



Case Study

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Improving Climate Change Resilience  
and Market Access Through Digital Services

# A Burkina Faso Case Study

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JengaLab



TechChange



DEVELOPMENT  
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An IREX Venture



# CASE STUDY: IMPROVING CLIMATE CHANGE RESILIENCE AND MARKET ACCESS THROUGH DIGITAL SERVICES IN BURKINA FASO

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# LIST OF ABBREVIATIONS

<b>ANAM</b>	National Meteorology Agency
<b>ARCEP</b>	Regulatory Authority for Electronic Communications and Posts
<b>DNS</b>	Domain Name System
<b>GIS</b>	Geographic Information Systems
<b>HDI</b>	Human Development Index
<b>ICT4D</b>	Information, Communication Technology for Development
<b>IDES</b>	Inclusive Digital Economy Scorecard
<b>IDPs</b>	Internally Displaced Persons
<b>ISP</b>	Internet Service Providers
<b>MARAH</b>	Ministry of Agriculture, Animal and Fish Resources
<b>MDENP</b>	Ministry of the Digital Economy, Posts and Digital Transformation
<b>PNDES</b>	National Economic and Social Development Plan 2016-2020
<b>PSSR</b>	Programme to Strengthen Smallholder Resilience
<b>UNDP</b>	United Nations Development Programme
<b>VSAT</b>	Very Intelligent Aperture Terminal

# 1. EXECUTIVE SUMMARY

The critical issues of climate change resilience and sustainable market access have received significant global attention, particularly in Africa.

**Climate risks** affect 2.6 million people per year and lead to US\$100 million in economic losses annually<sup>1</sup>. In Burkina Faso, agriculture is facing structural challenges and the chronic effects of climate change, including highly volatile rainfall patterns that induce input and output price volatility. It is predicted that climate change will result in higher temperatures, with a 1.4-1.6°C rise expected by 2050.

IFAD has been actively in Burkina Faso for several decades, focusing on projects designed to meet the country's strategic needs of the rural, low-income population. In 2023, [the Programme to Strengthen Smallholder Resilience](#) (PSSR) was initiated to strengthen the resilience of smallholders living in poverty – particularly women, young persons, persons with disabilities, and internally displaced persons. PSSR is a continuation of the [Neer-Tamba project](#), which aimed to sustainably strengthen the autonomy and capacities of rural, low-income households in the northern, north-central, and eastern regions of Burkina Faso. The PSSR project capitalises on the results of the Neer-Tamba project by strengthening the resilience of production systems and enhancing the competitiveness of agricultural sectors.

The DAS program was engaged to support the incorporation of digital solutions in the design of the PSSR project.

The challenges various groups and businesses face in Burkina Faso's agricultural and agribusiness sectors are multifaceted. Processing and marketing constraints are exacerbated by high energy and equipment costs, along with the isolation of production areas. Unfavourable market access, marked by high transaction costs, weakens the potential for market opportunities to drive productivity. Civil unrest in 2014-15 resulted in widespread violent attacks, creating multiple sources of conflict that disrupted security and displaced nearly 200,000 people, affecting rural livelihoods.

Despite improved production and sales capacity, small-scale farmers lack business skills like record keeping, contract management, and awareness of other market opportunities. Similar challenges, including limited phone access, water scarcity, and climate change, are prevalent in other villages.

The following recommendations were made for the PSSR project and are applicable for similar or related agricultural contexts throughout Africa, the Middle East, and Central Asia:

1. Sensitise, train, and build capacity for facilitators, extension workers, and farmers using digital agro-meteorological e-advisory services already developed by the Ministry of Agriculture and Animal Resources (MARAH).
2. Support for creating, producing, validating, and disseminating agro-meteorological information content.
3. Support the definition of a business model for e-advice services and the effective involvement of extension workers for sustainable dissemination of agro-meteorological information.

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<sup>1</sup> IFAD, Programme to strengthen smallholder Resilience (PSSR) Concept Note, 2022

4. Support a feasibility study for implementing simplified smart greenhouses<sup>2</sup> to overcome land degradation challenges and ensure sustainable land and water management for youth, women, and IDPs.
5. Support operationalising an interoperable national platform for sustainable land and water management for better governance and the annual planning of activities.
6. Develop a campaign on community radio to raise awareness and provide information on agricultural services for market access.

## 2. INTRODUCTION AND BACKGROUND

### 2.1 BURKINA FASO

#### Geography and Population

Burkina Faso, a landlocked country in West Africa, has a population of approximately 23 million, growing at a rate of 2.8% per year. With a [Gross Domestic Product \(GDP of USD 952.37 per capita\)](#), Burkina Faso is ranked among the poorest in the world (182nd out of 189 countries in 2019) according to the United Nations Development Programme (UNDP) Human Development Index (HDI)<sup>3</sup>.

The incidence of poverty in households whose heads have no formal education is estimated at 48%, while that of households whose heads have primary education is half that (25%).<sup>4</sup> Notably, the higher the level of education of the head of the household, the more well-to-do the individuals are. Alarming, more than 9 out of 10 poor people (92%) live in households whose heads lack formal education<sup>5</sup>. Further, the poverty rate in households headed by individuals who lack digital literacy is almost double(50%) compared to households headed by individuals who are digitally literate( 24% ).<sup>6</sup> The low level of education is also preventing the population from accessing and using digital tools that have the potential to enhance daily working activities, including those involved in the agricultural sector. The above challenges make the country vulnerable to shocks and a wide variety of crises.<sup>7</sup>

Burkina Faso is facing a multidimensional crisis combining **political instability, terrorism, climate change**, and the **effects of the COVID-19 pandemic**. In March 2023, there were 2,062,534 internally displaced persons (IDPs), and the country hosted 36,265 refugees and asylum seekers.<sup>8</sup>

In 2012, agriculture contributed to about 30% of the Gross Domestic Product (GDP) and employed over 90% of the workforce. The sector is dominated by small-scale farms of less than 5 hectares.<sup>9</sup> This is due to low productivity, processing, and marketing of products.

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<sup>2</sup> Greenhouses are frames of inflated structure covered with a transparent material in which crops are grown under controlled environment conditions. [For more details on greenhouses cultivations:](#)

<sup>3</sup> [Poverty Diagnosis: Harmonised Survey of Household Living Conditions 2018 \(HSLC-2018\)](#) Consulted in February 2023. The site is currently unavailable at the time of publication).

<sup>4, 5, 6, and 7</sup> Ibid

<sup>8</sup> [United Nations High Commissioner for Refugees \(UNHCR\). \(2023\). UNHCR Burkina Faso - Fact Sheet, 1 March – 30 April 2023.](#)

<sup>9</sup> [Food and Agriculture Organization. \(2014\). Socio-economic context and role of agriculture.](#)

The rural population depends mainly on rain-fed agricultural systems for their livelihoods. Therefore, addressing the challenges of agricultural development in the rural landscape is vital to improving the livelihoods of the entire population.

### **Economy and Industry**

Mining and agriculture (agro-sylvo-pastoral sector) are the two main income-generating activities in the country. Of these, gold (accounting for 70% of national export earnings) and cotton (accounting for 13% of national export earnings) are the main export products.<sup>10</sup> Agricultural production mainly comprises cereals (millet, sorghum, corn, rice, and fonio). After a sharp slowdown to 1.5% in 2022 due to a combination of new domestic shocks (coup, mining insecurity) and external ones (Ukrainian invasion), the economy is expected to recover sharply in 2023 by 4.3% (or 1.7% per capita) and the agricultural sector contributed to this growth with 4.1%.<sup>11</sup>

## **2.2 THE PROGRAMME TO STRENGTHEN SMALLHOLDER RESILIENCE (PSSR)**

### **An Overview of the Project**

IFAD has worked in Burkina Faso for several decades with projects that aimed to implement the country's strategic priorities for the rural, low-income population. The formulation of the Programme to Strengthen Smallholder Resilience (PSSR) is a continuation of the Neer-Tamba project, which aimed to sustainably strengthen the autonomy and capacities of rural, low-income households in the northern, north-central, and eastern regions of Burkina Faso. The PSSR project will capitalise on the results of the Neer-Tamba project by strengthening the resilience of production systems and enhancing the competitiveness of agricultural sectors.

The Programme to Strengthen Smallholder Resilience (PSSR) project will operate in the North and the Central West regions, targeting small producers and family farms representing 265,672 people, of which 40% are women and 50% are youth. These regions were targeted for their high rates of poverty and food and nutrition insecurity.

The high aridity and variability of rainfall from year to year cause (directly or indirectly) several disturbances, including i) reduction in the total area of forest, ii) accelerated loss of animal and plant biodiversity, iii) poor natural regeneration, iv) soil degradation, v) reduction in surface water, vi) the lowering of the water table, and vii) silting up of various watercourses. Moreover, this has caused the disruption and modification of ecosystems, water stress due to heat, the use of crops during flowering, the use of wetlands, and the proliferation of climate-sensitive diseases.

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<sup>10</sup> [Poverty Diagnosis: Harmonised Survey of Household Living Conditions 2018 \(HSLC-2018\)](#)

<sup>11</sup> [World Bank. \(2023, September 26\). The World Bank in Burkina Faso.](#)

The interventions of the PSSR aim is to achieve the dual objective of combating food and nutritional insecurity, in line with climate change adaptation strategies (IFAD, 2022).<sup>12</sup> In the long term, the project will measure the adoption of sustainable and resilient practices and technologies, particularly in the face of climate change. The project will also measure the increase in marketed volumes in the promoted sectors as a result of improved productivity market access. To do so, the project aims to support the development of infrastructure and productive partnerships with market operators. It plans to improve productivity by capacitating actors in the targeted sectors with knowledge of improved nutritional practices and access to agro-climatic information for monitoring the water table. The project also plans to improve land tenure security and will implement specific activities to achieve the aforementioned results. Among the activities proposed, the digitalisation of agricultural services intends to improve access to information and inclusive financial services through capacity-building activities aiming to increase the use of digital solutions by the population.

At the national level, the PSSR programme is aligned with the *economic and social development plan* (PNDES-II: 2021-2025). At the sectoral level, aligns with (i) the *Rural Development Strategy* (RDS 2016-2025); (ii) the sectoral policy *Agro-sylvo-pastoral, fisheries and Wildlife Production* (2018-2027); (iii) the *National Strategic Plan for Agro-SylvoPastoral Investments* (PNIASP) 2021-2025; (iv) the Multisectoral Strategic Plan for Nutrition (2020-2024); and (iv) the National Food and Nutritional Security Policy (PNSAN 2018-2027). The programme is aligned with IFAD's Strategic Framework 2016-2025, COSOP 2019-2024, and IFAD's priorities on gender, youth, nutrition, environment, and climate. The programme will contribute to SDGs 1 (No Poverty), 2 (Zero Hunger), 5 (Gender Equality); 7 (Affordable Clean Energy); 10 (Reduced Inequality); and 13 (Combating Climate Change).

To achieve these objectives, the DAS program was engaged to support the incorporation of digital solutions in the program's design. A DAS ICT4D expert joined the IFAD team during the project design field mission, meeting and interviewing relevant stakeholders and collecting the necessary information to finally provide input and suggestions for digital solutions that would better address the project's objectives and challenges.

Digitalisation represents a cross-cutting instrument to achieve results in both components of the project. The activities were proposed during the IFAD project design field mission that the DAS program has undertaken, providing ICT4D expertise. In March 2023, the DAS program consultant met and interviewed 14 local stakeholders operating in the field of agriculture and agritech (four cooperatives and smallholder farmers, seven agritech/agriculture stakeholders, and three policymakers)<sup>13</sup>. These high-impact activities were identified as feasible and sustainable ways for the PSSR project to incorporate ICT4D and reap its benefits.

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<sup>12</sup> IFAD, Programme to strengthen smallholder Resilience (PSSR) Concept Note, 2022

<sup>13</sup> More details on the stakeholders interviewed during the field mission are detailed in the Annex.

# 3. KEY FINDINGS

## 3.1 DIGITAL LANDSCAPE IN BURKINA FASO

The Ministère de l'Économie numérique, des Postes et de la Transformation Digitale (MDENP) is responsible for the development of infrastructure and the promotion of local industries based on Information and Communications Technologies (ICTs). In addition, MDENP works closely with the Regulatory Authority for Electronic Communications and Posts (ARCEP), an independent agency responsible for overseeing the compliance and obligations of network operators and service providers, the management of Internet Domain Name System(DNS) domains, and the approval of imported/local electronic equipment or radio frequency management.

Since September 2021, Burkina Faso's mobile phone market has been served by three private operators: Onatel SA, Telecel Faso SA, and Orange Burkina Faso SA, according to ARCEP's latest report for Q2 of 2022.<sup>14</sup> The number of active SIM cards across all three mobile networks reached 25.5 million in the 2<sup>nd</sup> quarter of 2022. This represents an increase of 6.18% year-on-year and equates to a penetration rate of 111.69% of the national population. There are no restrictions on registering a SIM card, requiring only a valid ID to purchase a postpaid or prepaid subscription. Additionally, all current operators offer various mobile tariffs and internet solutions to individuals and businesses, with competitive offers and packages. In addition, the country has Internet Service Providers (ISPs) () that provide Very Intelligent Aperture Terminal (VSAT) installation, fibre optic connections or IT solutions (servers, maintenance, etc.).

Among the projects<sup>15</sup> that have been implemented and that contributed to the introduction of digital transformation practices in the countries are:

- The establishment of the **e-Burkina Project**, funded by the World Bank,<sup>16</sup> which aims to improve the capacity and use of ICT by public and private administrations through e-services;
- The development of the **G-Cloud project**, in collaboration with Alcatel Lucent, which aims to be a cloud platform for the benefit of administration, businesses, and citizens.<sup>17</sup>

Under the leadership of Hadja Fatimata Ouattara, former Minister of Digital Economy, Postal Services, and Digital Transformation, the government has undertaken significant digital transformation efforts. To assess the progress of this transition, the UN Capacity Development Fund (UNCDF) conducted a study, and an Inclusive Digital Economy Scorecard (IDES) report was published in 2021.

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<sup>14</sup> [ARCEP, 2022:](#)

<sup>15</sup> The websites of the mentioned government projects are down at the time of the publication.

<sup>16</sup> [The World Bank. \(2016\). Project Appraisal Document on a Proposed Credit in the Amount of EUR 18.8 Million to Burkina Faso for the eBurkina Project.](#)

<sup>17</sup> [Digital Impact Alliance. \(2020\). Unlocking the Digital Economy in Africa: Benchmarking the Digital Transformation Journey.](#)

The IDES<sup>18</sup> is a policy tool that helps governments identify their digital transformation priorities. The tool identifies key market constraints that hinder the development of an inclusive digital economy and helps identify the right priorities with public and private stakeholders to promote a digital economy that leaves no one behind. The IDES report is fundamentally built on the four components of an inclusive digital economy: policy and regulation, infrastructure, innovation, and skills.<sup>19</sup>

## Policy and Regulations

According to the IDES report, under the leadership of the Ministry of Digital Economy and Postal Development, several government agencies and public administrations (Prime Minister's Office, Ministry of Finance, Central Bank, and Telecommunications Regulator) are actively promoting the development of the digital economy. Against this background, the *National Digital Economy Development Strategy* sets out a multi-year framework to achieve an inclusive and sustainable digital economy by 2025. Nonetheless, there is still room for other government agencies to embrace the digital era and actively promote and support various industries (agriculture, energy, education, etc.) to use digital technology to promote greater economic development.<sup>20</sup>

The *National Economic and Social Development Plan 2016-2020 (PNDES)* highlights the potential impact of digitalisation on the structural transformation of Burkina Faso's economy and communities, stating the government's ambition and its commitment to promote the digital economy as the backbone of Burkina Faso's economic growth. The Ministry in charge of the Digital Economy and Posts oversees the implementation and monitoring of the Government policy for the development of telecommunications/ICT, digital economy, and postal services. In this context, the tasks and positioning of the Ministry in regard to the digital economy are as follows:

- Develop the infrastructure of electronic communications;
- Accompany and promote the use of telecommunications/ICT;
- Develop online services and local content;
- Develop a local industry based on ICT.<sup>21</sup>

## Infrastructure

The internet penetration in Burkina Faso is low at 11%, which is attributed to low smartphone penetration of 37%. Further, access to a digital payment system is at a record 10% for the use of an open payment system. The country has no existing interoperable payment systems.<sup>22</sup>

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<sup>18</sup> [United Nations Capital Development Fund. \(2021\). Inclusive Digital Economy Scorecard \(IDES\) Report-Burkina Faso.](#)

<sup>19</sup> [More findings and recommendation can be found in the report: pg. 6.](#)

<sup>20</sup> [The Inclusive digital economy scorecard \(IDES\), UNCDF, 2021: pg. 1.](#)

<sup>21</sup> [ITU:](#)

<sup>22</sup> [The Inclusive digital economy scorecard \(IDES\), UNCDF, 2021: pg. 8.](#)

The Burkina Faso government continues to focus on network coverage, ICT ownership and increasing the use of digital payments but seemingly overlooks other building blocks, such as the implementation of inclusive digital identities and the implementation of open and interoperable payment systems that would provide all citizens with opportunities to participate in the digital revolution. Another area in need of prioritisation is developing appropriate incentives to increase smartphone and internet access and use, especially for marginalised groups (women, rural families, youth, the elderly, persons with disabilities, refugees and MSMEs enterprise).<sup>23</sup>

*“Including digital ID, network coverage, information and communications technology (ICT) ownership and digital payments is a key focus in Burkina Faso at the current stage of development. It should remain a priority to continually improve connectivity as this will allow more citizens to own a phone with a SIM card and to use digital payment services more actively”<sup>24</sup>. – UNCDF*

## Innovation

Burkina Faso’s innovation ecosystem is developing but is still in its early stages (32%), with limited development and synergy among innovation communities (29%). In fact, innovation communities have limited digital skills (34%), support infrastructure ratings are average (40%), and the ability to raise capital at all stages of the entrepreneurial journey is low (24%).<sup>25</sup>

To develop mass-market digital products and services, innovation ecosystems in Burkina Faso would benefit from consistent organisation and connections among all stakeholders (incubators, entrepreneurs, mentors, investors, etc.) to achieve greater synergy and visibility. A comprehensive mapping of the fintech and entrepreneurial ecosystem, including data collection on the effectiveness of various innovation-driven programs, analysis of incubator/accelerator business models, and financing/investment opportunities, can help develop a roadmap for an inclusive and sustainable ecosystem to accelerate locally driven technology solutions.<sup>26</sup>

## Skills

In a recent IDES report, Burkina Faso had low scores for digital literacy (9%), basic skills score (34%), and financial literacy (35%), with an overall general skill component score of 26%.<sup>27</sup>

A deliberate effort to increase basic, digital, and financial skills is required for government and development stakeholders who wish to enhance skills and knowledge in digital literacy for the population. Other stakeholders such as schools/universities, private sectors, innovation hubs and incubators should promote initiatives aimed at strengthening digital skills and financial literacy for the labour market.<sup>28</sup>

## Digital Agriculture Solutions

The private sector promotes most digital solutions in Burkina Faso. The following solutions are a mix of organizations and innovators interviewed by the DAS consultant during the program design mission,

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<sup>23, 25, 26, 27</sup> and <sup>28</sup> Ibid.

<sup>24</sup> [The Inclusive digital economy scorecard \(IDES\), UNCDF, 2021 pg. 8.](#)

while others were identified during the development of this case study. The organizations and innovators presented showcase some examples of the level of maturity and digital skills available in the country. This section is not an exhaustive assessment of the digital agriculture scene but does shed light on innovations that exist in Burkina Faso in terms of agritech solutions that could be scaled to address climate change resilience and access to market activities.<sup>29</sup>

NAME	DESCRIPTION
<a href="#">Cargitech Sarl</a>	Cargitech works in the fields of topography, aerial mapping, geographic information systems, the environment, precision agriculture and land development.
<a href="#">Espace Géomatique Sarl</a>	Espace Géomatique provides studies and training in Management Information Systems (GIS), Remote Sensing and other aspects of geomatics. It also offers consultancy support, and carries out studies relating to sustainable development and all other geomatics-related skills.
<a href="#">AgriDATA Smart Agriculture</a>	Agridata is a platform to promote digital innovation, information and documentation on agriculture and sustainable development practices, as well as a space to promote an electronic information system on agricultural markets.
<a href="#">SIMagri</a>	SIMagri is a community platform bringing together all players in the value chain. It is an electronic information system accessible via cell phone and internet.
<a href="#">Agribusiness TV</a>	Agribusiness TV is a web TV which aims at using videos as a promotion tool to (re)valorise agriculture and make the sector more attractive to youth by showcasing success stories of young agricultural entrepreneurs and their innovations in Africa.
<a href="#">AgriMinga</a>	Agri Minga is an intelligent greenhouse equipped with cutting-edge technologies such as humidity and temperature control, light management, controlled irrigation and remote crop monitoring. Thanks to these techniques, crops are grown efficiently and sustainably, with minimal use of water and energy.
<a href="#">Green Hope</a>	Green Hope is a Burkina Faso company specializing in the production, collection and distribution of agricultural products. Convinced that Burkina Faso has all the natural and human resources to produce and feed every Burkinabè, Green Hope has developed <a href="#">YOLSE</a> , a payment digital service that enables family farmers to train, finance their input needs, and sell their harvests back to the company at prices above the local market.
<a href="#">Farafina Agri funding</a>	Farafina Agri-Funding is a social enterprise offering a digital participatory financing platform dedicated to agriculture in Burkina Faso.
<a href="#">Viamo</a>	Viamo's 3-2-1 service aims to connect millions of individuals and organizations to access the information they need in their local languages in several countries. Viamo's service in Burkina Faso provides information through call centres on market information, market prices and agricultural practices.

<sup>29</sup> The list of agritech initiatives interviewed during the field mission is available in the Annex 1.

Other digital solutions can be found on the page dedicated to Burkina Faso within the Digital AgriHub Dashboard, a database that showcases a map of digital agriculture solutions worldwide.

## 4. CROSSCUTTING CHALLENGES AND RECOMMENDATIONS

The key challenges of the PSSR project are mainly due to the negative effects of climate change, where agricultural production is hampered by low rainfall and its irregular distribution. Notably, the lack of control over water resources, difficulties in accessing suitable inputs and equipment, and the persistence of land tenure insecurity, particularly for the most vulnerable populations (young people and women), exacerbate climate impacts.

### 4.1 CLIMATE RISKS

Burkina Faso's agriculture is facing structural challenges and the chronic effects of climate change, including highly volatile rainfall patterns that induce input and output price volatility. Burkina Faso's climate profile reveals that: (i) agriculture, biodiversity, infrastructure and water are particularly vulnerable to climate change;<sup>30</sup> (ii) cultivated land is more exposed to drought and flooding, resulting in lower crop yields;<sup>31</sup> (iii) temperatures will increase by between 1.9°C and 4.2°C by 2080;<sup>32</sup> and (iv) agro-ecological zones could be transformed, with impacts on ecosystems, biodiversity and agricultural production.<sup>33</sup>

The country faces limited access to quality inputs (including climate-resilient seeds), shortcomings in its infrastructure and services, low technical and financial capacity to adopt more resilient systems, and lack of secure access to planning and profitable markets for these products (IFAD, 2022).

### 4.2 ACCESS TO AGRICULTURE INFORMATION

While the farmers we interviewed are highly aware of climate change, which is affecting their production capacity, they face hurdles in carrying out reforestation, not only due to limited access to land but also due to a lack of agrometeorological information and digital agricultural advisory services.

A major barrier to accessing agricultural information digitally is the low penetration of smartphones and the Internet. Most farmers we surveyed rely on basic feature phones, which restrict their access to information primarily to SMS updates from the Ministry of Agriculture and Animal Resources. Farmers

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<sup>30</sup> [Potsdam Institute for Climate Impact Research. \(n.d\). Climate Risk Profile: Burkina Faso.](#)

<sup>31, 32, 33</sup> Ibid.

also rely on radio for information, in addition to SMS. However, presenters' knowledge of agricultural extension is limited.

## 4.3 MARKET ACCESS

The processing and marketing landscape in Burkina Faso presents significant challenges, including high energy and equipment costs, as well as isolation of production areas.<sup>34</sup> **Market access** is also unfavourable, as high transaction costs weaken the power of market opportunities to incentivise productivity.<sup>35</sup>

The security situation and challenges, such as raw material shortages, heavy taxation, political instability, and a lack of implementation of consumer development strategies, force many small and medium-sized processing and distribution companies to close or operate informally.

Despite these hurdles, there has been notable growth in production and sales capacity over the years. For instance, a women's group in Yako - Province of Passoré, went from producing 100 litres of shea butter and 100 scoops of neem soap in 2012 to 2,100 litres and 1,100 scoops, respectively in 2021. However, sales opportunities primarily revolve around local fairs and village retail, with a lack of formal contracts and awareness of broader market avenues.

There has been a growth in e-commerce, albeit slow. MediaProd, an agribusiness store in Burkina Faso which started in 2018, initially used social networks for marketing. Despite expanding to physical stores, online sales remain sluggish due to Burkinabés' mistrust of online shopping. The middle class constitutes the primary target clientele. Similarly, the GIE UTAB, a cooperative of cashew and dried mango producers, faced challenges in collaborating with e-commerce platforms due to hurdles such as transport, customs clearance logistics, etc.

## 4.4 YOUTH INVOLVEMENT

There is a rising concern regarding the youth's lack of involvement in agricultural activities. As observed in the villages surveyed in this assessment, young people prefer engaging in petty trading, hairdressing, weaving, etc. Given the strenuous nature of farming, women farmers especially highlighted the need to involve more youth. One initiative aiming to address this issue is the introduction of Agribusiness TV. Operated by Media Prod, this web TV platform specialises in covering the agricultural and agrifood sectors in Africa, with a specific focus on initiatives geared towards youth engagement.

To face these challenges, PSSR interventions target two main outcomes:

1. Improving the resilience and productivity of production systems;
2. Upgrading the competitiveness of value chains to process and commercialise these products.

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<sup>34</sup> IFAD, Programme to strengthen smallholder Resilience (PSSR) Concept Note, 2022

<sup>35</sup> [The World Bank. \(2019\). Burkina Faso Rural Income Diagnostic.](#)

Investment in appropriate infrastructure and equipment, enhancing access to water for agriculture, promotion of entrepreneurship and business partnerships, enhanced land-use planning, and better governance of value chains will improve productivity, access to market, access to food and nutrition, revenue, and resilience to factors of fragility.<sup>36</sup>

## 5. RECOMMENDATIONS

The following recommendations are a mix of concrete activities suggested by the consultant to the PSSR IFAD project design team during the field mission and some more general recommendations addressed to development stakeholders and IFAD partners. They aim to provide guidance to interventions supporting the integration of digital services to enhance agro-climate resilience in Burkina Faso.

### Capacity Building on e-Advisory Services

**Sensitise, train, and build capacity for facilitators, extension workers, and farmers in properly using digital agrometeorological e-advisory services already developed by the Ministry of Agriculture and Animal Resources (MARA).** The extension workers will deliver training sessions to the farmers by being equipped with smart and portable educational kits to project training modules, videos, or pictures for the sensitisation of farmers on the e-advisory services. The communication campaigns could take different forms: commercials, thematic sketches, or sponsorship of thematic programs on agro-meteorological services. Campaigns could focus on wide diffusion at the level of the community radios having an excellent audience rate. One of the radio programs, for instance, can address the impact of climate change on women and mitigation measures through access to information.

### Content Development and Dissemination of Agrometeorology Information

**Support for creating, producing, validating, and disseminating agro-meteorological information content,** preferably in all 5 national languages, in partnership with program-relevant ministries, state agencies, community radios, and private companies. The MARA, in collaboration with the meteorology agency ANAM and the private sector, can organise workshops to establish the essential elements of the bulletin, the procedure of production, validation, and dissemination of contents and agro meteorological information. In this process, ANAM could identify a focal point to validate the final message for dissemination. The agro-meteorological bulletin of ANAM, ideally published every ten days, can be adjusted by the operator as a summary of a maximum of 60 seconds in all 5<sup>37</sup> national languages.

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<sup>36</sup> IFAD, Programme to strengthen smallholder Resilience (PSSR) Concept Note, 2022.

<sup>37</sup> Moore, Dioula, Fulfulde, Lele, and French

**Support the definition of a business model for e-advice services and the effective involvement of extension workers for sustainable dissemination of agrometeorological information.** The agriculture and animal resources ministry can organise workshops with different stakeholders, MARAH, the telecom operators, and the e-advisory service operators, to ensure the sustainability of the agro-meteorological e-advice services. The ministry could use the workshops to support the co-design and definition of a working business model. Two working sessions could be conducted annually to monitor and consider the use cases to adapt the model. The extension workers can facilitate training sessions and ensure the beneficiaries effectively use the service.

*[The Ministry of Agriculture and Animal Resources (MARAH has already developed strategic partnerships with private projects and companies to implement agricultural advisory services via cell phones with the Interactive Voice System and call centre in all national languages (Moore, Dioula, Fulfulde, Lélé, and French). The Interactive Voice System is accessible via the short number 321 provided by Viamo, where agriculture has four monthly free calls. The 5th call of the month is billed at 25 CFA (approximately 0.04 USD), which goes entirely to the telecom operator. 30% of callers to the 321 services come from the country's centre, and the remaining 70% spread throughout the other regions. The service receives between 130,000 and 150,000 callers per month, with an average of 20 messages listened per day. The callers are mainly young people between 8 and 34 years old and are primarily men (64%). In this case, the MAAR has put in place a sustainable public-private partnership model that is benefiting farmers in receiving e-advisory by using their mobile phones. ]*

In order to ensure the sustainability of e-advisory services, more similar initiatives need to be implemented, starting by **assessing the ecosystem that will support the introduction and use of these services** (telecoms, service providers, research, training centres, community-based projects, etc.) **and testing business models together** that are affordable for the farmers and sustainable for the providers. Therefore, in contexts where the buying power of smallholder farmers is low, government institutions play an important role in supporting these initiatives that are not necessarily profitable for the service providers.

## Feasibility Study on Smart Greenhouses for Land and Water Management

**Support a feasibility study for implementing simplified smart greenhouses<sup>38</sup> to overcome land issues and ensure sustainable land and water management for youth, women, and IDPs.** Noting that the project's intervention areas are drylands with difficult access to land and water, the exploration and feasibility study of greenhouse cultivation methods could be a factor in adaptation to climate change. The above-ground greenhouse system allows for safe, all-season cultivation, using much less space than open-ground agriculture.

The study would ideally be carried out in at least two regions, taking into account the potential areas to exploit, the need for equipment and basic installation, the initial investment, and the returns in terms of

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<sup>38</sup> [For more details on greenhouse cultivations:](#)

production and investment for smallholder farmers. Moreover, the study should investigate the impact that such an installation could have on young people, women, and IDPs on land and water accessibility. A comparative study of the yield and management of the farm with or without the use of digital tools to automate tasks related to watering or temperature management should also be conducted to provide a comparison of different methods.

## A National Platform for Land and Water Management

**Support operationalising an interoperable national platform for sustainable land and water management for better governance and the annual planning of activities.** The implementation of a national platform can support sustainable land management so that ministries, associations, and NGOs can have a single decision-making tool. This platform could consider managing water resources, agricultural land, pastoral areas, forest land, and human settlements. An in-depth diagnosis of the existing situation and needs should first be carried out to propose the strategic orientations for designing and implementing the digital platform. The study should be based on preexisting data in the different agencies of the ministries.

## Facilitating Market Access for Farmers

Digitalisation plays a crucial role in connecting actors and facilitating access to markets for farmers' products. The following activities could support the adoption and effective implementation of digital services developed by the MARAH, in partnership with the private sector:

**Produce content related to the market information system:** MARAH could update information and produce content on agricultural markets in national languages and add new agricultural commodities identified that the existing market information system does not cover.

**Develop a campaign on community radio to raise awareness and provide information on e-agricultural services for market access:** this will involve the production of radio spots on existing digital services, how they work, their accessibility, their importance, and their benefit for the producer. Radio programs on the impact of digital services can also be produced by inviting farmers in the north and central western zones who already have experience and market opportunities thanks to digital technology. This experience sharing helps increase confidence around using digital tools and encourages the adoption of these tools. The production and realisation of mini-sketches in national languages on the various digital use cases in accessing the agricultural market can also raise awareness among beneficiaries.

**Raise awareness and train on access to information on market prices, agricultural inputs, and new market opportunities with short sales channels:** Build the capacity of facilitators and extension workers on the existence of the platforms so that they can, in the long term, pass on good usage practices to beneficiaries. The beneficiaries can then be sensitised and trained on the existence and use of the agricultural market information system platforms and the opportunities for marketing their products through practical cases and successful commercial transactions using digital technology. The agents and facilitators can thereafter follow up and assist the beneficiaries at the end of the training to ensure the effective use of the services.

**Connect, coach, and support contracting with alternative stores specialising in local products, supermarkets, and existing e-commerce or social commerce platforms:** Identify and list private sector actors in the agricultural value chain whose main objective is marketing farm products to put them in contact with the beneficiaries. The project could also support producers' registration and referral to existing platforms with a mutual interest in licensing.

**Create digital content to promote women food processors' products:** to enhance, promote and highlight the agricultural products of women processors, video clips on local products could be created and disseminated via digital channels to give them more visibility and market opportunities. The digital marketing and communication campaign for women's and youth groups could revolve around these videos with the engagement of consumers and market operators. This content creation is also an opportunity to support bringing products up to standards concerning visual identity, graphic design, labelling, and high-quality packaging, which could be done upstream to support the marketing of women's cooperative products. Targeting women food processors helps address the low rate of gender involvement, one of the major challenges when trying to impact women through the adoption of digital solutions.

## Improving Access to Information in Conflict Areas

The degrading security situation in the country could further deepen poverty and farmers' lack of access to information. In order to ensure access to the internet for IDPs and people living in conflict areas, **development partners and the government should cooperate with mobile operators and private internet service providers** to expand internet coverage in these zones. These **private companies can work closely with agro-climate digital service providers/initiatives** in order to facilitate access to information that can benefit farmers in conflict areas. However, it is not only a matter of bringing in infrastructure, but also ensuring appropriate policy and regulatory frameworks by overcoming barriers related to affordability, language and digital literacy. Telecom regulators and other government agencies might play a crucial role in promoting incentives for technology service providers to expand their infrastructure, coverage and electricity coverage.

# 6. CONCLUSION

In summary, addressing the intertwined challenges of climate change resilience, market access, and timely access to agricultural information in Burkina Faso demands strategic interventions and innovative solutions, as proposed above. By empowering vulnerable populations and leveraging digital tools, we can foster sustainable development and ensure equitable opportunities for rural communities, laying the groundwork for a prosperous future in Burkina Faso's agricultural sector.

## ANNEX 1- STAKEHOLDER INTERVIEW LIST

<b>Organization</b>	<b>Function</b>
Groupement de femmes Wendlasida	President
Groupement de femmes Jardin Nutritif	President
Agriculteur individuel de Tibou	President
Mediaprod	Associate Director
GIE UTAB Producteurs d'anacardes et de mangues séchées	Quality manager
AgriMinga	Founder
GreenHope	Co-founder
Yam Pukri	Founder
Ministère de l'Agriculture et des Ressources Animales and other agencies	Directors
Afrique Verte	Responsable système d'information SimAgri
Farafina	Co-founder and Director
SNV	Coordinator of the project MODHEM +
VIAMO	Country Manager

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