

Synthesis of Climate Change, Gender, Youth and Nutrition Issues in Malawi

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Report prepared by Alessandro De Pinto, Elizabeth Bryan, and Noora Aberman at the International Food Policy Research Institute (IFPRI) in support of the International Fund for Agricultural Development (IFAD) supervision mission of two related projects in Malawi—the Programme for Rural Irrigation Development (PRIDE) and the Enhancing the Resilience of Agro-Ecological Systems Project (ERASP).

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Background

Emerging evidence suggests that working towards multiple objectives, including those related to mitigating and adapting to climate change, increasing gender equity and youth inclusion, and improving nutrition increases the chances of interventions to achieve their goals and the likelihood that they have long-lasting positive impacts across a range of development objectives (Tallis et al. 2019, Yavinsky et al. 2015). Conversely, interventions that do not follow a more integrated approach may miss tradeoffs across well-being outcomes, exclude vulnerable groups, or even increase the marginalization and vulnerability of others and ultimately might fall short of their objectives. To address this problem and favor the integration of the mainstreaming themes in IFAD operations, a team of researchers at the International Food Policy Research Institute developed a conceptual framework for understanding the linkages between climate change, gender, youth, and nutrition within the larger context of resilience for development drawing on different bodies of literature on these topics (Figure 1). Resilience is particularly suited to develop a coherent, inclusive and rigorous method to plan for interventions and to analyze on-going interventions that work at the intersection of multiple disciplines. Resilience is integrative by construction; it facilitates collaboration among experts of different disciplines and combines relations among human and natural systems.

Central to the concept of resilience are people's capacities. This puts an emphasis on how interventions and programs can support the building of capacities for different groups of people to achieve specific well-being outcomes. People's capacity to respond to shocks and stresses and to negotiate for their preferred solutions determines the range of viable responses. Existing capacities also influence the type of impact that interventions have on households' wellbeing and the potential for people to fully take advantage of interventions.

Gender and age are critical social distinctions that influence vulnerability, capacities, impacts, and the feasibility of interventions. In particular, women and youth often have different needs and preferences from others in the community or other individuals in the household and typically have less bargaining power and control over resources. Other social distinctions also strongly influence resilience and capacities, including ethnicity, class, race, caste, and sexual orientation among many others.

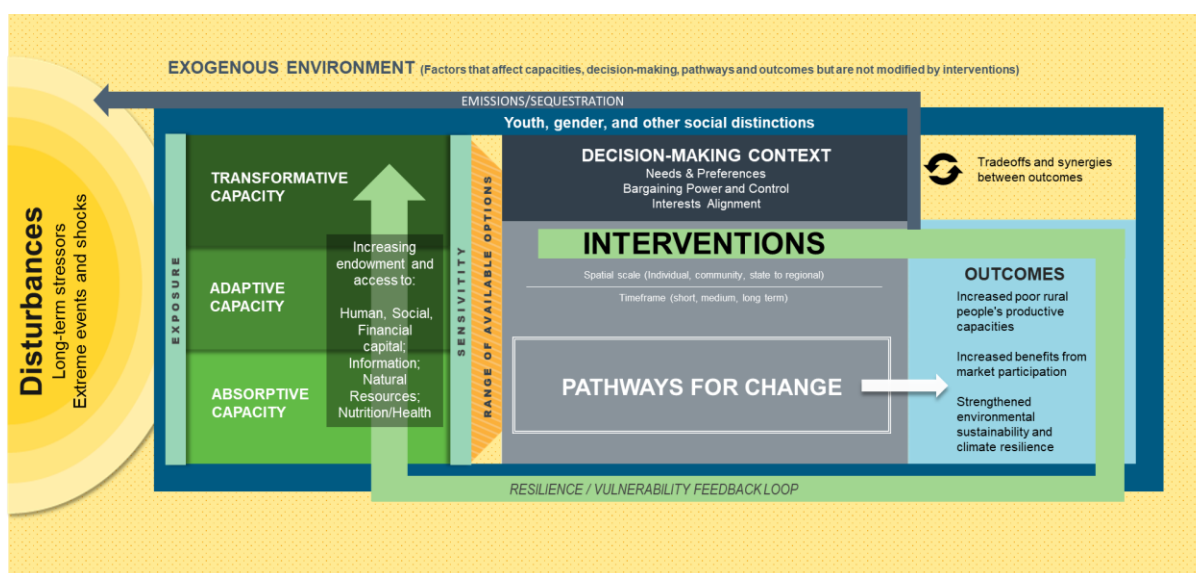


Figure 1. The Climate Change, Gender, Youth and Nutrition integrated analysis framework

Drawing on this framework, the IFPRI team has engaged with IFAD missions in four sub-Saharan African countries (Ethiopia, Ghana, Malawi and Uganda) to generate lessons for mainstreaming climate change, gender, youth and nutrition in IFAD's operations. The IFPRI team engaged with IFAD missions at various stages of the project cycle to test the applicability of the framework to the mainstreaming process.

In September 2019, the IFPRI team joined an IFAD mission in Malawi for the supervision of the Programme for Rural Irrigation Development (PRIDE) and the Enhancing the Resilience of Agro-Ecological Systems Project (ERASP)—two related projects operating side by side. The goal of the engagement was to support more integrated mainstreaming in the project activities going forward. This report summarizes the situation analysis that guided the recommendations provided by the IFPRI team to the supervision mission.

Agriculture

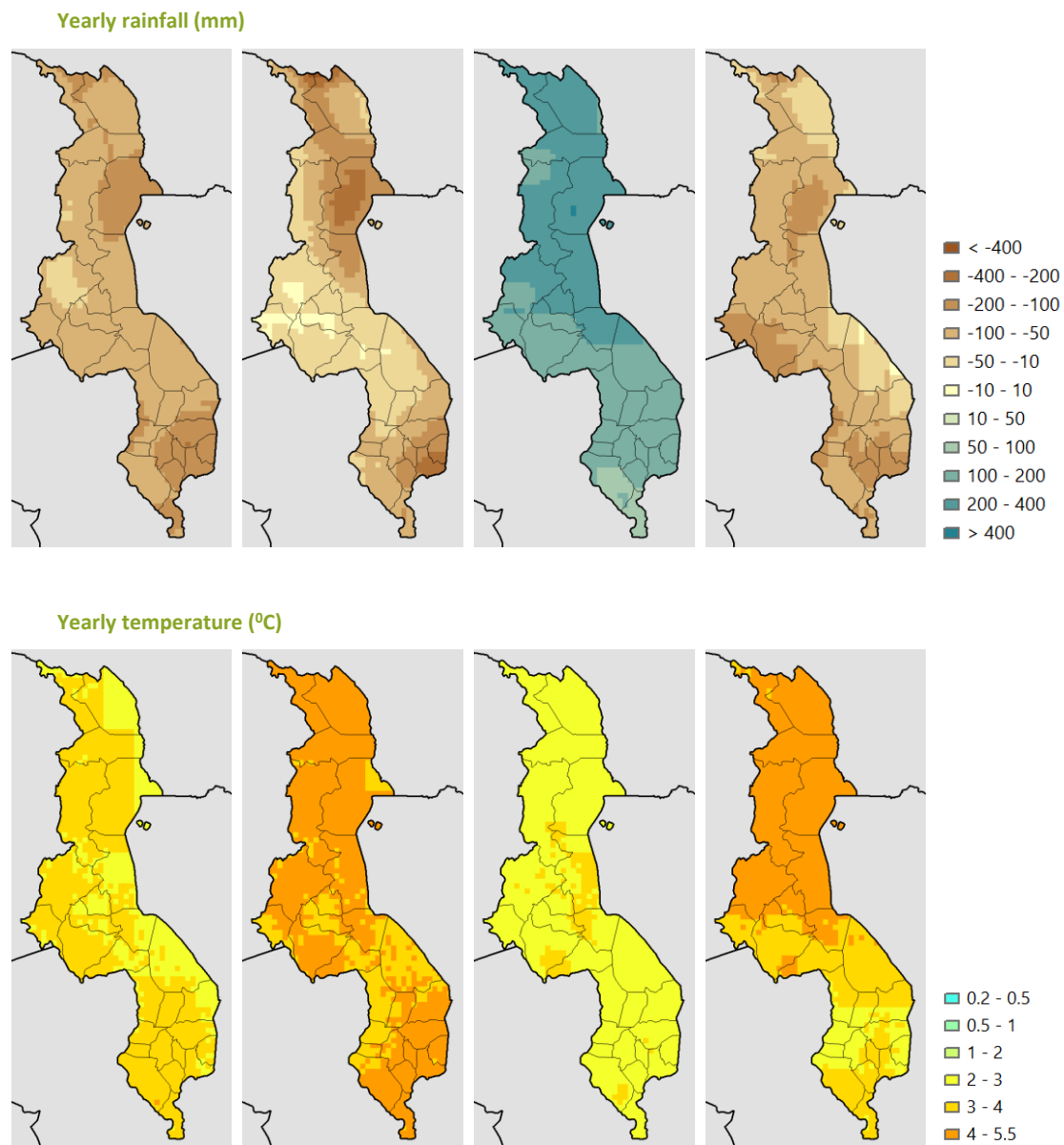
Eighty percent of people in Malawi depend on rain-fed agriculture. This makes the sector, and the economy, extremely vulnerable to climate change. For example, the impact of droughts (which data suggests recurring every 5 to 25 years) on the agriculture sector is estimated at 1.1% to 21.5% (GoM 2017).

Historical data for the last four decades indicates that the climate has been highly variable, and the weather very unpredictable. Mean annual temperature increased by 0.9 °C between 1960 and 2006 (Global Facility for Disaster Reduction and Recovery 2011). Historically, the most common hazards include seasonal droughts, intense rainfall, and floods. Significant losses due to extreme weather events were reported in 1992, 1999, 2004, and in 2005 when damages were estimated at US\$ 900 million (Makoka et al 2015). The floods of 2015 resulted in losses estimated at US\$ 335 million, while a drought that followed in 2016 resulted in an estimated loss of US\$ 365 million. Importantly, droughts and floods have reportedly become more frequent justifying the costs of investing in adaptation measures.

The direct effects on the agriculture sector include significant declines in output, and the ensuing spikes in the prices of most food commodities (Aberman et al 2018). Droughts are estimated to increase poverty levels by 1.3% and generate losses of on average 4.6% for maize which is the country most important food crop (GoM 2016). The high vulnerability to climate change is exacerbated by the limited alternative options for rural households. Vulnerability is not uniform as some areas in the Southern region experience floods, while other areas along the Lakeshore Plain (e.g. Karonga) experience droughts.

Projections show with confidence and agreement among models that temperatures are likely to increase 2050 (see maps below). Projections for annual rainfall are less certain. The average from all the models suggests decreases of 2.2%, 3.0% in 2030 and 2050 respectively. Despite the discrepancies in rainfall projections, there is a general agreement that rainfall is likely to become increasingly variable, with increased risk of above-normal rainfall resulting in floods, but also more dry days per year. Such changes are likely to have detrimental effects on the agricultural sector, including reducing the area suitable for agricultural production.

Figure 1. Predicted change in rainfall and temperature based on four climate models, 2000–2050

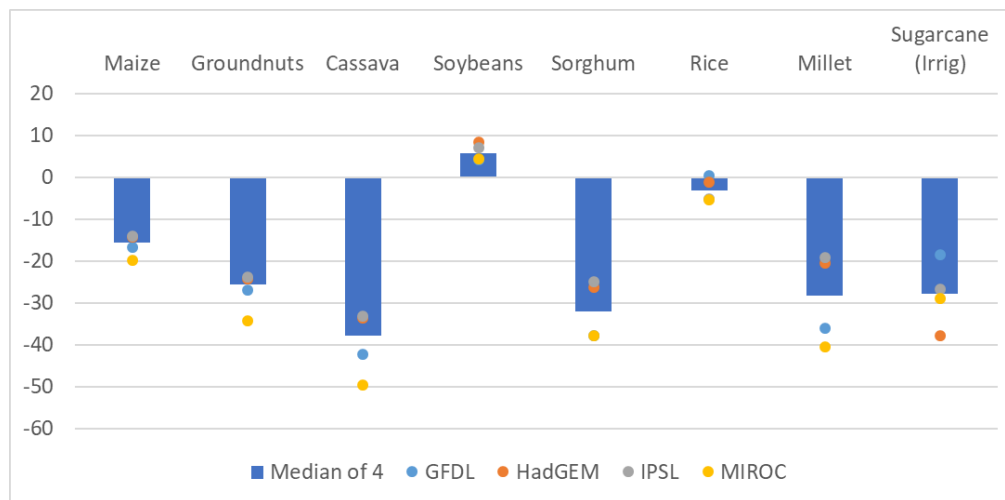


Source: Authors based on Müller and Robertson (2014).

Notes: GFDL = Geophysical Fluid Dynamics Laboratory; HadGEM = Hadley Centre Global Environmental Model; IPSL = L’Institut Pierre-Simon Laplace; MIROC = Model for Interdisciplinary Research on Climate. Simulations are based on Representative Concentration Pathway 8.5.

The effects on crop productivity of the projected changes in climatic conditions are significant. With the exception of soybeans, all major crops are negatively affected by the increase in temperature and precipitation reduction. These results (Figure 2) are consistent across four climate model and therefore are robust and should be taken in serious consideration.

Figure 2. Percentage change in yields due to climate change based on four climate models, 2000–2050



Source: DeVised by authors based on Rosenzweig et al. (2014) using weights from MapSPAM harvested area (You et al. 2014).

Notes: GFDL = Geophysical Fluid Dynamics Laboratory; HadGEM = Hadley Centre Global Environmental Model; IPSL = L’Institut Pierre-Simon Laplace; MIROC = Model for Interdisciplinary Research on Climate. Simulations are based on Representative Concentration Pathway 8.5.

Several agricultural practices and technologies offer the opportunity to address the challenges caused by climate change. Among these are conservation agriculture, agroforestry, improved fertilizer and manure use can help to improve soil fertility by increasing nutrients and water availability. Some of these practices are not foreign to the country and are already present in government policy documents (Gee et al 2016; GoM 2015). However, significant work, on extension and policies, must be done in the country to increase their adoption.

Agroforestry can be an important production system and it can benefit both livestock and crop production. Agroforestry shrubs can be intercropped with annual food crops such as maize to improve soil cover, improve organic matter, improve water infiltration and help control soil erosion (Ramirez-Villegas and Jarvis 2010), while tobacco farmers can use agroforestry trees a shade trees. Conservation agriculture and Integrated soil fertility management are already present and promoted in Malawi but still not widely adopted. This production systems require minimum soil disturbance to maintain organic matter and the use of cover crops and/or mulching. They can also be combined with the use of agroforestry, quality seed, organic and chemical fertilizers, and herbicides to maximize yields. It should be noted that the low adoption of conservation agriculture is more pronounced among women farmers (GoM 2016). Given the high likelihood of droughts, practices such as water harvesting and use of efficient irrigation methods (e.g. drip irrigation) should be promoted so as to make water more available and more reliable. Furthermore, the use of improved varieties (early maturing, drought resistant, high yielding), intercropping, irrigation, and crop diversification, which can be used as stand-alone practices or in combination, should be promoted.

Gender

Gender relations have important implications for small-scale agriculture and they are a mediator of food security and nutrition outcomes for the whole family (N. Aberman, Meerman, and Benson 2018). In Malawi in particular, women contribute more than half of the agricultural labor in the country, and almost all of the domestic and childcare duties (Bezner-Kerr and Patel 2014). Women face important inequities in terms of access to education, technical information, improved farm inputs, and land and other productive resources.

While the gender gap in educational attainment has been increasing since 1992, women are still less likely (26%) to complete some secondary school than men (36%) (National Statistical Office and ICF 2017). The disparity varies by region: in the Northern region 4% of women and 1% of men have had no education, in the Southern region 12% of women and 6% of men, and in the Southern region 14% of women and 6% of men.

Asset ownership, especially land, is an important indicator of women's economic empowerment. Forty-four percent of men and 35% of women own a house, while 43% of men and 37% of women own land (National Statistical Office and ICF 2017). Beyond legal ownership, who has control or decision-making power over assets is also important. Munsu et al. (2020) find that there is an association between who makes decisions on the use of land and who contributes their labor to that land. On female-controlled plots, males generally supply less labor, which may put greater time and energy pressure on women.

A study on decision-making dynamics between men and women in Malawi related to the production of nutritious and marketable crops suggests that Malawians tend to reject the idea of men's and women's crops (N.-L. Aberman and Roopnaraine 2015). However, on the whole, men have more decision-making weight around crops where exchange-value dominates use-value, that is, around crops which engage more closely with the public sphere of exchange. Women, on the other hand, have more decision-making power around crops whose use-value dimension is stronger, that is, with crops which tend to be conceptualized as occupying the more domestic domain of home consumption.

There are also gendered differences in access to agricultural information, technologies, and inputs. Fisher and Kandiwa (2014) find a persistent gender gap in the adoption of modern maize inputs between female-headed households and male-headed households. Even when they control for income, women household heads tend to only grow modern maize varieties if they receive free seed, although decision-making within male-headed households was not explored.

It is commonly reported that women have lower access to agricultural extension than men. Mudege et al. (2016) find that there are nuanced differences in the way women are served through extension services than men. For instance, they found that men had more direct contact with extension officers than women while women tended to interact only during field days or demonstrations. Or some women would be left out because they did not own land or owned poor quality land.

However, Ragasa et al. (2019) find that in many districts, women are more likely than men to participate in all types of trainings. Respondents reported a shift of responsibility for attending these types of meeting

from men to women. Women and men both report barriers to sharing and applying information learned from training sessions and meetings attended alone. Men often questioned the ability of their wives to comprehend the extension messages and complained that women were cautious about new approaches they had not learned firsthand. Women reported fear of conflict if they tried to convince their husbands to adopt new practices.

Even when gender relations do not directly impact agriculture, they have implications for women's empowerment. Decision-making power over income, health care, and sexual relations are important indicators of empowerment. According to nationally representative survey data, control over women's cash earnings are likely to be made jointly by husband and wife 47% of the time, while 28% of women reported having sole decision-making powers over their money and 24% reported that their husbands control the decisions on how to use their earnings (National Statistical Office and ICF 2017). Women participate in decision about their own health care 68% of the time and about making major household purchases 55% of the time. Finally, most women do not have agency over sexual intimacy with their husbands. Only 46% of women can say no to their husband if they do not want to have sexual intercourse, and nearly half (49%) can ask their husband to use a condom.

Masculine ideals in Malawian society often dictate many aspects of gender relations. For instance, it is considered justified for a man to beat his wife by men (13%) and women (16%) under particular circumstances, and these rates have not changed since 2010, although they decrease with wealth (National Statistical Office and ICF 2017). Similarly, Manda-Taylor et al. (2017) discuss how men make reproductive health decisions for their wives and daughters, but face stigma when learning about or participating in these activities.

Youth

Traditional gender norms, pervasive effects of the AIDS epidemic, increasing scarcity of land, and low agricultural productivity intersect with age to create distinct challenges for young men and women. However, educational attainment has been increasing. Only 3% of women age 15-19 and 6% of women age 20-24 have no education while 30% of women age 40-44 and 36% of women age 45-49 have no education (National Statistical Office and ICF 2017).

An in-depth study of youth and food security in Northern Ghana finds that over 50% of youth sampled indicated eating insufficient food in the last 30 days, in 2008-2009 when this data was collected (Classen, Bezner-Kerr, and Shumba 2015). Furthermore, 62% of youth were forced to eat some sort of coping or survival food during this time, which is a strong indicator of poor diet quality. Young people who live with their grandparents face greater food insecurity and show greater food anxiety, worrying about where to find enough food. And youth are generally more food secure with their mother as the primary caregiver rather than the father. However, young men living in the mother's village feel less secure and worry more about food security due to their less secure land rights, compared to when they are in their fathers' homes.

Another study provides evidence of the mental health implications of concerns by youth about food security and livelihoods, showing that recipients of unconditional cash grants, decreases depression amount youth, in particular for girls (15% decrease) (Angeles et al. 2019).

Some studies have addressed the oft-discussed view that youth do not want to engage in agriculture. Chinsinga and Chasukwa find that young people do not view agriculture as a means of upward mobility (2018). Classen, Bezner-Kerr and Shumba (2015) similarly report that youth express a desire to lift up the family from the level it is, prompting this interest in cash earning activities, including off-farm employment and cash crop production. Their elders point to a greater attention of youth for off-farm employment rather than agriculture. They lament this focus on “quick money” but have few alternatives to suggest given the economic climate.

Marriage is nearly universal in Malawi, although women marry about 5 years earlier than men, on average (National Statistical Office and ICF 2017). The median age at first marriage is 18.2 years for women and 23.0 years for men age 25-49. Married youth were found to be significantly more likely to eat smaller meals than the unmarried living with their biological parents and youth lamented the pressure to get married before they felt ready, pointing to the pressure of maintaining their own household (Classen, Bezner-Kerr, and Shumba 2015).

Grandparents caring for orphans (due to HIV/AIDS and other reasons) become a concern for young people as they get older and can no longer care for themselves (Classen, Bezner-Kerr, and Shumba 2015). The missing middle generation creates challenges for livelihoods and food security of these families as they age. This also becomes a challenge in terms of providing guidance and "parenting" to young people as the grandparents become like dependents themselves and so loose authority over the youth. Interestingly, girls in this situation can shed some of the traditional norms, like early marriage, as they have more autonomy.

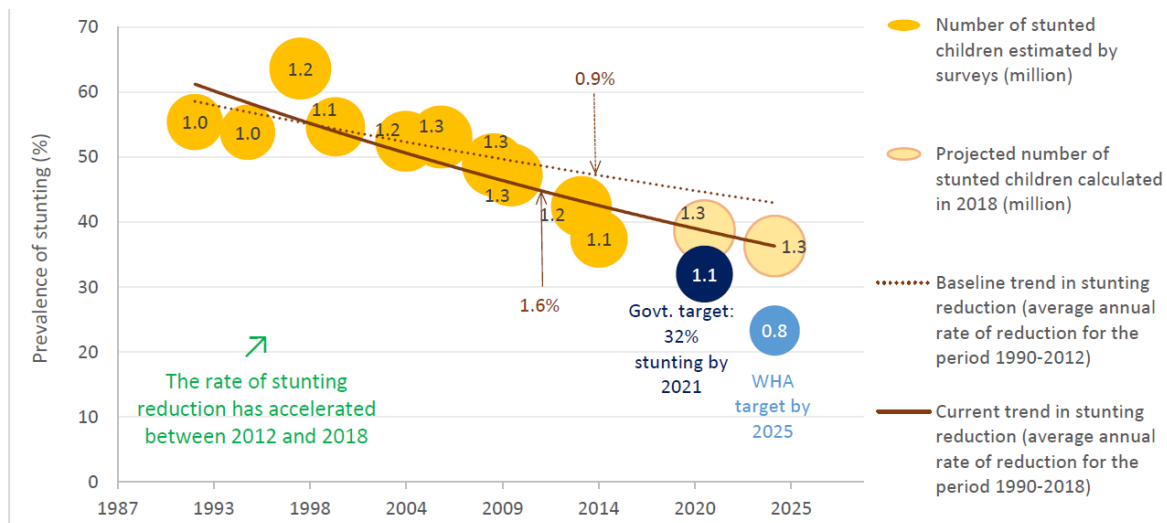
These studies suggest that youth indeed have limited access to various agricultural resources. Youth note the challenges they face to get their own land to cultivate, and thus to access financial capital, as they do not have collateral to put up (Chinsinga and Chasukwa 2018). In addition, accessing subsidized inputs is seen as a challenge (Chinsinga and Chasukwa 2012; Classen, Bezner-Kerr, and Shumba 2015). To address some of these issues, Kadzamira and Kazembe (2015) suggest that youth must organize themselves to have a more substantial voice in agricultural policymaking.

Nutrition

Malawi has made major strides in reducing the burden of malnutrition among children under five in the past 10 years (Fig 3), but the level of stunting still remains relatively high, at 37.4%, compared with an average of 25% across developing countries (GNR 2018). The country's first national nutrition policy, created in 2007, aided in achieving these reductions in stunting rates as well as in micronutrient deficiencies. Although these decreases are commendable, undernutrition persists as a barrier to health and development. Among women and children under five, the rates of anemia are 33% and 63%, respectively (USAID 2018). The rates of stunting in children are higher among mothers those whose mothers have no or little education (GNR 2018; USAID 2018). Anemia decreased from 55% to 28% and

vitamin A deficiency went from 59% all the way to 4% (Department of Nutrition, HIV and AIDS 2018). Zinc deficiency is a growing concern, however, with over 60% of the population is affected (Department of Nutrition, HIV and AIDS 2018). Underlying causes of malnutrition have been identified as low dietary diversity, high poverty rates, low rates of women's empowerment and recurrent infections (Bezner-Kerr et al. 2010; Nkoka et al. 2018).

Figure 3. Trend. Projection and targets in the prevalence and number of children <5 stunted



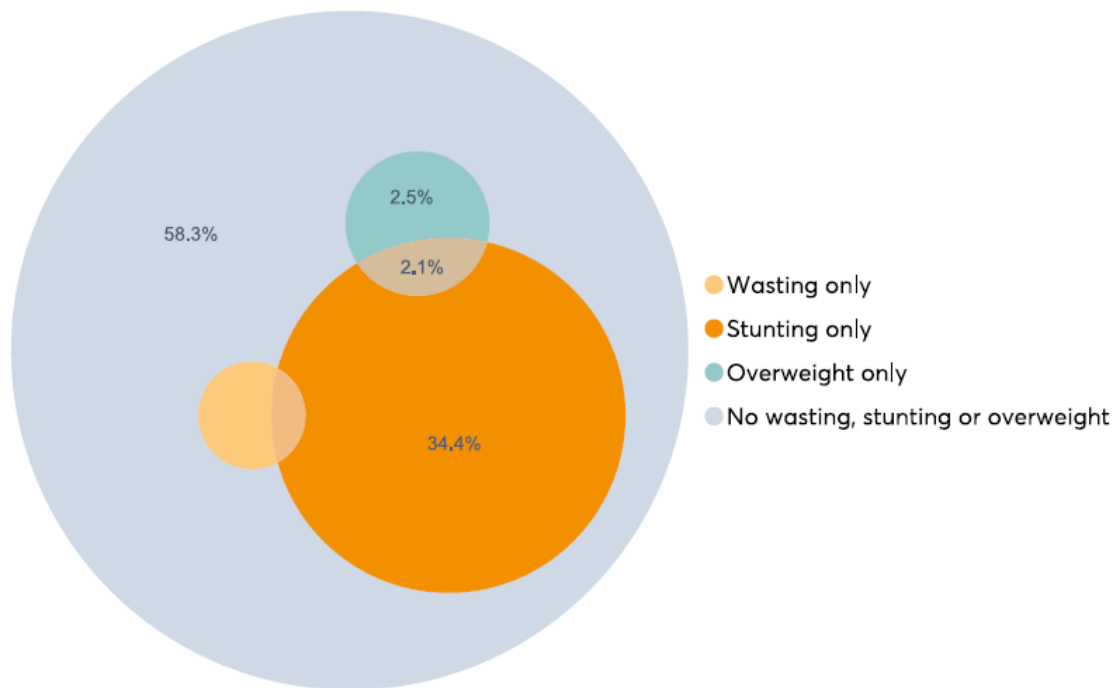
Source: [Verhaegen 2016](#)

Malnutrition can also be attributed to poor infant and young child feeding practices in Malawi. The Malawi Demographic and Health Survey of 2016 revealed that only a quarter of breastfed children were fed an adequately diverse diet (Nkoka et al. 2018). Among children 6-23 months whose mothers have no education, only 5% receive a minimum acceptable diet, but this rate raises to 13% among mothers with a secondary education (USAID 2018). Nkoka et al. (2018) examined the factors associated with complementary feeding practices in Malawi and concluded that reducing childhood undernutrition can be accomplished more effectively by aiming public health strategies at poor households whose mothers have no formal education and are unemployed. Mass media were also found to have a positive impact on complementary feeding (Nkoka et al. 2018).

Stunting is more prevalent among rural populations in Malawi than among urban dwellers, with 39% of rural children being stunted compared to 25% of children living in urban areas (UNICEF 2018). The rates of stunting are roughly equal across the regions (northern, central and southern) (USAID 2018).

Overnutrition is also emerging as a public health concern in Malawi (USAID 2018). The country is experiencing coexistence of wasting, stunting and overweight among children (Fig 4). Among adults, women are disproportionately affected by overweight and obesity, with 31.5% of women categorized as overweight and 9.1% as obese in 2016, compared with 14.8% and 2.2% of men as overweight and obese (GNR 2018). These increases in overweight and obesity also raise the risk of non-communicable diseases (NCDs) such as diabetes, heart disease and cancer (Department of Nutrition, HIV and AIDS 2018; USAID 2018).

Figure 4. Percentage of children under five who experience different and overlapping forms of malnutrition



Source: GNR 2018

The current National Multi-Sector Nutrition Policy 2018 – 2022 acknowledges the myriad nutrition challenges of the country and sets out eight priority areas to address them. Notably, the prevention of undernutrition is aimed at further reducing the stunting rates that remain high, while the priority area of gender equality, equity, protection, participation and empowerment is designed to give women greater decision-making power and promote men’s involvement in child care and household duties. Another priority area deals with the prevention and management of overweight and nutrition-related NCDs. The country has mandatory legislation for salt iodization but does not have any policies to reduce salt consumption, tax sugarOsweetened beverages or reduce the impact on children of junk food marketing (GNR 2018).

Nutrition in Malawi, as with many countries with high dependence on agriculture, is tied tightly with food security and agricultural production (Aberman et al. 2018). In 2015-2016, the impacts of El Nino left 6.7 million food insecure people due to failed maize harvests (USAID 2018). More erratic rainfall patterns and increased frequencies of extreme weather events are likely to damper any further progress on reducing malnutrition in the country unless agricultural practices become more resilient. Although the national nutrition policy carries the adjective ‘multi-sector’ in its title, agricultural policies need to also consider nutrition given that a heavy emphasis on staple crop production, especially maize, could damage efforts to improve diet quality (Aberman et al. 2018).

Input to the supervision missions for the PRIDE project, Malawi

The application of the mainstreaming approach allowed for a more thorough and cross-cutting assessment of how the implementation approach of the project's core activities may have unintended negative consequences for diets and nutrition for the beneficiaries, inclusive benefits for women and youth, and the long-term sustainability of the project. The specific recommendations provided to the supervision mission are summarized below.

Targeting and inclusion

After targeting of landholders in the proposed irrigation area, a community-based targeting approach will be applied to include non-land owning beneficiaries based on targeting sub-categories. It is important to consider sharing norms and moral guidelines in Malawi that may be at odds with targeting guidelines. Based on past evidence, households and chiefs may be cognizant of program guidelines for various support projects, but these rules are often ignored as they do not align with village mores. For many social programs, chiefs are able to influence targeting to better align to village principles either during community-based targeting processes or through assigned sharing (i.e., FISP and food aid). Approaches to inclusion in the project of key vulnerable groups must consider these dynamics. Rather than attempting to circumvent these norms, the project could capitalize on them by encouraging contribution and mutual gain for all community members. (For more on this topic, see Chinsinga 2005; Margolies, Aberman, and Gelli 2017)

Related to the above point, the Gender and Targeting Strategy outlines different needs and challenges of different beneficiary categories. This approach can ensure that the entire community can contribute to and benefit from the project, though in different ways. However, the project would benefit from more clarity on which activities will be targeted to specific beneficiary sub-categories. This explanation should include the assumed impact pathways. The specificity of core challenges that may be faced by each of these sub-categories is valuable, however this descriptions should not be used to exclude some household from certain activities but as a way of tailoring activities to their priorities. For instance, food deficit households may be more concerned with food security than market access, but they are still likely to benefit from support in market engagement. Also, women within dual-headed households were not specified as a beneficiary sub-category but are grouped together with female household heads. Consideration of the needs and priorities of this sub-category of beneficiaries is also necessary.

Differential benefits to project participants living in the catchment area and those who will receive irrigation are a potential source of concern. Both due to the inequity of effort put into the project compared to the benefits, and also because of the potential for future conflicts between these groups. Income earning activities should be emphasized for those maintaining the catchment area, such that benefits are generally equivalent to those for irrigators.

Youth

Within the category of youth it is important to ensure that both young women and young men are targeted for inclusion and that their different needs and priorities are considered in project design and

support activities. In addition to targeting youth for core project activities, youth perceptions of agriculture combined with land shortages (more so in southern parts of the country) point to the need to engage youth through alternative mechanisms (Chinsinga and Chasukwa 2018). This may be possible through training in value chain activities outside of direct agricultural production, involvement in construction and maintenance of irrigation infrastructure, or income generating activities related to catchment conservation interventions. These considerations should include not just youth-headed households but also youth that are no longer in school but are still living with their parents and do not have access to their own land for cultivation.

Women's economic empowerment

Women's economic empowerment is being supported through the Household Approach, as detailed in the revised manual. These activities are more advanced in the south and will be ramping up in the north. In parallel to this approach, the core project activities (irrigated production) should ensure that all women (including women in dual-headed households) are able to benefit—i.e., have decision making power in production, sale, and income use from irrigated proceeds. While approaches will differ throughout the country, as gendered land use and share of labor/tasks differ, some guidelines can be developed for promoting income earning activities for women with or without land. The gender and targeting strategy is clearer for female-headed households, but supporting the direct economic empowerment of women in dual-headed households is not addressed. It must be considered whether these women will be supported to manage their own irrigated plots (alongside their husbands) or if they will be provided additional related income earning activities.

Nutrition

Summary of suggested activities:

- 1) Improve dry season access to fruits and vegetables
- 2) Focus irrigated production on nutritious foods (undertake NSVC analysis)
- 3) Provide nutrition trainings and cooking demonstrations to women, men and youth. Link these explicitly to home garden support.

There has been strong progress on nutrition plans, and activities have moved forward in some project sites. However, the project can improve in its consideration of how the sum of project activities lead to the desired nutrition impacts. Firstly, the project has not explicitly considered one of the most constraining limitations to healthy diets in the country—seasonally limited availability and access to fresh fruits and vegetables. In order to address the range of nutrient deficiencies in the country, the project must improve dry season access to fruits and vegetables. This could be incorporated into the main irrigation site. However, most households have a tendency to apply such valuable water resources to cash crops or core food security crops. Joint community vegetable and fruit gardens could be considered. Improved access to water resources for home gardens could also be considered. While not an easy task, addressing this challenge could have major benefits for the stability of nutritious diets throughout the year.

Value chain assessments must consider a range of issues related to gender and nutrition. For instance, nutritious crops that are both marketable and preferred for consumption have the potential to mitigate the effects of household shocks and/or improve diets (Aberman and Roopnaraine, forthcoming). In addition, the climatic risks to future production of the crops chosen, and implications for gendered decision-making power and workload must also be considered. IFAD's guidelines for Nutrition-sensitive Value Chain analysis can be applied to ensure systematic consideration of these and other important issues (Gelli et al. 2018; De La Peña, Garrett, and Gelli 2018).

In addition, groundnut and soya could be reconsidered for inclusion in the list of prioritized crops. Soya is rarely consumed in the household and markets have been unstable. Aflatoxin contamination of groundnut may be sufficient reason to keep it off the list of nutritious crops.

Finally, integration of nutrition trainings and cooking demonstrations with support to home gardens will encourage application of the lessons. For instance, trainings about the importance of daily vegetable and fruit consumption and cooking demonstrations on how to incorporate these into typical cooking can be combined with seeds and other inputs for producing these foods in the home gardens or in the irrigated fields.

Log frame comments suggestions:

1. Child malnutrition indicators: wasting was specified in the log frame. Wasting in children is an indicator of acute food shortage, for instance when there is a natural disaster or conflict. Prevalence of wasting in children under 5 in Malawi is 3% nation-wide and trying to demonstrate the targeted reduction by 20% may prove difficult for the project and may not be the most appropriate measure. A more appropriate indicator for the project and in this context could be Minimum Dietary Diversity for infants and young children.
2. Women's diet quality: the indicator is not specified in the log frame. Presumably this should be Women's Dietary Diversity Score. This data should be collected from all adult females, including those within a dual headed household.
3. Women's empowerment indicators: the project could consider using the project level Women's Empowerment in Agriculture Index ([pro-WEAI](#)). This has recently been updated to include a component on climate adaptation. We will share this if the project is interested.

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