghai province, supported by a UN Women project

