

Responding to Evolving Megatrends Interim Report: CGIAR Gender Equality, Youth, and Social Inclusion Impact Area

Executive Summary

Since the launch of CGIAR's 2030 Research and Innovation Strategy (CGIAR Strategy) in 2021, the world has experienced an **increasing array and level of global shocks**.^{1,2} These undermine CGIAR's vision of sustainable and resilient food, land, and water systems that deliver affordable healthy diets, improved livelihoods and greater social equality, within planetary and regional environmental boundaries. Re-examining the effect of these global shocks on megatrends is timely as CGIAR prepares its 2025-2027 research and innovation portfolio.

At the 17th meeting of System Council (SC17), the Independent Science for Development Council (ISDC) presented its 2023 plan to deliver a megatrends analysis and provide science for development advice on what CGIAR should consider after the first three-year implementation cycle of the CGIAR Strategy.

Megatrend analysis examines large-scale observable phenomenon and asks the question: What is driving us toward a specific future? Megatrend analysis focuses on understanding drivers and their likely direct consequences ([Barrett et al. 2021](#)).

Informed by subsequent interactions with System Council (SC) and its Strategic Impact Monitoring and Evaluation Committee (2022-2023), ISDC honed the megatrend 2023 commissioned project to answer the following.

- What **megatrend dynamics have changed** since the CGIAR Strategy was prepared?³
- How and if these megatrends affect the CGIAR Strategy and associated collective global targets?
 - Specifically, how—if at all—should the targets and the five Impact Areas alter to meet the needs of the possible future(s) these megatrends may affect?

For its first advisory output to SC related to this ongoing commissioned study, ISDC prioritized analysis and recommendations related to *Gender Equality, Youth, and Social Inclusion*, to present initial findings to Council and during the ISDC Science Forum at the margins of 19th meeting of System Council (SC19) on the topic. This Interim Report (Note) on the megatrends 2023 commissioned project serves as a peek into the expected report conclusion slated for finalization by Q4 2023, with further communications to follow in Q1 2024.

We synthesized the literature and conducted qualitative interviews with diverse stakeholders. Preliminary results identify **nine key megatrends**, with heightened interactions and feedback loops among them. Impacts of these interactions and feedback loops are increasingly exacerbated by an acute failure of good governance in many countries. A few examples highlight the disproportionate impact of the **confluence of these megatrends on women and youth** (age 15 to 24 years).

Emerging implications to support SC's early deliberations on the 2025-2027 research and innovation portfolio related to *Gender Equality, Youth, and Social Inclusion* conclude this Note. They are multidimensional and address **portfolio processes, components, and gaps**. As this commissioned study is finalized, ISDC will be incorporating the implications of this study into tools and rubrics used in ISDC moderated proposal reviews.

¹ At the time of its writing, the CGIAR 2030 Strategy was primarily based on analyses and data that pre-dated 2020. A revisit of the trajectory of megatrends is timely prior to the evolution of CGIAR's portfolio.

² Elaborated from [OECD \(2011\)](#), [UNSG \(2023\)](#) and [Viña and Lui \(2023\)](#), a global shock is defined as a sudden and largely unanticipated event that has widespread social, economic and/or environmental impact that can spillover to other systems and trigger a series of feedback loops.

³ In general, 2019 is the latest year for which data were available to the architects of the 2030 CGIAR Strategy.

Background

Recognizing the need to accelerate global progress towards the Sustainable Development Goals (SDGs), CGIAR launched its [2030 Research and Innovation Strategy \(2021\)](#) together with a [2022-24 Investment Prospectus \(2021\)](#) and a [Companion Document \(2021\)](#). A [CGIAR Performance and Results Framework 2022-2030 \(2020\)](#) was released in January 2021. The aim of the 2030 Research and Innovation Strategy (CGIAR Strategy) is to achieve impact at scale globally and regionally across five Impact Areas: (i) Nutrition, Health, and Food Security; (ii) Poverty Reduction, Livelihoods, and Jobs; (iii) Gender Equality, Youth, and Social Inclusion; (iv) Climate Adaptation and Mitigation; and (v) Environmental Health and Biodiversity. A three-year research and innovation portfolio of Initiatives supported with pooled funding is one of the important vehicles for delivery of this strategy.

The purpose of this Interim Report (Note) is to advise SC's early deliberations on the **2025-2027 portfolio**, namely, to summarize preliminary implications related to the evolution of megatrends since the formulation of the CGIAR Strategy and 2022-2024 Investment Plan specific to the **Gender Equality, Youth and Social Inclusion** Impact Area.

Rapidly Changing Global Landscape

The world has entered an era when food, land, and water systems are under serious threat as a result of the confluence of multiple interlinked anthropogenic megatrends ([FAO 2021](#); [FAO 2022](#)).⁴ The CGIAR Strategy was based on the premise that without sustainable long-term solutions, agrifood systems would not be able to meet the demands of the growing global population in the long term. Over the past three years, what were previously described as “global challenges” have been reframed as “global polycrises.” While there is still some debate over the use of the word “polycrisis,” the term emphasizes the existence of multiple interconnected crises which, while seemingly disparate in nature, are interwoven in such a way that the compounding effect is greater than the sum of the individual crises ([Lähde 2023](#); [Lawernce et al. 2023](#); [WEF 2023](#)).

The challenges the world faces today may represent a continued, inevitable manifestation of long-run global trajectories. Therefore, if a sound understanding of megatrends underpinned the CGIAR Strategy, then a re-examination of the megatrends is not necessary, some may argue. It is beyond the scope of this study to substantively and scientifically comment on the degree of change (shifts, accelerations, etc.) to megatrends in the last four years. Instead, we refer readers to the growing literature on the use of complexity science⁵ to understand interconnected social-ecological systems ([Arthur 2021](#); [May et al. 2008](#); [Wernli et al. 2023](#)); this study will not delve deeply into issues beyond our scope. We assert that two recent tangible events—COVID-19 pandemic (2020) and the Russia-Ukraine War (2022)—presented major disruptions (shocks) to multiple systems, and represent recent, unanticipated global systemic crises that could not be fully foreseen in the CGIAR Strategy.⁶ In addition, new findings from both climatology and earth system science suggest that the increased number and intensity of extreme weather events are happening earlier than expected, a changing megatrend trajectory. Finally, exponential growth in the application of digital technologies, such as artificial intelligence (AI) and machine learning (ML), has a profound impact not only on the agrifood sector but also on how research is conducted.

- **COVID-19 pandemic.** As a result of high levels of global interconnectivity, COVID-19 quickly spread from its place of origin and crossed over national borders, with a very few countries remaining COVID-free by 2023 ([WHO n.d.](#)).⁷ COVID-19 was the first disease event, since the 1918–20 H1N1 Spanish influenza pandemic, to elicit a global health response ([Patterson 2021](#)). Moreover, COVID-19 not only affected health systems worldwide but also triggered the largest economic crises in a century, increased inequalities, and had a negative impact on global education systems ([World Bank 2022a](#)). At the same time, as a result of lockdowns and shutdowns, COVID-19 accelerated the adoption of technologies and innovations in the digital and mechanization spheres, and

⁴ Megatrends are large transformative forces that are observable today and will continue to have an impact in the future.

⁵ Complexity science is a collection of concepts, theories, and methods, with many insights drawn from the study of physical, biological, and ecological systems ([Wernli et al. 2023](#)).

⁶ Following [Wernli et al. \(2023\)](#), a global systemic crisis is defined “as the result of an event originating in one area cascading into a wider macro-shock in areas that are not directly related to the origin of the crisis.”

⁷ Shocks due to pandemics are not themselves megatrends—although they are part of the wider ‘shifting global health challenges’ megatrend (see Table 1) and interplay with other megatrends (e.g., demographic trends; changing consumption patterns).

temporarily reduced internal and international migration and greenhouse gas emissions ([IMF 2022](#)).

- **War in Ukraine.** The world is characterized by growing geopolitical tensions and violence. Peacefulness has declined year on year for 13 of the 15 years ending 2022 ([IEP 2023](#)). While Russia's invasion of Ukraine dominated global headlines, in 2022, there were more battle-related deaths in Ethiopia than in the wars in Ukraine, Yemen, Myanmar, Nigeria, Somalia, Mali and Burkina Faso combined ([Obermeier and Rustad 2023](#)). Yet, the Russia-Ukraine war's effect spread beyond the two warring nations and impacted global agricultural markets, and global food security and nutrition ([IFPRI 2023](#)). It remains a major global (intra- and inter-) systemic crisis.
- **New knowledge.** Recent research confirmed that record-breaking temperatures and weather extremes are likely or highly likely to occur at lower levels of global warming than previously expected ([IPCC 2023](#)). New results from earth system science also show that six of the nine planetary processes, critical for maintaining the stability and resilience of planetary system as a whole, are in a danger zone, with both the number of planetary boundaries transgressed and the degree of transgression higher than that reported in 2015 ([Steffen et al. 2015](#); [Richardson et al. 2023](#)).

The world is already experiencing an array of record-breaking weather events. Climate change is rapidly becoming a key driver of natural resource scarcity, land degradation, and biodiversity loss. Combined, in 2022, these megatrends resulted in 32.6 million internally displaced persons due to disasters—the highest number in a decade and 41 percent above the average for the previous decade ([IDMC 2023](#)). Furthermore, there can be cyclic causal pathways between ecological threats, conflict, and migration ([IEP 2022](#)), which further increase the risk of systemic crises across the globe.

- **Science, Technology, and Innovation.** The pace of advances in science, technology, and innovation increased rapidly over the past three years. COVID-19 accelerated the adoption of technologies in the digital and mechanization spheres in response to lockdowns and labor shortages, as well as the snowballing advances in the realm of AI and ML ([De' 2020](#); [Landi 2020](#); [Takeshima 2021](#)). These, and advances in other technologies and innovations, could play a critical role in transforming food, land, and water systems to deliver better environmental outcomes, improve human health and food security, and promote more inclusive development. Ensuring that the Global South doesn't miss the latest technologies and innovations, including digital technologies and big data, requires the strategic development and deployment of technologies and innovations that explicitly target the needs of world's most vulnerable populations. Harnessing the potential of science and innovation for food security and sustainability also requires investment in national agricultural research and extension systems and an enabling institutional environment for sustainable agrifood systems.

Gender Equality, Youth, and Social Inclusion Impact Area

Globally, 36 percent of working women are employed by agrifood systems, and these women account for 43 percent of the total agrifood system labor force in low- and middle-income countries ([2030 Research and Innovation Strategy 2021](#); [FAO 2023](#)). Despite this, the working conditions for men and women in agrifood systems, and the returns for their participation, are often not equal.

More than 1 billion of the world's 1.2 billion youth (age 15 to 24 years) live in low- and middle-income countries, where many face limited employment opportunities and substandard working conditions.

CGIAR recognizes that achieving more resilient, equitable, and sustainable agrifood systems requires gender equality, youth empowerment, and socioeconomic inclusion. As such, CGIAR committed to closing the gender gap and enhancing opportunities for youth in food, land, and water systems.

In doing so, CGIAR Strategy developed two collective global targets⁸ for Gender Equality, Youth, and Social Inclusion,⁹ namely:

- Close the gender gap in rights to economic resources, access to ownership, and control over land and natural resources for over 500 million women who work in food, land, and water systems.
- Offer rewarding opportunities to 267 million young people who are not in employment, education, or training.

There are three Initiatives in the 2022-2024 research and innovation portfolio that reported their primary Impact Area as *Gender Equality, Youth, and Social Inclusion*, i.e., *Harnessing Gender and Social Equality for Resilience in Agrifood Systems*, *Market Intelligence*, and *Fragility, Conflict, and Migration*.¹⁰

Methods

The focus of this Note is on which and how global megatrends—their recent development and interactions—affect the CGIAR research and innovation portfolio, and, more specifically, the 2030 collective global targets for *Gender Equality, Youth, and Social Inclusion*. The likely manifestation of global megatrends in the Global South is highlighted because of its relevance to CGIAR and partners.

We synthesized the findings from key megatrend studies purposely selected because of their geographic scale and timeframe. The information extracted from these studies was updated using information contained in recent literature from a wide range of analyses providing up-to-date data on the social, economic, and environmental impact of the confluence of a variety of interconnected megatrends.

The findings from the narrative synthesis of the literature were triangulated with quantitative data drawn from three databases (e.g., World Inequality Report 2022 Data; World Population Prospects 2022 Data; Ecological Threat Report 2022 Data) to provide an additional spatial dimension. It was beyond the scope of the Note to undertake an in-depth assessment of the CGIAR 2022–24 Investment Prospectus. Nevertheless, 11 CGIAR senior leads and scientists, and four external experts, participated in key informant interviews to inform areas where CGIAR could adjust the research and innovation portfolio to increase the responsiveness to megatrends and, thus, the likelihood that CGIAR science and innovations could contribute to the CGIAR Impact Areas and collective global targets. Insights gathered from the informants were further triangulated with the qualitative data extracted from the megatrend and associated literature and the quantitative data to extract an actionable way forward. For this Note, we applied a gender equality, youth, and social inclusion lens. Specifically, we group and discuss the implications of identified megatrends on this Impact Area.

⁸ These collective global targets are closely linked to SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture, SDG 5: Achieve gender equality and empower all women and girls and SDG 8: Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all.

⁹ There is not a target for social inclusion. For the purposes of this commissioned study, ISDC focused on the inclusion of indigenous peoples (see Table 1). However, the topic of social inclusion spans many other types of groups and is frequently intersectional with gender and/or youth.

¹⁰ Initiatives that are tagged to prioritize *Gender Equality, Youth and Social Inclusion* were briefly assessed as a side element of this analysis. With regard to **gender gap's collective global target**, HER+ Initiative states: *The sum of these efforts is projected to result in 3.5 million women benefiting from CGIAR innovations with improved gender equality in livelihoods and empowerment*. Market Intelligence Initiative states more than **2.5 million women producers (and 3.4 million women and girls in adopting households)** are projected to benefit from high-yield fast cooking beans and orange-flesh sweet potato. Fragility, Conflict, and Migration Initiative has no quantitative impact data and further data are needed from the full proposal. Thus, even if the impact targets are 100% achieved in the first 3 years, the impact numbers are 1.2 percent of the collective global target (noting that Market Intelligence Initiative's contribution doesn't directly align with the collective global target). With regard to youth NEET collective global target, the preliminary analysis shows the three primary Initiatives do not directly address this. An assessment of Initiatives that point to this Impact Area is beyond the scope of this study, but flags a need for a deeper analysis of the Initiative level targets against CGIAR Strategy's collective global targets.

Preliminary Results

While megatrends are often discussed as individual phenomena, multiple spillovers and feedback loops among the megatrends are well recognized (Antle and Valdivia 2020). These interlinkages can either intensify or mitigate the impact of any individual megatrend. Table 1 provides a summary of nine recurrent, interconnected megatrends extracted from a review of the most recent megatrend, and other related, studies. Each of these megatrends, individually and in combination, has a direct impact on agrifood systems, and on the lives and livelihoods of women, youth, and other marginalized groups.

Table 1. Nine interconnected anthropogenic megatrends, and how they are changing.

Demographic trends

The four key demographic megatrends are population growth, population aging, migration, and urbanization, with marked regional and inter-regional variations (UN DESA 2019). Each presents interconnected social and economic implications for agrifood systems. FAO (2022) noted the **concerns regarding insufficient decent employment opportunities within and outside agrifood systems to meet the needs of the rapidly growing young population cohorts in Sub-Saharan Africa (SSA) and South Asia.**

Changing consumption patterns

Urbanization is driving changes in consumer behavior and diets, which in turn is driving the transformation of agrifood systems across the urban-rural continuum. While changes in dietary preferences were urban-led, **diet transition has spread increasingly to rural areas**, although to a lagged and lesser extent. Increased consumption of highly processed foods is contributing to the global obesity epidemic which, in low- and middle-income countries, disproportionately affects women (Ameje and Swinnen 2019). Since 2020, **the Food Price Index has increased by 50 percent**, placing a healthy diet beyond the means of more than 3.1 billion people (**112 million more people compared to 2019**) (IEP 2022; FAO et al. 2023). Many Indigenous Peoples have experienced rapid and profound changes in their diets (Lam et al 2023) with consequent effects on health status (Browne et al 2022).

Market concentration in the agricultural sector

The agrifood sector has been characterized by **increased concentration and consolidation** along the value chain from the provision of agricultural inputs to the distribution of the final outputs. At one end of the scale, global food value chains are governed by a relatively small number of powerful leading organizations. At the other end, in lower-middle-income countries, the agricultural sector is characterized by 600 million **increasingly fragmented rural and peri-urban smallholdings, which coexist with mega-farms** (FAO 2022; Hernandez et al 2023). While women make up 43 percent of the agrifood system workforce, women's pay, working rights, and control over the use of the resources are worse than men's (FAO 2023). The impact that increased market concentration will have on women's working conditions is not known.

Climate change

Climate change is one of this century's greatest global challenges (Romanello 2022). The world is already experiencing an unprecedented cocktail of hurricanes, wildfires, floods, drought, and heat stress, which is not only damaging agricultural production, and fisheries and forest ecosystems but also resulting in devastating losses to human livelihoods and lives. **The trend is intensifying.** For instance, the WMO (2023) is predicting **more frequently breaching the 1.5 threshold** moving forward. Not only does the ongoing and intensifying climate crisis have an impact on human health and livelihoods, but women and children are 14 times more likely to be killed during a climate-induced disaster than men (UN Women n.d.). Social and cultural barriers can exclude women from the decision-making process regarding climate change coping or mitigation strategies. Failed or slow climate action will further exacerbate gender inequalities in low- and lower-middle-income countries. (Care International 2020; UNHCR 2022; WEF 2022). An increase in extreme weather events and changing climatic conditions have disrupted Indigenous traditional food production, and have resulted in 34 million people in 25 countries being acutely food insecure (World Bank 2022b).

Natural resource scarcity, land degradation, and biodiversity loss

The main driver of natural resource scarcity, land degradation, and biodiversity loss is the conversion of land for agricultural purposes, primarily for food production. While over 70 percent of all ice-free land has been altered by human activity, inland water and freshwater ecosystems show the greatest degree of decline as a result of a range of anthropological pressures such as land-use changes, the introduction of invasive species and infrastructure development. Currently, almost 70 percent of the world's accessible freshwater withdrawal is used for agriculture. Water conflicts tripled between 2000 and 2019, with Iraq, Somalia, Yemen and Sudan having the most water-related conflicts ([IEP 2022](#)). Climate change is playing an increasingly important role in **the decline of terrestrial, freshwater, and marine ecosystems** ([UN DESA 2020](#)).

Shifting global health challenges

The key drivers of the new era of infectious and noncommunicable diseases include changing demographic trends, increased global overweight and obesity, increased global connectivity, the rise in conflicts and civil unrest, climate change, pollution, technological advances and repeated pathogen emergence from wild or domestic animal reservoirs into human populations. Over the past three years, the global pandemic brought needed **global attention to this megatrend** ([WHO 2022](#)). COVID-19 triggered the largest global economic crisis in more than a century with global poverty increasing for the first time in a generation, with disproportionate income losses among disadvantaged groups, especially women and youth ([World Bank 2022a](#)).

Geopolitical instability

With the highest number of violent conflicts since World War II, **world peace is under serious threat** ([UN 2023](#)). Around 60 percent of the chronically food-insecure and malnourished people lived in countries affected by conflicts in 2018, by 2022 this statistic **increased to 70 percent** ([WFP 2018](#); [UN Human Rights 2023](#)). The economic, health and social impacts of conflict and forced migration are gendered. Women and children living in, or fleeing, war or persecution face an increased risk of sexual violence, exploitation and being trafficked ([CARE International 2020](#); [Klugman 2022](#)). Indigenous Peoples have also been displaced as a result of discriminatory policies, persecution, and armed conflict ([UN Conflict Peace and Resolution](#)).

Inequalities

The deep-rooted and widespread multidimensional inequalities, which affect women more than men, could widen further and become even more entrenched because of the slow and uneven COVID-19 recovery, climate change, increased levels of conflict, rising food prices and other global trends ([Menon 2022](#); [Martin-Brehm et al. 2023](#); [World Bank 2023](#)). **The pandemic caused the largest rise in between country income inequalities in three decades** ([UN DESA 2023](#)).

Technology and innovation

The pace of change of this megatrend is astonishing. **New technologies and innovations, including digital technologies and big data, have the power to transform agrifood systems with positive and negative implications** ([FAO 2022](#)). To ensure no one is left behind, low- and lower-middle-income countries need access to fit-for-purpose innovations and investment in the creation and maintenance of an enabling environment. There is a 52 percent gender gap in digital technologies ([UN DSG 2023](#)).

Consequence of Megatrends on Gender Equality, Youth, and Social Inclusion

Concurrent and intertwined social, economic, and environmental crises have disproportionately impacted the financial, physical, and social wellbeing of women and youth because of pre-existing formal and normative barriers that limit personal and financial autonomy. The purpose of this Note is to examine the disproportionate impact of multiple interlinked megatrends on women and youth and how it could impede progress toward the two collective global targets CGIAR has defined for the *Gender Equality, Youth, and Social Inclusion* Impact Area.

Collective Global Target 1: Close the gender gap in rights to economic resources, access to ownership, and control over land and natural resources for over 500 million women who work in food, land, and water systems.

Women are usually disproportionately affected by social, environmental, and economic crises, particularly in rural areas where they face discrimination and have limited bargaining power

(Botreau and Cohen 2019). What has changed is the frequency and intensity of these crises as a result of multiple and overlapping megatrends. The last three years witnessed significant global change primarily due to **urbanization**, changing **consumption** patterns, shifting global **health** challenges, the acceleration of **climate** change and **environmental degradation**, and rising geopolitical **instability**. Combined, these have resulted or manifested in a global pandemic, extreme weather events, increased environmental degradation, high levels of conflict and violence, disruption of supply chains, rapidly increasing numbers of displaced people, cost-of-living crisis, trade disruptions, widespread food insecurity, increased levels of poverty and growing inequality.

This section provides three indicators that highlight the disproportionate effect the confluence of megatrends has on the wellbeing (security) of women: food and nutrition security, economic security, and personal security. These indicators were selected because they align with the collective global target: *Close the gender gap in rights to economic resources, access to ownership, and control over land and natural resources for over 500 million women who work in food, land, and water systems.*

- **Food and nutrition security**

The world is once again facing a global hunger crisis. The confluence of multiple megatrends, especially shifting **health** challenges, **climate** change, geopolitical **instability** and **changing consumption** patterns, has increased global food insecurity and malnutrition in all its forms. This is increasingly exacerbated by an acute failure of good governance in many countries. In 2019, the number of undernourished people in the world was 618 million. By 2022, an estimated 735 million people in the world experienced hunger, which is 122 million more people than before the COVID-19 pandemic (FAO et al. 2023). Furthermore, the WFP (n.d.a) estimates that more than 345 million people will face high levels of food insecurity in 2023—double the number in 2020 and 200 million more people compared to pre-pandemic levels.

Hunger is significantly worse in countries where agriculture systems are highly sensitive to climatic conditions, and where a high proportion of the population depends on agriculture for their livelihood (FAO et al. 2018), or rely on agricultural imports from conflict-affected countries (IEP 2023). Hunger is also gendered. Of the 345 million people who are severely hungry in the world, nearly 60 percent are women and girls (WFP n.d.b). Undernutrition is a major component of illness and death from disease because it increases a person's susceptibility to, and severity of, infections (Müller and Krawinkel 2005). Food insecurity and nutrient-poor diets also put pregnant women at greater risk of complications during pregnancy and birth, with many infant and young child deaths in developing countries being attributed to the poor nutritional health of their mothers.

Changing **consumption patterns** (increasingly in rural areas) are also having an impact on health and nutrition. While a shift toward an increased variety of food groups has a positive impact on nutritional status, nutrient-rich foods are relatively expensive. This, combined with lifestyle changes, has resulted in the substitution of healthier choices for relatively cheap and convenient highly processed alternatives that are low in nutritional value but high in fats, sugar, and/or salt. In Eastern and Southern Africa, 29 percent of total food expenditure is spent on processed food, of which more than one third is spent on highly processed food. Recent studies of food consumption in three African countries also show that the shares of processed foods are high among the poor and even the ultra-poor, in both rural and urban areas (FAO et al. 2023). Globally, increased consumption of highly processed foods is causing an obesity epidemic, which is driving up the incidence of noncommunicable diseases such as cancers, heart disease, and diabetes. Ameye and Swinnen (2019) examined the relationship between income, gender and obesity and found:

"Obesity changes with income, but in a non-linear way. On average, obesity increases with income in poor countries, has no relationship with income in middle-income countries and decreases with income for rich countries. Within countries, obesity is concentrated among richer groups in low-income countries and evenly distributed in middle-income countries. In high-income countries, the poor are the most obese. The relationship differs for men and women. Women are more obese in low-income countries and much more obese in middle-income countries. The gender obesity gap disappears in high-income economies."

While this change in consumption patterns, and the resultant health issues is not new, it is being further exacerbated by the recent rapid rise in the price of nutrition-rich foods, which means that a healthy diet is currently beyond the means of more than 3.1 billion people globally, that is 112 million more people compared to 2019 (FAO et al. 2023). Therefore, in rural areas in low-income countries where there is substitution of healthy foods for highly processed foods, even if obesity

could not be a problem, these consumers may be missing the nutrients necessary for good health (FAO n.d.).

- **Economic Security**

For three decades, the number of people living below the poverty line was declining. The COVID-19 pandemic temporarily reversed this trend, and delayed progress toward zero poverty by more than four years. In 2022, an estimated 667 million people were living in extreme poverty, 86 million above the pre-COVID-19 projection (UN DESA 2023). As a result of the uptick in extreme poverty numbers due to the pandemic, plus the increase in regional **conflicts**, and **climate shocks**, an estimated 575 million people will still be living in extreme poverty in 2030, just 30 percent below the 2015 figure (Mahler et al. 2022).

Around 80 percent of the world's poorest people live in rural areas and depend on agrifood systems for income and food security, and 70 percent of the extreme poor live in countries that are environmentally vulnerable or in protracted crises. Poverty is particularly entrenched in SSA where approximately 460 million people were living below the extreme poverty line (\$1.90/day) in 2022, comprising 50 percent of the rural population compared to 10 percent of those living in urban areas (Mahler et al. 2022).

In low- and middle-income countries, most working women rely on agrifood systems as a source of income. However, not only is the rate of poverty much higher in rural than in urban areas, the gender-based power imbalance has led to persistent gender gaps in wages, working conditions, rights and access to services, finance and digital technologies, land ownership, productivity, decision-making, and rural wages (FAO 2023). Simultaneously, women are disproportionately responsible to caring for the home and children (Hyde and Greene 2020), making it harder for them to leave the household to seek more lucrative areas of engagement. An aging population may further exacerbate gender inequality through an increase in the amount of time and workload for care givers, mostly women, are required to look after the elderly. As such women are not just poor in terms of income and wealth, but they are also time poor, which has a significant impact on their health and livelihoods (Hyde and Greene 2020).

Gendered income inequality worsened during the pandemic—22 percent of women working in off-farm agrifood system roles lost their jobs compared to 2 percent of men (FAO 2023). In addition, the ongoing and intensifying climate crisis exacerbates gender inequalities and has a negative impact on the livelihoods, health and safety of rural women in low- and lower-middle-income countries (Care International 2020; Botreau and Cohen 2019; UNHCR 2022; WEF 2022). In many low- and lower-middle-income countries, women depend on agriculture to sustain their households and women play a primary role in gathering and producing food, securing water and collecting firewood and crop waste. However, not only is agriculture one of the most impacted sectors by climate change, the ongoing and intensifying climate crisis can exacerbate gender inequalities (WEF 2022). For example, during drought, women and girls may have to walk longer distances to collect water, increasing their level of risk to gender-based violence. In addition, in times of climate driven food scarcity, girls may be required to support their family rather than attend school and receive lower quantities of food. Moreover, women have limited capacity to adapt to climate crises due to their restricted ability to engage in alternative livelihood opportunities less impacted by climate change and their limited access to formalized safety nets, technologies and information (UNHCR 2022).

The discussion above makes clear that in low- and lower-middle-income countries, a high proportion of working women depend on agrifood systems for their livelihoods, and that these women face deep-rooted and widespread inequalities regarding income, access to assets and basic services, education, training, and employment opportunities. Expert consultations for this Note flag the unknowns around what inhibit change. One informant mentioned that *"unpacking the drivers of the gender gaps is a critical first step"* for designing and targeting agricultural research for development (AR4D) interventions that address inequalities. Across multifunctional and diverse landscapes where vulnerable groups—women, youth, Indigenous Peoples, migrant workers—live and work, understanding what inhibits change requires a more in-depth contextual understanding of agrifood systems, as one component of these landscapes.

- **Personal Security**

The combination of geopolitical **instability**, **climate** change, and natural resource **scarcity** are driving global trends in hunger-led "climate **migration**" and forcibly displaced persons. By the end of 2023, the number of displaced persons is projected to be 117.2 million,¹¹ which represents a 48

¹¹ The projection is based on a combination of the anticipated evolution of situations, current population sizes, average population growth, expected movements and change in the status of population groups.

percent increase since 2019 ([UNHCR 2019](#); [UNHCR 2023](#)). The large and growing number of refugees and internally displaced persons is considered a global crisis that exacerbates inequalities, negative health outcomes, and conflict, especially for affected or host countries where economic conditions are challenging ([World Bank 2022c](#)).

In addition to reducing food and fuel security, geopolitical tensions and climate crises also increase **inequalities**. For example, the economic, health, and social impacts of forced displacement due to conflict and extreme weather events are highly gendered. Women and children are 14 times more likely than men to be killed during a climate-induced disaster ([UN Women n.d.](#)). Women and children living in, or fleeing, war or persecution face an increased risk of sexual violence, exploitation and being trafficked ([UNHCR 2022](#)). Displaced peoples, especially women, face an increased risk of poverty, food insecurity, malnutrition, and social exclusion, and lack basic health services and adequate and safe living conditions.

- **Summary for Collective Global Target 1**

The result of these combined crises is that, compared to the situation three to four years ago, there are more women experiencing food and economic insecurity, and lower levels of personal safety. On the one hand, if deep-rooted gender norms and unequal access to rights continue, more women will spiral into a vicious cycle of inequality, poverty and hunger, with an increased risk of further vulnerability to present and future generations. On the other hand, gender empowerment and equality are key to addressing many of the interconnected crises the world is facing today, from climate change to increased levels of conflict and violence.

Knowing what drives gender inequality both in agrifood systems and in the broader environment in which women live and work, and understanding how and under what conditions these inequalities can be addressed, is critical for designing and delivering readily adoptable interventions that increase resilience and equity within agrifood systems.

Collective Global Target 2: Offer rewarding opportunities to 267 million young people who are not in employment, education, or training¹²

This section highlights some of the indications from more recent studies that pertain to young people's employment, education and training, and the way megatrends work in combination to impede or boost progress toward the collective global target: *Offer rewarding opportunities to 267 million young people who are not in employment, education, or training.*

Generally, the expert consultations for this Note surfaced less material related to youth—this may relate both to selection of informants or the topic of youth-responsive research being apparently less developed in CGIAR's programming, and less material in the literature selected for this project. Nevertheless, what is clear is the stagnating and often worsening situation for the employment, education, and training of young people in the last four years, particularly in low-income economies, but that advances in digital agriculture hold promise for rural youth.

Young workers (age 15 to 24 years) are far more likely to be informally employed than adult workers, twice as likely to live in extreme poverty and the youth unemployment rate is three times as high than that of adults ([ILO 2022a](#); [ILO 2023](#)). Moreover, in times of crisis, youth suffer disproportionately and recover more slowly than older workers ([ILO 2023](#)). Combined, the effects of shifting global **health** challenges and geopolitical **instability**¹³ have undermined global employment, with young workers experiencing a higher percentage loss in employment than adults. The global youth employment-to-population ratio in 2022 was 34.5 percent, 0.7 percentage points below the ratio in 2019. The **stagnation in youth employment prospects is most evident in low-income economies** where the youth unemployment rate for 2022 remained 1.1 points higher than it was in 2019 ([Elder and O'Higgins 2023](#)).

The COVID-19 crisis reversed 15 years of progress in reducing the number of young people not in education, employment, or training (NEET). In 2019, there were 267 million (22.2 percent) NEET youths. By 2022, there were 289 million (23.5 percent) NEET youth ([ILO 2020](#); [ILO 2022a](#)). In low-income economies; the share of young NEETs was 27.7 percent in 2022 compared to 26.7 percent in 2019 ([Elder and O'Higgins 2023](#)). That means more than one in four people aged 15 to 24 in low-income countries risk being stuck in a poverty cycle because of skills-based barriers

¹² There is no definition for *rewarding* opportunities in the CGIAR Strategy, CGIAR Performance and Results Framework 2022-2030 nor UN 2030 Agenda for Sustainable Development.

¹³ The ongoing effects of COVID-19 and the war in Ukraine have led to cost-of-living crises, trade tensions, uncertain monetary policy paths and rising debts in developing countries. This has slowed economic growth and employment.

preventing them from gaining rewarding opportunities in the labor market in the future. [Elder and O'Higgins \(2023\)](#) commented:

"Primarily in developing regions, the [global pandemic] crisis drove a deterioration of working conditions for young people, as an above-average number of youth took up work in the agricultural sector."

This implies that the working conditions in the rural sector for youth are poor, which aligns with a [WFF \(2023\)](#) study on empowering young people. The WFF study found that within agrifood systems, the key challenges that affect youth engagement are limited or lack of access to productive resources, services and markets, **negative perception**, and **limited attractiveness** of the agrifood sector, and limited meaningful engagement in policy processes.

Technology and innovation, especially in the digital and mechanizations spheres, is stimulating youth involvement in innovative agrifood systems. The [WFF \(2023\)](#) study found that a new wave of ICT- and mechanization-based agricultural businesses, led by young entrepreneurs, is providing decent employment opportunities for youth in rural communities. Equipped with the knowledge and skills to create innovative solutions to global megatrends like **climate change**, and **natural resource scarcity, land degradation and biodiversity loss**, youth could play a crucial role in developing sustainable agrifood systems and reducing food and nutrition insecurity.

- **Summary for Collective Global Target 2**

Over the past four years, the number of NEET youths have been rising, particularly in low-income countries, despite the adult employment levels returning to, or exceeding, pre-COVID-19 levels ([Elder and O'Higgins 2023](#)). This is particularly worrying in the case of SSA because the youth cohort is projected to be 20.3 percent of the total population in 2030. That is equivalent to 234 million youths ([UN DESA World Population Prospects 2022](#)). Even if there is a sudden and substantial improvement in youth NEET rate in SSA and it falls to 20 percent, it still equates to 57 million NEET youth living in a region with high levels of poverty, food insecurity, inequality, and conflict. This figure highlights the urgent need to contribute to providing rewarding opportunities for employment, education, or training to young people. As Dr. Agnes Kalibata, Special Envoy of the UN Secretary-General for the 2021 Food Systems Summit said:

"We cannot implement the science without also addressing questions of access, equality and finance, and we cannot build a better future for tomorrow without including the youth of today." ([WFF 2023](#))

Drawing on CGIAR's experience with gender-transformative approaches and empowerment, and on the work done by other organizations, such as the World Food Forum, CGIAR could consider exploring ways to engage youth in the design, development, implementation of work packages that specifically target the key challenges that youth face within agrifood systems, contributing to a more inclusive approach to youth research and programs.

Initial Implications of Megatrends Interim Report

Implication 1

A useful and user-friendly **megatrend framework** that incorporates foresight and trade-off analysis would help to strengthen the Initiative and Action Area theories of change. CGIAR could develop such a framework by undertaking a **more in-depth megatrend analysis**, building on this analysis and the research in the Foresight Initiative.

Implication 2

CGIAR does not have a specific **global target(s) on social inclusion**, the third element of the Impact Area. Other than women and young people, which excluded groups does CGIAR seek to address, if any, and what is the most appropriate collective global target(s) to contribute to?

Implication 3

A more **in-depth contextual understanding of agrifood systems** as a component of broader, multifunctional, and diverse landscapes, where **vulnerable groups** live and work, would expand CGIAR's contribution to advancing equality.

Implication 4

Research that actively investigates the **drivers of deep-rooted and widespread inequalities**, and the interconnected and reinforcing feedback loops would likewise increase the effectiveness of CGIAR's contribution to equality outcomes. This would be critical for **removing barriers** that are preventing women from taking up interventions that enhance the welfare of agrifood system workers and increase gender equality.

Implication 5

The global research community lacks frameworks targeting youth inclusion, and CGIAR could contribute here. CGIAR might **engage youth** in the design, development, implementation of work packages that specifically target the key challenges youth face within agrifood systems by drawing on a wealth of transferable knowledge and experiences in gender research.

Implication 6

CGIAR could consider prioritizing work packages addressing youth access in the Regional Integrated Initiatives that focus on **scaling technologies and innovations**. Focus youth work in regions with fastest growing youth populations.

Implication 7

Ensure that CGIAR and partners possess adequate capacities and resources to integrate **digital AR4D**, given that this might be one of the most promising areas for youth, in co-designing AR4D with and for young people.