RESILIENCE IN THE SAHEL-ENHANCED (RISE) INITIATIVE PHASE II: BASELINE REPORT

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Tim Frankenberger, President

TANGO International

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF BOXES

ACRONYMS

AUE	*Association Usagers de l'Eau* or Water Users Association
ANC	Antenatal Care
APE	Water Parents Association
ASBC	*Agent de Santé à Base Communautaire* Community Health Agent
ATR	Ability to recover
BHA	Bureau for Humanitarian Assistance
CGPE	*Comité Gestion Points de l'Eau* or Water Point Management Committees
CHR	*Centre Hospitalier Régional* Regional Hospital
CHW	Community Health Worker
CMA	*Centre Médical avec Antenne chirurgicale* Medical and Surgical Center
COGES	*Comité de Gestion* or Health Center Management Committee
COTEP	Departmental Technical Committee
CRP	Comprehensive Resilience Programming
CSI	*Centres de Santé Intégré* or Integrated Health Centers
CSPS	*Centre de Santé et de Protection Sociale* or Health and Social Protection Centre
CWI	Comparative Wealth Index
DCS	District Centre de Sante
DID	Difference-in-difference
DPM	Disaster Preparedness and Mitigation
EA	Enumeration Area
EBF	Exclusive Breastfeeding
FCS	Food Consumption Score
FAO	Food and Agriculture Organization of the United Nations
FASO	Families Achieving Sustainable Outcomes
FEWS NET	Famine Early Warning Systems Network
FFP	Office of Food for Peace
FGD	Focus group discussion
FIES	Food Insecurity Experience Scale
FLDAS	FEWS NET Land Data Assimilation System
GIS	Geographical Information System
HFIAS	Household Food Insecurity Access Scale

HHS	Household Hunger Scale
HI	High Intensity
IDP	internally displaced people
IE	Impact Evaluation
IPC	Integrated Food Security Phase Classification
KII	Key Informant Interview
LI	Low Intensity
LIS	Land Information System
MODIS	Moderate Resolution Imaging Spectroradiometer
MSWEP	Multi-Source Weighted-Ensemble Precipitation
NDVI	Normalized Difference Vegetation Index
NGO	Non-Governmental Organization
PDES	*Plan de Développement Économique et Social* Economic and Social Development Plan
PDC	*Plan de développement communal* Communal Development Plan
PDR	*Plan du Développement Régional* Regional Development Plan
PPS	Probability Proportional to Size
PSM	Propensity Score Matching
RFSA	Resilience Food Security Activity
RISE	Resilience in the Sahel Enhanced
SCAP/RU	*Système Communautaire d'Alerte Précoce et de Réponse d'Urgence* Early Warning Systems and Emergency Responses
TANGO	Technical Assistance to Non-Governmental Organizations, International
U.S.	United States
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
VDC	Village Development Committee
WHO	World Health Organization

EXECUTIVE SUMMARY

The second phase of the United States Agency for International Development (USAID) "Resilience in the Sahel – Enhanced" (RISE) initiative, referred to as RISE II, is being implemented from 2019 to 2025 in targeted zones of Burkina Faso and Niger. The initiative focuses on building resilience in the Sahel in the face of recurrent shocks, including climate shocks, economic shocks, conflict shocks, and health shocks such as those associated with the COVID-19 pandemic.

> **The overarching goal of RISE II is that chronically vulnerable populations in Burkina Faso and Niger, supported by resilient systems, effectively manage shocks and stresses and pursue sustainable pathways out of poverty** (USAID 2018, p. 11).

The five specific objectives of the initiative are:

1. Enhance social and ecological **risk management systems**;
2. Increase and sustain **economic well-being**;
3. Improve **health, family planning, and nutrition outcomes**;
4. Enhance **governance** of institutions and organizations; and
5. Enhance the **social, economic, and political agency of women and youth**.

This report contains findings from the analysis of the quantitative and qualitative data collected in the RISE II baseline survey conducted in December 2021/January 2022. The baseline survey is the first in a series of data collection activities that are part of the RISE II Impact Evaluation (IE). The number of households included in the quantitative analysis is 3,545 in 153 villages. The qualitative data collection was conducted in a subset of the quantitative survey villages. It included 145 focus group discussions and 113 key informant interviews. Additionally, direct observation methods were employed in each village.

In addition to important contextual information on household socio-demographic characteristics, livelihood activities, and shock exposure, the baseline quantitative analysis provides data on the initial values of key indicators of households' well-being, resilience capacities, and resilience that are needed for evaluating the impact of the RISE II initiative. It also provides data on indicators needed for two other USAID activities: (1) the Feed the Future Zone of Influence baseline survey; and (2) the Bureau for Humanitarian Assistance Resilience Food Security Activity population-based baseline survey.

Household Socio-Demographic Characteristics and Livelihood Activities

The average household size in the RISE II project area is 7.2 members, and nearly half of all members are in the 0–15 age group. While most households have male and female adults, 8% are female adult-only households. Over two-thirds of households have at least a primary education; education levels in Burkina Faso are substantially higher than in Niger. With respect to differences across the RISE II livelihood zones, households residing in the agropastoral zone

of the Niger project area are significantly smaller and less educated compared to those in the rainfed and irrigated agriculture zones of that project area.

Crop production and sales is the most common livelihood activity in the RISE II project area (engaged in by two-thirds of households), followed by livestock production and sales (half of all households). Other prominent livelihood activities are retailing and artisanal mining. One-fourth of households engage in migration, and 20% receive remittances. Livestock production and sales, non-agricultural labor, and artisanal mining are more common livelihood activities in the Burkina Faso project area than the Niger project area. On the other hand, households in the Niger area rely more on income from farm labor, migration, remittances, and begging.

Shock Exposure and Coping Strategies

Objective measures of climate conditions indicate that in the year before the baseline survey (January to December 2021), while rainfall was above or below normal for short periods, there were no severe or prolonged droughts or floods in either the Burkina Faso or the Niger project area. The Burkina Faso area experienced more rainfall deficit over the period than the Niger area, while the Niger area experienced more rainfall surplus. The most frequent shock households reported was "too little rain," experienced by 68% of households (75% in Burkina Faso and 52% in Niger). The second-most frequently reported shock was "sharp food price increases," experienced by 63% of households. Other common shocks were: unexpected medical expenses, serious illnesses of household members, and crop diseases/pests. Notably, over 40% of households experienced conflict shocks, the most common being the presence of armed groups related to terrorism, which was a greater problem in Burkina Faso than in Niger. While the project areas were exposed to various shocks with different frequencies, when taking into account the total number of shocks faced and their severity, their overall shock exposure was roughly equal.

The most frequently adopted coping strategies used to deal with the shocks related to reducing current expenditures (reducing food consumption, reducing household expenses) and increasing current income (taking up additional work, drawing down on savings). One-third of households reported engaging in spiritual practices, such as prayer or sacrifices. Migration and remittances are also important coping strategies, particularly in the Niger area. Most strategies—including negative coping strategies such as taking children out of school, selling productive assets, and reducing food consumption—had higher prevalences in the Niger area than in the Burkina Faso area. Reliance on formal sources of assistance (food assistance, cash transfers, and food/cash for work) was very low, partly because it was not an option—that is—because of low availability rather than low need.

Household Resilience Capacities

Households' resilience capacities fall into three categories: absorptive capacity, adaptive capacity, and transformative capacity. Indexes of these capacities and an index of overall resilience capacity are constructed from multiple indicators. According to the overall index, Burkina Faso project area households have 22% higher resilience capacity than Niger project area households, with the disparity in adaptive capacity being particularly strong (58% higher in

Burkina Faso). The specific capacities that are substantially stronger are linking social capital, aspirations, confidence to adapt asset ownership, holdings of savings, human capital, exposure to information, and availability of a conflict mitigation institution. Nevertheless, access to financial resources and availability of hazard insurance are notably much higher in the Niger area.

With respect to differences across the livelihood zones, patterns are specific to the project areas. In the Burkina Faso area, agropastoral-zone households have a stronger overall resilience capacity than rainfed-agriculture-zone households as a group, especially transformative capacity. Agropastoral-zone households' bonding social capital, holdings of savings, access to basic services, and access to both formal and informal safety nets are all stronger.

Within the Niger area, there is no statistically significant difference in overall resilience capacity across the livelihood zones. Irrigated-agriculture-zone households have moderately higher adaptive capacity than the rainfed-agriculture-zone households and the agropastoral-zone households respectively. Capacities with quite high differences across the livelihood zones are:

- Bonding and bridging social capital, which is much higher among agropastoral-zone households than the rainfed- and irrigated-agriculture-zone households;
- Access to markets, which is also much higher among agropastoral-zone households; and
- Exposure to information, which is considerably higher among irrigated-agriculture-zone households than those residing in the other livelihood zones.

Household Well-Being Outcomes and Resilience to Shocks

According to a Comparative Wealth Index-based measure, roughly one-quarter of households in the RISE II project area are classified as wealth-poor. Burkina Faso project area households are better off economically than Niger area households. The prevalence of moderate-to-severe food insecurity in the project area is 47.7%, with just over one-quarter experiencing hunger. Following the pattern for economic well-being, Burkina Faso households have a lower prevalence of food insecurity (43.5% versus 56.9% in Niger). However, Niger households have higher dietary diversity, an indicator of dietary quality, than Burkina Faso households.

In terms of health and nutrition, households in the RISE II project area have a very poor foundation regarding access to safe drinking water (only 18%) and basic sanitation services (19%). The Burkina Faso area has far greater access to sanitation services than the Niger area (25.3 versus 5.7% of households).

While adequate antenatal care (ANC) for women appears to be quite high in the project area (with 76% of women having at least four ANC visits), the contraceptive prevalence is only 20.2%, and women's diets are of low quality. The percentage of underweight women, at 14.1, falls into the "poor situation" World Health Organization (WHO) category in terms of public health significance. The prevalence in the Niger area, at 23.8% (in the "serious situation" category), is far higher than that in the Burkina Faso area. Qualitative findings demonstrate that while women's access to health care and contraceptives remains a significant challenge, there is a growing awareness of the need for consultation between women and men about these issues.

With regard to infant feeding practices, the overall prevalence of exclusive breastfeeding is only 14.3%, being even lower in the Burkina Faso area (9.4%). Like women's, children's dietary diversity is very poor. The overall prevalence of wasting among children under 5 in the RISE II project area is 9.0%, which falls into the "medium" WHO category. The prevalence of stunting among children under 5, at 32.2%, puts the RISE II project area into the "very high" (worst) WHO category. Consistent with higher poverty and food insecurity and lower access to sanitation services, the stunting prevalence in the Niger area is far higher than in the Burkina Faso area (51.0% versus 23.7%). Boys are more likely than girls to be wasted in the Burkina Faso area and stunted in the Niger area.

Experiential indicators of households' ability to recover from shocks, that is, their resilience, indicate that most households in the project area could not recover from the shocks faced in the year before the baseline survey. The average household is *worse off* than it was a year ago due to the shocks and, thus, not resilient. Despite the Burkina Faso area's advantage over the Niger area in resilience *capacity*, according to the experiential indicators, the areas are equally matched in their resilience.

Governance and Natural Resource Management

A solid foundation of participatory and responsive governance goes hand in hand with strengthening resilience to shocks. According to the qualitative data in both RISE II project areas, village-level stakeholders (chiefs, councilors, and village development committees) help organize communities and resolve various issues, for example, directly responding to shocks like droughts and the influx of internally displaced people (IDPs) driven by rising violent extremism. These stakeholders then help provide opportunities for citizens to engage with higher-level government institutions. In the RISE II area, managing land and water through village leaders and committees is crucial to combating the effects of climate change and is a significant challenge for communities in their quest to respond to current shocks and prepare for future shocks.

Communities engage with government primarily through mayors and communal councils, which show some openness to participation and the potential to be more responsive to citizens' needs and inputs. These local government institutions coordinate with state technical service providers such as agriculture extension agents and primary health centers, services that are often seen by villagers as valuable, if insufficient. There are some positive signs of citizen participation in the health center and school management in the RISE II area, as well as a potentially mutual learning relationship between farmers and technical agriculture and animal breeding officers. However, a staff shortage is a key constraint, and shortages of supplies like medicines at certain times of the year can be very burdensome for households. Qualitative survey respondents spoke of a considerable degree of equality in the participation of women, youth, and different ethnic groups in decision-making in the village and local government arenas. There is still some distance to go, however, in overcoming traditional attitudes and barriers. Such methods as incorporating women's associations can help women become empowered to have a greater voice.

Gender and Women's Empowerment

Consistent with very low rankings for gender equality internationally in Burkina Faso and Niger, women in the RISE II project area have low decision-making power in their households and communities. Only 22% of women earned cash income in the year before the baseline, and while most participated in decisions about how that income would be spent, very few women participated in decisions about how cash income earned by their spouses/partners is spent. Of the one-third of women who had accessed credit in the last year, the majority did then participate in decision-making about taking a loan or how to use it. Women own and participate in decision-making regarding less than one-third of all types of household assets. The average woman participates in only "some" decisions about household livelihood activities, as opposed to "most" or "all" decisions. Less than a third participate in community groups.

Women residing in the Niger project area are better off in terms of empowerment than women residing in the Burkina Faso area on almost all of the indicators examined.

Qualitative findings indicate that despite the prevalence of traditional roles and gender relations, there are many signs of progress in areas from using income and assets to issues like health, family planning, and sharing workloads. There is a growing awareness of the importance of men and women discussing these issues, even if it is still most common that men are understood to have the final word. Cutting-edge examples of role model women, positive deviants, women's groups and practices can help raise awareness and promote further advancement.

Conclusion

The main challenges to the well-being of RISE II project area households identified by this analysis of the baseline data are:

- Continued exposure to multiple climate, conflict, and economic shocks;
- Poverty and food insecurity;
- Health and nutrition issues: poor access to safe drinking water and basic sanitation services, low contraceptive use, poor infant feeding practices, and very low dietary diversity among children and women;
- Malnutrition among children and women of reproductive age;
- Weak governance mechanisms;
- Low decision-making power of women in their households and communities.

The multiple projects included under the RISE II umbrella, both multi-sectoral Title II projects and specialized projects, are designed to address most of these problems. However, two activities need more emphasis in the future. These are: (1) A formal shock-responsive safety net, which is necessary for preventing losses of development gains made so far, preventing the continued use of negative coping strategies that undermine resilience, and for allowing households to take advantage of RISE II initiative activities to build their resilience to future shocks; and (2) Activities to help households deal with the challenge of conflict caused by terrorism, which are urgently needed for the initiative to be successful in reaching its goal of increasing resilience of Sahelian households in the RISE II project area.

1. INTRODUCTION

The second phase of the United States Agency for International Development (USAID) "Resilience in the Sahel – Enhanced" (RISE) initiative, referred to as RISE II, is being implemented from 2019 to 2025 in targeted zones of Burkina Faso and Niger. It is the successor initiative to RISE I, which was implemented from 2014 to 2019. As did RISE I, RISE II focuses on building resilience in the Sahel in the face of recurrent shocks, including climate shocks, economic shocks, conflict shocks, and health shocks such as those associated with the COVID-19 pandemic.

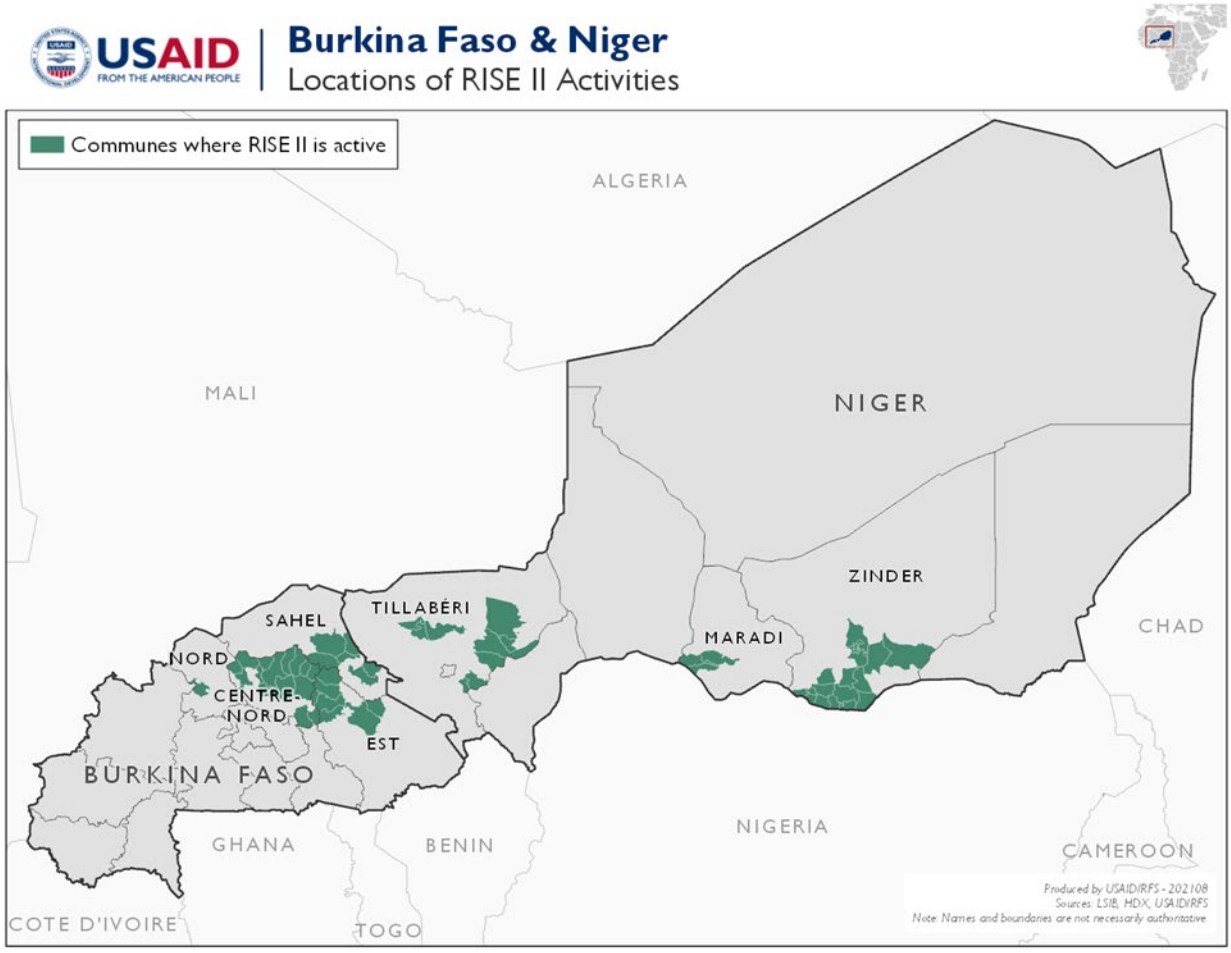
This report contains findings from the analysis of the quantitative and qualitative data collected in the RISE II baseline survey conducted in December 2021/January 2022. The baseline survey is the first in a series of data collection activities that are part of the RISE II Impact Evaluation (IE). It will be followed by three Recurrent Monitoring Surveys (2022, 2023, and 2024) and an endline survey (2025). The last part of the initiative's IE will occur following the endline survey.

The baseline quantitative analysis provides data on the initial values of key indicators of households' well-being and resilience that are needed for evaluating the impact of the RISE II initiative. It also provides data on indicators needed for two other USAID activities: (1) the Feed the Future Zone of Influence baseline survey; and (2) the Bureau of Humanitarian Assistance (BHA) Resilience Food Security Activity (RFSA) population-based baseline survey.

1.1 The RISE II Project Area: Sahelian Zones of Burkina Faso and Niger

The geographic focus areas of RISE II encompass a band of agricultural and agropastoral livelihood zones in Niger and Burkina Faso, marked by the high vulnerability of resident populations. The zones include areas in the Centre-Nord, Est, Nord, and Sahel regions of Burkina Faso and in the Zinder, Maradi, and Tillaberi regions in Niger, as in Figure 1.1.

Figure 1.1 RISE II implementation area



1.2 Overarching Goal and Objectives of the Initiative

The Sahel faces several shocks and ongoing stresses that can potentially threaten well-being. Specifically, food insecurity, persistent poverty, corrupt governance, high population growth rates, and recurrent climate shocks often drive vulnerable communities into crisis. Persistent conflict, triggered by the frequent shocks and stresses afflicting communities and households in the region, including the recent COVID-19 pandemic, exacerbates widespread vulnerability (USAID 2018, 2021).

The RISE I and RISE II initiatives are USAID's regional approach to addressing these interconnected and complex problems. The initiatives strategically layer, sequence, and coordinate humanitarian and development efforts to end the Sahel's vicious cycle of crises and help vulnerable communities stay firmly on the path to development (USAID 2015).

> **The overarching goal of RISE II is that chronically vulnerable populations in Burkina Faso and Niger, supported by resilient systems, effectively manage shocks and stresses and pursue sustainable pathways out of poverty** (USAID 2018, p. 11)**.**

The RISE model is based on the layering and integration of USAID investments, termed "Comprehensive Resilience Programming (CRP)" (CRP, see Chapter 2), to more effectively reduce chronic vulnerabilities and strengthen resilience and, thereby, contribute to government goals for development.

The five objectives of RISE II are:

1. Enhance social and ecological **risk management systems**;
2. Increase and sustain **economic well-being**;
3. Improve **health, family planning, and nutrition outcomes**;
4. Enhance **governance** of institutions and organizations; and
5. Enhance the **social, economic, and political agency of women and youth**.

1.3 Conceptual Framework and Research Questions of the RISE II Impact Evaluation

USAID defines resilience as "the ability of people, households, communities, countries, and systems to mitigate, adapt to and recover from shocks and stresses in a manner that reduces chronic vulnerability and facilitates inclusive growth" (USAID 2013).

While resilience is an ability to manage or recover, resilience capacities are a set of conditions that enable households to achieve resilience in the face of shocks. Resilience capacities can be classified into three categories:[1]

Absorptive capacity is the ability to minimize exposure to shocks and stresses (*ex-ante*) where possible and to quickly recover when exposed (*ex-post*).

Adaptive capacity involves making proactive and informed choices about alternative livelihood strategies based on changing conditions.

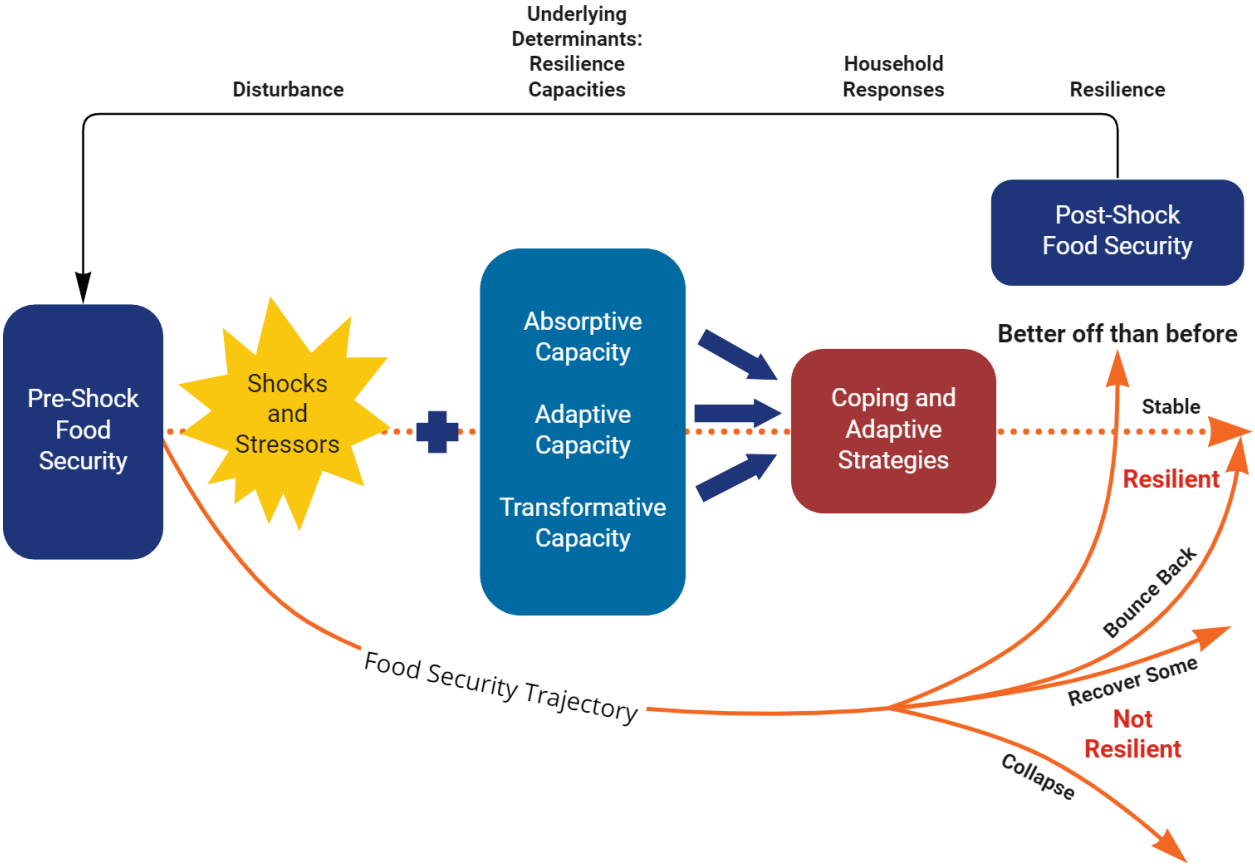
Transformative capacity relates to governance mechanisms, policies/regulations, infrastructure, community networks, and formal safety nets that are part of the wider system in which households and communities are embedded. Transformative capacity refers to system-level changes that enable more lasting resilience.

Figure 1.2 is TANGO International's conceptual framework for resilience measurement and analysis. Households' resilience, as measured by changes in well-being outcomes (in this example, food security) over a period of shocks and stressors, is determined by their resilience capacities. Households' resilience capacities, in turn, govern their coping strategies and, ultimately, whether they can bounce back to their previous well-being or better. Resilience-strengthening interventions alter households' well-being trajectories in the face of shocks by impacting their resilience capacities and, thus, their

[1] The descriptions below of absorptive, adaptive, and transformative capacity are from Frankenberger et al. (2012).

coping strategies. This framework guides the indicators measured and research questions of the RISE II impact evaluation.

Figure 1.2 TANGO Conceptual Framework for Resilience Measurement



The IE addresses the overarching RISE II goal by focusing on how the mix of interventions undertaken under the RISE II initiative contributes to household and systems-level resilience capacities and households' resilience to shocks.

The following list of research questions starts with questions describing the context in which initiative interventions are implemented (Questions 1 through 5). Following are the main impact evaluation research questions (Questions 6 through 10).

Context

1. What shocks did households experience over the initiative period, and how did their shock exposure and coping strategies for dealing with these shocks evolve?
2. What changes have occurred in households' resilience capacities, including the three dimensions of resilience capacity (absorptive, adaptive, and transformative) and specific individual capacities contributing to them? What changes have taken place in system-level resilience capacities?
3. What changes have occurred in household well-being outcomes (e.g., food security, wealth)?

4. How resilient were households to the shocks they faced? Have households experienced any improvement in their ability to recover?
5. What is the effect of household and systems resilience capacities on households' ability to recover from shocks? Which specific capacities bolstered households' resilience to shocks over the course of the RISE II initiative?

Impact of RISE II Interventions

6. Did household participation[2] in CRP, that is, the layering and integration of interventions, have a positive impact on their resilience capacities? Which types of interventions had positive impacts? On which capacities?
7. Did household participation in CRP have a positive impact on their resilience to shocks? Which types of interventions had positive impacts?
8. Did household participation in CRP have a positive impact on their well-being (e.g., food security, asset-based wealth)? Which types of interventions had positive impacts?
9. Did household participation in RISE II interventions have different impacts on the resilience capacity, resilience, and well-being of men and women? How have the interventions impacted the poor, youth, and marginalized groups (e.g., ethnic groups)?
10. Did RISE II interventions have a positive impact on the performance of local governments and civil society organizations?

This baseline report documents and provides a descriptive analysis of the initial values of indicators of the variables referred to in the research questions so that they can be compared to endline values and the initiative's impact evaluated.

1.4 Organization of the Report

Chapter 2 of this report presents the data collection and analysis methodologies. Chapter 3 sets the context with the presentation of the data on household socio-demographic characteristics and livelihood activities. Chapters 4, 5, and 6 provide findings from the baseline data on (1) household shock exposure and coping strategies; (2) household resilience capacities; and (3) household well-being outcomes and ability to recover from shocks, that is, their resilience. The findings on governance and natural resource management (Chapter 7) and women's empowerment (Chapter 8) are then presented, followed by conclusions (Chapter 9).

[2] In addition to household participation, research questions (6) through (8) apply to household exposure to the interventions at the community level (see Chapter 2).

2. METHODOLOGY

This chapter describes the quantitative and qualitative data collection and analysis methodologies for the RISE II baseline survey. As noted in Chapter 1, the survey is designed to provide baseline data on the indicators needed for conducting resilience analysis, including households' resilience to shocks, resilience capacities, coping strategies, and shock exposure. It serves as the initial data collection for the follow-on surveys, which are panel surveys, meaning they contain the same villages and households that were sampled at baseline. Such panel data allow for the implementation of the impact evaluation technique envisioned, which is Difference-in-Difference Propensity Score Matching (PSM). The baseline survey will also provide Feed the Future with baseline data for its Zone of Influence population-based indicators and the Bureau of Humanitarian Assistance (BHA) with data needed to calculate its high-level impact indicators.

Sections 2.1 through 2.3 of this chapter describe the quantitative data collection and analysis, including details of sample selection, the questionnaires employed, and data analysis. Section 2.4 describes the qualitative data collection and analysis methods.

2.1 Quantitative Data Collection

The baseline quantitative survey data were collected between December 14, 2021 and January 23, 2022. The data collection included a household survey and a community survey. The data were collected using Android tablets employing the mobile data collection platform Open Data Kit.

It is important to note that RISE II activities were launched in 2019, and the baseline survey was conducted more than 2 years later. A "late baseline" means that measured changes in indicators between the baseline and endline surveys will underestimate any positive changes from the beginning to the end of the project. Further, estimates of initiative impact from the RISE II impact evaluation will be biased. These estimation issues will need to be addressed in the endline analysis.

2.1.1 Sample Design

Data collection was based on a two-stage, stratified sample design.

Stratification. The four strata are the two project areas (Burkina Faso and Niger), each divided into two categories of RISE II programming intensity. The latter categories are based on information available at the time of designing the baseline survey regarding two categories of RISE II activities: 1) BHA Resilience Food Security Activities; and 2) all other RISE II activities. Specifically, the programming intensity strata are defined as follows:

1. **High Intensity (HI):** A combination of RFSA and other RISE II activities.
2. **Low Intensity (LI):** Areas not receiving any RFSA programming but receiving other non-RFSA RISE II programming under Feed the Future.

Note that the final treatment and control groups for the impact evaluation that will take place after the collection of the endline data will be formed based on the actual patterns of exposure to and participation of households in initiative interventions. The stratification of the sample by intensity categories described here helps to ensure that the sample captures a range of levels of exposure to and participation in initiative activities.

Two stages of sample selection. In the first stage of sample selection, enumeration areas (EAs, corresponding to villages) were selected within the four strata. In the second stage, households were selected within the Enumeration Areas (EAs). Section 2.1.3 below gives the details on the sample selection.

2.1.2 Sample Size Calculation

The minimum sample size per stratum was computed to be able to detect a 15% reduction in the percentage of food insecure households between the baseline and endline surveys. It is estimated using the paired proportions formula:

$$n = DEFF\left(\frac{Z_{\alpha}\sqrt{pdisc} + Z_{(1-\beta)}\sqrt{pdisc-(pdiff)^2}}{pdiff}\right)^2 \qquad (1)$$

where

n = required minimum sample size.

pdisc = The proportion of households that have changed food insecurity status (from food insecure to food secure or from food secure to food insecure) from baseline to endline. This proportion is assumed to be 0.18 (0.15 from food insecure to food secure, plus 0.03 from food secure to food insecure, see Table 2.1 below).

pdiff = The proportion of households that have moved from food insecure to food secure minus the proportion of households that have moved from food secure to food insecure from baseline to endline. This proportion is assumed to be 0.12 (0.15–0.03).

Zα = the Z-score corresponding to the degree of confidence with which it is desired to be able to conclude that an observed change in the proportion would not have occurred by chance (α– the level of statistical significance for one-tailed test), 5% = 1.645.

$\mathbf{Z_{(1-\beta)}}$ = the z-score corresponding to the degree of confidence with which it is desired to be certain of detecting a change in the proportion if one actually occurred (β– statistical power), 80% = 0.840.

DEFF = design effect, assumed equal to 7.5 (the computed design effect for the food security indicator from the RISE I midline survey).

The pdisc and pdiff values were selected to be consistent with an expected reduction in the percentage of food insecure households from 81% to 69% (a 14.8% reduction) using the assumptions in Table 2.1.

Table 2.1 Percentages of food insecure households employed for sample size calculations

		Endline		
		Food insecure	Food secure	Total
Baseline	Food insecure	66	15	81
	Food secure	3	16	19
	Total	69	31	100

Using these values in the formula, the computed minimum required sample size per stratum is 563 (75 before applying the design effect of 7.5). To account for possible non-response at baseline, and for attrition of households from the sample between the baseline and endline, the target sample size is inflated by 25% for a total of 703.8, per stratum. Because many households in the HI stratum baseline sample may not engage in resilience programming by the endline, the HI stratum at baseline is inflated by 35% to ensure a sufficient number of participants are captured among the sampled households. This gives a sample size of 950 per HI stratum. In order to have a sufficient sample size in the LI strata to implement the PSM impact evaluation technique, the LI strata are inflated by 35%, to give a sample size of 950 per LI stratum.

The total required sample size is thus 950 x 4 = 3,800 households (see Table 2.2).

Table 2.2 Sample size and stratification for baseline/endline sample

	Burkina Faso	Niger	Total
High intensity	950	950	1,900
Low intensity	950	950	1,900
Total	1,900	1,900	3,800

2.1.3 Sample Selection and Final Sample Size

As noted above, the baseline-endline panel sample selection is based on a stratified, two-stage sampling design with the countries and programming intensity groups within them serving as the four strata. To achieve the desired sample size, in stage one 152 were randomly selected in each stratum using Probability Proportional to Size (PPS) sampling (38 HI EAs and 38 LI EAs in Niger, and 38 HI EAs and 38 LI EAs in Burkina Faso).

To mitigate against possible inaccessibility, a "random-generated reserve sample" was drawn, as stipulated in the Feed the Future Population-based Survey Sampling Guide (Stukel 2018). This entailed selecting 48 EAs for each stratum, from which 10 were randomly selected to serve as reserves in case an EA needed to be replaced.

Population sizes for PPS EA selection were obtained from the Institut National de la Statistique et de la Démographie (Burkina Faso) and the Institut National de la Statistique (Niger).

In the second stage of sampling, 25 households were randomly selected within each EA from a complete list of households generated during a listing exercise conducted immediately prior to the actual survey. This sample selection yields the desired number of households in each stratum (38 x 25 = 950).

Table 2.3 contains information on the final sample sizes achieved for each stratum and the household response rate. The number of EAs included in the final analysis sample is 153. The number of households is 3,545, giving an overall response rate of 93.0%.

Table 2.3 Final sample size and response rate

Country	Stratum	Target sample size	Number of EAs	Selected for survey and located	Number of households surveyed	Response rate
Burkina Faso	Low intensity	950	38	949	882	92.9
	High intensity	950	38	949	899	94.7
	Sub-total	1,900	76	1,898	1,781	93.8
Niger	Low intensity	950	38	940	852	90.6
	High intensity	950	38	974	912	93.6
	Sub-total	1,900	76	1,914	1,764	92.2
Total		3,800	153	3,812	3,545	93.0

2.1.4 Calculation of Sampling Weights

For the data analysis, household and individual-level data are weighted to account for the different probabilities of selection at the stratum and household level, as well as to account for survey non-response. For modules where only one of a number of eligible individuals was randomly selected to respond to a module (the women's health, nutrition and anthropometry modules and the gender modules), data were also weighted to account for different probabilities of selection at the individual level. Detailed sample weight calculations are given in Annex 2.

2.1.5 Questionnaires and Survey Administration

The survey questionnaires were developed using adaptions of modules from the Household Survey Tools for Non-Permissive Environments,[3] with streamlined modules meant to reduce average survey

[3] These tools were developed jointly by RFS and BHA.

time to no longer than two to three hours. The questionnaires were modified to ensure that they also provided the necessary questions and response options for TANGO's approach to resilience analysis.

The questionnaires were designed to collect data needed to calculate the indicators for the RISE II IE and the above-mentioned Feed the Future and BHA performance indicators, but content of the core modules (such as the resilience and gender modules) were significantly reduced. A consumption expenditure module was not included, with questions needed to collect the necessary data for calculating the Comparative Wealth Index (CWI) indicator added instead.

The household survey questionnaire included the following modules:

Table 2.4 Modules for parts A and B of the household survey

Module		Intended respondent
PART A (administered by a woman or man)		
0	Identification of the household	Enumerator
1	Roster of household members and demographics	Head of household/responsible adult
2a	Dwelling, assets and agriculture	Head of household/responsible adult
3a	Household's Engagement in RISE Activities	Head of household
3b	Program/humanitarian assistance received	Head of household
7.10	AG: Cowpea	Person responsible for most cowpea production decisions
7.11	AG: Chickens (Burkina Faso)	Person responsible for most chicken rearing decisions
7.52	AG: Goats (Niger)	Person responsible for most goat rearing decisions
R1	Resilience – difficult times	Head of household
R5	Assets (excluding livestock)	Head of household
R5a	Access to land	Head of household
R10	Access to financial services/savings	Head of household
R11	Access to information and use of public services	Head of household
R12	Livelihood activities	Head of household
R13	Social and capacity–building support	Head of household
R14	Aspirations and confidence to adapt	Head of household
PART B (Administered by a woman)		
2B	Water, sanitation and hygiene	Primary female decision-maker or responsible adult
3	Food security	Person at least 15 years old and preferably responsible for food preparation.
4	Women's nutrition and health	Female 15-49 years
4A	Women's anthropometry	Female 15-49 years
5	Children's nutrition	Primary caregiver of each child under 6
5A	Children's anthropometry	Each child under 6

Module		Intended respondent
6G	Role in household decision-making	Female 15 years or older in union
6J	Gender – cash	Female 15 years or older in union and who earned cash
6K	Access to credit & group membership (Woman in union)	Female 15 years or older in union

The household questionnaire is in a separate document.

For administration of the household survey, enumerators worked in male-female pairs, with both males and females conducting Module A, and Module B being conducted by a female. Trainings of trainers and trainings of enumerators took place prior to administration of the questionnaires.

The community survey questionnaire, administered in each of the 153 EAs, included the following modules:

Table 2.5 Modules for the community survey

Module	
1	Identification of the village
2	Village characteristics
3	Community infrastructure and services
4	Community organizations
5	Government and NGO programs
6b	Management of climate shocks
8	Governance
9	Village exposure to RISE II interventions
10	Inventory of RISE activities and implementing agencies (Burkina Faso)
11	Inventory of RISE activities and implementing agencies (Niger)

The community questionnaire is also in a separate document.

2.2 Quantitative Data Analysis

2.2.1 Descriptive Analysis

The baseline household and community survey data are used to conduct descriptive analysis of indicators of key variables needed for conducting resilience analysis (households' shock exposure, coping strategies, resilience capacities, well-being outcomes and resilience to shocks) and calculating Feed the Future and BHA performance indicators.

Indicator values are presented as percentages and means. In addition to the overall RISE II initiative area, descriptive statistics are compared across (1) the two project areas: Burkina Faso and Niger; and (2) the three RISE II livelihood zones:[4]

- Rainfed agriculture,
- Agropastoral, and
- Irrigated agriculture.

The livelihood zones are derived from Famine Early Warning Systems Network (FEWS NET) livelihood zones (FEWS NET, 2010, 2011), which are available as geographic information system (GIS) layers for download (FEWS NET, 2022a). The derivation of the zones is specified in Table 2.6.

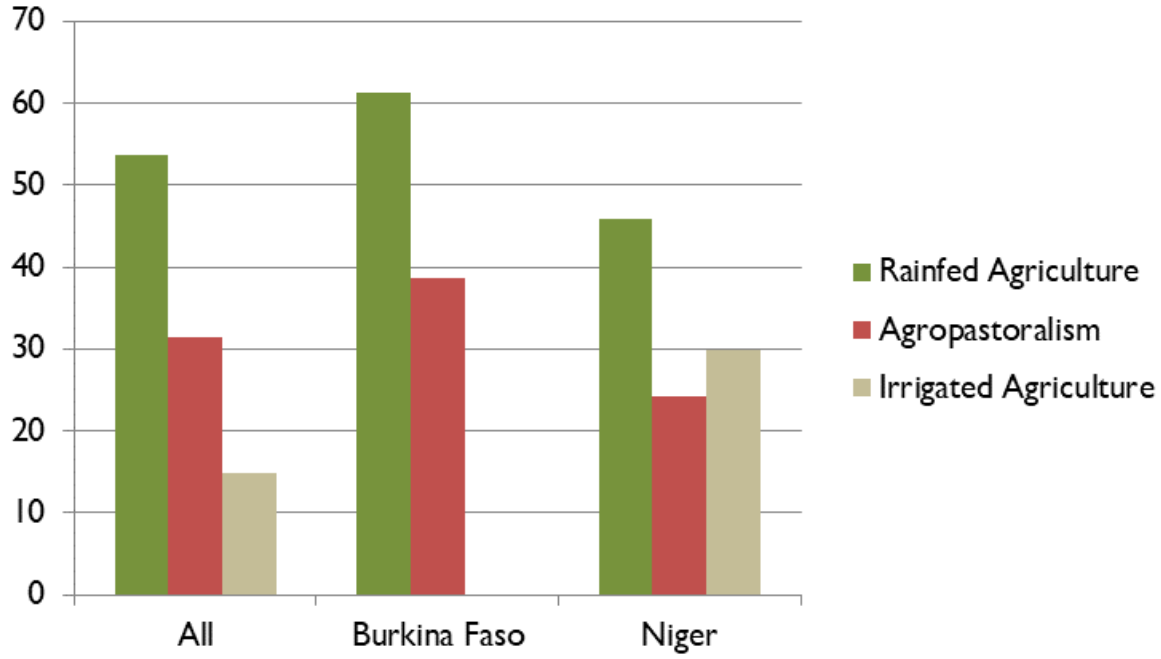
Table 2.6 Identification of RISE II livelihood zones using FEWS NET livelihood zones

	FEWSNET Livelihood zone			RISE II Livelihood zone		Sample villages		Sample households	
Country	No.	Code	Name	No.	Name	Number of villages	Percent of total	Number of households	Percent of total
Burkina Faso									
	105	BF05	Central plateau cereals and market gardening	1	Rainfed agriculture	46	30.1	1,092	30.8
	107	BF07	North and east livestock and cereals	2	Agropastoral	30	19.6	689	19.4
	109	BF09	Southeast cereals, livestock, forestry and faune						
Niger									
	205	N05	Rainfed Millet and Sorghum Belt	1	Rainfed agriculture	35	22.9	810	22.8
	204	N04	Agropastoral Belt	2	Agropastoral	19	12.4	429	12.1
	206	N06	Cropping and Herding with High Work Outmigration						
	207	N07	Southern Irrigated Cash Crops	3	Irrigated agriculture	23	15.0	525	14.8
	209	N09	Niger River Irrigated Rice						
	210	N10	Dallols - Seasonal Water-Course Irrigated Crops						
					Total	153	100.0	3,545	100.0

The percentage of households falling into each RISE II livelihood zone is illustrated in Figure 2.11. In both the Burkina Faso and Niger areas, the largest percentage of households reside in the rainfed agriculture zone. In the Burkina Faso area, the next largest group resides in the agropastoral zone. There are no households in the irrigated agriculture zone. In the Niger area, irrigated agriculture ranks second, followed by agropastoralism.

[4] Each FEWS NET -named livelihood zone is described according to predominant livelihood activities, and it is these livelihood activities that were used to determine the final groupings of villages into "Rainfed agriculture," "Agropastoral," and "Irrigated Agriculture" categories. Grouping into the Rainfed Agriculture zone does not imply that no farmers use irrigation or own livestock but that rainfed agriculture is the predominant source of livelihood. Similarly, grouping into the Irrigated Agriculture zone does not imply that no farmers rely on rainfed agriculture or own livestock but that irrigated agriculture is the predominant livelihood source.

Figure 2.1 Percentage of households falling into RISE II livelihood zones, by project area



Representativeness of population groups (the RISE area as a whole, the two project areas, and the RISE II livelihood zones) is maintained by applying the survey sampling weights described in Section 2.1.4 above. Differences across population groups are considered statistically significant if they are significant at least at the 5% level.

Box 1 shows the color coding used for values presented as percentages in the tables throughout the report.

Box 1: Color coding of percentages in tables

75.0-100.0
66.7-74.9
50.0-66.6
33.3-49.9
25.0-33.2

2.2.2 Indicators

Table 2.7 lists the key outcomes indicators that will be calculated as part of this RISE II baseline analysis, including the outcome indicators for the RISE II IE and Feed the Future and BHA performance indicators.

Table 2.7 Outcome indicators for the RISE II impact evaluation

Indicator	Survey module	
Resilience and resilience capacity		
Index of perceived ability to recover from shocks	HH-R1	Resilience - Difficult times
Realized resilience (based on the FIES, see below)	HH-3	Food security
Index and indicators of absorptive capacity	HH21, R5-R14, C3-C5, C8	See titles in Sections 5.4.1 and 5.4.2
Index and indicators of adaptive capacity		
Index and indicators of transformative capacity		
Humanitarian assistance received	HH-3B	Program/humanitarian assistance received
Index of social capital at the household level	HH-R13	Social and capacity-building support
Proportion of households that believe local government will respond effectively to future shocks and stresses	HH-R1	Resilience - Difficult times
Proportion of households participating in group-based savings, micro-finance or lending programs	HH-R10	Access to financial services/savings
Humanitarian assistance averted	HH-3, HH-R1	Food security, Resilience - Difficult times
Shock exposure and coping		
Shock exposure indicators (hh survey)	HH-R1	Resilience - Difficult times
Shock exposure indicators (satellite data)	--	Multi-Source Weighted-Ensemble Precipitation (MSWEP) data set
Household coping strategies	HH-R1	Resilience - Difficult times
Wealth		
Comparative wealth index		
Asset wealth index	HH-2A, R5, R5a	Dwelling, assets and agriculture, Assets (excluding livestock), and Access to land
Food security		
Food Insecurity Experience Scale (FIES)	HH-3	Food security
Prevalence of moderate and severe food insecurity in the	HH-3	Food security
Percent of households with poor, borderline and adequate Food	HH-3	Food security
Anthropometry		
Prevalence of stunted (HAZ < -2) children under five	HH-5A	Children's anthropometry
Prevalence of wasted (WHZ < -2) children under five	HH-5A	Children's anthropometry
Prevalence of underweight (BMI < 18.5) women of reproductive age	HH-4A	Women's anthropometry
Prevalence of healthy weight (WHZ ≤2 and ≥2) among children un	HH-5A	Children's anthropometry
Nutrition		
Prevalence of children 6-36 months consuming a diet of minimum diversity	HH-5	Children's nutrition
Prevalence of women of reproductive age consuming a diet of minimum diversity	HH-4	Women's nutrition and health
Prevalence of exclusive breastfeeding of children under six months of age	HH-5	Children's nutrition

(Continued …)

(... Continued)

Indicator		Survey module	
Health and WASH			
	Percent of children under age five who had diarrhea in the prior two weeks	HH-5	Children's nutrition
	Percent of births receiving at least 4 antenatal care (ANC) visits during pregnancy	HH-4	Women's nutrition and health
	Contraceptive prevalence rate (CPR)	HH-4	Women's nutrition and health
	Percent of population of targeted communes that have used/received public services	HH-R11	Access to information and use of public services
	Percent of population of targeted communes who are satisfied with public services used/received	HH-R11	Access to information and use of public services
	Percentage of households with access to a basic sanitation service	HH-2B	Water, sanitation and hygiene
	Percent of households with soap and water at a hand-washing station on premises	HH-2B	Water, sanitation and hygiene
	Percent of households with basic drinking water services	HH-2B	Water, sanitation and hygiene
Agriculture			
	Yield of targeted agricultural commodities within target areas	HH-7.17, HH-7.11, HH-7.52	AG: Cowpea, chickens, goats
	Proportion of producers who have applied targeted improved management practices or technologies	HH-7.17, HH-7.11, HH-7.52	AG: Cowpea, chickens, goats
	Percent of farmers who used improved storage practices in the past 12 months	HH-7.17, HH-7.11, HH-7.52	AG: Cowpea, chickens, goats
Gender			
	Percent of men and women who earned cash in the past 12 months	HH-6J	Gender - Cash
	Percent of women in union and earning cash who report participation in decisions about the use of self-earned cash	HH-6G	Role in household decision making
	Percent of women in union and earning cash who report participation in decisions about the use of spouse/partner's self-earned cash	HH-6G	Role in household decision making
	Percent of men in union and earning cash who report spouse/partner participation in decisions about the use of self-earned cash	HH-6G	Role in household decision making
	Women's ownership of assets	HH-6G	Role in household decision making
	Percent of women who actively participate in community groups	HH-6K	Access to credit & group membership (woman in union)
	Women's access to credit	HH-6K	Access to credit & group membership (woman in union)
	Women's decisions about credit	HH-6K	Access to credit & group membership (woman in union)
Household engagement in resilience interventions			
	Household participation in interventions	HH-3A	Household's engagement in RISE activities
	Household exposure to interventions	C-9	Village exposure to RISE II interventions

2.2.3 Differences in Key Indicators by RISE II Programming Intensity Groups

This section looks at whether there are any statistically significant differences in key indicators of shock exposure, food security, resilience and resilience capacities across the RISE II low-exposure and high-exposure groups of households. The stratification of the RISE II sample into these groups helps to ensure that there will be sufficient control and treatment households for the final impact evaluation. It is important to take into account differences across the groups in order to account for and use statistical techniques to overcome any problem of selection bias in impact estimates. The differences are presented in Table 2.8 (see subsequent chapters for details on indicator measurement).

Although there is some indication of a small difference in drought-related shock exposure, differences in overall shock exposure, food security and resilience across the groups are minor. However, there are some noticeable and statistically significant differences in households' resilience *capacity.* High-exposure households as a group appear to have substantially lower adaptive capacity than low-exposure households. This can be linked to lower linking social capital, aspirations, asset ownership, human capital, and exposure to information. The moderately lower transformative capacity of high-exposure households is linked to lower linking social capital and, possibly, lower access to markets, services and infrastructure combined. Overall, the high-exposure households have a 20% lower resilience capacity than the low-exposure households.

The differences in resilience capacities across the high- and low-exposure groups indicate that RISE II initiative activities have been targeted more intensely towards households with lower resilience capacities. It will be important to take these differences into account in the impact evaluation.

Table 2.8 Differences in key RISE II indicators across low-exposure and high-exposure groups

Indicator	Low exposure households	High exposure households	Difference	
Shock exposure				
Shock exposure index	13.8	12.7	-1.10	ns
Shock exposure index (drought-related)	6.5	5.0	-1.50	***
Food security				
Prevalence of moderate-to-severe food	47.4	53.7	6.30	ns
Prevalence of severe food insecurity	11.8	9.4	-2.40	ns
Resilience: Ability to recover				
Mean ability to recover from shocks of last year	1.981	2.064	0.08	ns
Recovered from all shocks of past year (%)	5.12	8.90	3.78	**
Resilience capacity				
Social capital				
Bonding social capital	59.8	55.3	-4.50	ns
Bridging social capital	50.6	42.6	-8.00	*
Linking social capital	48.1	30.3	-17.80	***
Aspirations and confidence to adapt	46	40	-6.00	***
Economic sources of resilience capacity				
Livelihood diversity	3	3	0.00	ns
Asset ownership	16.4	13.3	-3.10	***
Access to financial resources	0.52	0.89	0.37	**
Access to markets, services, infrastructure and communal natural resources				
Access to markets	1.61	1.27	-0.34	ns
Access to basic services	3.86	3.64	-0.22	ns
Access to infrastructure	1.44	1.19	-0.25	ns
Access to communal natural resources	1.6	1.81	0.21	ns
Human capital and access to information				
Human capital	19.2	15	-4.20	***
Exposure to information	2.43	1.23	-1.20	***
Safety nets				
Access to informal safety nets	1.31	1.77	0.46	**
Access to formal safety nets	0.51	0.74	0.23	ns
Disaster risk reduction				
Index of Disaster Preparedness and Mitigation	0.4	0.46	0.06	ns
Availability of hazard insurance	9.1	9.2	0.10	ns
Availability of conflict mitigation support	58.4	58.3	-0.10	ns
Indexes of resilience capacity				
Absorptive capacity	16.6	19.5	2.90	ns
Adaptive capacity	38.1	25	-13.10	***
Transformative capacity	46.4	39.1	-7.30	**
Overall resilience capacity	39.8	32	-7.80	***

Note: Stars indicate statistical significance at the 10% (*), 5% (**) and 1% (***) levels.

2.3 Qualitative Data Collection and Analysis

The qualitative component of the baseline survey was designed to answer some specific RISE II IE questions and to complement the results from quantitative techniques. One way this was done was by providing confirmation and explanation of quantitative results through "triangulation." The qualitative research provided opportunities for in-depth investigation of underlying social factors and experiences of respondents, providing more flexibility for them to explain what they consider most important about their situation.

The qualitative analysis was carried out using NVivo software, coding all village reports according to themes and associated categories of qualitative responses in line with the initiative-stipulated goals and study aims, while also being open to additional themes that were suggested by the interview material. Owing to limited time during the baseline analysis, a slightly abbreviated procedure was used in which 25% of village reports were comprehensively coded, another 25% were auto-coded by NVivo based on the coding of the first reports, and selective coding was done on prioritized themes with all reports. Beyond this, using the NVivo query function allowed all villages to be included in analysis of key concepts such as "conflict," "violence," or "village development committee (VDC)." By reading through responses, and sifting through the commonalities and differences, the overall summary findings became apparent as well as notable outliers. NVivo was used to carefully analyze the way that ideas are explained by respondents, reflecting actual quotations where possible, to understand reasons why respondents state what they do and also reveal connections with other issues. The analysis effectively strikes a balance between the inductive, theory-building approach of grounded theory with the deductive / description emphasis of content analysis. Comparison between the baseline and rounds of the recurrent monitoring survey and between different villages will be possible, and any useful findings unearthed through this comparison will be included in the reports.

The qualitative component of the RISE II IE deploys tools to examine:

- How social capital functions in the face of shocks, including unequal power relations and unequal access to resources and social capital.
- Current functionality and effectiveness of community-level structures, how well they hold up under shocks, and how they relate to communal and regional government.
- Relationship between community and household responses to shocks.
- Differentiation by gender, for youth and—to a limited extent—for other marginalized populations such as ethnic groups regarding the impacts of shocks, social dynamics and impacts of participation in initiative interventions on well-being and capacities.
- Cultural, ethnic, and/or gender-based barriers that exclude the most vulnerable from social networks including RISE II activities.
- Nutrition and health system service quality, challenges, knowledge and behaviors, including the effects and integration of initiative interventions, and assessing how cultural and environmental practices are influencing behaviors.
- Impact of RISE II activities on improvements in local governance and civil society.

- Factors that contribute to participation in RISE II direct interventions and system services.
- Exploring the nature and impact of shocks, the prevalence and strains on different livelihood coping strategies, and any further spin-off effects.

The baseline qualitative data collection was carried out among a subset of communities included in the overall quantitative sample. A random sample of twelve villages was drawn in each country from among those included in the quantitative survey, with a proportion of 2/3 "high intensity" villages and 1/3 "low intensity" villages. This led to a total of twenty-four villages. Since the survey included government officials at the communal level that do not work exclusively in these villages, such as mayors and communal officials, at times reference is made to communes rather than villages.

Qualitative interviewing teams were gender-balanced, multidisciplinary, and included international consultants and in-country consultants with knowledge of the research areas. Qualitative teams consisted of eight researchers in each country divided into four teams of two, with a supervisor and a quality control monitor.

2.3.1 Main Methods

Details of the main qualitative research methods—focus group discussions (FGD), key informant interviews (KIIs), and direct observation—are as follows.

Focus Group Discussions

The team conducted a total of 145 FGDs among groups representative of the primary livelihood systems in the particular community under study. The size of FGDs were limited to 8–10 individuals. An effort was made to ensure that participants were representative of different groups within the community (youth, elderly, poor, better-off, etc.). Separate focus groups were conducted with male and female respondents in each community and with subgroups of interest (e.g., older and younger youth, participants in RISE II activities, local government officials in charge of government service delivery). Focus group facilitators were guided by a topical outline but remained flexible in time and structure. Topics of the FGDs included the nature of shocks and stresses experienced by the community and common responses to them. Particular emphasis was given to eliciting the assessments of community members about the effectiveness of formal (e.g., local government) and informal institutions (e.g., civil society organizations), RISE II interventions, and other factors influencing the community's capacity for collective action.

Key Informant Interviews

The team conducted a total of 113 KIIs. Key informants were selected based on their special knowledge of specific areas of interest (see below) related to the population being surveyed. Key informants included traditional and religious leaders, role model women and positive deviant households, water committee members, government officials, officers responsible for health, agriculture and breeding, and other food security programs, and local health and agriculture extension agents. KIIs often have a broader perspective when compared with focus group participants and can provide greater contextual information that will inform the data analysis. They were held with the

community's legal, political and/or customary leaders and authorities. They also included individuals noted for their unique perspective and/or high degree of vulnerability, such as role model women and positive deviant households. KIIs result in the development of more detailed community profiles and a wealth of information including community-level availability of different types of government services, infrastructure, and covariate shocks that have affected the community, which are useful for cross-checking information gained in other stages of the research. Themes explored with key informants included changes in government policies or programs; market dynamics; community social capital and relations with neighboring communities; lending activity; spillover effects of other development projects; social and economic characteristics of particular groups; informants' personal household business experiences; and the household dynamics of better-off or more gender-equitable households.

Direct Observation

Direct observation of community surroundings and activities during field visits helped collect important information on the local context, community practices, and physical features within the intervention area without introducing bias or having to solicit direct participation of community members. It can be used as a quality check for the quantitative household survey data. For the baseline study it was conducted through transect walks accompanied by community leaders. Important information on household and community resilience was gained from exploring obvious indicators of poverty status (from physical infrastructure to water and sanitation facilities, housing conditions etc.), livelihood practices, demographic/population characteristics, quality of housing and infrastructure, and access to natural resources.

2.3.2 Governance Questions

The qualitative analysis was especially directed at addressing RISE II Research Question #10:

Did RISE II interventions have a positive impact on the performance of local governments and civil society organizations?

Sub-questions to this overall research question include:

a. What are the effects on performance of local governments?
b. What are the effects on performance of civil society organizations?
c. What are the effects on performance of health facilities?

To understand the performance of these organizations, the qualitative survey characterized key aspects of their functioning at the time of the baseline through a number of KIIs and FGDs with key actors at the commune level as well as through the interviews with village respondents. The same dimensions of institutional functioning will be assessed in the endline, and comparisons made.

3. HOUSEHOLD SOCIO-DEMOGRAPHIC CHARACTERISTICS AND LIVELIHOOD ACTIVITIES

As background for the rest of the analysis, this chapter describes the socio-demographic characteristics and livelihood activities of households in the RISE II project area.

3.1 Household Socio-Demographic Characteristics

Table 3.1 summarizes key household socio-demographic characteristics by project area (country) as well as by RISE II livelihood zone. Average household size is 7.2 members. There are some significant differences between households in the Burkina Faso area and those in the Niger area. Households in Burkina Faso are slightly larger than those in Niger (7.6 vs 6.4 people). In terms of age-sex composition, 0–15-year-olds make up on average nearly half of all members in RISE II -area households. Burkina Faso households have a slightly higher percentage of adults (age 30+ years), both male and female, than those in Niger. Households in Niger have relatively more members in the female 0–15 age group.

With regard to gendered household type, the majority (89.2%) of households have both male and female adults, but female adult-only households make up 8% of the RISE II population. A larger percentage of households in Burkina Faso have both male and female adults present whereas a larger percentage of households in Niger have either only female adults or only male adults. The percentage of households where there are no adults (i.e., child-headed households) is zero in Burkina Faso but 0.3 in Niger.

Most households in the project area have at least a primary education, and a full 36.7% have a secondary education. Education levels in Burkina Faso are higher than those in Niger—fewer households have no members with formal education (20% vs. 41.6%), and far more have a secondary education (42.9% vs. 23.2%).

Examining differences across the RISE II livelihood zones, in the Burkina Faso area differences in socio-demographic characteristics are minimal. In the Niger area, on the other hand, household size differs significantly between the three livelihood zones. Irrigated-agriculture-zone households have the greatest number of members (7.1), followed by rainfed-agriculture-zone households (6.3), with agropastoral-zone households having by far the lowest (5.5). The education level is highest in the irrigated agriculture zone and lowest in the agropastoral zone.

Table 3.1 Household socio-demographic characteristics, by project area and RISE II livelihood zone

		Project area		Livelihood zone within program areas				
				Burkina Faso		Niger		
`	All	Burkina Faso	Niger	Rainfed agriculture	Agropastoral	Rainfed agriculture	Agropastoral	Irrigated agriculture
Household size and age-sex composition								
Household size	7.2	7.6 [a]	6.4 [a]	7.8	7.4	6.3 [ab]	5.5 [ac]	7.1 [bc]
Percent females 0-15	24.7	23.9 [a]	26.6 [a]	24.2	23.5	27.2	25.2	26.8
Percent females 16-29	12.8	12.6	13.4	11.9	13.4	13.3	13.6	13.5
Percent females 30+	14.9	15.9 [a]	12.9 [a]	17.1 [a]	14.5 [a]	11.6 [ab]	14.5 [a]	13.4 [b]
Percent males 0-15	24.2	24.1	24.6	24.8	23.2	25.4	23.4	24.4
Percent males 16-29	9.5	9.3	9.8	8.2 [a]	10.7 [a]	9.9	9.7	9.8
Percent males 30+	13.8	14.3 [a]	12.7 [a]	13.8	14.7	12.6	13.7	12.1
Gendered household type (percent)								
Male and female adult	89.2	91.8 [a]	83.6 [a]	91.1	92.6	83.2	81.4	85.9
Female adult only	7.9	6.3 [a]	11.3 [a]	7.8	4.7	10.8	13.9	9.9
Male adult only	2.8	1.9 [a]	4.8 [a]	1.1	2.7	5.6	4.5	4.0
Child no adult	0.1	0.0 [a]	0.3 [a]	0.0	0.0	0.4	0.2	0.2
Education (percent)								
No education	26.8	20.0 [a]	41.6 [a]	18.7	21.7	42.6	54.2 [c]	29.4 [c]
Primary education	36.5	37.1	35.2	37.4	36.8	33.3	31.5	41.1
Secondary education	36.7	42.9 [a]	23.2 [a]	43.9	41.5	24.1	14.3 [c]	29.5 [c]
Number of households	3,545	1,781	1,764	1,090	685	808	429	523

a,b,c Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

3.2 Livelihood Activities

Turning to household livelihood activities (Table 3.2), the most common activity in the RISE II area is farming/crop production and sales, participated in by 64% of households. The next most common is livestock production and sales, participated in by nearly half of all households. Within the agriculture sector, it is notable that only 12% of households engage in labor on other's farms ("farm laborer"). With respect to non-agricultural livelihood activities, one-third of households engage in retailing and 16% in artisanal mining. One-quarter of households gain livelihoods from migration, and remittances are received by 20%.

In terms of differences between the Burkina Faso and Niger areas, the most important are in the areas of livestock production and sales (stronger emphasis in Burkina Faso), farm laborer (stronger emphasis in Niger), artisanal mining and non-agricultural labor (stronger emphasis in Burkina Faso), and migration, remittances, and begging (stronger emphasis in Niger). Of particular note is that almost half of all households in Niger rely on migration as a livelihood activity—the only activity engaged in by more households is crop production and sales. It is also notable that begging as a livelihood source is higher in the Niger area (3.2% vs. 1.7% in Burkina Faso).

Table 3.2 Household livelihood activities, by project area and RISE II livelihood zone

	All	Project area		Livelihood zone within program areas				
				Burkina Faso		Niger		
		Burkina Faso	Niger	Rainfed agriculture	Agropastoral	Rainfed agriculture	Agropastoral	Irrigated agriculture
Agricultural sources (%)								
Farming/crop production and sales	64.0	62.8	66.7	58.1	68.1	71.6	63.2	62.2
Livestock production and sales	48.5	56.8 [a]	30.5 [a]	57.9	55.5	31.0	37.7 [c]	23.7 [c]
Farm laborer	12.1	4.4 [a]	28.8 [a]	4.6	4.1	31.9	25.4	26.9
Production and sale of seedlings, seeds, animal feed	3.5	3.0	4.5	1.7	4.5	5.7	3.0	3.9
Production and sale of firewood, charcoal, poles, timber	3.8	3.1	5.5	0.3 [a]	6.3 [a]	8.2 [a]	2.4 [a]	4.2
Sale of wild products	3.1	3.3	2.8	4.2	2.2	2.5	2.7	3.4
Employed in an agricultural product processing and marketing company	0.9	0.9	1.1	1.0	0.7	1.1	1.1	1.0
Private agricultural service providers	-	-	-	-	-	-	-	-
Non-agricultural sources								
Retailing (shopkeeper, sale of non-agricultural products etc.)	33.3	31.9	36.3	27.1 [a]	37.5 [a]	34.4	41.1	35.1
Non-agricultural service delivery agent	4.4	3.8	5.9	4.0	3.5	6.4	7.2	4.2
Technical and professional activities (carpenter, mason, latrine construction)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Artisanal mining	16.1	22.9 [a]	1.3 [a]	23.8	21.8	1.3	1.7	1.0
Non-agricultural worker (factory, company, mine, bakery, restaurant, etc.)	4.6	6.2 [a]	1.0 [a]	10.1 [a]	1.9 [a]	1.3	0.7	1.0
Domestic help	2.7	2.7	2.8	0.2 [a]	5.6 [a]	3.2	2.2	2.9
Crafts (pottery, basketry, carved wood, etc.)	1.6	1.1	2.7	0.6	1.6	2.6 [b]	5.5 [c]	0.3 [bc]
Carrier, docker	3.9	3.7	4.3	0.8 [a]	7.0 [a]	5.1	3.2	3.9
Roadside “hawking” of commodities	1.3	1.7	0.5	0.0 [a]	3.7 [a]	0.6	0.2	0.6
External non-agricultural sources								
Migration/Rural exodus	24.4	14.1 [a]	46.6 [a]	13.7	14.6	45.3	46.2	49.0
Gifts/inheritance	13.7	12.3	16.7	17.6 [a]	6.3 [a]	18.2 [a]	7.3 [ac]	22.7 [c]
Remittances	19.7	16.1 [a]	27.4 [a]	24.5 [a]	6.4 [a]	19.4 [b]	25.7 [c]	40.9 [bc]
Begging	2.2	1.7 [a]	3.2 [a]	0.9	2.6	4.7 [a]	1.2 [a]	2.5
Transfer payments (such as pensions)	0.9	1.2	0.4	0.3	2.2	0.1	0.4	0.8
N	3,535	1,775	1,760	1,090	685	808	429	523

a,b,c Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

Regarding differences across the RISE II livelihood zones, in the Burkina Faso area, although there are some statistically significant differences between the two zones, there are few among the main agricultural activities—the exception being that a larger percentage of households in the agropastoral zone are engaged in the production and sale of firewood and charcoal. With respect to non-agricultural sources, retailing is more prominent in the agropastoral zone. "Non-agricultural worker," remittances and gifts play a much greater role in the rainfed agriculture zone than in the agropastoral zone.

Within the Niger area, livestock production and sales are more prominent as a livelihood activity in the agropastoral zone than in the irrigated agriculture zone, and a larger percentage of households in the rainfed agriculture zone are involved in firewood and/or charcoal production than in the agropastoral zone. Gifts play a much greater role in both the rainfed and the irrigated agriculture zones in comparison to the agropastoral livelihood zone. Remittances play a greater role in the irrigated agriculture zone than in either of the other two zones. Finally, it is notable that begging as a livelihood activity is highest in the rainfed agriculture zone.

3.3 Summary: Household Socio-Demographic Characteristics and Livelihood Activities

Average household size in the project area is 7.2 members, and nearly half of all members are in the 0–15 age group. While the vast majority of households have both male and female adults, 8% are female adult-only households. Over two-thirds of households have at a least a primary education; education levels in Burkina Faso are substantially higher than in Niger. With respect to differences across the RISE II livelihood zones, households residing in the agropastoral zone of Niger are significantly smaller and less educated compared to those in the rainfed and irrigated agriculture zones.

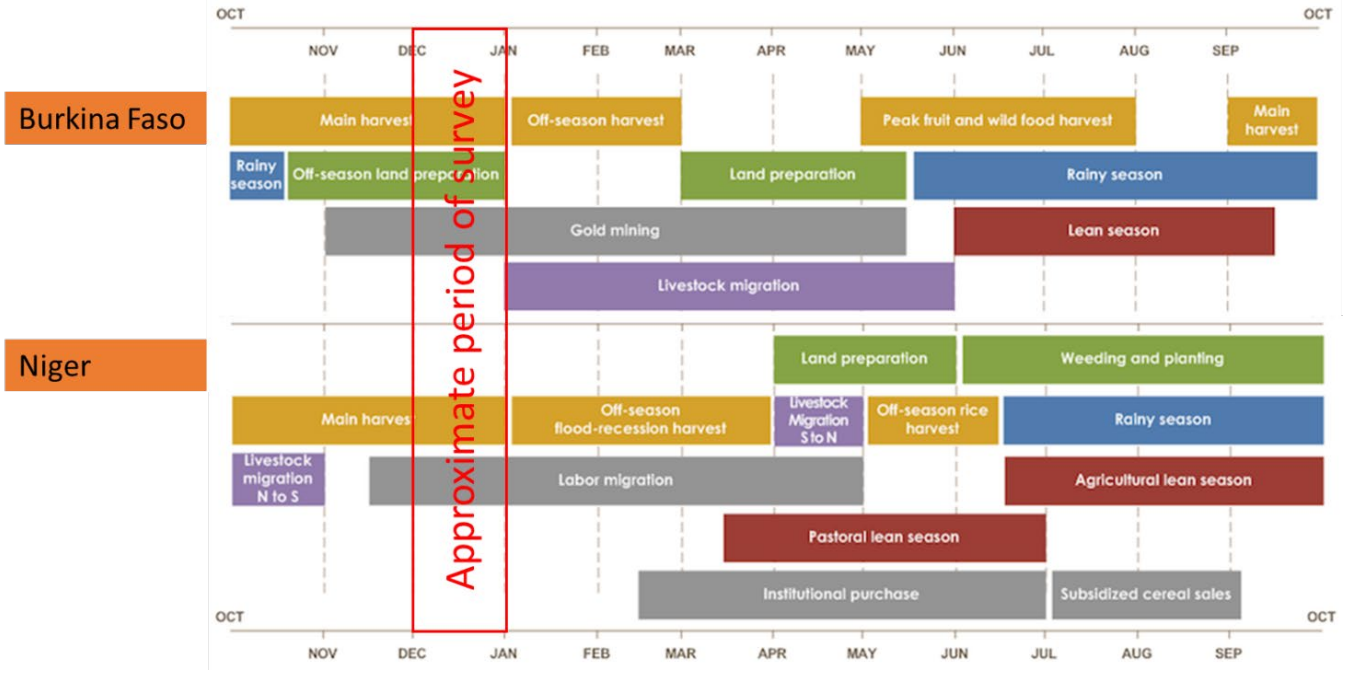
Crop production and sales is the most common livelihood activity in the project area (engaged in by two-thirds of households), followed by livestock production and sales (half of all households). Other prominent livelihood activities are retailing and artisanal mining. One-fourth of households engage in migration, and 20% receive remittances. Livestock production and sales, non-agricultural labor, and artisanal mining are more common livelihood activities in the Burkina Faso initiative area than in the Niger project area. On the other hand, households in the Niger area rely more on income from farm labor, migration, remittances, and begging.

4. SHOCK EXPOSURE AND COPING STRATEGIES

As will be seen in this chapter, households in the RISE II project areas experienced a variety of shocks during the year prior to the baseline survey. A full understanding of the extent of households' shock exposure, the types of shocks they faced, and how they coped with them is essential background for the resilience analysis in this report.

The chapter begins with a brief description of climate conditions during the year prior to the baseline survey using data from global GIS databases of climate information. For context, Figure 4.1 shows the seasonal agricultural calendars for the Burkina Faso and Niger project areas (FEWS NET 2013a, b). The chapter then looks at the shock exposure data reported directly by households, including those for climate, conflict, and economic shocks. Next, the coping strategies households reported using to deal with the shocks they faced are examined.

Figure 4.1 Seasonal calendar for Burkina Faso and Niger



4.1 Climate Conditions over the Year before the Baseline Survey

In this section we report on the evolution of climate conditions during the year prior to the baseline survey using Multi-Source Weighted-Ensemble Precipitation (MSWEP) precipitation data (GloH2O 2021) as well as soil moisture and vegetation coverage data available through the FEWS NET data portal (U.S. Geological Survey 2022a, c).[5]

[5] As of writing, the eMODIS NDVI data is no longer available via FEWS NET and has been replaced by the eVIIRS NDVI data (U.S. Geological Survey 2022b), which has implications for the recurrent monitoring survey and endline surveys.

MSWEP is a global database of rainfall and related hydrological indicators. Current conditions are compared to historical data beginning in 1979 to develop measures of climate anomalies such as drought and flooding. The MSWEP database allows GIS coordinates to be used to download data from the internet for localized geographical areas with 0.1° spatial resolution (11 km at the equator) and a 4-hour temporal resolution (Beck et al. 2019).

The FEWS NET Land Data Assimilation System (FLDAS) is a custom instance of the NASA Land Information System (LIS) that has been "adapted to work with domains, data streams, and monitoring and forecast requirements associated with food security assessment in data-sparse, developing countries." The soil moisture data are derived from the FLDAS Noah Land Surface Model L4 with the same 0.1° spatial resolution as the MSWEP data. The vegetation data are the product of a temporally smoothed 250m spatial resolution Normalized Difference Vegetation Index (NDVI) data set generated from the Collection 6 Moderate Resolution Imaging Spectroradiometer (MODIS) instrument flown aboard the Aqua satellite and distributed by the U.S. Geological Survey Earth Resources Observation and Science Center.

For the analysis in the report, monthly or dekadal data were accessed using the GIS coordinates for each of the sample EAs (villages). The data were used to calculate two measures:

1. The 1-month rainfall anomaly: the number of standard deviations observed 1-month cumulative precipitation deviates from the climatological average;
2. The 1-month soil moisture anomaly: the number of standard deviations observed 1-month cumulative soil moisture deviates from the climatological average.

The rainfall anomaly measure is used to detect meteorological (rainfall induced) drought and flooding. The soil moisture anomaly measure is used to detect surface moisture anomalies that indicate drought and flooding, anomalies that are related to rainfall levels, temperature, topology, and soil characteristics, among other factors. For reference, meteorological drought and flooding are defined as follows (United States Drought Monitor 2021):

Drought: rainfall deviation < = -0.8 (severe drought < = -1.3)

Flooding: rainfall deviation > = +1 (severe flooding > = +1.5).[6]

Figure 4.2 shows the rainfall deviation from the norm (in standard deviations) during the year prior to the baseline survey. The zero line is the norm; values consistently close to the norm represent the rainfall stability needed for normal agricultural and pastoral activity. As can be seen, in the Burkina Faso area, rainfall was below normal for most of the rainy season prior to the survey (which was conducted during the main harvest season in both areas), dropping slightly into drought territory in April and September 2021. In Niger, on the other hand, there was a period of above normal precipitation, though not high enough to be categorized as a flood.

[6] The flooding cut-offs are derived from the "wet" and "very wet" category cutoffs used by the National Drought Mitigation Center.

Figure 4.2 Precipitation anomalies Dec/2020-April/2022–Standard deviation from historical monthly mean

Figure 4.3 displays the monthly percentage of the normal soil moisture during the year prior to the baseline survey.[7] Soil moisture more closely reflects conditions on the ground for agricultural production and livestock rearing. The data indicate that neither the Burkina Faso nor Niger project areas experienced a prolonged period of soil moisture deficit during the year prior to the baseline survey. While soil moisture was below the norm for a period of time, this was not during the growing season. In both areas, soil moisture levels had recovered and then were above normal during much of the growing season.

[7] The percent Anomaly, referred to as percentage of normal, uses the 1982–2011 mean to compare the current monthly soil moisture to average conditions.

Figure 4.3 Soil moisture anomalies Dec/2020-March/2022–Percentage of normal soil moisture

Figure 4.4 shows the monthly percentage of normal NDVI[8] for both project areas. It roughly shows that same pattern as for precipitation (Figure 4.2)—slightly above normal in both Burkina Faso and Niger in the early part of the rainy season (June–July), and then much below normal for the balance of the rainy season in Burkina Faso.

[8] The percent anomaly, referred to as percentage of normal, uses the 2003–2017 median to compare the current composite relative to average conditions.

Figure 4.4 Normalized Difference Vegetation Index percentage of median for each 29 decadal from Dec/2020–April/2022

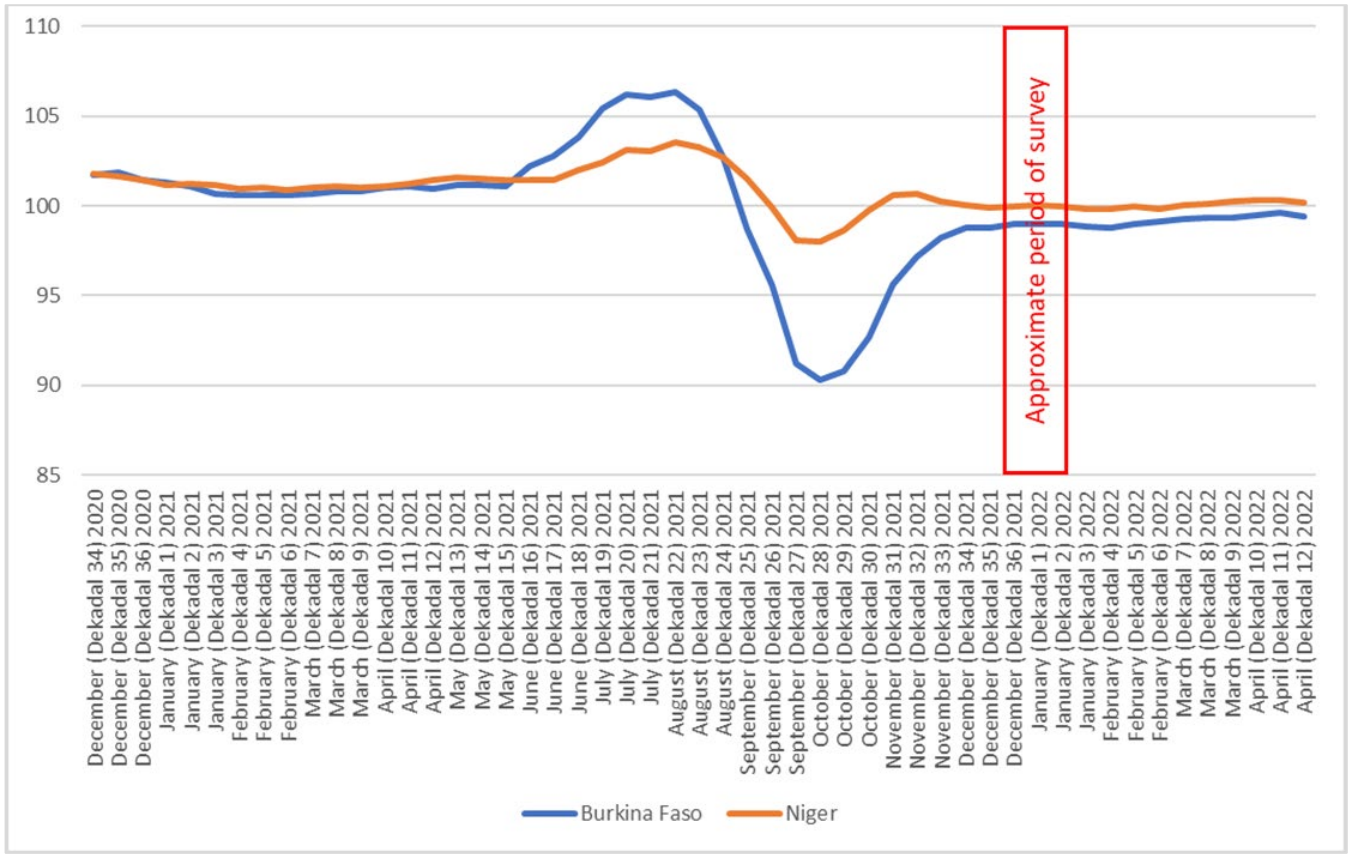


Table 4.1 reports on the summary measures for rainfall (meteorological drought/surplus) and soil moisture (agricultural drought/surplus) conditions during the same period for both project areas and for the RISE II livelihood zones. The upper panel gives the:

1. "Total rainfall deficit" over the year prior to the baseline, which is measured as the sum of the monthly rainfall deviations below the norm;
2. "Total rainfall surplus," which is measured as the sum of the monthly rainfall deviations above the norm.

The upper panel also includes the number of months in which these conditions occurred. The lower panel gives similar measures for soil moisture, but in units of cubic meters of moisture per cubic meter of soil (m^3/m^3).

Table 4.1 Rainfall and soil moisture deficits and surpluses over the year prior to baseline, by project area and RISE II livelihood zone

		Project area		Livelihood zone within program areas				
				Burkina Faso		Niger		
	All	Burkina Faso	Niger	Rainfed agriculture	Agropastoral	Rainfed agriculture	Agropastoral	Irrigated agriculture
Rainfall								
Total rainfall deficit (mm)	72.7	111.5 [a]	34.3 [a]	107.4 [a]	117.9 [a]	40.0 [a]	14.1 [ac]	42.3 [c]
Total rainfall surplus (mm)	50.7	25.1 [a]	76.0 [a]	32.1 [a]	14.3 [a]	87.4 [b]	82.0 [c]	53.7 [bc]
Months of meteorological drought	1.6	2.6 [a]	0.7 [a]	2.8 [a]	2.3 [a]	0.9 [a]	0.1 [ac]	0.9 [c]
Months of meteorological flooding	0.8	0.1 [a]	1.5 [a]	0.2 [a]	0.0 [a]	1.5 [ab]	2.3 [ac]	0.9 [bc]
Soil moisture								
Total soil moisture deficit (m^3/m^3)	0.04	0.02 [a]	0.06 [a]	0.02	0.02	0.06 [ab]	0.05 [a]	0.05 [b]
Total soil moisture surplus (m3/m3)	0.14	0.12 [a]	0.15 [a]	0.10 [a]	0.14 [a]	0.19 [ab]	0.13 [a]	0.13 [b]
Months of soil moisture deficit	1.4	0.8 [a]	1.9 [a]	0.8	0.9	1.9	1.9	1.8
Months of soil moisture surplus	4.3	4.5 [a]	4.1 [a]	4.3	4.8	4.6 [ab]	3.9 [a]	3.5 [b]
N (villages/EAs)	153	76	77	46	30	35	19	23

a,b,c Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

Households in Burkina Faso experienced a more severe period of meteorological drought than those in Niger whereas those in Niger had a larger amount of surplus rain—both as measured in terms of the amount of precipitation and the number of months of drought/flooding. However, in the case of drought, this did not translate into a prolonged period of agricultural drought in either area (less than1 month in Burkina Faso and less than 2 months in Niger). On the other hand, even though there was little meteorological excess of rainfall there were over 4 months of soil moisture surplus in both countries.

In terms of the RISE II livelihood zones, the agropastoral zone in Burkina Faso experienced a larger rainfall deficit than the rainfed agriculture zone, but this did not translate into a longer period of meteorological drought—in fact it was the reverse with the agropastoral zone having fewer months of meteorological drought. There was little difference in the soil moisture conditions between the two zones in Burkina Faso.

In Niger, the agropastoral zone experienced a smaller rainfall deficit than either of the other RISE II livelihood zones (rainfed and irrigated agriculture zones). On the other hand, the irrigated agriculture zone experienced a smaller rainfall surplus than the other two zones. With respect to growing conditions, the period of soil moisture deficit was not different between the zones in Niger, although the rainfed agriculture zone experienced more months of soil moisture surplus.

4.2 Household Reports of Exposure to Climate, Conflict, Economic, and Other Shocks

Respondent households reported on whether or not they experienced any of 30 different shocks in the 12 months prior to the baseline. Table 4.1 reports on the percentage of households that experienced seven of the most common shocks. Annex Table A1.4.1 reports on all 30 shocks. Also

reported in Table 4.1 is the mean of an overall shock exposure index that takes into account the total number of shocks households experienced as well as their perceived severity. Perceived severity is measured using answers to the question, "How severe was the impact on your income and food consumption?" The five possible responses range from "None" to "Worst ever happened." The index is calculated as a weighted average of the incidence of each shock and its perceived severity as measured on the five-point scale. That is, the incidence of each shock (0 or 1) is multiplied by its perceived severity (1, 2, 3, 4, or 5), and the resulting values are summed up across the 30 shocks. The index potentially ranges from 0 (for a household experiencing no shocks) to 150 (for a household experiencing all 30 shocks with a perceived severity score of 5).

As can be seen from Table 4.2, the three most frequently reported shocks are those related to too little rain, sharp increases in food prices, and unexpected medical expenses. However, there are some differences by project area. A larger percentage of households in Burkina Faso reported experiencing periods of too little rain than those in Niger—which is supported by the climate data reported in the previous section (Section 4.1). On the other hand, a larger percentage of households in Niger reported experiencing excessive rain—which is also supported by the climate data. Perhaps more important however, is the large difference in the percentage of households experiencing conflict, with Burkina Faso households having a far greater incidence due to "armed groups/political conflict." On the other hand, food price increases and "serious illness of a household member" are more common in Niger than in Burkina Faso.

Table 4.2 Most common shocks experienced in the past 12 months, by initiative area and RISE II livelihood zone

		Project area		Livelihood zone within program areas				
				Burkina Faso		Niger		
	All	Burkina Faso	Niger	Rainfed agriculture	Agropastoral	Rainfed agriculture	Agropastoral	Irrigated agriculture
Climate shocks (% of housholds)								
Excessive rain/flood	18.5	11.4 [a]	33.8 [a]	11.0	11.6	36.1	34.1	30.4
Too little rain/drought	67.5	74.8 [a]	51.6 [a]	74.2	75.8	54.3 [a]	32.8 [ac]	63.8 [c]
Disease/pests affecting crops	25.5	24.1	28.5	18.9	30.1	31.1	24.6	27.7
Conflict shocks (%)								
Armed groups/political conflict	14.1	19.5 [a]	2.3 [a]	14.5	25.4	0.7 [a]	4.8 [a]	2.5
Economic shocks (%)								
Sharp food price increases	62.8	58.6 [a]	71.8 [a]	58.3	59.2	79.2 [ab]	63.4 [a]	67.9 [b]
Unexpected medical expenses	42.1	40.2	46.2	47.0 [a]	32.7 [a]	47.0	42.4	48.7
Other shocks (%)								
Serious illness of member	35.9	32.1 [a]	44.1 [a]	32.7	31.2	49.9 [ab]	39.1 [a]	39.8 [b]
Shock exposure index	13.5	13.5	13.5	12.6	14.6	14.9 [a]	10.3 [ac]	14.3 [c]
Number of shocks exposed to in last year	4.1	4.0	4.2	3.8	4.3	4.6 [a]	3.4 [ac]	4.4 [c]
N	3,536	1,777	1,759	1,087	684	807	429	521

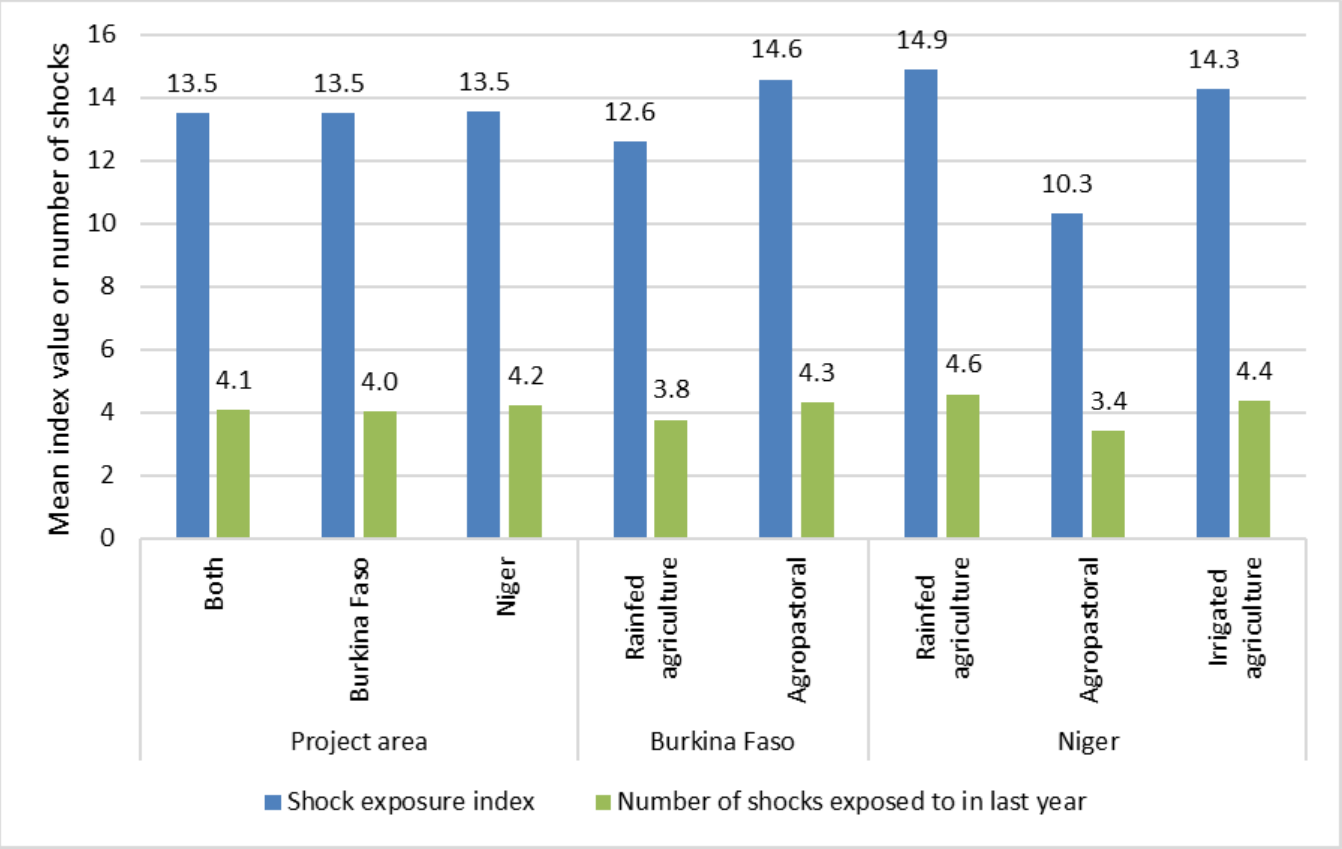
a,b,c Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

With reference to differences across the RISE II livelihood zones, within the Burkina Faso initiative area, a larger percentage of households in the agropastoral zone than in the rainfed agriculture zone reported experiencing "armed groups/political conflict." On the other hand, a larger percentage of households in the rainfed agriculture zone reported experiencing unexpected medical expenses.

In the RISE II livelihood zones of Niger, a larger percentage of farmers in the rainfed and irrigated agriculture zones report being affected by too little rain compared to households in the agropastoral zone. A larger percentage of households in the rainfed agriculture zone reported being affected by food price increases compared to those in the other two livelihood zones.

As can be seen from Figure 4.5 (and from Table A1.4.1 in the Annex), there is no statistically significant difference between the shock exposure index or in the mean number of shocks experienced by households in the two project areas. As for the RISE II livelihood zones within those project areas, in Burkina Faso there is no statistically significant difference in either the shock exposure index or the mean number of shocks experienced between the two livelihood zones. In the Niger area, households in the agropastoral zone had a lower shock exposure index (10.3 on average), than households in either the rainfed (14.9) or irrigated (14.3) agriculture zones. Households in the agropastoral zone of Niger experienced significantly fewer shocks (3.4 on average) than those in the other zones (4.6 and 4.4, respectively).

Figure 4.5 Shock exposure index and number of shocks experienced in the past 12 months, by project area and RISE II livelihood zone

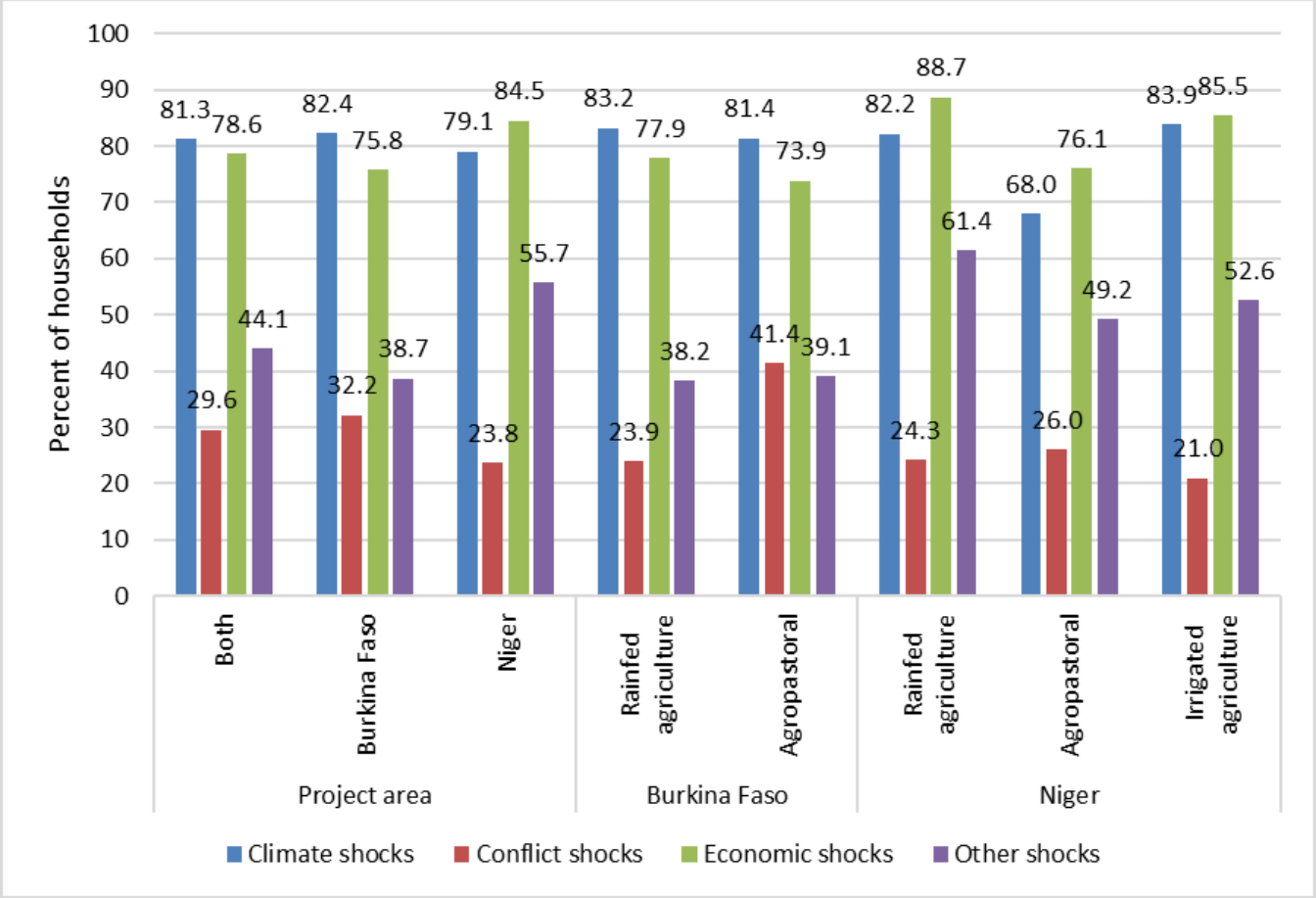


We turn now to the percentage of households that have experienced one or more shocks in each of four categories. These are summarized in Figure 4.6 and reported on in detail in Table A1.4.1 in the Annex.

4.2.1 Climate Shocks

Over 80% of households experienced one or more climate shocks in the year preceding the baseline. As mentioned previously, the most frequent are either a deficit or an excess of rain. There is no statistically significant difference in the percentage between the two project areas. Within the Niger project area, a smaller percentage of households in the agropastoral zone (68.0%) reported experiencing climate shocks than those in either the rainfed (82.2%) or irrigated (83.9%) agriculture zones.

Figure 4.6 Experience of shocks by category: climate, conflict, economic, and other



When considering the RISE II livelihood zones, in Burkina Faso a larger percentage of households in the rainfed agriculture zone experienced problems with livestock disease than those in the agropastoral zone (see Annex 1, Table A1.4.1). In Niger the only statistically significant difference in the specific shocks between the three zones was for "too little rain:" a smaller percentage of households in the agropastoral zone reported this shock than in either of the other two zones.

Qualitative respondents spoke about how drought exacerbates the burden of collecting household water, which falls mainly on women and young people. A Burkina Faso respondent explained that the time needed to collect water depends on the distance, the means of transport and the time of year. During the cool season, for a household that is 3 km from the water point, the women may take 2 to 3

hours (on foot or by cart) to fetch water and return. During the hot season, the women may spend the whole day doing this, either at night or from morning to evening. In another village, the only functioning pump was used by animals and men, so women and children were obliged to travel 90 minutes to the neighboring village to see if there were fewer people crowded around the pumps. Of course, insecurity makes this water search more dangerous and often impossible.

Poor rainfall leading to crop failure can set back women producers who had been building their independence. Young people have an important role in rainfed agriculture due to their physical strength, but a poor harvest can threaten their main source of income and disrupt their plans to get married and start small commercial activities. Excessive rainfall causes a range of problems:

> *"…the communities are victims each year of the successive heavy rains of 3 days on average 100 mm. During the rainy season, the succession of rains destroys some mud houses, floods some fields and harvests, and in the worst cases makes it impossible to use the roads leading to other villages or to nearby communes."*
>
> *—Burkina Faso water committee member*

A Niger chief reported caterpillar attacks in 2019 and 2021, which destroyed crops and left the young unable to find work in the fields and thus forced them to migrate. There was no grain bank to help the poor, and the rich didn't have enough to support others.

4.2.2 Conflict Shocks

When taken as a whole, there is no statistically significant difference in the percentage of households experiencing one or more conflict-related shocks in the two project areas (Figure 4.6). However, within the category there is one important difference. The percentage of households reporting the problem of armed groups was particularly high in Burkina Faso, with almost 20% of households reporting this shock in the previous 12 months (Table A1.4.1).

When considering the RISE II livelihood zones, in Burkina Faso a larger percentage of households in the agropastoral zone (41.4%) reported experiencing conflict shocks than those in the rainfed agriculture zone (23.9%). This was not only due to the frequency of conflict due to armed groups but also to the theft of crops, which was significantly higher in the agropastoral zone than in the rainfed agriculture zone.

Turning to the RISE II livelihood zones in Niger, there is no difference in the overall percentage of households experiencing one or more conflict-related shocks. However, there are important differences within the category. A larger percentage of households in the agropastoral zone experienced shocks related to the loss of land or the loss of access to land. Conversely, a smaller percentage of households in the agropastoral zone report the theft of crops. Finally, though not nearly as high as it is in the agropastoral zone of Burkina Faso, the presence of armed groups is more frequent for agropastoral households in Niger than for those in the rainfed agriculture zone.

Analysis of the qualitative data indicates that the ongoing terrorist activity reinforces a general sense of insecurity and crime that disrupts everything from commercial activity, to water collection, to travel for health care.

> *"Terrorist insecurity limits the free movement of women who practice small businesses between several villages in the commune on days commonly referred to as "market days. Terrorist insecurity has facilitated the spread of drugs and created internal insecurity among the population. Young people take drugs more easily and become very violent among themselves and with women. This state of affairs has disrupted habits and trivialized violence. Young people are easily recruited by the terrorist groups that are around Banibangou."*
>
> *—Niger Acting Prefect*

This wave of terrorism has devastating direct effects, and a Burkina Faso respondent itemized some of them. Men are murdered or flee, leaving the women to fend for themselves with their children. Schools close, and the poorest have more difficulty providing schooling for their children, so the young are forced to work in the gold mines. Terrorism creates a distrust of ethnic groups such as the Fulani and unfamiliar people, increasing the risk of social breakdown.

Terrorism has resulted in many villagers being forced to move elsewhere, or accommodate internally displaced people (IDPs) from elsewhere, making it very difficult for communities and organizations to ensure access to food, water, shelter, and services like education and health.

> *"Following three months of insecurity, many women have lost their husbands either because they were killed by the terrorists or because they fled and left their families. When we were displaced in Kaya, they did not have a place to sleep with their children in town. They suffered to have food."*
>
> *—Burkina Faso VDC President*

4.2.3 Economic Shocks

Just over 75% of households in the Burkina Faso area, compared to almost 85 of households in the Niger project area, experienced one or more economic shocks in the year prior to the baseline survey. Apart from the large difference in the percentage of households reporting problems with food prices (59% in Burkina Faso and 72% in Niger), there were other significant differences between the two project areas. A larger percentage of households in Burkina Faso than in Niger reported shocks related to access to crop and livestock inputs as well as the inability to sell at a fair price. On the other hand, a larger percentage of households in Niger reported a shock related to the sudden demand to repay debt.

For the RISE II livelihood zones in Burkina Faso, there is no difference in the percentage of households experiencing one or more economic shocks. However, a larger percentage of households in the

agropastoral zone reported experiencing shocks related to medical expenses and also related to access to crop or livestock inputs and long-term unemployment.

In Niger, a smaller percentage of households in the agropastoral zone (76%) reported experiencing economic shocks than those in the rainfed agriculture zone (89%). With respect to specific economic shocks, a smaller percentage of households in the agropastoral zone reported experiencing shocks related to food prices, access to crop inputs, demands for debt repayment, COVID-19 restrictions, job loss or unemployment, and the termination of external assistance.

4.2.4 Other Shocks

Over half of households in Niger reported experiencing one or more shocks in the "other" category in contrast to just over one-third of households in Burkina Faso. This difference was in large part due to the higher percentage of Niger households reporting a shock related to a serious illness (44% vs. 32% for Burkina Faso). Other statistically significant differences between the two project areas did not involve a large percentage of households.

Differences between the RISE II livelihood zones in Burkina Faso for shocks in the "other" category were minimal.

In Niger, a smaller percentage of households in the agropastoral zone reported experiencing one or more shocks in the "other" category (49%) than those in the rainfed agriculture zone (61%). This difference was almost entirely due to the lower percentage of agropastoral-zone households reporting serious illness or death of a household member.

4.3 Household Coping Strategies

How did households cope with the various shocks experienced during the year prior to the baseline survey? Table 4.3 reports on the percentage of households employing the most commonly used coping strategies overall and by project area as well as for the RISE II livelihood zones in each project area. The most-employed and/or most significant (considering the potential for a negative impact) are the following:

- Management of livestock
  - Send livestock in search of pasture
  - Sell livestock
- Strategies to get more food or money
  - Take up new or additional work
  - Send children to work for money
  - Migration of some family members
  - Sell household items (e.g., radio, bed)
  - Barter household belongings for food
  - Use own savings
  - Get food on credit from a local merchant

  - Remittances from a relative that migrated
  - Borrow (interest) from someone within community
  - Borrow (interest) from someone outside community
- Strategies to reduce current expenditure
  - Reduce food consumption
  - Reduce non-essential household expenses
- Other
  - Engage in spiritual efforts, such as prayer or sacrifices

Among these, (1) reduce food consumption and (2) reduce non-essential household expenses are by far the most commonly employed strategies, followed closely by (3) take up new or additional work, (4) use own savings and (5) engage in spiritual efforts, such as prayer or sacrifices. While there are some significant differences between the two project areas, the ranking is similar. Of particular note is the relatively greater importance of migration, remittances, barter of household belongings for food, and getting food on credit as strategies in Niger as compared to Burkina Faso (Table A1.4.2 in the Annex).

Table 4.3 Most frequently employed coping strategies, by initiative area and for RISE II livelihood zones

		Project area		Livelihood zone within program areas				
				Burkina Faso		Niger		
Percentage of households	All	Burkina Faso	Niger	Rainfed agriculture	Agropastoral	Rainfed agriculture	Agropastoral	Irrigated agriculture
Management of livestock								
Send livestock in search of pasture	11.9	7.7 [a]	20.8 [a]	10.2	4.8	18.1	15.8 [c]	29.1 [c]
Sell livestock	25.9	24.0	29.9	24.9	23.2	33.6	23.9	29.1
Strategies to get more food or money								
Take up new or additional work	40.0	39.6	41.0	33.8	46.9	45.5 [a]	31.8 [ac]	41.7 [c]
Send children to work for money	6.9	4.1 [a]	13.0 [a]	5.1	2.9	14.5 [a]	7.5 [ac]	15.1 [c]
Migration of some family members	17.1	9.4 [a]	33.6 [a]	11.4	7.0	31.4 [b]	26.7 [c]	42.5 [bc]
Sell household items (e.g., radio, bed)	6.1	1.6 [a]	15.8 [a]	0.8 [a]	2.5 [a]	20.2 [ab]	11.2 [a]	12.6 [b]
Barter household belongings for food	10.1	1.8 [a]	27.8 [a]	1.7	1.9	30.8	25.0	25.4
Use own savings	39.5	41.3	35.8	51.0 [a]	30.1 [a]	31.3 [b]	37.0	41.5 [b]
Get food on credit from a local merchant	26.1	15.0 [a]	49.6 [a]	12.7	17.8	54.4 [a]	39.4 [ac]	50.6 [c]
Remittances from a relative that migrated	13.4	7.4 [a]	26.0 [a]	9.8 [a]	4.6 [a]	19.7 [b]	20.5 [c]	40.2 [bc]
Borrow (interest) from someone within community	28.3	19.3 [a]	47.3 [a]	19.8	19.1	48.6	49.6	43.3
Borrow (interest) from someone outside community	11.5	7.2 [a]	20.6 [a]	6.2	8.3	18.0 [a]	34.4 [ac]	13.4 [c]
Strategies to reduce current expenditure								
Reduce food consumption	48.0	41.6 [a]	61.7 [a]	49.4 [a]	32.6 [a]	67.2 [a]	44.3 [ac]	67.4 [c]
Reduce non-essential household expenses	53.7	49.4 [a]	62.8 [a]	58.4 [a]	39.1 [a]	62.3	50.8 [c]	73.1 [c]
Other								
Engage in spiritual efforts, such as prayer or sacrifices	35.9	38.3 [a]	30.8 [a]	35.9	41.5	37.5 [a]	15.7 [ac]	32.7 [c]
Number of negative coping strategies	1.1	0.9 [a]	1.5 [a]	1.0 [a]	0.8 [a]	1.7 [a]	1.1 [ac]	1.6 [c]
N	3,383	1,690	1,693	1,050	635	791	393	507

a,b,c Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

Turning to the RISE II livelihood zones, there are some important differences within each of the project areas. In Burkina Faso, using household savings, reducing food consumption and reducing household expenses are more frequently employed as coping strategies in the rainfed agriculture zone than in the agropastoral zone.

In Niger, a larger percentage of households in the irrigated agriculture zone used migration and relied on remittances as coping strategies than those in the other two zones. A smaller percentage of households in the agropastoral zone got food on credit, took up additional work and engaged in spiritual efforts as coping strategies in contrast to those in the other two zones. Finally, a larger percentage of households in the irrigated agriculture zone relied on the use of savings as a coping strategy than in the rainfed agriculture zone.

It is important to note that reliance on formal sources of assistance was relatively rare. Only 5% of households relied on food assistance from the government or a non-governmental organization (NGO), and prevalences were even lower for cash transfers and food/cash-for-work (Annex Table A1.4.2). The majority of survey respondents indicated that their non-use of formal assistance was not because it wasn't needed but because it was not an available option.[9] This suggests that were food/cash assistance available, it would have been employed as a coping strategy.

The qualitative data give some insight into the role of informal safety nets in households' ability to cope with shocks. Qualitative respondents speak of how ongoing shocks have been challenging, but also have forced them to strengthen their resilience. A Burkina Faso mayor stated that terrorism has led to a flowering of collective actions and social cohesion. Niger respondents report that various climate and economic shocks have helped increase social ties within the village and with governments:

> *"We had a change in social cohesion at the beginning which allowed us to recover a little from the shock of the drought in collective actions such as sharing food and communicating our needs to the authorities."*
> *—Niger respondent*

For example, in a Burkina Faso village, the communal social action department was donating food, masks and financial support to those suffering from violence and trauma. A Burkina Faso youth group stated that households support each other in times of shock, helping the displaced with food, clothes, and shelter, and women's associations also make their contributions. Women's associations are lynchpins of resilience:

> *"She manages to recover from her shocks thanks to the help of her family first. Also, she is the coordinator of the association of women working in the processing of cowpea and corn. In addition, she has received training in entrepreneurship, in the protection and restoration of the environment, and she presides over and trains some women's groups on resilience."*
> *—Burkina Faso role model woman respondent*

However, there is a limit to communities' capacities to handle the challenges shocks pose on their own. A Niger woman respondent stated that her community has partially adapted through mutual aid

[9] In the coping strategies module, households indicating that they did not employ a strategy could indicate whether their non-use was because it was "not needed" or "not an available option".

and social cohesion, leading to increased trust between community members, but it was at risk of deteriorating.

Negative Coping Strategies

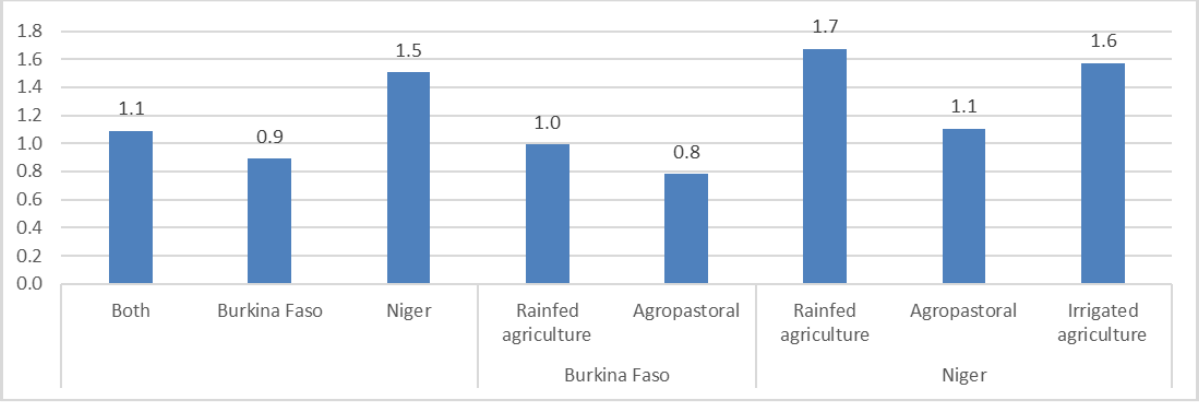
Of the range of coping strategies that were listed by respondents, a number are considered to be particularly negative because they have the potential to undermine future livelihoods and food security. Coping strategies that are considered to be negative are as follows:

- Sell livestock
- Sell the last female animals
- Send children to work for money
- Sell productive assets (e.g., plough)
- Sell house or land
- Borrow (interest) from money lender
- Reduce food consumption
- Take one or more children out of school
- Consume seed stock (saved for planting next season)

Taking children out of school and sending children to work for money undermine households' future human capital. Reducing current food consumption undermines current human capital. Sale of productive assets, such as agricultural implements, and selling seed stock undermine households' future production and hence livelihoods—as does selling one's house or land. Note that sale of land was a worrying trend mentioned by qualitative respondents. While selling livestock can be a positive coping strategy in the short run, it only remains so if households' stocks can be built up again to cope with future shocks. This is not the case for the sale of the last female animals, which is never a positive coping strategy. Borrowing from money lenders at high interest rates often means that households go into long-term debt, which can also undermine their ability to prepare for future shocks.

Figure 4.7 reports on the mean number of negative coping strategies adopted by households during the year prior to the baseline survey. On average, households in Burkina Faso adopted fewer (0.9) negative coping strategies than those surveyed in Niger (1.5). With respect to the RISE II livelihood zones, in Burkina Faso the number of negative coping strategies adopted by households in the agropastoral zone (0.8) was lower than households in the rainfed agriculture zone (1.0). In Niger, the number of negative coping strategies adopted by households in the agropastoral zone (1.1) was lower than households in the other two zones (1.7 and 1.6, respectively).

Figure 4.7 Mean number of negative coping strategies, by initiative area and RISE II livelihood zone



4.4 Summary: Shock Exposure and Coping Strategies

Objective measures of climate conditions indicate that in the year prior to the baseline survey (January–December 2021), while rainfall was above or below normal for short periods, there were no severe or prolonged droughts or floods in either the Burkina Faso or Niger project areas. The Burkina Faso area experienced more rainfall deficit over the period than the Niger area, while the Niger area experienced more rainfall surplus. The most frequent shock reported by households themselves was "too little rain," experienced by 68% of households (75% in Burkina Faso and 52% in Niger). The second-most frequently reported shock was "sharp food price increases," experienced by 63% of households. Other common shocks were: unexpected medical expenses, serious illnesses of household members, and crop diseases/pests. Of note is that over 40% of households experienced conflict shocks, with the most common being the presence of armed groups related to terrorism, which was a greater problem in Burkina Faso than in Niger. While the project areas were exposed to the various shocks with different frequencies, when taking into account the total number of shocks faced and their severity, their overall shock exposure was roughly equal.

The most frequently adopted coping strategies used to deal with the shocks related to reducing current expenditures (reduce food consumption, reduce household expenses) and increasing current income (take up additional work, draw down on savings). One-third of households reported engaging in spiritual practices, such as prayer or sacrifices. Migration and remittances are also important coping strategies, particularly in the Niger area. Most strategies—including negative coping strategies such as taking children out of school, selling productive assets and reducing food consumption—had higher prevalences in the Niger area than the Burkina Faso area. Reliance on formal sources of assistance (food assistance, cash transfers, and food/cash for work) was very low, in part because it was not an option—that is—because of low availability rather than low need.

5. HOUSEHOLD RESILIENCE CAPACITIES

While resilience itself is an ability to manage or recover from shocks, resilience capacities are a set of conditions, attributes, or skills that enable households to achieve such resilience. From Chapter 2, household resilience capacities can be classified into three categories: absorptive capacity, adaptive capacity and transformative capacity. Given their complexity, measuring these concepts requires combining multiple indicators of the underlying concepts into an overall indicator.

Figure 5.1 lays out the indicators of the three capacities that are used to measure them in this report. Some indicators are used to measure more than one capacity. Thus, instead of treating each capacity separately in this chapter, we focus on these broad categories:

- Social capital and aspirations;
- Economic sources of resilience;
- Access to markets, infrastructure, services, and communal natural resources;
- Human capital and access to information; and
- Safety nets and disaster risk reduction.

The calculation of each indicator is described in Annex 3. The indicators are combined into indexes of the three capacities and an overall index of resilience capacity using factor analysis. Frankenberger et al. (2012, 2013) provide conceptual background and literature review on the links between the various resilience capacities and resilience.

Figure 5.1 Indicators employed to measure resilience capacity

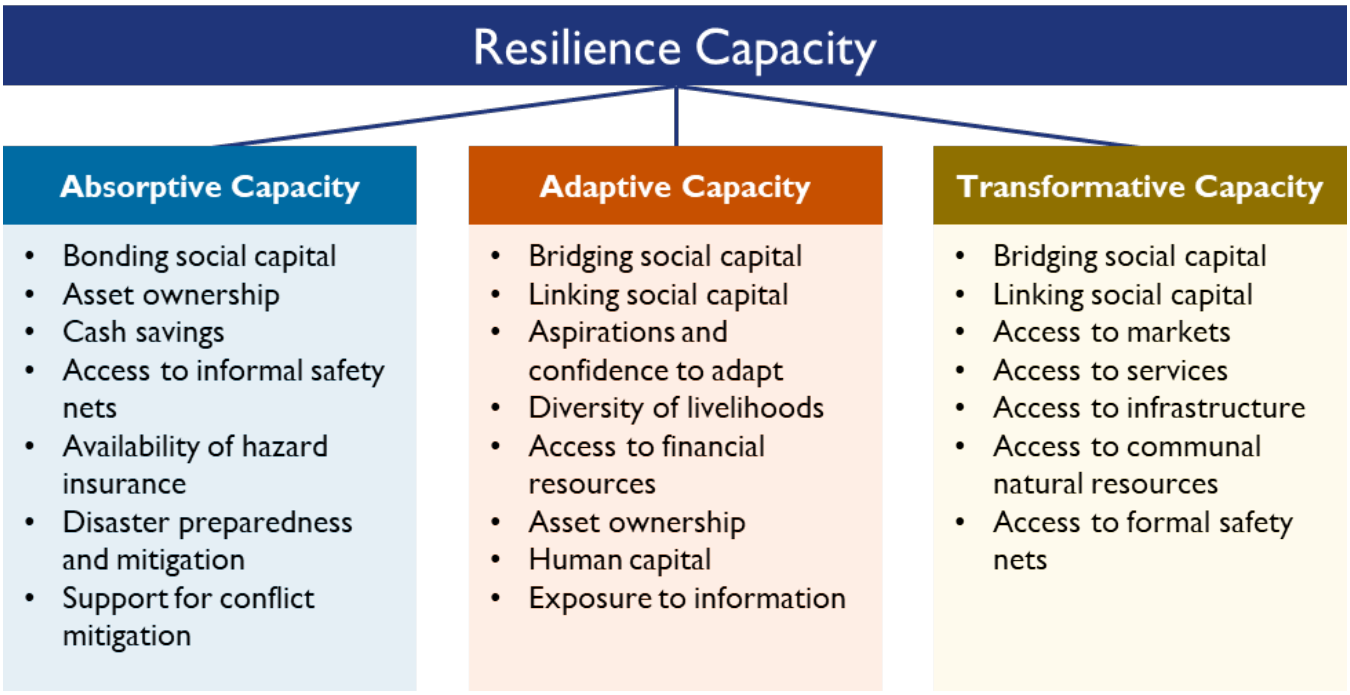


Table 5.1 reports indicators values from the RISE II baseline survey, comparing them across the project areas and the livelihood zones within them.

Table 5.1 Indicators and indexes of resilience capacity, by initiative area and RISE II livelihood zone

		Project area		Livelihood zone within program areas				
				Burkina Faso		Niger		
	All	Burkina Faso	Niger	Rainfed agriculture	Agropastoral	Rainfed agriculture	Agropastoral	Irrigated agriculture
Social capital and aspirations								
Bonding social capital (index, 0 - 100)	58.7	59.0	57.8	51.5 [a]	67.9 [a]	55.4 [a]	71.7 [ac]	49.6 [c]
Bridging social capital (index, 0 - 100)	48.6	49.6	46.4	44.1	56.0	44.4 [ab]	66.4 [ac]	32.0 [bc]
Linking social capital (index, 0 - 100)	43.6	49.9 [a]	29.7 [a]	44.6	56.1	25.8 [b]	29.5	35.8 [b]
Index of aspirations	44.5	49.8 [a]	33.0 [a]	50.2	49.2	34.2 [a]	25.6 [ac]	37.4 [c]
Economic sources of resilience								
Livelihood diversity index	3.0	2.9 [a]	3.2 [a]	2.9	2.9	3.2	3.1	3.2
Overall index of asset ownership	15.59	16.49 [a]	13.62 [a]	16.36	16.63	13.13 [a]	15.42 [ac]	12.86 [c]
Index of access to financial resources (0-2)	0.61	0.37 [a]	1.13 [a]	0.19	0.58	1.20	1.09	1.07
Currently holding savings (%)	11.5	14.4 [a]	5.4 [a]	10.6 [a]	19.0 [a]	6.3 [a]	2.5 [ac]	6.4 [c]
Acccess to markets, infrastructure, services and communal natural resources								
Index of access to markets (0-3)	1.52	1.64	1.27	1.56	1.73	1.22 [a]	1.78 [ac]	0.91 [c]
Index of access to infrastructure (0-4)	1.37	1.41	1.31	1.32	1.50	1.04 [a]	1.66 [a]	1.42
Index of access to basic services (0-7)	3.81	3.84	3.73	3.38 [a]	4.38 [a]	3.56	3.68	4.02
Index of access to communal natural resources (0-3)	1.65	1.59	1.79	1.46	1.72	1.79	1.96	1.64
Human capital and access to information								
Index of human capital (0-100)	18.2	19.1 [a]	16.1 [a]	19.7	18.4	16.3	13.3 [c]	18.0 [c]
Index of exposure to information (1-7)	2.13	2.60 [a]	1.10 [a]	2.41	2.82	0.98 [b]	0.73 [c]	1.58 [bc]
Safety nets								
Index of availability of formal safety nets (0-4)	0.57	0.50	0.73	0.24 [a]	0.80 [a]	0.63	0.80	0.81
Index of availability of informal safety nets (0-7)	1.43	1.30	1.70	0.89 [a]	1.76 [a]	1.67	1.53	1.88
Index of disaster preparedness and mitigation (0-4)	0.41	0.34	0.57	0.14	0.56	0.65	0.35	0.65
Availability of hazard insurance (% of hhlds)	9.1	5.7 [a]	16.5 [a]	5.8	5.7	20.5	18.8	8.4
Availability of conflict mitigation institution (%)	58.4	64.4 [a]	45.4 [a]	68.0	60.2	56.6	28.5	42.8
Indexes of resilience capacity								
Absorptive capacity (0 - 100)	17.4	15.6	21.2	11.0	20.8	23.3	17.2	21.4
Adaptive capacity (0 - 100)	34.7	39.3 [a]	24.8 [a]	37.2	41.6	23.4 [b]	23.3 [c]	28.1 [bc]
Transformative capacity (0 - 100)	44.5	46.7	39.9	40.5 [a]	53.8 [a]	36.1	42.3	43.5
Overall resilience capacity (0 - 100)	37.8	40.1 [a]	32.8 [a]	35.1 [a]	45.8 [a]	31.1	32.3	35.9
N	3,545	1,781	1,764	1,090	685	808	429	523

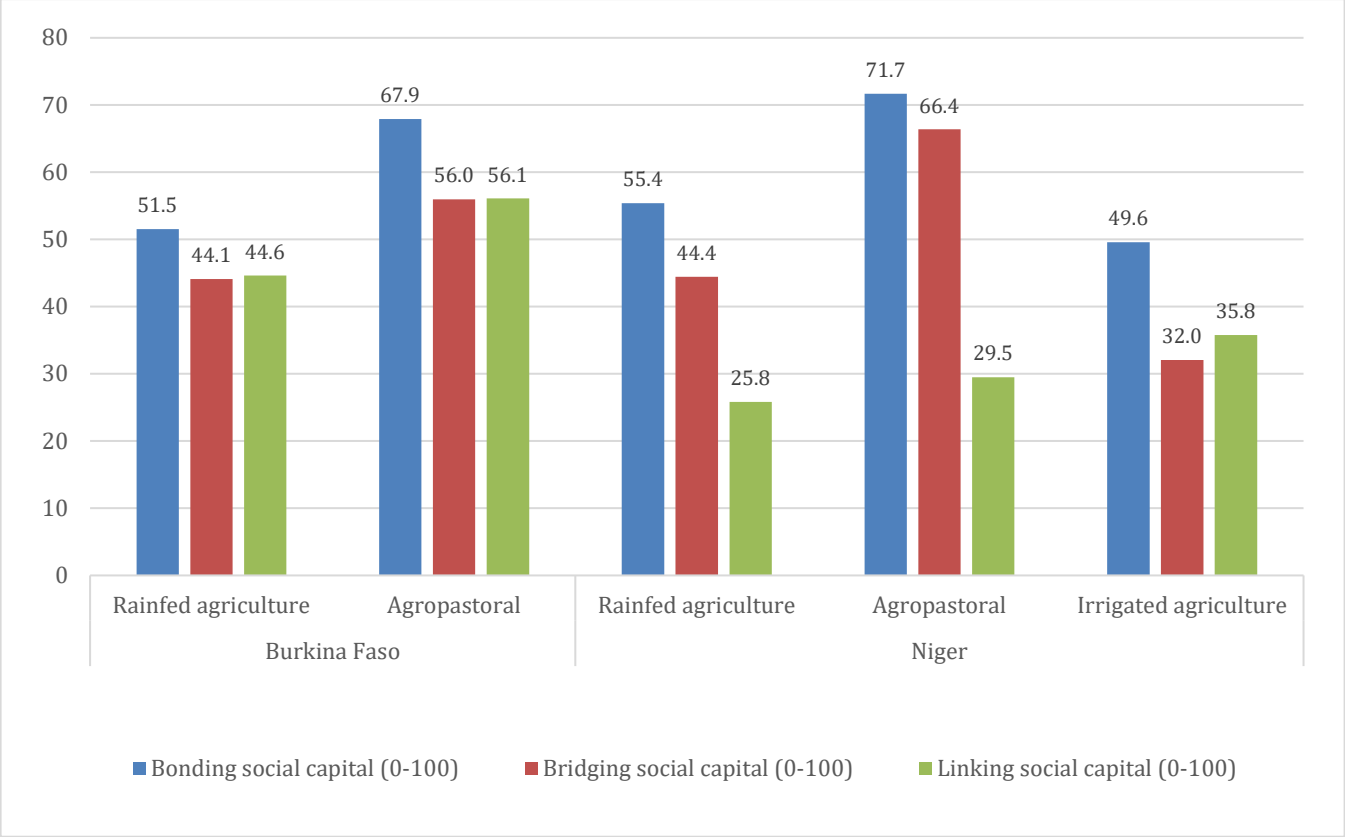
a,b,c Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

5.1 Social Capital and Aspirations

Little difference is found across the project areas in bonding social capital (the bonds between people living in the same communities) and bridging social capital (the bonds between people living in different communities). However, linking social capital (vertical links between households and entities with authority or power) is far higher in Burkina Faso (50 on the index) than Niger (30 on the index).

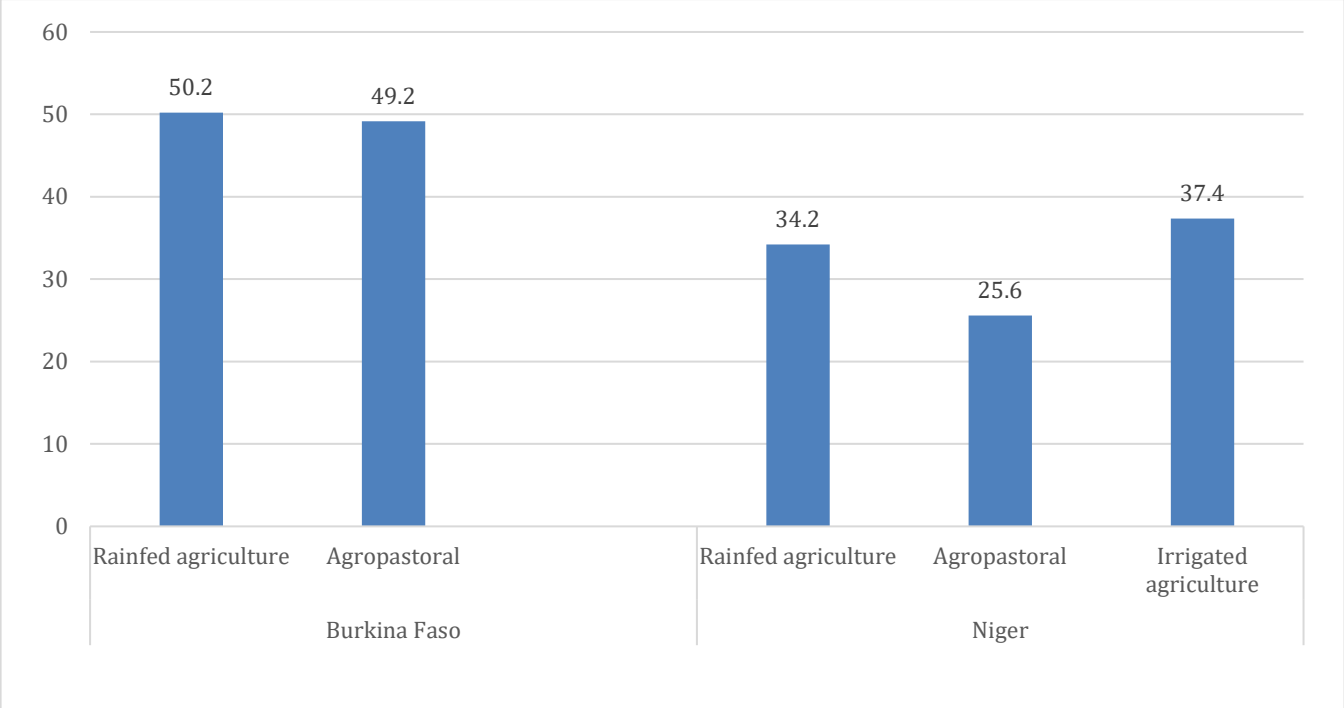
As illustrated in Figure 5.2, there are some substantial differences across groups of households residing in the differing livelihood zones within the project areas. In both Burkina Faso and Niger, households residing in the agropastoral zone appear to have greater bonding social capital than the other groups, which may give them a greater ability to rely on others in their communities in times of stress. In Niger, agropastoral-zone households also have higher bridging social capital than the other groups. Irrigated-agriculture-zone households have the highest linking social capital in this project area.

Figure 5.2 Indexes of bonding, bridging and linking social capital, by RISE II livelihood zone



Households' "aspirations and confidence to adapt" are psychosocial capabilities measured using indicators of the absence of fatalism, perceptions of personal power to enact change, and exposure to alternatives. Consistent with findings in the RISE I baseline report, this resilience capacity is higher among Burkina Faso households, who appear to be less fatalistic and report greater perceived power to enact change (See Annex 1, Table A1.5.1). Aspirations and confidence to adapt does not differ across the livelihood zones in Burkina Faso (see Figure 5.3). Within the Niger project area, this capacity is highest among irrigated-agriculture-zone households, followed by rainfed-agriculture-zone households, and lowest among agropastoral-zone households. The latter group has the lowest reported perceived power to enact change.

Figure 5.3 Index of aspirations and confidence to adapt, by RISE II livelihood zone



5.2 Economic Sources of Resilience

Economic sources of resilience capacity include livelihood diversity, ownership of assets, and access to financial resources. Diversity of livelihood sources is important for resilience because it allows flexibility, thereby reducing households' vulnerability in the face of shocks. Assets, especially productive assets, livestock and land, and financial resources (credit and savings), can be used by households to increase income and buffer against shocks.

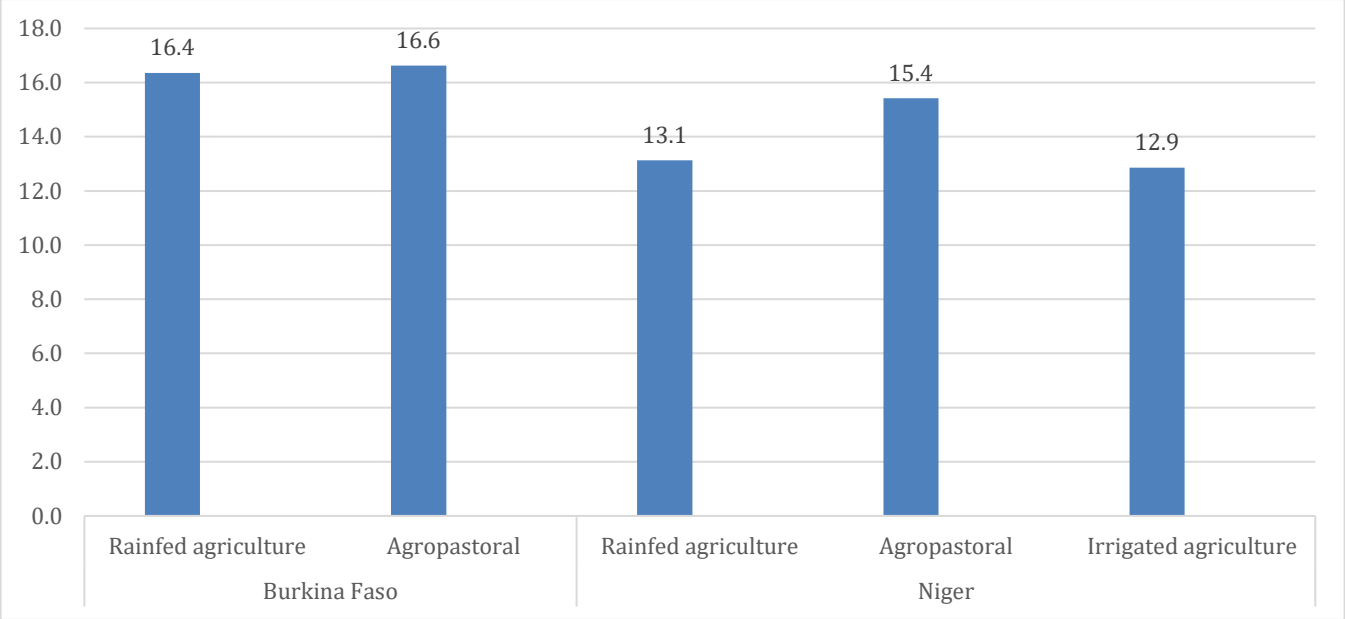
5.2.1 Livelihood Diversity

Livelihood diversity is measured as the total number of livelihood sources of each household among 22 possible sources. As seen in Chapter 3, the most common sources are farm/crop production and sales, livestock production and sales, and retailing. The average number of livelihood sources for the RISE II project area as a whole is 3.0 (Table 5.1). Livelihood diversity is slightly higher among Niger area households (3.2 vs. 2.9). There are no statistically significant differences across the livelihood zones.

5.2.2 Asset Ownership

Asset ownership is higher in the Burkina Faso project area than the Niger area (Table 5.1). This higher asset ownership is due to higher ownership of consumer durables and livestock (see Annex 1, Table A1.5.2). While agropastoral-zone households within the Burkina Faso area tend to own more consumer durables, the overall index of asset ownership does not differ between the livelihood groups (Figure 5.4). Within the Niger area, agropastoral-zone households have higher asset ownership overall than the other groups because they own more livestock and land.

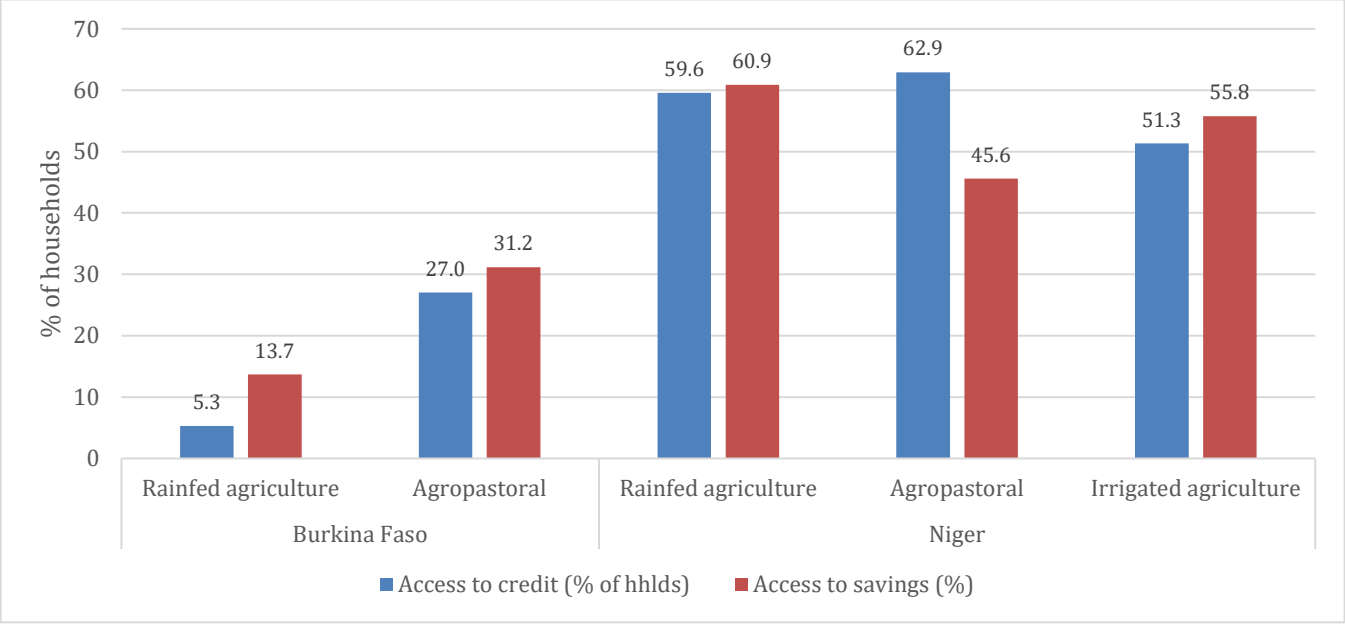
Figure 5.4 Index of asset ownership, by RISE II livelihood zone



5.2.3 Access to Financial Resources

Access to financial resources is far higher in the Niger project area than Burkina Faso due to Niger households' greater access to both credit and savings. While nearly 60% of Niger households have access to these resources, less than 25% do in the Burkina Faso area (see Annex 1, Table A1.5.3). As can be seen in Figure 5.5, agropastoral households in the Burkina Faso area have much greater access to both credit and savings than rainfed-agriculture households. The differences across the livelihood zones in the Niger area are not statistically significant.

Figure 5.5 Access to financial resources, by RISE II livelihood zone



It is interesting to note that despite the far greater access to financial resources in the Niger area, the percentage of households currently holding savings, an important absorptive capacity, is higher in the Burkina Faso area (14.4% vs. 5.4%, Table 5.1). Still, at the time of the baseline survey only a small minority of households held savings, 11.5% for the project area as a whole. Agropastoral-zone households are more likely to hold savings than rainfed-agriculture-zone households in the Burkina Faso area. Agropastoral-zone households are the least likely to do so in the Niger area.

5.3 Access to Markets, Infrastructure, Services, and Communal Natural Resources

Access to markets, infrastructure, services, and communal natural resources are important elements of households' resilience to shocks. Being features of "transformative capacity," these factors enable more lasting and sustainable resilience.

There are no statistically significant differences in any of the indicators of these capacities across the RISE II project areas (Table 5.1). Where there are differences across the livelihood zones, agropastoral-zone households are doing better than the other groups. This pattern holds for access to services in Burkina Faso. In Niger, it holds for access to markets (particularly access to agricultural input markets—see Annex 1, Table A1.5.4) and access to infrastructure (particularly phone access).

5.4 Human Capital and Access to Information

Human capital, measured here using data on education levels and trainings received, endows people with the ability to use information and other resources to cope with shocks and stressors. Access to information allows people to put such human capital to use.

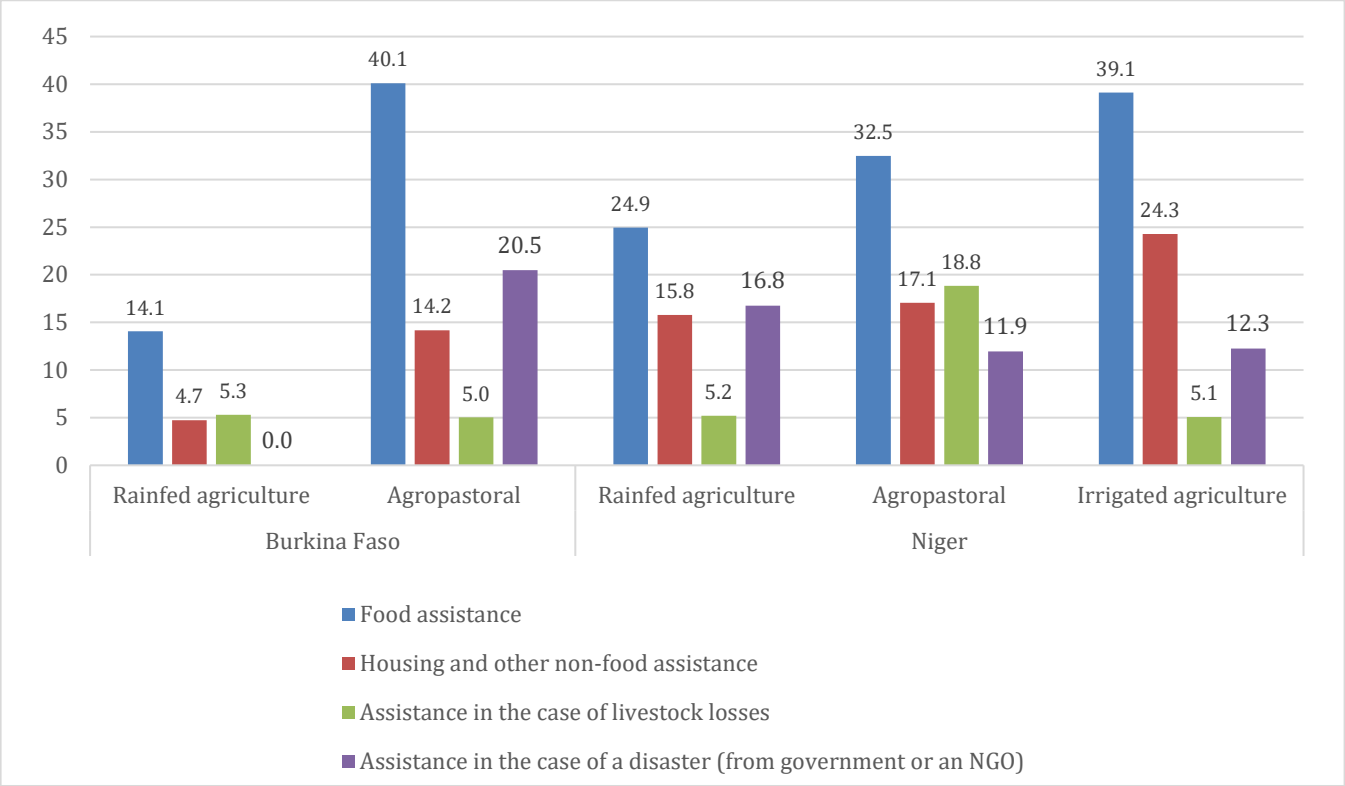
Comparisons of indexes of these capacities show that they are higher among Burkina Faso project area households than Niger area households. Human capital is higher in Burkina Faso because of a higher percentage of households with an adult having a primary or higher education, 43.2% vs. 30.6% (Annex 1, Table A1.5.5). No statistically significant differences could be detected between the livelihood zones in the Burkina Faso area. In the Niger area, both human capital and access to information are highest amongst irrigated agriculture-zone households.

5.5 Safety Nets and Disaster Risk Reduction

Safety nets, both formal and informal, as well as specific support for households related to disaster risk reduction, are important sources of resilience capacity for coping during and in the aftermath of shocks. The availability of safety nets shows no statistically significant difference between the project areas (Table 5.1). The only difference detected across the livelihood zones is that agropastoral-zone households in Burkina Faso have higher access to both formal and informal safety nets than rainfed agriculture -zone households. As seen in Figure 5.6, greater access to formal safety nets (humanitarian assistance) is due to the far higher percentage of households with access to food assistance, 40.1% vs. 14.1%, and disaster assistance (20.5% vs. none). Greater access to *informal* safety nets is due to a higher

availability of community groups, particularly credit/microfinance groups, mutual help groups, and religious groups (Annex 1, Table A1.5.6).

Figure 5.6 Percentage of households receiving various types of humanitarian assistance in the last year, by RISE II livelihood zone



Source: Table A1.5.6 in Annex 1.

Note that 28% of households in the RISE II initiative area live in a village where there is an "institution…where people can receive food assistance." While quite low, this number contrasts with the very low 5% of households who reported obtaining emergency food assistance from the government or an NGO as a coping strategy in response to the shocks faced in the previous year (Section 4.3).

Additional information about households' actual *receipts* of humanitarian assistance in the previous year is given in Table 5.2. 12% of households reported receiving food aid. Receipts of the other types of assistance are even lower. Receipts of food assistance are far higher in the Niger area than the Burkina Faso area, 25.5% vs. 5.7%. This difference is similar to the project area difference seen in the use of emergency food assistance as a coping strategy: 9.0% vs. 3.2% (see Table A1.4.2).

Table 5.2 Percentage of households receiving various forms of humanitarian assistance in the previous year, by project area and RISE II livelihood zone

Indicator	All	Project area		Livelihood zone within the project areas				
		Burkina Faso	Niger	Burkina Faso		Niger		
				Rainfed Agriculture	Agro pastoral	Rainfed Agriculture	Agro pastoral	Irrigated Agriculture
Food aid	12	5.7 [a]	25.5 [a]	4.6	7.1	22.2	30.8	26.1
Cash assistance	6.2	5.2	8.6	3.6	6.8	9.2 [a]	2.1 [ab]	13.4 [b]
Cash-for-wrk	3	2.2 [a]	4.9 [a]	1.2	3.1	6.5	2.6	4.3
Food-for-work	2.3	0.6 [a]	5.9 [a]	0.6	0.6	6.0	6.3	5.4
Subsidy/social protection	2.5	1.7 [a]	4.3 [a]	2.3	1.2	4.4	2.6	5.6
Feed or fodder for animals	0.66	0.4	1.2	0.3	0.5	1.2	0.4	2.0
Access to water for animals	0.92	0.48	1.9	0.45	0.52	2.7	2	0.59

a,b,c Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

Access to disaster risk reduction support is measured using three indicators: (1) an index of Disaster Preparedness and Mitigation (DPM); (2) a variable indicating whether or not hazard insurance is available; and (3) a variable indicating whether or not an institution providing conflict mitigation is available.

No differences are detected across the project areas and livelihood zones for DPM. Note, however, that the percentage of households with access to an emergency plan for livestock offtake if a drought hits is far higher in Niger (33.3% vs. 8.8% for Burkina Faso—see Annex 1, Table A1.5.7).

Project-area-wide, the availability of hazard insurance is quite low, with only 9% of households reporting such availability. However, the percentage is almost three times higher in the Burkina Faso area (16.5%) than the Niger area (5.7%). No differences were detected across the livelihood zones.

An institution providing conflict mitigation is available to nearly 60% of households project-area-wide. Availability is higher in the Burkina Faso area (64.4%) than the Niger area (45.4%). Again, no difference was found across the livelihood zones.

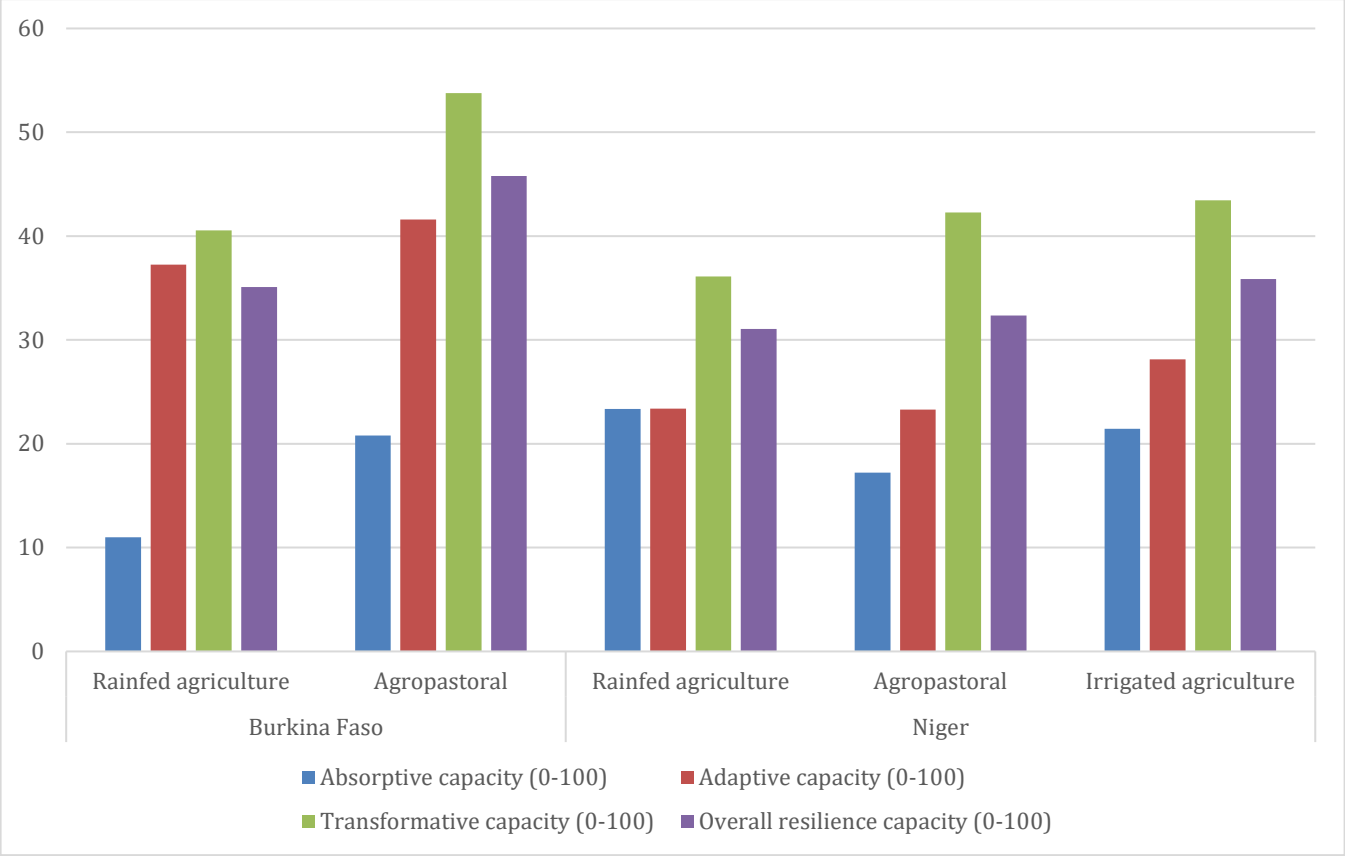
5.6 Indexes of Absorptive, Adaptive, and Transformative Capacity

Among the three dimensions of resilience capacity, only one differs across the project areas: adaptive capacity. The index of adaptive capacity is 58.5% higher in the Burkina Faso area than in the Niger area (bottom of Table 5.1). This difference can be linked back to Burkina Faso households' greater linking social capital, aspirations and confidence to adapt, asset ownership, human capital, and exposure to information—despite substantially lower access to financial resources. The overall index of resilience capacity is 22.3% higher in Burkina Faso.

Within the Burkina Faso area, agropastoral-zone households have greater transformative capacity than do rainfed-agriculture-zone households (see Figure 5.7) due to their greater access to services and to formal safety nets. Differences across the livelihood zones in the Niger area are relatively small, with

the only significant difference being that irrigated agriculture-zone households have moderately greater adaptive capacity than the other groups.

Figure 5.7 Indexes of absorptive, adaptive and transformative capacity, by RISE II livelihood zone



5.7 Summary: Resilience Capacities

Households' resilience capacities fall into three categories: absorptive capacity, adaptive capacity, and transformative capacity. Indexes of these capacities and an index of overall resilience capacity are constructed from multiple indicators. According to the overall index, Burkina Faso project area households have 22% higher resilience capacity than Niger initiative area households, with the disparity in adaptive capacity being particularly strong (58% higher in Burkina Faso). The specific capacities that are substantially stronger are: linking social capital, aspirations and confidence to adapt, asset ownership, holdings of savings, human capital, exposure to information, and availability of a conflict mitigation institution. Nevertheless, access to financial resources and availability of hazard insurance are notably much higher in the Niger area.

With respect to differences across the livelihood zones, patterns are specific to the project areas. In the Burkina Faso area, agropastoral-zone households have stronger resilience capacity overall than rainfed-agriculture-zone households as a group, especially transformative capacity. Agropastoral-zone households' bonding social capital, holdings of savings, access to basic services, and access to both formal and informal safety nets are all stronger.

Within the Niger area, there is no statistically significant difference in overall resilience capacity across the livelihood zones. Irrigated-agriculture-zone households as a group have moderately higher adaptive capacity than either the rainfed-agriculture-zone households or the agropastoral-zone households. Capacities with quite high differences across the livelihood zones are:

- Bonding and bridging social capital, which is much higher among agropastoral-zone households than the rainfed and irrigated agriculture-zone households;
- Access to markets, which is also much higher among agropastoral-zone households; and
- Exposure to information, which is considerably higher among irrigated-agriculture-zone households than those residing in the other livelihood zones.

6. HOUSEHOLD WELL-BEING OUTCOMES AND RESILIENCE TO SHOCKS

This chapter examines key aspects of households' well-being: their wealth, their food security, women's health and nutrition, and children's health and nutrition. It also looks at households' resilience, i.e., their ability to recover from shocks.

6.1 Economic Well-Being: Household Wealth

Households' access to economic resources is an important enabling determinant of their food security and of their members' health and nutritional well-being (UNICEF 2020). It is measured here using two indicators of their wealth:

- The percentage of households falling below the comparative threshold of the poorest CWI quintile.
- Index of asset ownership.

The CWI is a cross-nationally, cross-temporally comparable asset-based wealth index originally developed for use with the asset ownership data collected in Demographic and Health Surveys. The percentage of households falling below the comparative threshold of the poorest CWI quintile is an indicator of asset wealth poverty relative to a reference population (Feed the Future 2019). The second indicator is the same index used for measuring asset ownership as a resilience capacity (see Chapter 5). It is based on factor analysis of additive indexes of the ownership of four types of assets: consumption assets, productive assets, livestock, and land.

According to the CWI-based indicators, households in the Burkina Faso project area have far higher economic well-being than those in the Niger area (Table 6.1). The percentage of households below the poorest quintile threshold is nearly 25 times higher in the Niger area than the Burkina Faso area. The factor analysis-based index of asset ownership also indicates that Burkina Faso households have higher wealth than households in the Niger area (see Annex 1, Table A1.5.2 for details on the four types of assets).

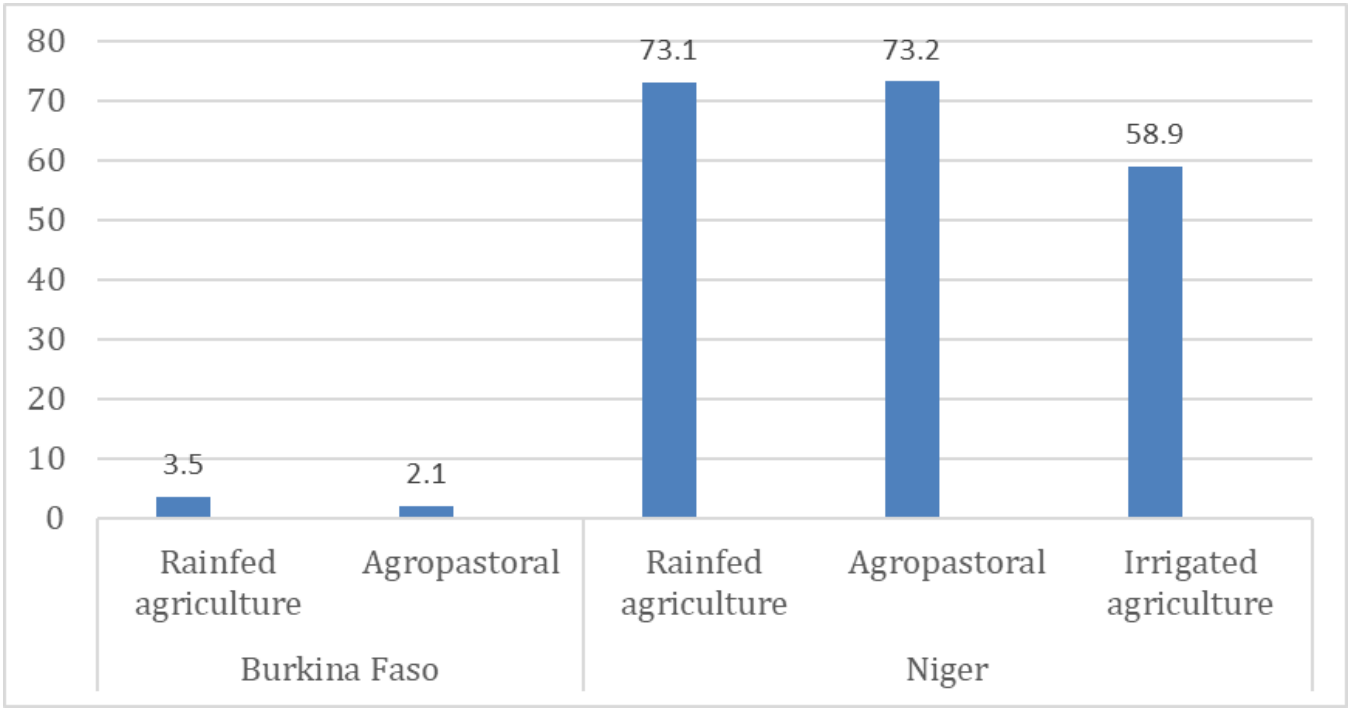
Table 6.1 Indicators of absolute and comparative wealth, by project area and RISE II livelihood zone

		Project area		Livelihood zone within program areas				
				Burkina Faso		Niger		
	All	Burkina Faso	Niger	Rainfed agriculture	Agropastoral	Rainfed agriculture	Agropastoral	Irrigated agriculture
Comparative wealth index (CWI)	-0.86	-0.54 [a]	-1.54 [a]	-0.67	-0.39	-1.67 [b]	-1.54	-1.37 [b]
Percent below the comparative threshold for the poorest CWI quintile								
	23.6	2.8 [a]	68.8 [a]	3.5	2.1	73.1	73.2	58.9
Index of asset ownership	15.6	16.5 [a]	13.6 [a]	16.4	16.6	13.1 [a]	15.4 [ac]	12.9 [c]
N	3,545	1,781	1,764	1,090	685	808	429	523

a,b,c Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

Comparing the percentage of households below the threshold of the CWI across the RISE II livelihood zones, we find little difference between the rainfed agriculture and agropastoral -zone groups of households in the Burkina Faso area (Figure 6.1). However, in the Niger area, irrigated agriculture-zone households are doing better than the other groups (they have lower poverty by this measure). Note that according to the index of asset ownership, Niger area agropastoral-zone households are doing better than either rainfed or irrigated agriculture-zone households (Table 6.1).

Figure 6.1 Percentage of households below the comparative threshold for the poorest Comparative Wealth Index quintile, by RISE II livelihood zone



6.2 Food Security

6.2.1 Integrated Food Security Phase Classification of Sample Villages

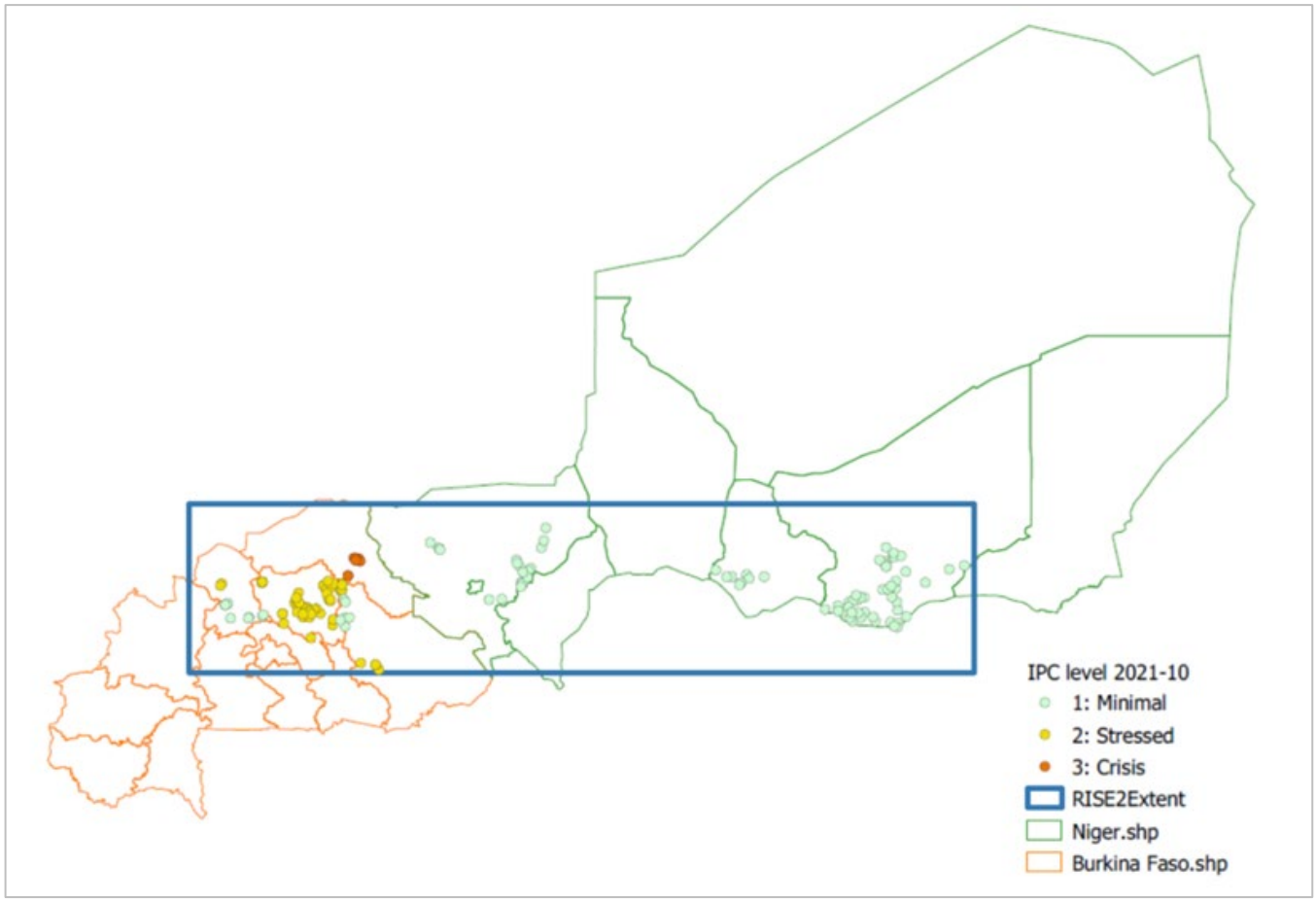
The Integrated Food Security Phase Classification (IPC) of sample villages from FEWS NET gives important information on current and projected food security. Table 6.2 reports on the percentage of villages in each of three categories: minimal, stressed and crisis. The data are for October 2021, the period immediately prior to administration of the baseline survey.

Just under seventy percentage of households in the Burkina Faso area reside in villages that fell into the "stressed" category as of October 2021, and 11% in villages in the "crisis" category. By contrast, all of the households in the Niger area live in villages that fell into the "minimal" category at that time. Figure 6.2 gives a color-coded view of the categorizations of each survey village in October 2021.

Table 6.2 IPC classification of RISE II villages and households (October 2021)

IPC category	EAs/Villages		Households	
	Freq.	%	Freq.	%
Burkina Faso				
Minimal	15	19.74	357	20.04
Stressed	52	68.42	1,230	69.06
Crisis	9	11.84	194	10.89
subtotal	76	100.00	1,781	100.00
Niger				
Minimal	77	100.00	1,764	100.00
Stressed	0	0.00	0	0.00
Crisis	0	0.00	0	0.00
subtotal	77	100.00	1,764	100.00
Both countries				
Minimal	92	60.13	2,121	59.83
Stressed	52	33.99	1,230	34.70
Crisis	9	5.88	194	5.47
total	153	100.00	3,545	100.00

Figure 6.2 IPC category of RISE II villages (October 2021)



6.2.2 Measurement of Food Security Indicators

Food security and insecurity are measured in this report using three sets of indicators.

(1) *Food Insecurity Experience Scale (FIES).* The first set is based on the FIES, an experiential measurement scale established by the United Nations Food and Agriculture Organization (FAO) based on eight questions that explore "a household's difficulty accessing food due to a lack of money or other resources, and reflect the food-related behaviors and experiences of the household" (USAID 2020, p. 17; Ballard et al. 2013). The scale is used to calculate two indicators, each for a 30-day recall:

- The percentage of households with moderate or severe food insecurity.
- The percentage of households with severe food insecurity.

(2) *Household Food Insecurity Access Scale (HFIAS).* The second set of indicators is based on the HFIAS, also an experiential food security scale (Coates, Swindale, and Bilinsky 2007). The scale is constructed from responses to nine questions regarding people's experiences of food insecurity in the previous four weeks. Responses range from worry about not having enough food to actual experiences of food deprivation associated with hunger. The scale is used to calculate three indicators:

- Index of household food security, the inverse of the HFIAS so that the measure increases with increasing food security (range: 0 to 27).
- The percentage of households that are food insecure.
- The prevalence of hunger.

The latter is based on the Household Hunger Scale (HHS), which ranges from 0 to 6 and employs only the three HFIAS questions pertaining to the most severe forms of food insecurity (Ballard, Coates, Swindale and Deitchler 2011). Households with an HHS greater than or equal to two are considered to be experiencing hunger.

(3) *Food Consumption Score (FCS).* The FCS is a composite score based on dietary diversity, food frequency, and the relative nutritional importance of nine food groups. It can be considered an indicator of dietary diversity, or quality (FFP 2020). The score is used to calculate three indicators:

- Percentage of households with poor food consumption.
- Percentage of households with borderline food consumption.
- Percentage of households with acceptable food consumption.

The values of key indicators of food insecurity by project area and RISE II livelihood zone are reported in Table 6.3. More detailed reporting on the full set of indicators can be found in Appendix 1, Table A1.6.1.

Table 6.3 Indicators of food insecurity, by initiative area and RISE II livelihood zone

		Project area		Livelihood zone within program areas				
				Burkina Faso		Niger		
	All	Burkina Faso	Niger	Rainfed agriculture	Agropastoral	Rainfed agriculture	Agropastoral	Irrigated agriculture
Access to food (1 month recall)								
Food Insecurity Experience Scale indicators								
Percent of households moderately or severely food insecure	47.7	43.5 [a]	56.9 [a]	38.4	49.7	67.6 [ab]	42.9 [a]	52.8 [b]
Percent of households severely food insecure	22.3	21.6	23.9	12.8 [a]	32.0 [a]	30.2 [a]	13.2 [ac]	23.5 [c]
Household Food Insecurity Access Scale indicators								
Percent of households food insecure	72.8	66.8 [a]	85.9 [a]	66.6	67.1	90.6 [a]	80.7 [a]	83.3
Hunger (1 month recall)								
Percent households in hunger	26.6	25.9	28.0	16.5 [a]	37.1 [a]	36.8 [ab]	14.6 [ac]	26.0 [bc]
Dietary quality (7 day recall)								
Percent of households with poor food consumption	24.6	28.2 [a]	16.7 [a]	27.6	29.2	18.9 [a]	7.3 [ac]	21.7 [c]
Percent of households with borderline food consumption	21.6	18.3 [a]	28.6 [a]	19.7	17.0	30.8	25.0	28.4
Percent of households with acceptable food consumption	53.9	53.5	54.7	52.7	53.8	50.3 [a]	67.6 [ac]	49.9 [c]
N	3,531	1,778	1,753	1,089	683	806	425	519

a,b,c Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

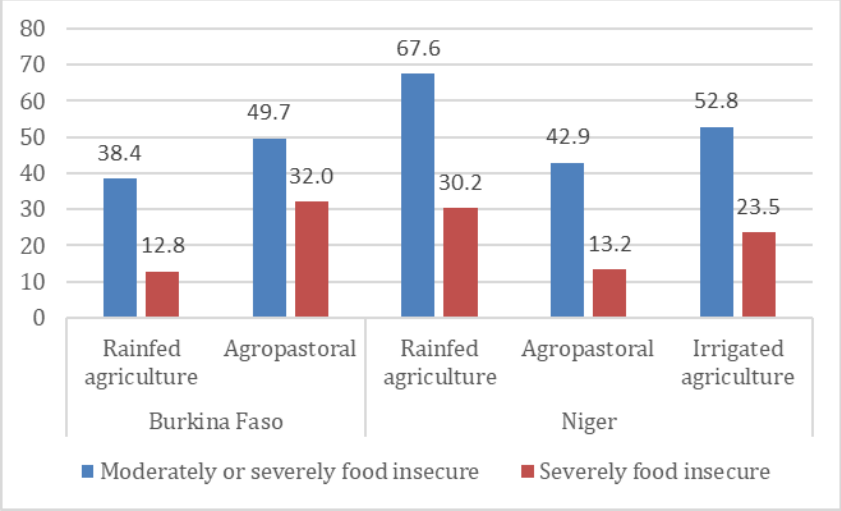
6.2.3 Access to Food

Nearly half of all households in the RISE II project area as a whole are classified as being moderately-or-severely food insecure in the month prior to the baseline survey, with 22.3% severely food insecure (Table 6.3). While the prevalence of severe food insecurity is similar across the project areas, that of moderately-or-severely food insecure is higher in the Niger area (60% vs. 43.5% in Burkina Faso),[10] consistent with lower wealth of Niger area households. The percentages of food insecure households based on the HFIAS indicator also indicate greater food insecurity in the Niger area. These differences contrast with those of the IPC classifications of households (Section 6.2.1), possibly because of the different timing of those classifications (October 2021) compared to the baseline survey (December 2021/January 2022).

As illustrated in Figure 6.3, in the Burkina Faso area food insecurity appears to be higher among agropastoral-zone households than rainfed agriculture-zone households. The difference for moderate-or-severe food insecurity is not statistically significant. However, that for severe food insecurity is statistically significant and large, with the prevalence for agropastoral-zone households being 2.5 times higher than for rainfed agriculture -zone households (32.0% vs. 12.8%).

By contrast, in the Niger area, agropastoral-zone households are the least food insecure. Moderate-or-severe food insecurity is highest among rainfed agriculture-zone households, followed by irrigated agriculture-zone households. This pattern holds for severe food insecurity as well.

Figure 6.3 Percentage of households moderately-or-severely food insecure and percentage of household severely food insecure, by RISE II livelihood zone

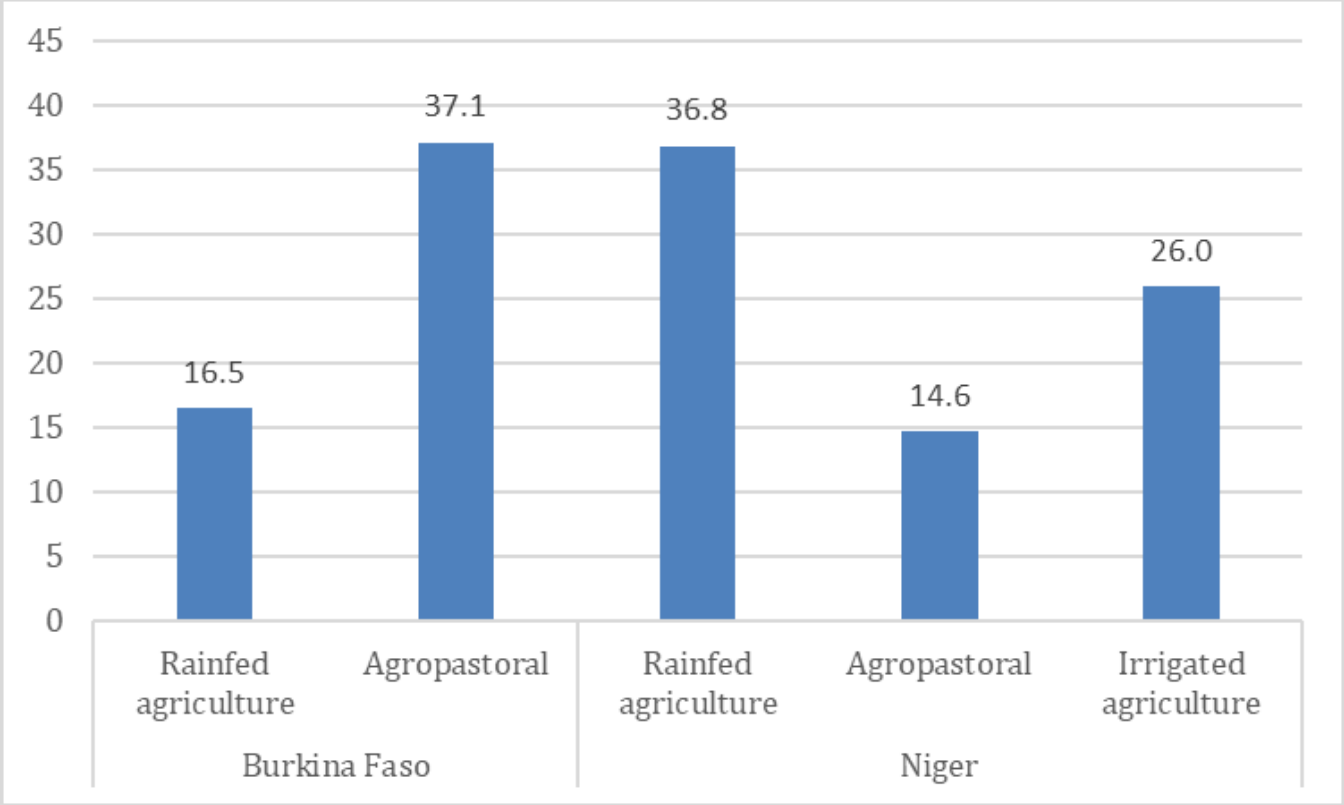


[10] These indicators are calculated based on discrete assignment using the cutoffs from FAO (2022). "Prevalence rates" reported in Appendix 1, Table A1.6.1 calculated for cross-country comparability are based on an estimation of the probability that each household belongs to the moderate and severe categories of food insecurity as determined by the household's position on a scale. The overall prevalence of food insecurity for a group is calculated using a one-parameter logistic model, also known as the Rasch model, an item response theory-based model.

6.2.4 Hunger

The percentage of households in hunger is quite high, at 26.6%. It differs little across the project areas (Table 6.3), but shows substantial variation by livelihood zone (Figure 6.4). Following the pattern for food insecurity seen above, the prevalence of hunger is higher among agropastoral-zone households than rainfed agriculture-zone households in the Burkina Faso area. In the Niger area, the prevalence is highest among rainfed agriculture-zone households, followed by irrigated agriculture-zone households and, finally, lowest among agropastoral-zone households.

Figure 6.4 Percentage of households in hunger, by RISE II livelihood zone

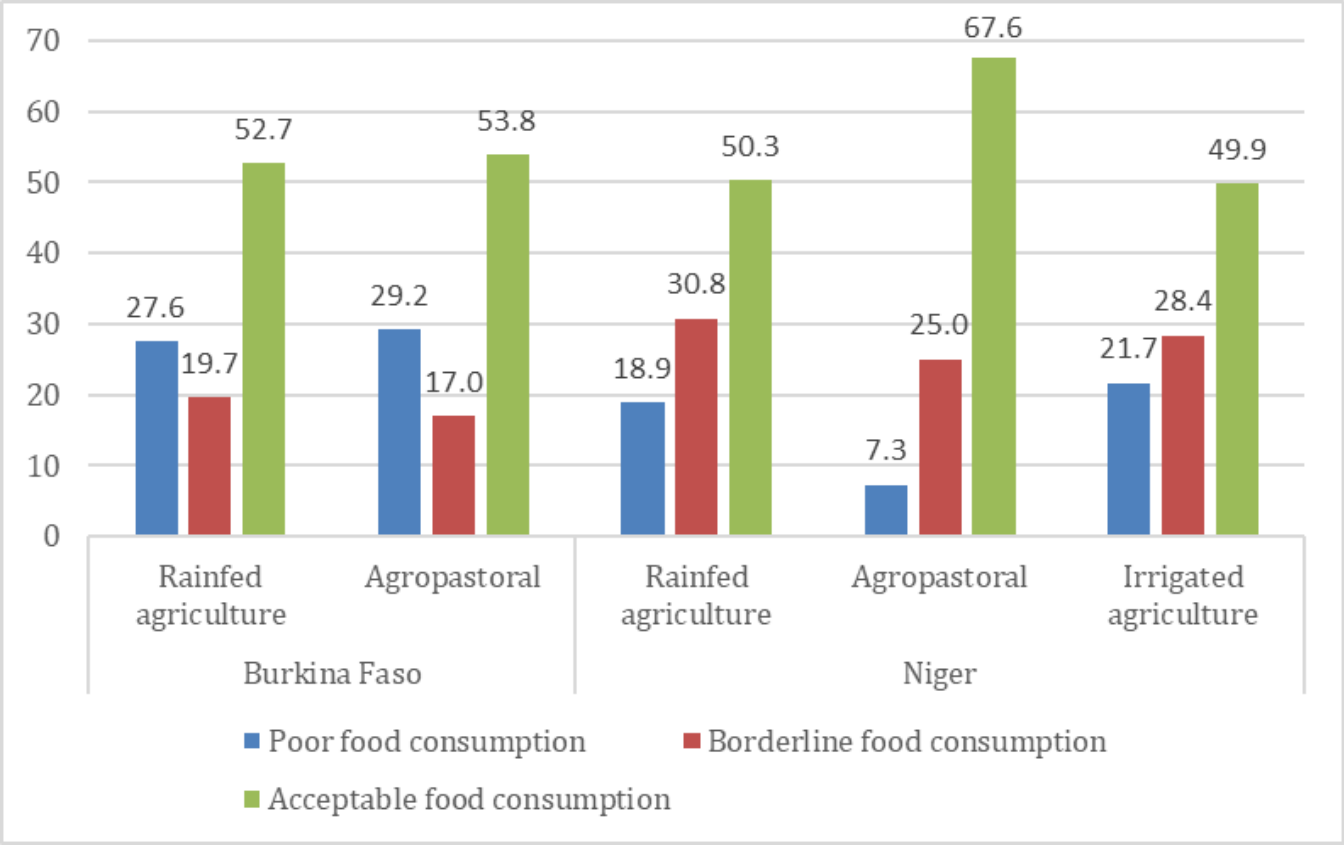


6.2.5 Dietary Quality

When it comes to dietary quality, Burkina Faso project area households appear to be worse off than Niger area households. Burkina Faso households have a higher percentage of households with poor food consumption (28.2 versus 16.7 in Niger), the more severe form of poor dietary quality (see Table 6.3).

With regard to differences across the livelihood zones, there are strong differences only within the Niger area (Figure 6.5). Here, rainfed and irrigated agriculture-zone households have a far higher prevalence of poor food consumption than agropastoral-zone households.

Figure 6.5 Percentage of households with poor, borderline and acceptable food consumption, by RISE II livelihood zone



6.3 Health and Nutrition

This section looks at women's and children's health and nutrition. For context, it starts with the condition of households' water, sanitation, and hygiene.

6.3.1 Water, Sanitation, and Hygiene

Access to safe drinking water and sanitation services, and the use of appropriate hygiene practices, are important underlying determinants of maternal and child nutrition (UNICEF 2020). Indicators of these determinants are presented in Table 6.4. The picture we see is one of very poor conditions throughout the project area. Only 18% of households have access to basic drinking water services. Just under 20% have access to basic sanitation services. The percentage of households with soap and water at a hand-washing station is only 6.2.

Table 6.4 Water, sanitation, and hygiene indicators, by project area and RISE II livelihood zone

Indicator (percent)	All	Project area		Livelihood zone within program areas				
				Burkina Faso		Niger		
		Burkina Faso	Niger	Rainfed agriculture	Agropastoral	Rainfed agriculture	Agropastoral	Irrigated agriculture
Percent of households with basic drinking water service	17.9	16.7	20.5	15.0	18.9	24.9 [a]	13.9 [a]	19.6
Percent of households with access to basic sanitation services	19.1	25.3 [a]	5.7 [a]	30.7	19.5	3.4	5.5	9.3
Percent of households with soap and water at a hand-washing station	6.2	6.8	4.9	5.4	8.6	4.7	3.8	6.2
	3,527	1,772	1,755	1,083	683	807	426	519

a,b,c Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

In most cases there is little difference across the RISE II project areas and livelihood zones in the indicators. The two exceptions are: (1) The percentage of households with access to basic sanitation services is far higher in the Burkina Faso area (25.3% vs. 5.7% in the Niger area); and (2) In the Niger area, the percentage of households with basic drinking water service is higher among rainfed agriculture-zone households than agropastoral-zone households.

6.3.2 Women's Health and Nutrition

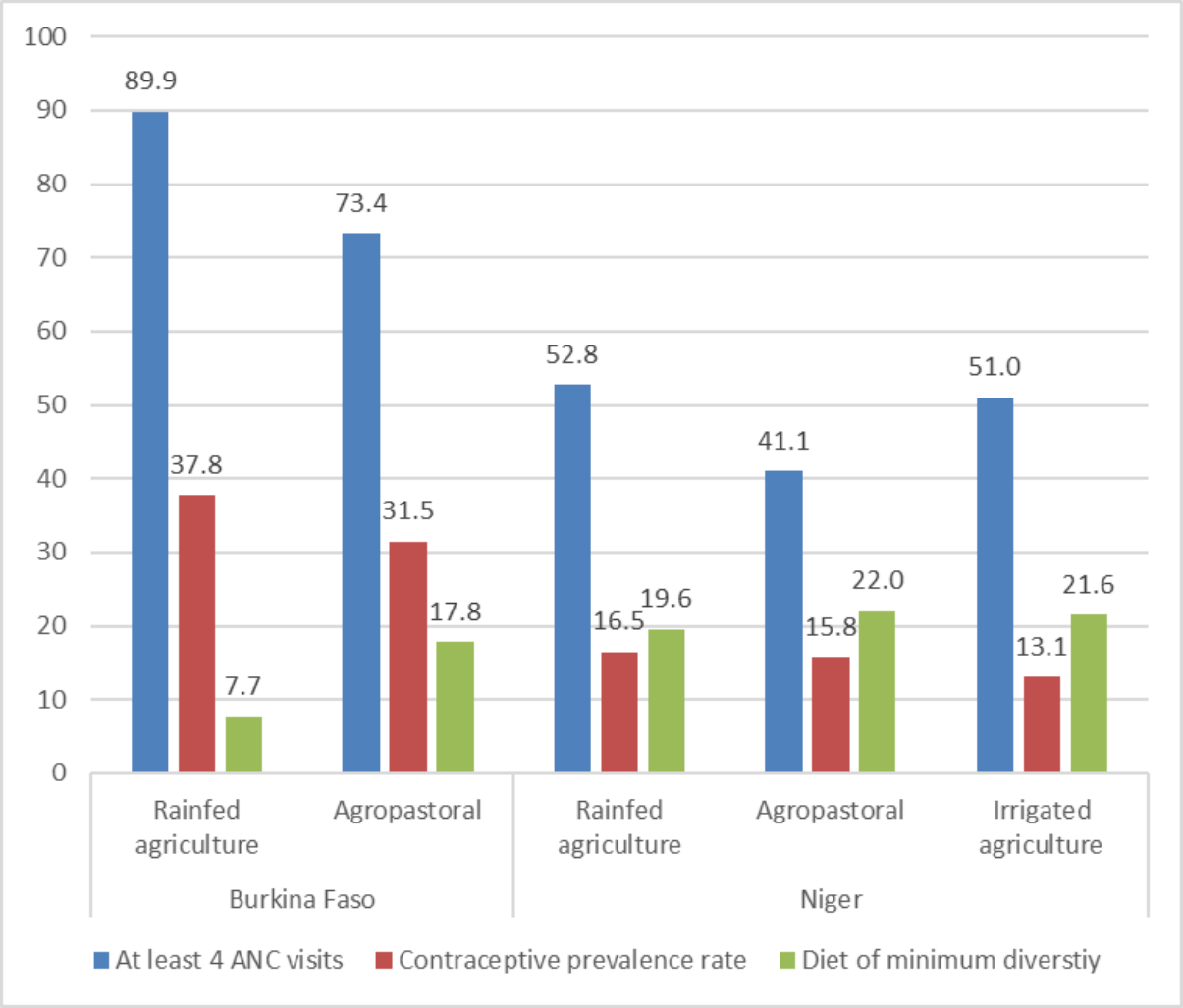
Values of health and nutrition indicators for women of reproductive age (15–49 years) are given in Table 6.5. The percentage of women who have had at least four antenatal care visits is quite high, 75.7 for the project area as a whole. The percentage is far higher in the Burkina Faso area (83.1%) than the Niger area (49.5%). Within the Burkina Faso area, it is near universal among rainfed agriculture -zone households, for which 90% of all women have had at least four visits (see Figure 6.6). Within the Niger area it is lower among agropastoral-zone households than the other livelihood groups.

Table 6.5 Women's antenatal care, contraceptive use, dietary diversity and nutritional status by initiative area and RISE II livelihood zone

	All	Project area		Livelihood zone within program areas				
				Burkina Faso		Niger		
		Burkina Faso	Niger	Rainfed agriculture	Agropastoral	Rainfed agriculture	Agropastoral	Irrigated agriculture
Antenatal care, contraceptive use and dietary diversity								
Antenatal care (at least 4 ANC visits)	75.7	83.1 [a]	49.5 [a]	89.9 [a]	73.4 [a]	52.8	41.1	51.0
N	2,032	1,153	879	707	441	421	203	254
Contraceptive prevalence rate	30.2	34.6 [a]	15.5 [a]	37.8	31.5	16.5	15.8	13.1
N	2,024	1,121	903	667	449	410	210	282
Diet of minimum diverstiy	14.4	12.2 [a]	21.0 [a]	7.7 [a]	17.8 [a]	19.6	22.0	21.6
N	2,896	1,517	1,379	905	607	619	321	437
Women's nutritional status								
Underweight women (BMI<18.5)	14.1	11.1 [a]	23.8 [a]	11.0	11.3	27.9 [b]	24.2	19.2 [b]
N	2,438	1,331	1,107	801	525	485	261	360

a,b,c Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

Figure 6.6 Indicators of antenatal care, contraceptive use, and dietary diversity among women, by RISE II livelihood zone



The contraceptive prevalence rate in the project area is low, at 30.2%. It is more than double in the Burkina Faso area than the Niger area, 34.6% vs. 15.5%. No differences were detected across the livelihood zones within the project areas.

The qualitative data indicate that family planning and use of contraceptives is one of the most sensitive issues according to many respondents. A Burkina Faso women's FGD respondent said she had 11 children, and her pregnancies are always complicated, yet her husband still doesn't accept the use of contraceptives. One Burkina Faso respondent stated that men are expected to make this decision, but some women bypass them. After some had begun to use Norplant, their husbands had taken them by force to the health center to have it removed. A Niger men's FGD respondent stated that men always make the final decision, but if the decision was not favorable, the woman can still bypass him and go ahead with family planning. Another respondent stated that while it was important for women and men to discuss this subject, men have the last word, because they have material means.

These discussions about family planning are ongoing, which represents some advancement in women's empowerment:

> *"… couples are more awake and always discuss their lives together. This is linked to the awareness-raising of NGOs, but also some men naturally understand the need to have equality between men and women in order for the couple to prosper."*
> *—Burkina Faso positive deviant respondent*

A Niger male FGD respondent stated that it was important to discuss the matter, because in some cases it was women who lacked understanding of family planning. Another mentioned that modern methods were not well accepted in the community. Still some feel that things are changing:

> *"…because we are in the era of equal rights, women also decide. More and more men are accepting family planning. The awareness-raising must be continued so that one day it is the man and the woman who discuss and make this decision together. Yes, the man makes the decision in collaboration with the woman. Projects should use these examples of couples to educate others."*
> *—Burkina Faso positive deviant respondent*

With respect to dietary quality, 14.4% of women have a minimum dietary diversity in the project area, that is, they consumed foods from at least five out of ten food groups in the previous 24 hours. In this case, the percentage is higher in the Niger area, 21.0 versus 12.2 in Burkina Faso. Across the Burkina Faso livelihood zones, the percentage of women with a diet of minimum diversity is more than double in the agropastoral zone than the rainfed agriculture zone (17.8 versus 7.7).

Finally, the percentage of women who are underweight (that is, have a Body Mass Index less than 18.5) is 14.1, placing the RISE II project area into the "medium prevalence (poor situation)" category in terms of public health significance according to the World Health Organization (WHO 2019).[11] The percentage is far higher in the Niger area, at 23.8, falling into the "high prevalence (serious situation)" category. No statistically significant differences are found across the RISE II livelihood zones.

6.3.3 Children's Health and Nutrition

Indicators of children's health and nutrition are presented in Table 6.6, starting with the percentage of children less than 5 years old with diarrhea in the previous two weeks. Just over 20% of children in the RISE II project area had an incidence of diarrhea. The diarrhea prevalence is considerably higher in the Niger project area (29.9%) than the Burkina Faso area (17.8%), possibly connected to the much lower access to basic sanitation services in Niger (see above). We also find that within the Burkina Faso area

[11] The four categories are: 5–9%: low prevalence (warning sign, monitoring required), 10–19%: medium prevalence (poor situation), 20–39%: high prevalence (serious situation), and > = 40%: very high prevalence (critical situation).

the diarrhea prevalence is almost double among households residing in the agropastoral zone than the rainfed agriculture zone.

Table 6.6 Select indicators of children's health, dietary diversity, feeding practices, and nutritional status, by initiative area and RISE II livelihood zone

		Project area		Livelihood zone within program areas				
				Burkina Faso		Niger		
	All	Burkina Faso	Niger	Rainfed agriculture	Agropastoral	Rainfed agriculture	Agropastoral	Irrigated agriculture
Children's health								
Diarrhea in children under 5 in last 2 weeks	21.5	17.8 [a]	29.9 [a]	12.4 [a]	23.6 [a]	29.9	29.5	30.3
N	3,843	2,034	1,809	1,136	891	854	336	612
Percent of children in relevant age category								
Diet of minimum diversity (MDD-C) - 6-36 months	13.9	13.4	15.1	10.5	16.4	20.8 [a]	4.7 [ac]	14.3 [c]
N	1,161	639	522	355	283	223	104	195
Infant feeding practices								
Exclusive breastfeeding of children under 6	14.3	9.4 [a]	25.5 [a]	4.3	14.6	29.0 [a]	3.6 [ac]	30.0 [c]
N	360	190	170	105	84	86	24	59
Children's nutritional status								
Wasted (WHZ < -2) children under 5	9.0	9.5	7.9	8.5	10.4	7.0	9.4	8.4
Stunted (HAZ < -2) children under 5	32.2	23.7 [a]	51.0 [a]	19.1 [a]	28.8 [a]	55.5	45.0	48.3
N	3,846	2,034	1,812	1,136	891	855	336	614

a,b,c Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

Adequate dietary diversity for children is measured by determining the number of food groups, out of 8, from which children 6–36 months consumed food in the last 24 hours. A child is considered to have a minimum dietary diversity if he or she consumed from at least five of the food groups.

Children's dietary diversity is very poor in the project area: Only 14% of 6–36 month-olds have a diet with minimum diversity (a prevalence roughly on par with that of women). The percentage is similar across the project areas and between livelihood zones within the Burkina Faso area. Within the Niger area, rainfed agriculture -zone households appear to have the highest prevalence (21%), followed by irrigated agriculture -zone households (14.3%), and agropastoral -zone households (4.7%).

With regard to infant feeding practices, the overall prevalence of exclusive breastfeeding (EBF) of children less than 6 months is only 14.3%. The EBF prevalence is far higher among Niger-area households than Burkina Faso households (25.5% vs. 9.4%). There are insufficient numbers of children less than 6 months within the separate livelihood zones (within project areas) to test for differences in this indicator across them.

Turning to indicators of children's nutritional status, the overall prevalence of wasting (or acute malnutrition) among children under five, is 9.0%. According to the World Health Organization (WHO 2019), this falls into the very upper end of the "medium" category in terms of public health significance.[12] While there are no statistically significant differences across the project areas or livelihood zones within them in this indicator (Table 6.6), it is notable that the wasting prevalence of 10.4 among agropastoral-zone households in the Burkina Faso area falls into the "high" category for public health significance.

[12] The wasting prevalence categories are: < 2.5%: very low, 2.5 to < 5%: low, 5 to < 10%: medium, 10 to < 15%: high, > = 15%: very high.

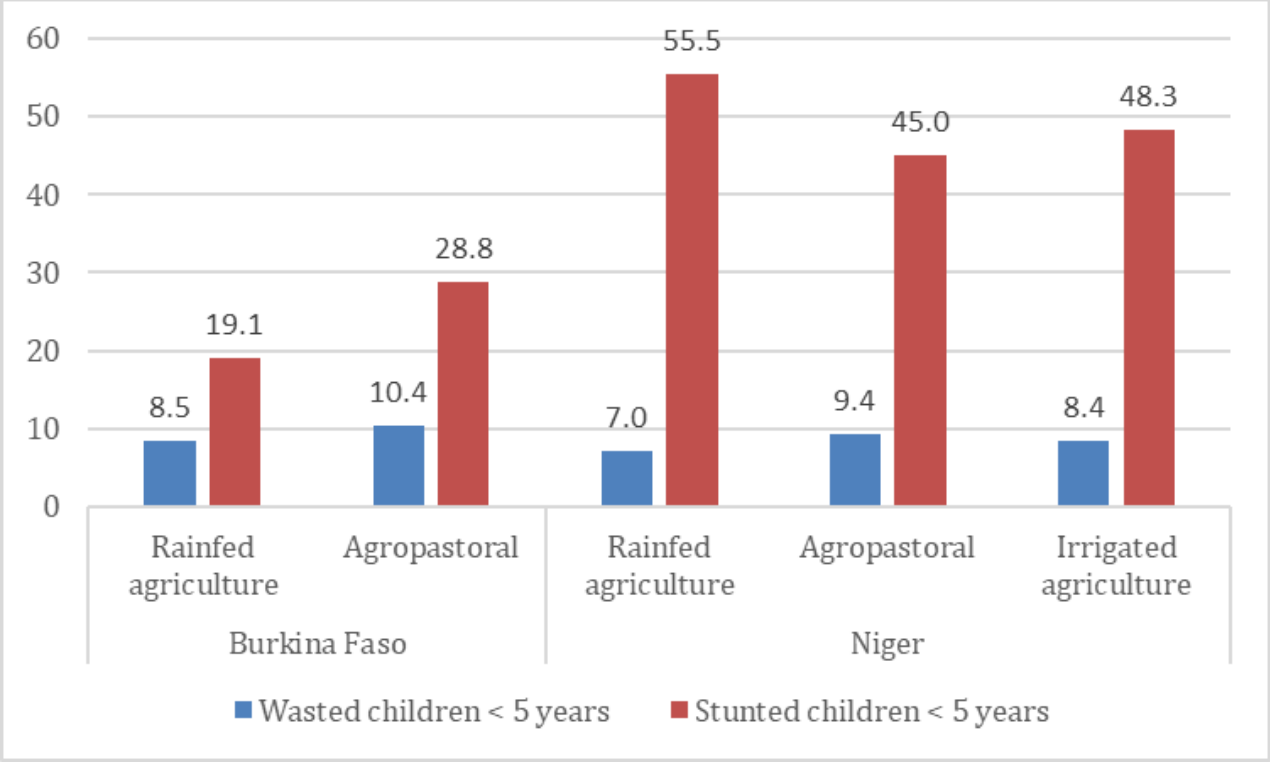
The prevalence of stunting (or chronic malnutrition) is 32.2% for the project area as a whole, which falls into the highest WHO public health significance category, which is "Very high" (stunting prevalence > = 30%).[13] Notably, consistent with higher food insecurity (see Section 6.2) in the Niger area it is more than double that of the Burkina Faso area, 51.0% vs. 23.7%.

Differences in wasting and stunting across the livelihood zones within the project areas are shown in Figure 6.7. Within the Burkina Faso area, the stunting prevalence among agropastoral-zone households is considerably higher than among rainfed agriculture-zone households. There are no statistically significant differences in the child nutritional status indicators across the livelihood zones within the Niger area.

Gender Differences in Children's Indicators

Differences between female and male children for the sample as a whole and for the project areas in diarrhea prevalence, dietary diversity and EBF were not detected (see Table A1.6.2 in the Annex). However, there are some differences in prevalence of child wasting and stunting. In particular, boys are more likely to be wasted in the project area as a whole (10.9% vs. 7.1% for girls) and in the Burkina Faso area (11.8% vs. 7.1% for girls). Additionally, boys are more likely to be stunted in the Niger area (54.0% vs. 48.2% for girls).

Figure 6.7 Prevalence of stunting and wasting among children under 5, by RISE II livelihood zone



[13] The stunting prevalence categories are: < 2.5%: very low, 2.5 to < 10%: low, 10 to < 20%: medium, 20 to < 30%: high, > = 30%: very high.

6.4 Resilience: Ability to Recover from Shocks

Households' resilience is measured in this report using three indicators of households' perceived ability to recover from the shocks they experienced in the previous year.

The first indicator is the perceived ability to recover (ATR) index measured using data on survey respondents' answers to the question, for each of $X_j, j = 1, \ldots, 30$ shocks (or "difficult times") experienced, "To what extent has your household been able to recover?" The possible responses, with assigned values in parentheses, are:

Did not recover (1)
Recovered some, but worse off than before (2)
Recovered to same level as before (3)
Recovered and better off (4)
Not affected (5).

A value of 3 or higher indicates that the household was, on average, able to recover from the shocks it experienced. The responses are used to calculate an ATR index for each household as follows:

$$ATR_i = \frac{\sum_{j=1}^{30} X_{ij}}{30}. \qquad (1)$$

The second indicator is the percentage of households who were able to recover from *all* of the shocks they faced in the previous year.

The third indicator based on two survey questions asked after households have answered questions about the 30 individual shocks, including their coping strategies for dealing with them. The questions are:

(1) To what extent has your ability to meet food needs returned to the level it was before all the difficult times you experienced in the past year?
(2) In light of the difficult times you faced in the past year, to what extent do you believe you will be able to meet your food needs in the next year?

The possible answers (with assigned scores in parentheses) are: worse than before (1), same as before (2) and better than before (3). The scores for each question are added together to form a perceived recovery index that ranges from 2 to 6.

Values of the three indicators are reported in Table 6.7. The mean of the ATR index is 2.0 for the project area as a whole, which means that the average household was not able to recover from the shocks it faced. This low ability to recover is also reflected in the percentage of households able to recover from all shocks experienced, which is a very small 6.1%. These indicators do not differ across the project areas or RISE II livelihood groups with one exception: irrigated agriculture-zone households in Niger are somewhat more likely to recover from all shocks faced than rainfed agriculture-zone households.

Table 6.7 Indicators of household's ability to recover from shocks, by project area and RISE II livelihood zone

	All	Project area		Livelihood zone within program areas				
				Burkina Faso		Niger		
		Burkina Faso	Niger	Rainfed agriculture	Agropastoral	Rainfed agriculture	Agropastoral	Irrigated agriculture
Index of ability to recover from shocks experienced in past year (mean)	2.00	2.01	1.99	2.07	1.93	1.94	2.09	1.99
Recovered from all shocks experienced in the past year (Percent of households)	6.1	5.4	7.5	5.1	5.6	5.0 [b]	9.0	10.1 [b]
Perceived recovery index (FTF indicator) (mean)	3.96	3.90	4.10	3.58 [a]	4.30 [a]	4.27 [b]	4.40 [c]	3.66 [bc]
N	3,535	1,776	1,759	1,087	684	807	429	521

a,b,c Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

The perceived recovery index mean is 3.96 for the population as a whole, which also indicates a poor ability to recover. On this scale, there are some statistically significant differences across the livelihood zones within both project areas, but these are not very large quantitatively (see Table 6.7).

6.5 Summary: Household Well-Being Outcomes and Resilience to Shocks

According to a Comparative Wealth Index-based measure, roughly one-quarter of households in the RISE II project area are classified as wealth-poor. Burkina Faso project area households are better off economically than Niger area households. The prevalence of moderate-to-severe food insecurity in the project area is 47.7, with just over one-quarter experiencing hunger. Following the pattern for economic well-being, Burkina Faso households have a lower prevalence of food insecurity (43.5% vs. 56.9 in Niger). However, Niger households have higher dietary diversity, an indicator of dietary quality, than do Burkina Faso households.

In terms of health and nutrition, households in the RISE II project area have a very poor foundation in terms of access to safe drinking water (only 18%) and basic sanitation services (19%). The Burkina Faso area has far greater access to sanitation services than the Niger area (25.3% vs. 5.7% of households).

While adequate antenatal care (ANC) for women appears to be quite high in the project area (with 76% of women having at least four ANC visits), the contraceptive prevalence is only 20.2%, and women's diets are of low quality. The percentage of women who are underweight, at 14.1, falls into the "poor situation" WHO category in terms of public health significance: the percentage in the Niger area, at 23.8% (in the "serious situation" category), is far higher than that in the Burkina Faso area. Qualitative findings demonstrate that, while women's access to health care and contraceptives remains a significant challenge, there is growing awareness of the need for consultation between women and men about these issues.

With regard to infant feeding practices, the overall prevalence of EBF is only 14.3%, being even lower in the Burkina Faso area (9.4%). Like women's, children's dietary diversity is very poor. The overall prevalence of wasting among children under 5 in the RISE II project area is 9.0%, which falls into the

"medium" WHO category. The prevalence of stunting among children under 5, at 32.2% puts the RISE II project area into the "very high" (worst) WHO category. Consistent with higher poverty and food insecurity and lower access to sanitation services, the stunting prevalence in the Niger area is far higher than in the Burkina Faso area (51.0% vs. 23.7%). Boys are more likely than girls to be wasted in the Burkina Faso area and stunted in the Niger area.

Experiential indicators of households' ability to recover from shocks, that is, their resilience, indicate that the large majority of households in the project area were not able to recover from the shocks faced in the year prior to the baseline survey. The average household is *worse off* than it was a year ago due to the shocks and thus is not resilient. Despite the Burkina Faso area's advantage over the Niger area in resilience *capacity*, according to the experiential indicators the areas are equally matched in their resilience.

7. GOVERNANCE AND NATURAL RESOURCE MANAGEMENT

This chapter provides information from the qualitative data analysis on the opportunities and challenges for households in the RISE II project area to participate in community and government spaces. Such participation is a key foundation for households' resilience to shocks.

7.1 Village Organizations

All villages have some kind of community organizations, and these are a key foundation of participatory governance. This section starts by describing the types and functioning of community organizations encountered in the survey villages and then focuses on organizations governing water and land management.

7.1.1 General Structures

The most common formal community leaders are the traditional chief and municipal councilors, as well as VDC. Chiefs, Councilors and VDCs are the overall community representatives and decision-makers, and they play numerous roles such as conflict resolution and immediate assessment and response to shocks. When community leaders were asked about community-based organizations, VDCs were mentioned in 10 out of 12 Burkina Faso villages, but only mentioned by one or two individuals in three out of 10 Niger communes.[14]

> *"The VDC is the interface between the population and the municipal and state services concerning the development actions of the village. All of these organizations are sustainable because they are formal with well-mastered operating procedures."*
> *—Burkina Faso Councilor*

Système Communautaire d'Alerte Précoce et de Réponse d'Urgence, Early Warning Systems and Emergency Responses (SCAP/RU) committees are promoted as components of community resilience in several Sahelian countries, but these were only mentioned in 4 out of 24 Niger villages (none in Burkina Faso) and only by chiefs and mayors, not by other villagers. This gives the impression that both VDCs and SCAP/RUs in Niger are not really functioning or only in a few limited circumstances, potentially leaving a major gap in community governance.

Other organizations mentioned by qualitative respondents included school parents' associations, health center committees, mother health groups, livestock groups (habbanaye), women's and men's producers' associations, and some other specific committees that were often linked with NGOs.

[14] Reference here is made to communes to include mayors and other communal officials who may not work exclusively in the selected villages.

Informal "Kolg-Wéogo" self-help security groups fight against theft and also manage conflicts between herders and farmers.

Different opinions were voiced as to the sustainability of these organizations. One Burkina Faso key informant had this to say, for example, about a herders' organization in the commune:

> *"The union of the animal breeders [this commune] helps the herders (woman, man) to care for the animals, it does research and collects of funds and materials for the benefit of their member. This has allowed the breeders to better organize themselves, and bring their concerns and grievances with one voice… is the only organization that I can see that could continue to function; many groups have been created but no longer function."*
> *—Burkina Faso key informant*

In the health arena, community management committees have a key role, discussed further below. In the education arena, primary schools are present in most villages, while students travel to larger towns for secondary school. Respondents in some villages in Niger mentioned the presence of both state and French/Arab schools. Parent school management committees were mentioned by numerous respondents as being important to promote quality education and facility maintenance, including raising contributions from parents.

7.1.2 Water Management

Given the context of limited availability of water for drinking, agriculture, animal raising, and other purposes, water management is extremely important in the RISE II area. Villages have evidently had numerous boreholes drilled in the past, although some are not functional at all, or are only working during a few months of the rainy season. Some villages had dams available for irrigation of vegetable gardens and other purposes, and this was a major advantage for them. Other villages aspired to have a dam, or in some cases their dams had reportedly dried up. With external assistance, some communities have had small water supply systems developed with water tanks and standpipes. Other villages dig their own small water reservoirs ("boulis") for the watering of animals and wells for themselves. For household cleaning, well water is used especially when boreholes are dry.

Women are centrally responsible for obtaining water for household needs and productive activities. Nonetheless, a Burkinabe respondent explained that, unlike Peulh women, due to cultural norms, the Mossi women cannot draw water, and thus it is their children or husband who do so. Women were not generally mentioned specifically in water management roles in water committees or other local governance bodies, though there were some promising examples. In one village in Burkina Faso, women did participate (through their association president) in community meetings on water and other subjects, and they had been asked to supervise sanitation in the village.

Water committees were present in almost all villages surveyed, usually referred to in Niger as *Comité Gestion Points de l'Eau*, Water Point Management Committees, (CGPE) or in Burkina Faso as *Association*

des Usagers d'Eau, Water Users Association, (AUE). In addition to these more formal committees which are somewhat standardized, other informal committees may arise to look after reservoirs or wells. These committees collect money for maintenance. For example, one village required an annual payment of 1000 CFA or in-kind contributions of seven dishes of millet or peanuts. Others mentioned the cost of filling a bucket as 10 CFA in one village, and 25 CFA in another. When there is a major breakdown, they may ask households to make additional contributions.

The efforts of water committees are crucial to reducing the burden of daily water collection (falling especially on women and young people) and to conflict management. Efforts to repair and enhance boreholes help reduce time taken to queue up or travel to more distant boreholes to collect water. Ensuring maximum water availability also reduces conflicts among those seeking water. One Burkina Faso village stated that tensions between users are common during the hot season (April and May) when water is scarce, but they always manage to resolve misunderstandings. In another example of conflict management around water sources:

> *"The AUEs manage the water in this village. There are conflicts over the use of or access to water, which occur around the hand pumps. The people involved in the conflict are generally the women themselves, and between the herders and the women. The resolution of the various conflicts is done on the spot through the AUE and it does not go to the various community leaders."*
> *—Burkina Faso water committee member*

One Burkina Faso village had both private and municipally managed boreholes that were used for household needs, and a dam for irrigation and livestock. This dam had dried up the previous year, leading to conflicts between borehole managers and herders who wanted to water their animals at these boreholes. A water committee member stated that the committee was monitoring and advising villagers regarding overuse of water by market gardeners.

7.1.3 Land Management

Land management is crucial in a context of insecurity, climate shocks, the stress of population growth, and persistent poverty. A major responsibility falls to local organizations to manage and balance the needs of different groups. Land management is generally the purview of the chief, and is discussed with community members, particularly regarding communal grazing land which most respondents stated was available in their villages. In one exception to this pattern, a Burkina Faso villager stated that councilors and the VDC were the agents that managed the grazing area. There are cultural dimensions of land management, with some respondents using the term "sacred woods" to describe these communal lands, and some said that no one would dare to cut a tree or take control of this land. Still, there are often safeguards in place, and one chief commented that he regularly inspects these lands to prevent encroachments.

Conflicts over land were mentioned in 13 out of 24 villages across the two project areas, most commonly regarding disputes between herders and farmers or other arguments over land use.

Communal grazing land is one of the flashpoints, and a respondent in Niger stated that though there was grazing land available, the land area was limited and its use was not being adequately regulated. While this land is important to all who raise animals, grazing land is of particular concern to Peulhs or Fulani whose main livelihood is breeding. In some villages, there were reportedly significant challenges in managing this land. A particular land management stress point mentioned by respondents is conflicts that arise due to the passage of animals to a neighboring village through cultivated areas to access grazing lands. Some of these conflicts may be stemming from historic practices of pastoralists and farmers, but pressures are increasing due to the limitations of mobility imposed by insecure conditions, and a reduction in animal fodder due to drought. Conflicts may increasingly rise above the village level and require coordination with communal authorities.

On the other hand, many respondents stated that they didn't see problems of inter-ethnic conflicts in their villages per se, but rather they saw conflicts regarding land use practices and access to land. Some respondents stated that there were no major conflicts in their villages.

> *"It is true that living together is not possible without some misunderstandings, but these are not big quarrels, it is just animals destroying fields (conflict between farmers and herders); but very generally it is settled amicably, the village chief gives a fine according to the seriousness of the damage that the owner of the animals pays, and that is all. The current tensions, which are not of our making, is the insecurity that threatens our village. With the presence of armed groups, neither livestock nor agriculture thrives, because in order to cultivate or raise livestock you have to move away from the village to have good land or fresh grass for the animals, but currently it is impossible to move away from the village."*
>
> *—Burkina Faso women's FGD participant*

Some tensions around land arise from a growing population and inheritance practices. A Niger respondent stated that such tensions are generally managed by the customary village or canton chief with the assistance of the imam. A respondent stated that the tensions were internal, even among the Mossi people, because of growing populations and the scarcity of cultivable land. Several reported conflicts over land were handled by the chief and occasionally escalated to the level of commune or the prefect. Other resolution bodies were mentioned, such as a village land conciliation committee, which sometimes carries out awareness raising campaigns to prevent problems, as reported by a Niger respondent. In Section 7.2.6 below, government agents' roles in resolving cases of land conflict between villages or communes are discussed.

7.2 Government Services

7.2.1 Mayor and Prefect

Respondents spoke extensively of their engagement with the mayor/town hall, and prefect and government officials, but they often did not make a clear differentiation between their functions, which

highlights a need for more precise knowledge by citizens about their local government institutions. The following is a broad composite of these functions, without entering into details of how these vary between Niger and Burkina Faso. It is intended to help RISE interventions be cognizant of general patterns in government services as they support improvements in them, and to support monitoring of this capacity-strengthening work.

Each village elects councilors to the communal (municipal) town hall, which were replaced by "delegations speciales" in Burkina Faso following the January 2022 coup. The mayor is elected first as a municipal councilor and then is elected by other councilors as mayor, and it is the Ministry of the Interior who confirms the election with the prefect as the State representative in the commune or department. The mayor is responsible, under the control of the municipal council, for: administration of properties of the municipality, project management, municipal road works, representation in civil life and court, execution of development programs, protection of the environment, and sustainable management of natural resources. The town hall in general ensures implementation and coordination of development projects, including preparation and implementation of communal development plans.

The prefect is the depository of State authority in the Department and the head of the departmental administration, presiding over the county council, coordinating activities of the decentralized technical services of the State (e.g., health, agriculture), and operating public services that do not have a representative in the Department. A key role that villagers spoke of is administrative services, such as provision of birth and wedding certificates and business registration services. The prefect is a judicial police officer and responsible for maintaining order and public safety in his or her district, and in this capacity the prefect was frequently referred to by villagers. The prefect is a political appointee, and monitors and controls the activities of the mayor and town hall.

Communal-level officers of Ministries are coordinated and supervised on site by the prefect, but they also participate in municipal sessions at town hall. These services are meant to be paid for by Ministries, but budget delays can lead to their costs being covered by the town hall. In Burkina Faso, each department has one commune, so the geographic coverage of prefect and mayor are essentially the same. In Niger, the department is usually subdivided into more than one commune.

7.2.2 Coordination and Development Plans

There were mixed opinions among respondents about the extent to which there was coordination among external support agencies (mainly NGOs or donors) and government services. A positive view was given by a woman prefect in Niger who stated:

> *"Several frameworks exist: COTEP (Departmental Technical Committee) which brings together the technical services, the prefecture, the Town Hall and civil society. There is also the COCODAC (Consultative Committee), which brings together the COTEP and the various farmers' organizations (OP), the communal youth group, the women models and the development partners. It should be noted, however, that this second framework is not yet operational."*
> —*Niger Acting prefect*

She explained that there are national development plans, such as Niger's *Plan de Développement Économique et Social,* Economic, and Social Development Plan, (PDES) 2017–2021 and the PDES 2021-2025 currently being developed. There is also the *Plan du développement régional,* Regional Development Program (PDR) and the *Plan de développement communal*, Communal Development Plan, (PDC), which should be consistent with the PDES. The PDC is a strategic and operational document that promotes citizen participation.

Some respondents were aware of the communal development plans, but many villagers (including some chiefs) had no knowledge of them. Some with specific engagements with government, like village agricultural extensionists, will work with this plan. Most respondents in both Niger and Burkina Faso were unaware of how development projects were coordinated. Reportedly, communal women's and youth councils were also available, though most respondents did not mention them.

7.2.3 Chain of Participatory Governance

There was a fairly consistent pattern reported by respondents, in which the community identifies a need and transmits this to the town hall. In some cases, there is a response, but there was little mention of more regular interactions and partnerships. In addition, expression of needs can either be transmitted by these village actors to state technical services or transmitted by technical officers.

The most common procedure mentioned in both Burkina Faso and Niger is that community leaders, such as the Chief, Councilor, or VDC, convene a general meeting at which community members, customary and religious leaders, and association leaders are all present and invited to speak. Decisions (most often, requests) are made and then forwarded by one of these leaders or other offices of the town hall. In terms of which of these three actors carried out which functions, there were different views given by different respondents.

Among Niger respondents, only one person specifically mentioned the VDC in this connection. Other Niger respondents mentioned instead that the mayor, prefect, town hall or communal officials came to meet with them. One chief stated that there was an "advisor" who transmitted community concerns to the mayor. Another respondent stated:

> *"It is only during election campaigns that the government and departmental authorities approach the communities. The communal authorities are only there to collect taxes. The community makes a request to the town hall but the commune has never responded to their concerns."*
> *—Niger chief*

In both countries, similar processes are followed in sectoral discussions, such as in agriculture or health. An official stated that villagers' needs and concerns are communicated to government technical staff through a variety of channels, including general community meetings as well as direct conversations between farmers and officials. Thus, there was generally consistency in terms of openness of authorities to consult with villagers and receive their inputs and requests.

In terms of authorities' responsiveness to community requests, some respondents cited examples of specific support received, while other respondents said they did not get any response. One Niger woman respondent stated that when they informed the mayor about their water problems (and it was passed on to the prefect), a pump was installed. Several respondents mentioned subsidized food sales as a response to shocks. These responses may be determined as much by the availability of resources from government or external agencies, as by the effective functioning of government officials or departments. For example, a Niger women's group said that authorities had provided food aid from the United Arab Emirates during the month of Ramadan, but that the mayor had not responded to their request for support with income generating activities, fattening animals, a cereal bank and electricity. Clearly some community suggestions would take more time and money to implement; however, it would be significant if officials had made attempts to respond to a community proposal and then provided feedback if they were unable to carry it out—but no references of this sort were made. Several respondents were aware of limitations and showed appreciation for efforts by officials, despite this:

> *"People have confidence in the government because they give us help even if it is not enough: there is for example the sale of grains at moderate prices."*
> *—Niger woman FGD participant*

Despite the current prevalence of community inputs being offered to government officials, respondents did not talk about an expected form or timeline for receiving a government response. This suggests a potential area for RISE II interventions, to agree on a specific and realistic framework of responsiveness by government officials and then carry out more detailed monitoring of government performance within that framework.

7.2.4 Agriculture, Livestock, and Environmental Officers

Agriculture and animal husbandry officials were found in all communes, and most respondents knew who these officials were and had contact information for them. One comment made by several village respondents was that these officers had many villages to cover, and they did not spend enough time in

each village. They engage in training and support to farming groups and help in response to shocks. After a serious bush fire in Burkina Faso, agricultural agents gave training in the affected villages on soil conservation and restoration techniques to enable them to resume their agricultural activities. A Niger community agriculture extensionist stated that villagers communicate their needs by sending feedback and complaints, but also through interactions in farmer field schools and social networks, and they have regular follow-up discussions with agriculture agents. The subjects of these interactions are mainly related to agriculture, animal raising, and the establishment of nurseries, and there is some potential for this to be a mutual learning relationship. One community extension agent, however, implied that this feedback wasn't necessary because technical staff were already aware of conditions. This suggests a need to reinforce the participatory nature of agricultural extension services.

Several respondents spoke more favorably of animal husbandry officers, who were able to provide valuable services, such as technical advice on poultry, small and large ruminant breeding activities, vaccines, and medicine for livestock. Respondents stated that this service had greatly reduced animal mortality (which was a common problem in the past) and if there was an interruption in this service it negatively affected villagers. In addition to these services, a respondent stated that each department has a union of members that transmits producer concerns to their leaders.

Environmental officers were mentioned by several respondents, and they are generally responsible for the protection of the fauna and flora. There was little detail provided about their activities. A Burkinabe mayor said that a water and forestry manager was working to fight against illegal wood cutting and teaching soil recovery techniques.

7.2.5 Government Health Services

The rural health system is structured mainly in terms of primary health care centers (preventative and curative), with higher-level referral and supervision and community participation linkages. These health care centers in Niger are the *Centre sante intégré*, Integrated Health Centers[15] (CSIs) and in Burkina Faso the *Centre de santé et promotion sociale,* Health and Social Protection Centers (CSPS). Both work under the supervision of district/departmental staff, such as Burkina Faso's District Health Team,[16] with the support of the mayor and prefect. Community participation is focused around the work of community health workers (CHWs) and Comité de gestion (COGES).

The most common health problems at these levels are malaria, malnutrition, colds, anemia (for women), diarrhea and vomiting, attending to childbirth, and nutritional and perinatal consultations, as well as some basic curative and emergency services. The main causes of ill health mentioned by respondents include poor nutrition and food insecurity, terrorism and insecurity,[17] lack of water, poor hygiene, the proliferation of mosquitoes and "non-use of mosquito nets," lack of masks for protection

[15] Previously these were referred to as CSB (Centre de santé basic, Basic Health Center)
[16] https://www.sante.gov.bf/fileadmin/user_upload/storages/fichiers/plan_national_de_developpement_sanitaire.pdf
[17] In terms of how these can be considered as health problems, though the survey didn't have time to explore each cause or probe on all of these responses, the general findings of this survey and others (e.g., RISE I endline) suggest that the negative health effects arising from terrorism and insecurity range from psycho-social, to the household determinants of health (shelter, food security, availability of water and sanitation), to health service provision.

against COVID-19, windy conditions and reckless driving leading to accidents. Specific situations were mentioned as causing difficulties. One respondent in Burkina Faso mentioned a hygiene issue among Peulhs due to their close contact with their livestock, unsanitary water pools where animals drink are found in close proximity to where the herders sleep, and these allow for mosquitoes to multiply.

Village respondents often commented on how important it is to them to have primary health centers nearby, and for those who didn't already have one in their village, this is one of the main things requested of government. Some mentioned the difficulties of travelling long distances for basic services such as birth deliveries, and therefore the positive impact of previous projects which had brought services closer to home:

> *"The population no longer travels great distances (about 25 km) to go to Bogandé, except for cases of complication (evacuation to the referral medical center) and this saves lives."*
> *—Burkina Faso women's FGD participant*

Primary health center staff (CSPS or CSI) characterized their main services as care for the sick, integrated care for women (sick or healthy), family planning, deliveries, pre and postnatal care, care for the malnourished (women and children), and vaccinations. During COVID-19, they engaged in education on handwashing, use of masks and distancing, alongside other advice and orientations. They provide minimum preventative and curative services, and illnesses or operations beyond this level are referred to the higher-level health center such as *Centre médical avec antenne chirurgicale*, Medical and Surgical Center (CMA) in Burkina Faso or *Centre hospitalier régional*, Regional Hospital (CHR), and in Niger to the *District centre de sante* (DCS).

The health center COGES supports health center management and stocking medicine, interface with community, and education. In Niger, a respondent explained their management role:

> *"The COGES do the financial management - at the end of each month, they organize a meeting with the clerk and the other staff to review the outgoing and incoming. After the meeting, they take the money and pay it to the savings bank. With the women's groups, they carry out cooking training, sensitizations on family planning, prenatal consultations, and nutrition. To improve these groups, they need training. As for the COGES, they need training on management. Thus, they can understand the group interest of the group, since the members of COGES do not have salaries."*
> *—Niger basic health center director*

This degree to which government health services are *financially* accountable to the community is notable, and was not mentioned in other sectors. Women's associations were mentioned by some respondents as having health, hygiene and nutrition education roles in addition to their agriculture, animal raising and small business activities.

Community health workers have a crucial role, and there was a reported need for more of them, with one example given where only two CHWs were covering 16 communes. CHWs help conduct vaccinations, distribute malaria medication to children, and facilitate the work of primary health centers in a synergistic way. In Burkina Faso, a new position was established at the CSPS, the *Agent de Santé à Base Communautaire,* Community Health Agent, (ASBC) to coordinates with CHWs to conduct growth monitoring, basic nutrition screening, and screening for malnutrition and disease prevention.

CHWs are also channels of feedback from the population to the district health team, and an example was given in Burkina Faso of how a request for family planning services led to an awareness campaign. In another community a similar chain of communication was described as going through the prefect. A CHW in Niger stated that they have no contact with municipal authorities, though they do work with the director of the CSI. Several respondents cited positive impacts of the CHWs, such as that women put their children to sleep under mosquito nets, improved nutritional practices, and demonstrated understanding of the need for handwashing.

Staffing for health centers is a key challenge, and some officials mentioned their lack of staff, but villagers generally reported satisfaction with the quality of staff services. Some mentioned possible improvements needed, such as the way in which patients are received into the centers. Training is ongoing, and a Burkina Faso health center director stated that there were eighteen health workers in their CSPS, including three midwives, and they had a continuous process of training them. Some of the staff training topics mentioned include malnutrition, HIV/AIDS, tuberculosis and COVID-19. Despite some positive feedback about the health centers, several officials reported that utilization of services was sub-optimal, and it was common for patients to visit the centers only when their disease was too advanced to be easily treated.

In terms of material limitations, some respondents spoke of a shortage of medicine (particularly for malaria) and mosquito nets. Several health center staff stated that they don't have limitations on their capacity to provide services, but rather that they were inhibited by insecurity. The efforts of some health centers to ensure availability of materials—in conjunction with the community—were paying off in reducing the negative effects of shortages:

> *"No, we have not had equipment shortages since we have a well-functioning management COGES. We have more than 10 million in our account. But during busy periods such as August and September with malaria, there are often shortages of medicines… The solutions to prevent possible shortages are to control stocks. So the manager has to make frequent inventories."*
> *—Burkina Faso health center director*

A Burkinabe respondent stated that there was a lack of medicine for infants and pregnant women, which were supposed to be provided free, resulting in patients being obliged to buy it at pharmacies despite its high price. Another health official stated that the massive presence of IDPs in the village had led to shortages. In this village, however, medicine and materials are regularly contributed by WHO and NGOs like *Médecins Sans Frontières*. An additional challenge was that the lack of a reliable

telecommunication network isolates the village, impeding access of ambulances from hospitals. Transportation is a general challenge, with sick persons often being transported by motorcycle.

7.2.6 Land Conflict Management

While the foundation of land management in RISE operating areas is at the village level, generally involving members of the same village, in several cases respondents spoke about conflicts between villages or communes. In some cases, there may be tensions not only among individual households but also between village or communal authorities, such as in one example where a village spread across two communes and there was uncertainty about authority within that village. In some of these cases government officials assisted in conflict resolution.

Several other examples illustrate the challenges. In one example of conflict regarding animal grazing, a Burkina Faso mayor stated that he needed to intervene in a case where the lack of grazing land in one village led to herders taking their animals to a neighboring village and damaging valuable market gardening fields. Other examples relate to land for cultivation. For example, groups from two villages in Burkina Faso claimed the same cultivable space, and this matter was brought to the prefect who summoned the chiefs of both villages, and the boundaries were established and the matter resolved. Another example was given where the mayor asked government technical officers to investigate a land dispute and advise on a solution. In addition to these measures, there are generally provisions to escalate the conflict management to another level when needed, including taking it to court such as in the following example:

> *"…in 2019, the Fulani let their oxen enter my field to eat. So after that we exchanged with these Fulani (Peulh) but there was no agreement. We then decided to take the matter to Pissilla, where the authority (the town hall) told us to bring the animals. And we took the animals there to impound them. But … the town hall released the animals without the Fulani having paid us for the damages… the Fulani also said that we had hurt him, so he went to the courts to complain. There, after a trial, we decided to pay him 35,000 CFA francs and we were ready to look for the money to give him, but he found that it was insufficient. The judges said that if he refused to take the 35,000 CFA francs to leave him and go back home. Since then, there has not been another conflict between farmers and breeders."*
>
> *—Burkina Faso FGD participant*

Such cases of escalation may be complex and require training to resolve fairly. In Niger, there was a dispute between 20 women and a man following the cutting of trees in his field. This man asked for 200,000 CFA in compensation, and the village chief asked the women to pay 10,000 CFA for the damage. However, when the chief brought the matter to the mayor, the mayor instructed that no payments should be made and advised the man against intimidation.

Sometime misunderstandings can fester and cause difficulties later. In one example, land had been lent to people from a neighboring commune years before, and then the offspring of these "foreigners"

arrived to make ownership claims about the land. The chiefs of the two villages tried unsuccessfully to settle the matter, and it was brought to the prefect but also without success.

7.2.7 Other Government Services

Respondents were asked about education services, and almost all reported that education was valuable, and the performance of school systems was favorable, though services were at times interrupted due to COVID mobility restrictions or dislocations due to terrorism. Villagers often make requests to improve school and other infrastructures, including water supplies for their operations.

Respondents were asked whether there were any psycho-social support services, and some respondents stated that there is a social service at the town hall. This service provides assistance with groups such as the elderly and young women who become pregnant at an early age. There was also reference to support provided to people in the form of prayer, either within the village or elsewhere. More commonly, respondents reported that they were unaware of any psycho-social services.

7.3 Participation of Sub-Populations

Most respondents stated that women, youth, and members of different ethno-linguistic groups and other social categories generally participate in the governance process, despite a tradition of village governance being dominated by men of the dominant ethnic group.

Almost universally, both female and male respondents reported that women were included and had good opportunities to participate in community meetings. A number of Burkina Faso respondents stated that a typical procedure works through women's associations, such that when a meeting is scheduled, the president of the VDC informs the women in charge of the women's associations and they, in turn, inform the other women. When women leaders such as the president of a women's association are present, they speak more freely and with greater authority than other women; even while everyone may be invited to speak, the leader may be "given the last word" as far as women's voice is concerned. Only two Niger respondents mentioned the role of women's associations in these participation spaces of community meetings.

A variety of practices were mentioned, all of which can have a bearing on the willingness of women to participate and the acceptance of this participation on the part of men. During the meeting, women often ask for the floor to speak to give their opinion on the subject of the day, and some respondents stated that they do so without any restriction. Women are participating more, but also at times playing leading roles in community meetings:

> *"More and more, meetings are facilitated by women because they know the realities of the communities better than men. They raise their hands to ask to speak and they express themselves without embarrassment."*
> *—Burkina Faso Mayor*

One respondent stated that women wait for the men to give them the floor (or encourage them to speak) because of the difficulty of expressing themselves in public, especially in some circumstances such as when the mother of the woman's husband is present at the meeting. A Niger respondent stated that the meeting leaders will invite the participation first of women, then of youth, elders, and minorities. One respondent mentioned that after a man spoke, it would be the turn for a woman to speak, and yet another reported that in their village it was acceptable for a woman to state something that was not in agreement with what men had previously stated:

> *"They are listened to by the men during the meetings, even if the men do not like what they say."*
> *—Niger woman FGD participant*

A key point to consider is that women form a higher proportion of the population in the communities, given that men are often migrating outside of the village for work, and this appears to give women more openings to participate. Respondents stated that in addition to speaking in meetings, women also contribute to collective efforts in other ways. Niger respondents pointed out that women also participate financially when funds are being raised (using their membership fees from women's groups). They contribute to meetings through food and other supports. Women's associations were mentioned as ways that women gain confidence, discuss issues and channel their concerns into community participatory processes. Some respondents state that women participate more in discussions related to health or other traditional women's topics, while many others maintained that women and men are both present for all issues. For example, several respondents stated that a positive gender equity change is that women now participate in decision-making meetings related to land management through their (women) representatives. It is common for women representatives to carry the concerns of other women:

> *"For example, during the sessions at the town hall, a round table discussion is held so that each specific group can present its concerns, and among the councilors, there are women who ensure that the recommendations made by the women are taken into account."*
> *—Burkina Faso VDC member*

In the implementation of decisions, once the meeting is held and decisions are made, women often organize among themselves to carry out the actions that relate to their roles and concerns.

Training by external agencies is helping promote equity in participation, and one respondent stated that women benefit from awareness-raising organized by the social action department of the prefecture. Women were also found in limited numbers among the local government officials (including one prefect), and comments by role model women and others suggest that women are becoming empowered to be more actively engaged in this way.

Youth and elder participation were also mentioned as having importance, with some mentioning that there were youth representatives. Some youth respondents felt that they were not as free to express themselves as adults.

In terms of the participation of different ethnic groups, most respondents stated that they participated equally in community meetings, even if usually there is one ethnic group that predominates in numbers. One respondent said that a minority group did not have the "weight" of the majority group, though there were not necessarily differences in their interests or what they would be advocating. One difference that was noted was in terms of the forms of support needed, based on livelihoods; the Peulh/Fulani pastoralists would have prioritized assistance in the form of water for animals while Gourmantche or Mosse would prioritize irrigation or other support to cultivation.

7.4 Summary: Governance and Natural Resource Management

A solid foundation of participatory and responsive governance goes hand in hand with strengthening resilience to shocks. In both RISE II project areas village-level leaders like chiefs, councilors, and village development committees help organize communities and resolve a range of issues such as directly responding to shocks like droughts and the influx of terrorism-driving IDPs. These leaders then help provide opportunities for citizens to engage with higher-level government institutions. In the RISE II area, the management of land and water through village leaders and committees is crucial to combating the effects of climate change and is a significant challenge for communities in their quest to respond to current shocks and be prepared for future shocks.

Communities engage with government primarily through mayors and communal councils, which show some openness to participation and the potential to be more responsive to citizens' needs and inputs. These local government institutions coordinate with state technical service providers such as agriculture extension agents and primary health centers, services that are often seen by villagers as valuable, if insufficient. There are some positive signs of citizen participation in health center and school management in the RISE area, as well as of a potentially mutual learning relationship between farmers and technical agriculture and animal breeding officers. Shortage of staff is a key constraint, and shortages of supplies like medicines at certain times of the year can be very burdensome for households. Respondents spoke of a considerable degree of equality in the participation of women, youth, and different ethnic groups in decision-making in village and local government arenas. There is still some distance to go, however, in overcoming traditional attitudes and barriers. Methods such as encouraging women's associations as a support to community participation can help women become empowered to have a greater voice.

8. WOMEN'S EMPOWERMENT

According to the 2020 United Nations Development Programme (UNDP) Gender Inequality Index, Niger was ranked at 154 and Burkina Faso at 147 out of a total of 162 countries, that is, they rank near the worst off in terms of gender inequality (UNDP 2020). Niger has the highest rate of early marriage, a marker of low decision-making power, in the world (Shakya et al. 2020; Smith et al. 2003).

This chapter examines indicators of women's empowerment in five areas:

1. Cash income earning and decision-making over cash expenditure;
2. Access to credit and decision-making over credit use;
3. Ownership and decision-making over assets;
4. Decision-making over livelihood activities; and
5. Participation in community groups.

Data for all of the indicators reported here are for women 15 years or older who are in a union (married or living together with a man as if married). Indicator values are reported in Table 8.1.

Table 8.1 Indicators of women's empowerment, by project area and RISE II livelihood zone

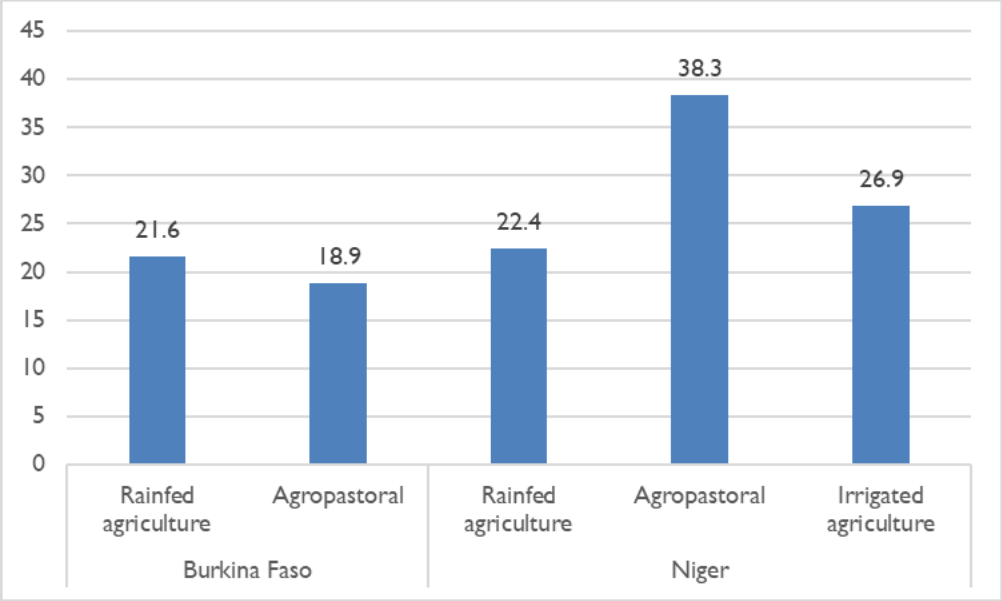
	All	Project area		Livelihood zone within program areas				
				Burkina Faso		Niger		
		Burkina Faso	Niger	Rainfed agriculture	Agropastoral	Rainfed agriculture	Agropastoral	Irrigated agriculture
Women's cash income earning and decision making over cash expenditures (percent of women)								
Earned cash in past 12 months	22.1	20.3 [a]	27.3 [a]	21.6	18.9	22.4 [a]	38.3 [ac]	26.9 [c]
N	3,054	1,585	1,469	947	633	672	344	451
Woman participates in decisions about cash she earns	90.2	91.4	87.5	92.0	90.7	88.6	84.2	89.5
Woman participates in decisions about cash spouse earns	14.2	14.5	13.6	15.0	13.7	16.8	14.6	9.2
N	840	430	410	255	175	156	127	127
Women's access to credit and decision making over credit use (percent of women)								
Accessed credit in the last year	34.1	20.5 [a]	72.8 [a]	20.5	20.5	76.8 [a]	62.0 [ac]	74.3 [c]
N	3,054	1,585	1,469	947	633	672	344	451
Woman participates in decisions about credit	77.6	81.7	74.4	83.1	79.9	66.1 [a]	89.3 [ac]	77.8 [c]
N	1,495	415	1,080	232	182	529	216	334
Ownership and decision making over assets								
Percent of assets woman owns (out of 14 types)	27.9	26.6 [a]	32.1 [a]	23.4 [a]	30.3 [a]	35.3 [a]	27.1 [a]	31.5
N	2629	1443	1186	866	572	540	314	330
Percent of assets for which woman participates in buy/sell decisions	31.1	29.4 [a]	36.4 [a]	26.1	33.1	40.1 [ab]	32.3 [a]	34.5 [b]
N	2499	1337	1162	795	538	529	313	318
Decision making over livelihood activities								
Extent of participation in decisions about livelihood activities (index from 1 to 5)	3.0	2.8 [a]	3.4 [a]	3.0 [a]	2.7 [a]	3.4	3.5	3.4
Extent of participation in decisions about revenue from livelihood activities (index from 1 to 5)	2.9	2.8 [a]	3.4 [a]	2.9	2.7	3.4	3.5	3.4
N	2501	1278	1223	720	553	579	288	354
Participation in community groups (percent of women)								
Member of one or more community groups	31.5	30.8	33.5	30.4	31.2	40.3 [b]	31.4	25.3 [b]
N	3054	1585	1469	947	633	672	344	451

a,b,c Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

8.2 Women's Cash Income-Earning and Decision-Making over Cash Expenditures

Earning cash income typically translates into greater decision-making power in households (Smith et al. 2003). For the RISE II project area as a whole, only 22.1% of women earned cash income in the previous 12 months. The percentage is somewhat higher in Niger than in Burkina Faso (27.3% vs. 20.3%). It is also notable that within the Niger area, women living in the agropastoral zone are more likely to earn cash than those living in the rainfed agriculture and irrigated agriculture zone (see Figure 8.1).

Figure 8.1 Percentage of women who earned cash income in the previous 12 months, by RISE II livelihood zone



The sample women who reported earning cash income were asked an additional question regarding decision-making about how this income is spent: "Who usually decides how the cash you earn will be used?" Almost all (90%) reported that they participated in decision-making about how the cash was spent, either individually or jointly with their spouse/partner or another person. By contrast, very few women participate in decisions about how the cash income their spouse/partner earns is spent (14.2% for the sample as a whole, Table 7.1).

The percentages of women who participate in decisions regarding the use of self-earned cash or cash earned by her spouse/partner does not differ across the Burkina Faso and Niger project areas or the livelihood zones.

Qualitative findings indicated some of the dynamics of how income is used, which can provide some pointers for empowerment programs. Women are likely to have more decision-making over the income they earn when the amounts of income are small and for certain sources of income, such as the sale of peanuts. Some respondents spoke of how woman can take the initiative to use their

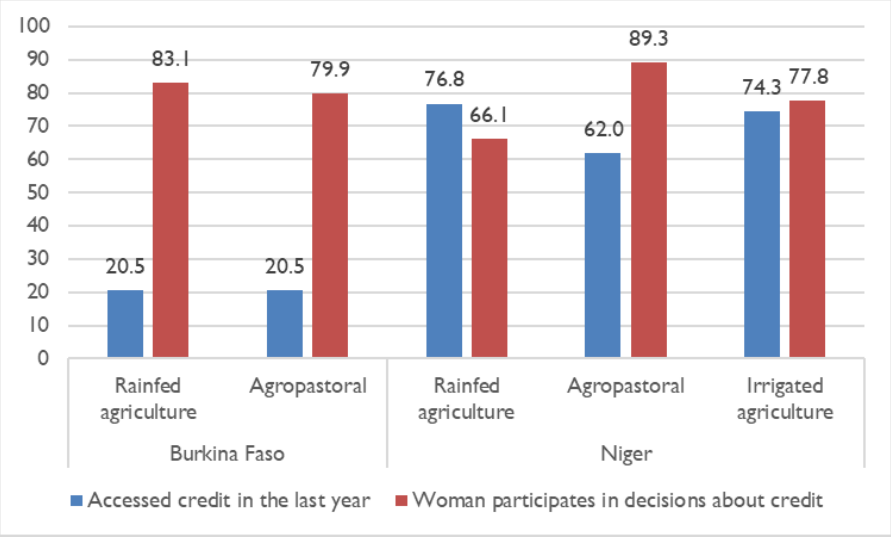
income, along with the expectations of husbands to be notified and/or give consent. In one example, a Burkina Faso respondent stated that a woman would ask her husband's opinion about how to use her income, but she does the selling and would have the final decision. There are likely many variations, and while most respondents state that gender relations are changing, there is much room for improvement. For example, a Niger women's FGD stated that the income from women's activities is discussed with men but there is a need for more understanding and open-mindedness on the part of men.

8.3 Women's Access to Credit and Decision-Making over Credit Use

Roughly one-third of women in the RISE II project area took out a loan or borrowed cash or goods in-kind in the 12 months prior to the baseline survey (Table 8.1).[18] Consistent with access to financial resources differences across the project areas (see Chapter 5, Section 5.2), the percentage is far higher in the Niger area than the Burkina Faso area (72.8% vs. 20.5%). Among the women who did take out a loan or borrow cash or goods in the previous year, over three-quarters participated in decisions about taking a loan or about how to use it. The percentage participating in this way differs little across the project areas.

Percentages of women accessing credit and making credit decisions do not differ across the livelihood zones in the Burkina Faso area. However, within the Niger area women living in agropastoral-zone households are somewhat less likely to access credit but *more* likely to make decisions about credit than those living in either the rainfed or irrigated agriculture zones (Figure 8.2).

Figure 8.2 Indicators of women's access to credit and participation in decision-making about credit, by RISE II livelihood zone



[18] To arrive at this percentage, women were asked separate questions about loans/borrowing from six sources: non-governmental organizations, informal lenders, formal lenders (bank/financial institution), friends or relatives, micro-finance organizations, and informal credit/savings groups.

Qualitative respondents stated that men are usually involved in decisions to take credit, even when the credit was intended for the woman's use, and responses varied in terms of whether they thought that women should be more independent in taking credit. Niger FGD respondents, for example, stated that the man must give his consent so that in the event of a problem he could intervene. Some Burkina Faso respondents stated that women consult men to avoid conflict, and others said that can men can support women in case of difficulties to repay the loans.

> *"Women and men discuss this decision together. If the woman or the man has a project of credit or loan he/she talks about it with his/her spouse in order to agree on the right decision. But the final decision lies with the man. There have been changes in this area in the last five years. Because now women and men discuss their projects."*
> *—Burkina Faso positive deviant woman respondent*

Each household may have its own rules and dynamics, and a Niger woman's FGD participant stated that the decision to obtain credit would depend on an agreement between husband and wife and whether they had good relations. A Burkina Faso woman role model stated that unlike in the past, women today can make the decision alone, because "it's her money," and that there was now a need to strengthen women's access to credit.

8.4 Ownership and Decision-Making Over Assets

As part of the baseline survey, women were asked "who owns most" of 14 types of assets, whether individually or jointly.[19] They were also asked about the extent of their participation in decisions about buying and selling (or leasing/giving away) assets. The data were used to calculate two indicators:

1. The percentage of assets woman owns; and
2. The percentage of assets for which woman participates in decisions about buying/selling.

For both of these indicators, a higher percentage indicates greater women's empowerment.

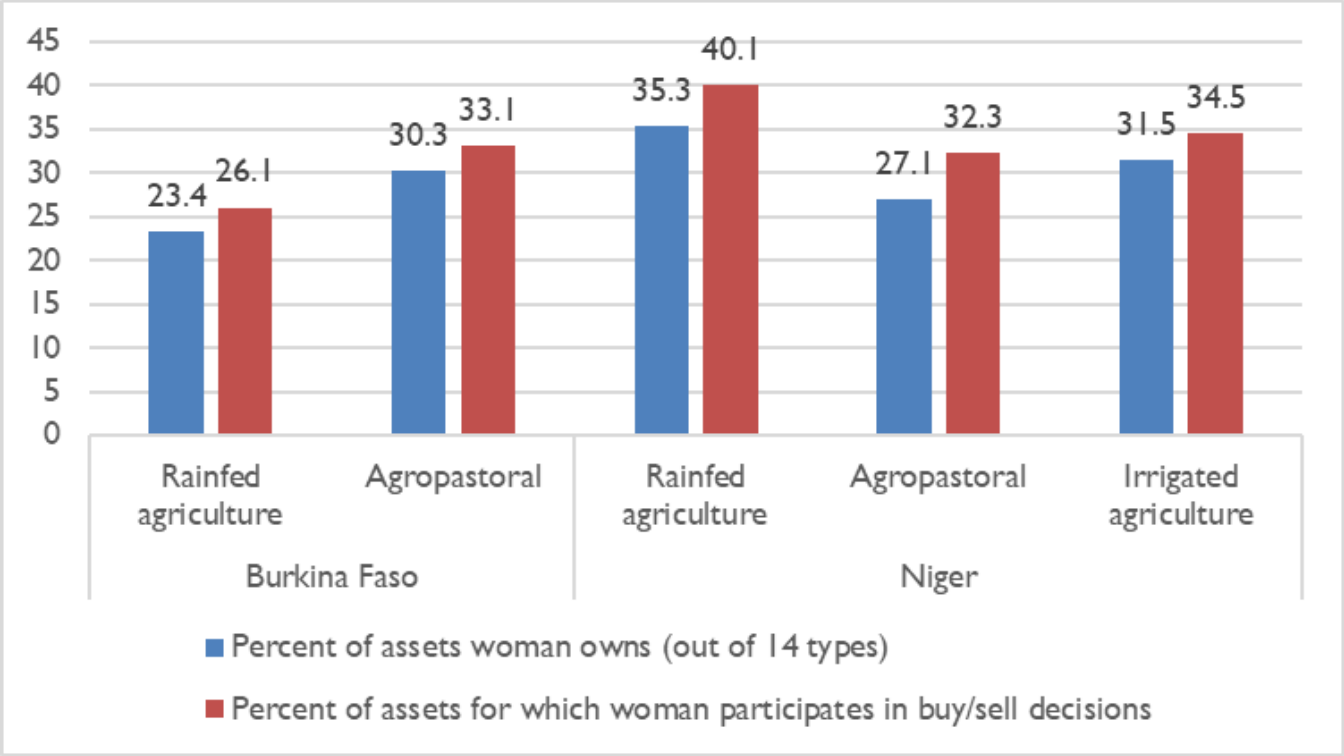
For the RISE II project area as a whole, the mean percentage of the assets owned by women, whether individually or jointly, is 27.9%. The mean percentage of assets for which women participate in decisions about buying and selling is 31.1%. Both the ownership of assets and participation in decision-making about buying or selling them is moderately higher in the Niger area than the Burkina Faso area.

Within the Burkina Faso area, women living in agropastoral-zone households tend to own more assets than those residing in the rainfed agriculture zone. Within the Niger area, women in rainfed-

[19] The types of assets are: plots of farmland, large livestock, small livestock, poultry, fish pond/fishing equipment, farming equipment (non-mechanical), farming equipment (mechanical), non-agricultural enterprise equipment, house and other buildings, large consumer goods, small consumer goods, cellular phone, land not for agricultural uses, and means of transportation.

agriculture-zone households tend to have greater ownership of and participation in decision-making about assets than those in the other two zones (Figure 8.3).

Figure 8.3 Indicators of women's asset ownership and decision-making, by RISE II livelihood zone



With regard to land, some qualitative respondents reported that women have no ownership of land, no right to participate in discussions about land management, and only farm the portions given for their temporary use by their husbands. Other respondents reported that men and women make decisions about land use together, and that women participate in discussions of land at the village level. While land has been traditionally owned by men—that is changing. One Niger mayor reported that about 80% of land in his commune was owned by men, and 20% by women. Other Niger respondents stated that women could obtain land by purchasing it, inheriting it or receiving a donation from their husbands, but in the event of divorce the land would revert to the husband.

> *"In the Moaga kingdom, there are no women who own agricultural land. In general, the land they use belongs to their husbands. A woman can own land if she is the only child. In this case, she acquires the land by inheritance."*
>
> *—Burkina Faso government agriculture extension agent*

Some respondents specified that women's groups can obtain land from chiefs in the village for their own production. One association, for example, has a field where the women cultivate baobab, arzentira (moringa) and other species, which they sell to meet their needs. They also benefit from support from external agencies because they are organized into an association. Groups may function

with each woman obtaining permission from her husband to cultivate land, but one respondent stated that then she was obliged to produce individually and send the income to her husband (or make decisions with him alone), rather than involve the group.

8.5 Decision-Making over Livelihood Activities

As part of the quantitative survey, women were also asked questions about their role in decision-making regarding the livelihood activities they themselves participated in.[20] For the activities they indicated they did participate in, the questions were:

1. What was your level of input in the decision-making regarding the activity?
2. What was your level of input in the decision-making on the use of revenue generated by the activity?

An index ranging from 1 to 5 was created from the possible responses (index value in parentheses):

None (1)
Input in very few decisions (2)
Input in some decision (3)
Input in most decisions (4)
Input in all decisions (5)

From Table 8.1, participation in decision-making over livelihood activities is somewhat higher in Niger than Burkina Faso (3.4 versus 2.8 on the index for both types of decisions). There is little difference across the livelihood zones in the indicators.

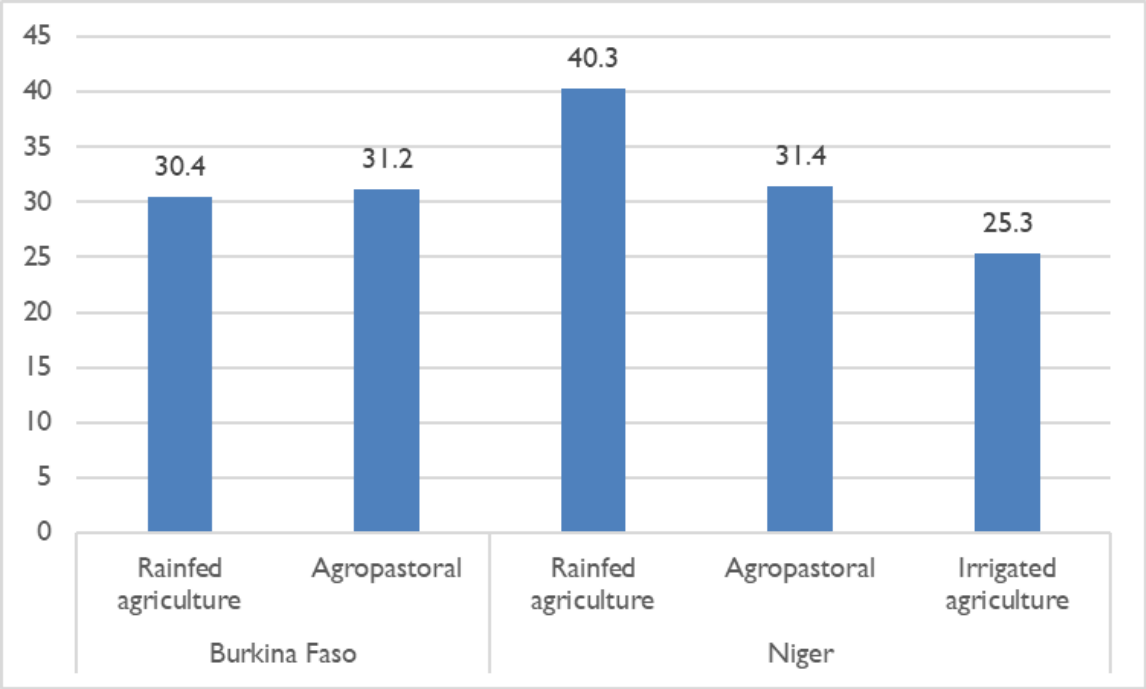
8.6 Women's Participation in Community Groups

Finally, women's participation in community groups is measured as the percentage of women reporting that they are members of one or more groups out of a total of 11.[21]

The percentage of women who are members of one or more groups is 31.5 in the project area as a whole. It does not differ significantly across the project areas. With regard to livelihood zones, the only difference found is that Niger-area women residing in the rainfed agriculture zone are more likely to be members of a community group than those residing in the irrigated agriculture zone (Figure 8.4).

[20] The six activities are: food production (crops primarily grown for household consumption), cash crops (crops primarily grown for sale in markets), livestock production, non-agricultural economic activities (small business, self-employment, purchase and sale), employment income/salary (work in kind or monetary in agriculture and other paid work), fishing and fish pond.
[21] The types of groups are: Agricultural/livestock/fisheries producer's group (including marketing groups), water users' group, forest users' group, credit or microfinance group, savings group, mutual help or insurance group, trade and business association, civic groups or charitable group, local government, faith-based group, mother's group, youth group, sports group, communal grazing land users' group, communal natural resources group, disaster planning group, Safe Spaces, conflict resolution group, other women's group.

Figure 8.4 Percentage of women who are members of one or more community groups, by RISE II livelihood zone



Qualitative findings reported in Chapter 7 provide insights on women's participation in community groups. Women's groups are active in health and nutrition, as well as in various livelihood activities, the latter sometimes on an informal basis. One Niger respondent stated that there were no community groups, but that the women were maintaining a mill and when it broke down, they met to discuss it along with other community members. Women's groups may combine production activities with mutual savings, which can be particularly empowering.

> *"The Nabonswendé group is a women's cowpea producers' group. When we harvest, we store the cowpeas to wait for the price to increase before selling. The money we get is saved in the Pissila fund. We also make contributions that we save ourselves, during the dry season each member contributes monthly according to her capacity. When the rainy season approaches (June) we share the money. This money will be used to support the expenses of the winter season (purchase of improved seeds, fertilizers and the expenses for the various needs of each member)."*
> *—Burkina Faso women's FGD participant*

8.7 Additional Qualitative Findings on Gender and Women's Empowerment

Numerous qualitative respondents in both Niger and Burkina Faso reported that there was increasing equality between women and men. Many reported specific positive changes towards greater equality, and some specifically said there were no negative changes. This sense was reflected in the comments of

leaders, men's and women's group, and particularly among role model women and positive deviant households.

> *"There are two types of female role models. Those who are native to [the village] and those who are living in other cities–they come back to encourage the education of young girls and show that just like men, women can also succeed through school. There are model women in Korsimoro who are leaders of associations, who raise awareness and guide. For example, there is a woman leader who has decided to plant 11,000 moringa trees and 7,000 baobab trees. And the leaves of these trees are sold everywhere in other cities. And this woman is even a councilor in her village. This year, an NGO came to buy these plants for 1,800,000 fcfa. And even when we talk about the recovery of the soil, it is the women who are in front."*
> *—Burkina Faso Mayor*

Some respondents stated that positive changes in women's empowerment could be forestalled if other community issues are not dealt with, such as strengthening access to water or re-establishing security.

Several other areas of qualitative findings on gender relations, additional to those discussed above and in Chapter 7 (on contraceptives and health care), are important to note here.

As expected, women generally are responsible for household chores (cooking, cleaning, fetching water), and the care and education of children, while also increasingly working in productive activities. There was some recognition that women work more than men, and this was acknowledged by some men's groups. Some respondents stated that they do not speak in terms of an equitable distribution of roles but in terms of complementarity, and they simply accept that this is the way things are:

> *"No, the division of labor is not equal. Women work more than men. We don't think that there can be any improvement because these are tasks generally known as specifically female or male."*
> *—Niger women's FGD participant*

Others argued that traditional complementarity is not enough, and that awareness-raising on mutual support in households would be necessary.

> *"The positive change will be that men get more involved in the management of the household, through collaboration with the woman for all types of decisions. But for that it would be necessary to sensitize the men more to get involved in the various tasks of the life of the household."*
> *—Burkina Faso male FGD participant*

Domestic violence is another crucial gender issue raised that was not specifically asked about, but nonetheless emerged in answer to a general question about women's vulnerability or gender issues. Eight villages (4 in Burkina Faso, 4 in Niger) had reports of domestic violence. Other villages mentioned it, but only to say that it was a problem they didn't have.

8.8 Summary: Gender and Women's Empowerment

Consistent with very low rankings for gender equality internationally in Burkina Faso and Niger, women in the RISE II project area have low decision-making power in their households and communities. Only 22% of women earned cash income in the year prior to the baseline, and while most then did participated in decisions about how that income would be spent, very few women participate in decisions about how cash income earned by their spouses/partners is spent. Of the one-third of women who had accessed credit in the last year, the majority did then participate in credit decision-making. Women own, and participate in decision-making regarding, less than one-third of all types of household assets. The average woman participates in only "some" decisions about household livelihood activities, as opposed to "most" or "all" decisions. Less than a third participate in community groups.

Women residing in the Niger project area are better off in terms of empowerment than women residing in the Burkina Faso area on almost all of the indicators examined.

Qualitative findings indicate that despite the prevalence of traditional roles and gender relations, there are many signs of progress in areas ranging from the use of income and assets to issues like health, family planning and sharing workloads. There is a growing awareness of the importance of men and women discussing these issues, even if it is still most common that men are understood to have the final word. Cutting-edge examples of role model women, positive deviants, women's groups and practices can help raise awareness and promote further advancement.

9. CONCLUSION

What challenges to household well-being were identified?

As we have seen, households in the RISE II project area experienced multiple shocks in the year before the baseline survey. These include rainfall deficits, food price inflation, serious illness, unexpected medical expenses, crop diseases and pests, and conflict from armed groups related to terrorism. To cope with these shocks, households attempted to reduce their expenditures, including on food, and increase income by taking on additional work or drawing down on their savings. Migration and remittances were also important coping strategies. Some particularly negative strategies were taking children out of school, selling productive assets, and reducing food consumption. These strategies undermine households' future ability to recover from shocks. Reliance on food assistance, cash transfers, or food/cash for work was very low, partially due to the limited availability of formal humanitarian assistance.

Nearly half of all households in the project area are moderately-to-severely food insecure, and a full quarter experience the most severe form of food insecurity: hunger. The food insecurity prevalence is higher in the Niger area than in the Burkina Faso area (56.9% vs. 43.5%). An underlying cause of food insecurity is poverty which, again, is higher in the Niger area. The major health and nutrition issues are poor access to safe drinking water and basic sanitation services, low contraceptive use, poor infant feeding practices, and very low dietary diversity among children and women. These issues lead to moderate to "very high" malnutrition prevalence among children and women of reproductive age. Particularly concerning are the very high prevalence in the Niger area of stunting among children under 5 years (51%) and underweight among women of reproductive age (23.8%).

While household resilience capacities are generally low throughout the project area, they are lower in the Niger area than in the Burkina Faso area, particularly adaptive capacities. At the time of the baseline survey, Niger households had lower linking social capital, aspirations and confidence to adapt, asset ownership, access to savings, human capital, exposure to information, and access to conflict mitigation institutions.

Experiential indicators of households' resilience indicate that most households in the project area could not recover from the shocks they faced in the years prior to the baseline survey. The average household is worse off than it was a year ago due to the shocks it faced.

A foundation of governance mechanisms, whether community institutions and leaders or local and state government institutions, is in place. However, continued strengthening of household participation and inclusion (of women, youth, and all ethnic groups) is needed. Strengthening land and water governance mechanisms is particularly important.

Women in the project area have low decision-making power in their households and communities, with only a minority earning cash income. Women have lower participation than men in decisions over

how household income is spent, the acquisition and allocation of household assets, and household livelihood activities. Less than a third participate in community groups.

What challenges are being addressed by the RISE II initiative and what needs to be given more emphasis in the future?

The multiple projects under the RISE II initiative are designed to address most of the challenges identified by this analysis of the baseline data. The multi-sectoral Title II projects address livelihoods, food and nutrition security, and health and hygiene. Specialized projects, such as Inclusive Governance for Resilience in Burkina Faso and Resilient Governance in Niger focus on strengthening governance, and others focus on increasing access to markets (e.g. Yalwa and Yidgiri). Many of the projects include activities to strengthen women's empowerment.

What will need more emphasis in the future? Over the last 7 to 8 years, households in the RISE II area have experienced a sharp escalation of shock exposure, with multiple droughts and floods, escalating conflict shocks related to civil insecurity and terrorism, the COVID-19 pandemic, and economic shocks such as food price inflation and unemployment. While no extreme climate shock hit the area in the year before the baseline, this analysis documents a continuing experience of escalated shock exposure, high food insecurity and malnutrition, and an inability of households to maintain their well-being, signifying low resilience. Yet, as we have seen, very few households could take advantage of a formal shock responsive safety net in the form of humanitarian assistance, most often because of a lack of availability of such a safety net rather than lack of need. Humanitarian assistance is necessary for preventing losses of development gains made so far and preventing continued use of negative coping strategies that undermine resilience. By helping households meet their most basic needs in times of crisis, humanitarian assistance can free up households' time to engage in RISE II initiative activities that build their resilience to future shocks.

Shock exposure rose dramatically during the RISE I initiative, and yet humanitarian assistance was not increased in response to meet the need. We saw households' food security plummet, and some gains achieved in the first part of the project were lost. It is important for RISE II project managers to learn from this experience and keep a careful watch on changing shock exposure so that humanitarian assistance can be activated at a level that will meet the need. The current RISE II crisis modifier is not at scale to meet the collective need.

A major and increasing resilience challenge facing households in the RISE II area is the conflict caused by terrorism. Activities to help households deal with this challenge are urgently needed for the project to successfully reach its goal of strengthening Sahelian households' resilience. Some examples are:

- Help those recovering from violent attacks with food, shelter, medical care, and trauma counselling.
- Provide targeted humanitarian assistance to the displaced and their host households who are under stress from additional people to care for.
- Collaborate with other donors and the United Nations to advocate for reductions of hostilities by insurgent groups.

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ANNEX 1. SUPPLEMENTARY TABLES

Table A1.4.1 Comparison of shock exposure by project area and RISE II livelihood zone

		Program area		Livelihood zone within program areas				
				Burkina Faso		Niger		
	All	Burkina Faso	Niger	Rainfed agriculture	Agropastoral	Rainfed agriculture	Agropastoral	Irrigated agriculture
Climate shocks (% of housholds)								
Excessive rain/flood	18.5	11.4 [a]	33.8 [a]	11.0	11.6	36.1	34.1	30.4
Too little rain/drought	67.5	74.8 [a]	51.6 [a]	74.2	75.8	54.3 [a]	32.8 [ac]	63.8 [c]
Disease/pests affecting crops	25.5	24.1	28.5	18.9	30.1	31.1	24.6	27.7
Disease affecting livestock	12.7	15.8 [a]	6.1 [a]	20.1 [a]	11.0 [a]	7.1	4.2	6.4
Bush fire	0.5	0.4	0.7	0.4	0.5	0.3	0.9	1.2
Conflict shocks (%)								
Conflict over land/water use	2.2	2.4	1.9	1.4	3.5	3.0	1.0	1.1
Loss of household's land	5.9	5.1	7.6	4.0	6.2	6.8 [b]	14.0 [c]	3.3 [bc]
Loss of access to household's land	5.7	5.0	7.4	3.4	6.6	6.5	11.9 [c]	4.6 [c]
Armed groups/political conflict	14.1	19.5 [a]	2.3 [a]	14.5	25.4	0.7 [a]	4.8 [a]	2.5
Theft of crops	7.3	6.3	9.3	2.8 [a]	10.5 [a]	11.1 [a]	3.7 [ac]	11.2 [c]
Theft of livestock	5.2	5.4	4.7	4.1	6.8	4.9	3.8	5.1
Theft/destruction of household belongings	4.0	3.8	4.4	2.3	5.3	5.6	3.9	2.9
Economic shocks (%)								
Sharp food price increases	62.8	58.6 [a]	71.8 [a]	58.3	59.2	79.2 [ab]	63.4 [a]	67.9 [b]
Unable to access crop inputs	13.9	15.9 [a]	9.6 [a]	9.3 [a]	23.7 [a]	9.8	6.0 [c]	12.5 [c]
Unable to access livestock inputs	5.5	6.5 [a]	3.3 [a]	3.3 [a]	10.2 [a]	3.0	2.0	5.0
Unable to sell products at a fair price	8.1	9.4 [a]	5.2 [a]	9.1	9.9	6.2	4.2	4.6
Sudden demand to repay loan	9.5	6.9 [a]	15.2 [a]	5.7	8.1	18.5 [a]	8.0 [ac]	16.5 [c]
Job loss by household member	4.2	4.0	4.6	4.4	3.6	3.8	1.6 [c]	8.3 [c]
Long-term unemployment	10.7	11.3	9.1	7.6 [a]	15.8 [a]	11.4 [a]	4.7 [a]	9.5
COVID-19 lockdown/restrictions	16.1	15.9	16.6	18.4	13.2	20.8 [a]	4.1 [ac]	21.0 [c]
Abrupt end of assistance/regular support from outside the household	4.6	4.0	5.8	5.3	2.6	5.3 [ab]	1.6 [ac]	10.3 [bc]
Unexpected medical expenses	42.1	40.2	46.2	47.0 [a]	32.7 [a]	47.0	42.4	48.7
N	3,536	1,777	1,759	1,087	684	807	429	521

a,b,c Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

Table A1.4.1 Comparison of shock exposure by project area and RISE II livelihood zone (continued)

	All	Program area		Livelihood zone within program areas				
				Burkina Faso		Niger		
		Burkina Faso	Niger	Rainfed agriculture	Agropastoral	Rainfed agriculture	Agropastoral	Irrigated agriculture
Other shocks (%)								
Death of household member	7.3	5.0 [a]	12.3 [a]	4.3	5.9	16.6 [ab]	7.9 [a]	9.5 [b]
Serious illness of member	35.9	32.1 [a]	44.1 [a]	32.7	31.2	49.9 [ab]	39.1 [a]	39.8 [b]
Illness due to COVID-19	0.3	0.4	0.1	0.3	0.4	0.0	0.0	0.4
Emigration of household member	3.5	1.5 [a]	7.9 [a]	1.5	1.6	8.4	6.8	8.0
Fire (house…)	1.1	0.6 [a]	2.3 [a]	0.0 [a]	1.2 [a]	1.8	2.9	2.4
Forced repatriation	4.3	5.6 [a]	1.5 [a]	5.3	6.1	1.6	0.8	1.9
Household dislocation	1.6	1.3	2.5	0.4	2.3	2.0	2.7	3.0
Sudden increase in household size	7.2	8.4 [a]	4.6 [a]	6.5	10.7	5.0 [a]	1.2 [ac]	6.9 [c]
Index (mean)								
Shock exposure index	13.5	13.5	13.5	12.6	14.6	14.9 [a]	10.3 [ac]	14.3 [c]
Shock exposure index (drought-related)	6.1	6.3	5.6	6.2	6.5	6.3 [a]	4.2 [ac]	5.9 [c]
Number of shocks exposed to in last year	4.1	4.0	4.2	3.8	4.3	4.6 [a]	3.4 [ac]	4.4 [c]
Summary (%)								
Climate shocks	81.3	82.4	79.1	83.2	81.4	82.2 [a]	68.0 [ac]	83.9 [c]
Conflict shocks	29.6	32.2	23.8	23.9 [a]	41.4 [a]	24.3	26.0	21.0
Economic shocks	78.6	75.8 [a]	84.5 [a]	77.9	73.9	88.7 [a]	76.1 [a]	85.5
Other shocks	44.1	38.7 [a]	55.7 [a]	38.2	39.1	61.4 [a]	49.2 [a]	52.6
N	3,536	1,777	1,759	1,087	684	807	429	521

a,b,c Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

Table A1.4.2 Comparison of coping strategies by project area and livelihood zone

		Program area		Livelihood zone within program areas				
				Burkina Faso		Niger		
`	All	Burkina Faso	Niger	Rainfed agriculture	Agropastoral	Rainfed agriculture	Agropastoral	Irrigated agriculture
Management of livestock								
Send livestock in search of pasture	11.9	7.7 [a]	20.8 [a]	10.2	4.8	18.1	15.8 [c]	29.1 [c]
Sell livestock	25.9	24.0	29.9	24.9	23.2	33.6	23.9	29.1
Slaughter livestock	6.3	2.4 [a]	14.6 [a]	2.8	1.9	9.0 [b]	15.5	22.3 [b]
Sell the last female animals	3.4	1.6 [a]	7.3 [a]	2.8 [a]	0.1 [a]	8.8 [a]	3.6 [a]	8.2
Strategies to get more food or money								
Labor strategies								
Take up new or additional work	40.0	39.6	41.0	33.8	46.9	45.5 [a]	31.8 [ac]	41.7 [c]
Send children to work for money	6.9	4.1 [a]	13.0 [a]	5.1	2.9	14.5 [a]	7.5 [ac]	15.1 [c]
Migration								
Migration of some family members	17.1	9.4 [a]	33.6 [a]	11.4	7.0	31.4 [b]	26.7 [c]	42.5 [bc]
Migration of the whole family	0.9	0.4 [a]	1.9 [a]	0.0	0.9	2.6 [a]	0.7 [a]	1.7
Send someone (child or adult) to stay with relatives	2.9	1.9 [a]	5.1 [a]	1.3	2.7	5.7 [a]	1.6 [ac]	7.0 [c]
Sell or lease out assets								
Sell household items (e.g., radio, bed)	6.1	1.6 [a]	15.8 [a]	0.8 [a]	2.5 [a]	20.2 [ab]	11.2 [a]	12.6 [b]
Sell household valuables (e.g., jewelry, gold)	0.2	0.0 [a]	0.5 [a]	0.0	0.0	0.5	0.7	0.2
Barter household belongings for food	10.1	1.8 [a]	27.8 [a]	1.7	1.9	30.8	25.0	25.4
Sell productive assets (e.g., plough)	3.0	1.8 [a]	5.7 [a]	0.2 [a]	3.6 [a]	5.6	3.7	7.5
Lease out land	1.5	0.4 [a]	3.7 [a]	0.6	0.2	7.0 [ab]	0.7 [a]	0.8 [b]
Sell house or land	1.0	0.6 [a]	1.9 [a]	0.6	0.5	2.5 [b]	2.1	0.6 [b]
Borrow money or rely on savings								
Borrow (interest) from MFI/savings group	0.8	0.6	1.1	0.3	1.0	1.2	0.5	1.3
Borrow (interest) from formal bank	0.8	0.8	0.9	0.6	1.0	0.8	0.2	1.7
Borrow (interest) from money lender	3.7	1.8 [a]	7.9 [a]	1.9	1.7	11.9 [ab]	5.3 [a]	3.7 [b]
Use own savings	39.5	41.3	35.8	51.0 [a]	30.1 [a]	31.3 [b]	37.0	41.5 [b]
Get food on credit from a local merchant	26.1	15.0 [a]	49.6 [a]	12.7	17.8	54.4 [a]	39.4 [ac]	50.6 [c]
N	3,383	1,690	1,693	1,050	635	791	393	507

a,b,c Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

Table A1.4.2 Comparison of coping strategies by project area and livelihood zone (continued)

`	All	Program area		Livelihood zone within program areas				
				Burkina Faso		Niger		
		Burkina Faso	Niger	Rainfed agriculture	Agropastoral	Rainfed agriculture	Agropastoral	Irrigated agriculture
Rely on formal sources of assistance								
Emergency food assistance - gov. or NGO	5.0	3.2 [a]	9.0 [a]	1.5 [a]	5.2 [a]	6.2	10.4	12.3
Emergency cash transfer - gov. or NGO	3.2	4.0 [a]	1.5 [a]	2.9	5.4	1.4	0.5	2.5
Food/cash-for-work - gov. or NGO	2.9	2.1	4.6	1.1	3.4	4.8	4.2	4.5
Rely on assistance from friends/relatives								
Money/food (gift) from someone within community	8.5	6.5 [a]	12.7 [a]	2.3 [a]	11.7 [a]	12.3	8.9 [c]	16.5 [c]
Money/food (gift) from someone outside community	3.6	2.0 [a]	7.0 [a]	1.0 [a]	3.2 [a]	7.7	5.7	6.8
Remittances from a relative that migrated	13.4	7.4 [a]	26.0 [a]	9.8 [a]	4.6 [a]	19.7 [b]	20.5 [c]	40.2 [bc]
Borrow (interest) from someone within community	28.3	19.3 [a]	47.3 [a]	19.8	19.1	48.6	49.6	43.3
Borrow (interest) from someone outside community	11.5	7.2 [a]	20.6 [a]	6.2	8.3	18.0 [a]	34.4 [ac]	13.4 [c]
Strategies to reduce current expenditure								
Reduce food consumption/change source								
Lean season food/hunting/gathering/termites	9.9	8.2 [a]	13.4 [a]	13.7 [a]	1.5 [a]	12.4	8.6 [c]	18.8 [c]
Consume seed stock (saved for planting next season)	14.2	10.4 [a]	22.2 [a]	11.1	9.7	22.3	19.2	24.3
Reduce food consumption	48.0	41.6 [a]	61.7 [a]	49.4 [a]	32.6 [a]	67.2 [a]	44.3 [ac]	67.4 [c]
Reduce non-essential household expenses	53.7	49.4 [a]	62.8 [a]	58.4 [a]	39.1 [a]	62.3	50.8 [c]	73.1 [c]
Take one or more children out of school	2.8	3.6 [a]	1.1 [a]	3.4	4.0	0.9	1.1	1.5
Move to less expensive housing	0.5	0.6	0.3	0.3	1.0	0.0	0.2	0.8
Other								
Resort to begging	2.7	2.1 [a]	3.9 [a]	1.1	3.3	6.4 [ab]	1.6 [a]	2.2 [b]
Engage in spiritual efforts, such as prayer or sacrifices	35.9	38.3 [a]	30.8 [a]	35.9	41.5	37.5 [a]	15.7 [ac]	32.7 [c]
Number of negative coping strategies	1.1	0.9 [a]	1.5 [a]	1.0 [a]	0.8 [a]	1.7 [a]	1.1 [ac]	1.6 [c]
N	3,383	1,690	1,693	1,050	635	791	393	507

a,b,c Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

Table A1.5.1 Indicators of aspirations and confidence to adapt, by project area and RISE II livelihood zone

	All	Program area		Livelihood zone within program areas				
				Burkina Faso		Niger		
		Burkina Faso	Niger	Rainfed agriculture	Agropastoral	Rainfed agriculture	Agropastoral	Irrigated agriculture
Absence of fatalism (index)	31.6	35.7 [a]	22.6 [a]	34.4	37.0	23.9	18.4	24.2
Power to enact change (index)	58.1	64.4 [a]	44.4 [a]	65.4	63.1	45.6 [ab]	34.6 [ac]	50.9 [bc]
Exposure to alternatives (index)	7.8	7.6	8.2	6.7 [a]	8.6 [a]	8.1	8.7	7.9
Index of aspirations and confidence to adapt	44.5	49.8 [a]	33.0 [a]	50.2	49.2	34.2 [a]	25.6 [ac]	37.4 [c]
N	3,543	1,781	1,762	1,090	685	808	429	523

a,b,c Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

Table A1.5.2 Indicators and index of asset ownership, by project area and RISE II livelihood zone

	All	Program area		Livelihood zone within program areas				
				Burkina Faso		Niger		
		Burkina Faso	Niger	Rainfed agriculture	Agropastoral	Rainfed agriculture	Agropastoral	Irrigated agriculture
Consumer durables owned (index)	9.3	10.3 [a]	7.3 [a]	9.5 [a]	11.2 [a]	6.9	7.9	7.3
Farming implements owned (index)	4.2	4.2	4.0	4.3	4.2	4.1	4.2	3.7
Animals owned (Tropical Livestock Units)	1.8	2.1 [a]	1.0 [a]	2.1	2.2	0.9	1.4 [c]	0.8 [c]
Land owned (ha)	2.1	2.1	2.2	2.3	1.9	1.9 [a]	2.8 [ac]	2.0 [c]
Index of asset ownership	15.6	16.5 [a]	13.6 [a]	16.4	16.6	13.1 [a]	15.4 [ac]	12.9 [c]
N	3,545	1,781	1,764	1,090	685	808	429	523

a,b,c Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

Table A1.5.3 Indicators and index of access to financial resources and percentage of households currently holding savings, by project area and RISE II livelihood zone

		Program area		Livelihood zone within program areas				
				Burkina Faso		Niger		
	All	Burkina Faso	Niger	Rainfed agriculture	Agropastoral	Rainfed agriculture	Agropastoral	Irrigated agriculture
Access to credit (Percent of households)	28.8	15.4 [a]	58.0 [a]	5.3 [a]	27.0 [a]	59.6	62.9	51.3
Access to savings (Percent of households)	32.4	21.8 [a]	55.5 [a]	13.7	31.2	60.9	45.6	55.8
Index of access to financial resources (0-2)	0.61	0.37 [a]	1.13 [a]	0.19	0.58	1.20	1.09	1.07
Currently holding savings (Percent of household	11.5	14.4 [a]	5.4 [a]	10.6 [a]	19.0 [a]	6.3 [a]	2.5 [ac]	6.4 [c]
N	3,545	1,781	1,764	1,090	685	808	429	523

a,b,c Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

Table A1.5.4 Indicators and indexes of access to markets, infrastructure, services and communal natural resources, by project area and RISE II livelihood zone

	All	Program area		Livelihood zone within program areas				
				Burkina Faso		Niger		
		Burkina Faso	Niger	Rainfed agriculture	Agropastoral	Rainfed agriculture	Agropastoral	Irrigated agriculture
Markets (Percent of households)								
Livestock	64.6	65.3	63.1	56.1	75.8	59.5	80.7	53.6
Agricultural products	33.9	37.0	27.2	44.6	28.6	23.0	40.0	22.5
Agricultural inputs	53.6	61.4 [a]	36.7 [a]	54.8	68.8	39.5 [b]	57.4 [c]	14.7 [bc]
Index of access to markets (0-3)	1.52	1.64	1.27	1.56	1.73	1.22 [a]	1.78 [ac]	0.91 [c]
Infrastructure (Percent of households)								
Piped water is a main source of drinking water	47.1	50.0	40.7	44.2	57.1	35.5	41.3	47.9
Electricity used by >50% of hhs	14.5	17.7	7.7	21.1	14.0	5.7	8.8	9.9
Phone access	52.9	45.3 [a]	69.4 [a]	48.3	41.4	59.8 [a]	95.9 [ac]	61.4 [c]
Paved road	22.9	27.5	12.9	18.2	37.9	2.6 [b]	19.5	22.8 [b]
Index of access to infrastructure (0-4)	1.37	1.41	1.31	1.32	1.50	1.04 [a]	1.66 [a]	1.42
Services (Percent of households)								
Primary school within 5 km	99.7	100.0	98.9	100.0	100.0	97.6	100.0	100.0
Health center within 5 km	77.4	79.3	73.3	74.8	84.3	70.1	66.8	84.1
Veterinary services within 5 km	41.2	53.6 [a]	14.3 [a]	44.6	64.2	3.1 [a]	28.8 [a]	18.8
Agricultural extension available	43.4	45.2	39.6	35.2	56.6	37.3	43.9	39.8
Credit institutions	25.9	15.4 [a]	48.6 [a]	5.3 [a]	27.0 [a]	52.0	39.3	51.3
Savings institutions	27.7	18.0 [a]	49.0 [a]	9.3	27.9	54.7	30.7	55.8
Security services are available	65.3	72.7 [a]	49.1 [a]	68.5	78.1	41.5	58.5	52.7
Index of access to basic services (0-7)	3.81	3.84	3.73	3.38 [a]	4.38 [a]	3.56	3.68	4.02
Communal natural resources (Percent of households)								
Village has communal grazing areas	56.6	53.8	62.6	50.1	57.8	64.9	64.3	58.1
Village has communal water sources for livestock	42.9	40.0	49.3	29.2	52.5	46.2	47.8	55.6
Firewood can be obtained from communal land	65.4	64.8	66.9	67.1	61.9	68.0	84.0 [c]	50.2 [c]
Index of access to communal natural resources (0	1.65	1.59	1.79	1.46	1.72	1.79	1.96	1.64
N	3,545	1,781	1,764	1,090	685	808	429	523

a,b,c Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

Table A1.5.5 Indicators and index of human capital, and index of exposure to information, by project area and RISE II livelihood zone

	All	Program area		Livelihood zone within program areas				
				Burkina Faso		Niger		
		Burkina Faso	Niger	Rainfed agriculture	Agropastoral	Rainfed agriculture	Agropastoral	Irrigated agriculture
Percent of households with an adult having primary or higher education	39.3	43.2 [a]	30.6 [a]	42.7	43.9	30.2	19.5 [c]	40.5 [c]
Number of different types of trainings received by adult household members (1-5)	0.21	0.23	0.17	0.27 [a]	0.17 [a]	0.20	0.12	0.19
Index of human capital (0-100)	18.2	19.1 [a]	16.1 [a]	19.7	18.4	16.3	13.3 [c]	18.0 [c]
Index of exposure to information (1-7)	2.13	2.60 [a]	1.10 [a]	2.41	2.82	0.98 [b]	0.73 [c]	1.58 [bc]
N	3,545	1,781	1,764	1,090	685	808	429	523

[a,b,c] Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

Table A1.5.6 Indicators and indexes of access for formal and informal safety nets, by project area and RISE II livelihood zone

	All	Program area		Livelihood zone within program areas				
				Burkina Faso		Niger		
		Burkina Faso	Niger	Rainfed agriculture	Agropastoral	Rainfed agriculture	Agropastoral	Irrigated agriculture
Formal safety nets (Percent of households)								
Food assistance	27.8	26.2	31.1	14.1 [a]	40.1 [a]	24.9	32.5	39.1
Housing and other non-food assistance	12.2	9.2	18.7	4.7	14.2	15.8	17.1	24.3
Assistance in the case of livestock losses	6.2	5.1	8.6	5.3	5.0	5.2	18.8	5.1
Assistance in the case of a disaster (from gov't. or NGO	11.0	9.6	14.2	0.0 [a]	20.5 [a]	16.8	11.9	12.3
Index of availability of formal safety nets (0-4)	0.57	0.50	0.73	0.24 [a]	0.80 [a]	0.63	0.80	0.81
Informal safety nets (community organisations, Percent of households)								
Credit or microfinance group	6.6	7.8	3.9	0.0 [a]	16.5 [a]	2.7	6.1	4.0
Savings group	16.9	6.7 [a]	39.2 [a]	0.0	14.2	38.1	30.7	48.1
Mutual help group	10.6	9.1	13.8	0.4 [a]	19.0 [a]	10.0	11.5	21.5
Civic (improving community) group	3.9	2.7	6.5	2.3	3.2	5.7	5.9	8.0
Charitable group	4.8	4.8	4.8	4.4	5.2	7.4	5.6	0.0
Religious group	29.1	30.7	25.6	14.1 [a]	50.0 [a]	23.9	25.4	28.3
Women's group	70.9	68.5	76.1	68.3	68.2	79.6	68.0	77.7
Index of availability of informal safety nets (0-7)	1.43	1.30	1.70	0.89 [a]	1.76 [a]	1.67	1.53	1.88
N	3,545	1,781	1,764	1,090	685	808	429	523

a,b,c Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

Table A1.5.7 Indicators and indexes of disaster risk reduction, by project area and RISE II livelihood zone

	All	Program area		Livelihood zone within program areas				
				Burkina Faso		Niger		
		Burkina Faso	Niger	Rainfed agriculture	Agropastoral	Rainfed agriculture	Agropastoral	Irrigated agriculture
Disaster preparedness and mitigation (Percent of households)								
Availability of a government disaster planning or response program	6.7	9.3	1.2	0.0 [a]	19.9 [a]	2.7	0.0	0.0
Availability of an NGO disaster planning or response program	12.1	10.7	15.2	1.5 [a]	21.1 [a]	16.8	11.9	15.4
Availability of a disaster planning group	5.9	5.0	7.7	2.3	8.3	6.0	6.1	11.6
Emergency plan for livestock offtake if a drought hits	16.5	8.8 [a]	33.3 [a]	10.4	6.9	39.4	17.3	37.6
Index of disaster preparedness and mitigation (0-4)	0.41	0.34	0.57	0.14	0.56	0.65	0.35	0.65
Availability of hazard insurance (Percent of households)	9.1	5.7 [a]	16.5 [a]	5.8	5.7	20.5	18.8	8.4
Availability of conflict mitigation institution (Percent of households)	58.4	64.4 [a]	45.4 [a]	68.0	60.2	56.6	28.5	42.8
N	3,545	1,781	1,764	1,090	685	808	429	523

a,b,c Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

Table A1.6.1 Food security indicators, by project area and RISE II livelihood zone

	All	Program area		Livelihood zone within program areas				
				Burkina Faso		Niger		
		Burkina Faso	Niger	Rainfed agriculture	Agropastoral	Rainfed agriculture	Agropastoral	Irrigated agriculture
Access to food								
Food Insecurity Experience Scale indicators (1 month recall)								
Percent of households moderately or severely food insecure	47.7	43.5 [a]	56.9 [a]	38.4	49.7	67.6 [ab]	42.9 [a]	52.8 [b]
Percent of households severely food insecure	22.3	21.6	23.9	12.8 [a]	32.0 [a]	30.2 [a]	13.2 [ac]	23.5 [c]
[Prevalence rate of moderate-severe food insecurity]	49.0	44.7 [a]	58.5 [a]	39.9	50.5	67.8 [ab]	45.8 [a]	55.1 [b]
[Prevalence rate of severe food insecurity]	11.2	11.7	10.1	7.5 [a]	16.8 [a]	12.7 [a]	5.2 [ac]	10.3 [c]
Household Food Insecurity Access Scale indicators (1 month recall)								
Household food security scale (0-27) (mean)	19.8	20.7 [a]	17.7 [a]	21.9 [a]	19.2 [a]	16.2 [ab]	19.7 [a]	18.3 [b]
Percent of households food insecure	72.8	66.8 [a]	85.9 [a]	66.6	67.1	90.6 [a]	80.7 [a]	83.3
Hunger								
Household hunger scale (0-6) (mean)	0.8	0.8	0.8	0.6 [a]	1.0 [a]	1.0 [ab]	0.4 [ac]	0.8 [bc]
Percent households in hunger	26.6	25.9	28.0	16.5 [a]	37.1 [a]	36.8 [ab]	14.6 [ac]	26.0 [bc]
Dietary quality								
Food Consumption Score (0-112) (mean)	39.7	39.0	41.3	36.0 [a]	42.3 [a]	39.0 [a]	46.3 [ac]	40.5 [c]
Percent of households with poor food consumption	24.6	28.2 [a]	16.7 [a]	27.6	29.2	18.9 [a]	7.3 [ac]	21.7 [c]
Percent of households with borderline food consumption	21.6	18.3 [a]	28.6 [a]	19.7	17.0	30.8	25.0	28.4
Percent of households with acceptable food consumption	53.9	53.5	54.7	52.7	53.8	50.3 [a]	67.6 [ac]	49.9 [c]
N	3,531	1,778	1,753	1,089	683	806	425	519

a,b,c Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

Table A1.6.2 Children's health, dietary diversity, feeding practices and nutritional status, by project area and RISE II livelihood zone

	All	Program area		Livelihood zone within program areas				
				Burkina Faso		Niger		
		Burkina Faso	Niger	Rainfed agriculture	Agropastoral	Rainfed agriculture	Agropastoral	Irrigated agriculture
Children's health (Percent)								
Diarrhea in children < 5 years (last 2 wks)	21.5	17.8 [a]	29.9 [a]	12.4 [a]	23.6 [a]	29.9	29.5	30.3
Males	20.5	16.5 [a]	29.9 [a]	11.1 [a]	22.7 [a]	28.5	30.5	31.3
Females	22.5	19.1 [a]	29.9 [a]	13.8 [a]	24.5 [a]	31.2	28.7	29.1
N(All)	3,843	2,034	1,809	1,136	891	854	336	612
N(males)	1,910	1,031	879	588	439	409	159	310
N(females)	1,933	1,003	930	548	452	445	177	302
Children's dietary diversity (Percent)								
Diet of minimum diversity 6-36 months	13.9	13.4	15.1	10.5	16.4	20.8 [a]	4.7 [ac]	14.3 [c]
Males	14.4	14.8	13.6	14.7	15.0	18.2		12.2
Females	13.4	12.1	16.6	7.4 [a]	17.7 [a]	23.3 [a]	3.4 [ac]	16.7 [c]
N(All)	1,161	639	522	355	283	223	104	195
N(males)	567	307	260	163	144	112	46	102
N(females)	594	332	262	192	139	111	58	93
Infant feeding practices (Percent)								
Exclusive breastfeeding of children < 6 m	14.3	9.4 [a]	25.5 [a]	4.3	14.6	29.0 [a]		30.0 [c]
Males	14.9	10.2	26.3	4.0				
Females	13.7	8.6 [a]	24.7 [a]					
N(All)	360	190	170	105	84	86	24	59
N(males)	181	101	80	63	38	42	8	30
N(females)	179	89	90	42	46	44	16	29
Children's nutritional status (Percent)								
Wasted children < 5 years	9.0	9.5	7.9	8.5	10.4	7.0	9.4	8.4
Males	10.9	11.8	8.7	11.2	12.7	7.7 [a]	12.7 [ac]	8.0 [c]
Females	7.1	7.1	7.1	5.7	8.3	6.5	6.4	8.7
Stunted children under 5 years	32.2	23.7 [a]	51.0 [a]	19.1 [a]	28.8 [a]	55.5	45.0	48.3
Males	34.1	25.4 [a]	54.0 [a]	19.4 [a]	32.1 [a]	57.8	46.1	53.3
Females	30.3	22.0 [a]	48.2 [a]	18.8	25.7	53.4 [b]	44.1	43.2 [b]
Healthy weight children under 5 years	88.5	87.4 [a]	90.9 [a]	90.3 [a]	84.5 [a]	91.6 [a]	88.6 [a]	91.1
Males	87.3	86.2	89.9	88.0	83.9	90.7 [a]	84.8 [ac]	91.7 [c]
Females	89.6	88.6	91.8	92.7 [a]	85.0 [a]	92.5	92.0	90.6
N(All)	3,846	2,034	1,812	1,136	891	855	336	614
N(males)	1,912	1,031	881	588	439	410	159	311
N(females)	1,934	1,003	931	548	452	445	177	303

a,b,c Subgroups with the same superscript are significantly different at the 0.05 level. Comparisons are across columns.

ANNEX 2. SAMPLE WEIGHT CALCULATIONS

Household-level sampling weights. Household sampling weights are calculated based on the separate sampling probabilities for each sampling stage and for each cluster (EA).

P_{1hi}= first-stage sampling probability of the i-th cluster in stratum h

P_{2hi}= second-stage sampling probability within the i-th cluster (household selection).

The probability of selecting cluster *i* in the sample is: $P_{1hi}= \frac{m_h \times N_{hi}}{N_h} \times b_{hi}$.

The second-stage probability of selecting households in cluster *i* is: $P_{2hi} = \frac{n_{hi}}{L_{hi}}$,

where:

m_h= number of sample clusters selected in stratum h.

N_{hi}= total households in the frame for the i-th sample cluster in stratum h.

N_h= total households in the frame in stratum h.

b_{hi}= the number of selected segments divided by the total number of segments in the i-th sample cluster in stratum h

n_{hi} = number of sample households selected for the i-th sample cluster in stratum h.

L_{hi}= number of households listed in the household listing for the i-th sample cluster in stratum h.

The overall selection probability of each household in cluster *i* of stratum *h* is the product of the selection probabilities of the two (or three) stages:

$$P_{hi} = P_{1hi} \times P_{2hi} = \frac{m_h \times N_h}{N_h} \times b_{hi} \times \frac{n_{hi}}{L_{hi}} .$$

The household design weight for each household in cluster *i* of stratum *h* is the inverse of its overall selection probability:

$$W_{hi} = \frac{1}{P_{hi}} = \frac{N_h \times L_{hi}}{m_h \times N_{hi} \times n_{hi} \times b_{hi}} .$$

The household sampling weight is calculated using the household design weight corrected for non-response in each selected clusters. Response rates are calculated at the cluster level as ratios of the number of interviewed households divided by the number of eligible households. The household sampling weight is calculated by dividing the household design weight by the household response rate. The non-response adjustment is applied at the EA level using the inverted proportion of the total

number of completed interviews for each group divided by the total number of eligible individuals for each group.

Individual-level sampling weights. Individual sampling weights are calculated based on the separate sampling probabilities for each sampling stage, for each cluster (EA), and for each household. The first- and second-stage probabilities are as above.

The third-stage probability of selecting individuals in household *j* in cluster *i* is: $P_{3hij} = \frac{k_{hij}}{K_{hij}}$,

where:

k_{hij}= number of individuals selected in household *j*

K_{hij}= total eligible individuals in household *j*.

The overall selection probability of each individual in household j in cluster *i* of stratum *h* is the product of the selection probabilities of the three stages:

$$P_{hij} = P_{1hi} \times P_{2hi} \times P_{3hij} .$$

The household design weight for each household in cluster *i* of stratum *h* is the inverse of its overall selection probability:

$$W_{hij} = \frac{1}{P_{hij}} .$$

The individual sampling weight is calculated using the individual design weight corrected for non-response in each of the selected clusters as well as for non-response in the household. Response rates are calculated at the household level as ratios of the number of interviewed individuals divided by the number of eligible individuals in each household.

ANNEX 3. CALCULATION OF RESILIENCE CAPACITY INDICATORS AND INDEXES

In this annex calculation of the indicators and indexes used to measure resilience capacity is documented, starting with indicators of social capital and "aspirations and confidence to adapt," followed by the rest of the indicators of absorptive, adaptive, and transformative capacity (see Figure 5.1 for the full list of indicators). The questions from the household and community questionnaires used for each indicator are listed after the explanation of its calculation. Those from the household questionnaire are preceded by "hh" and those from the community questionnaire by "cm."

A3.1 Indexes of Bonding, Bridging, and Linking Social Capital

The **bonding social capital** index is based on eight yes/no questions:

- Two asking whether the household would be able to get help from relatives in their community;
- Two asking whether the household would be able to get help from non-relatives in their community;
- Two asking whether the household would be able to give help to relatives within the community; and
- Two asking whether the household would be able to give help to non-relatives within the community.

Survey Questions: hh1305, hh1307, hh1310, hh1312, hh1316, hh1318, hh1321, hh1323.

The **bridging social capital** index is also based on eight yes/no questions, but each is asked with regard to relatives or non-relatives living *outside* of their community.

Survey Questions: hh1306, hh1308, hh1311, hh1313, h1317, hh1319, hh1322, hh1324.

The **linking social capital** index measures (1) the amount of information received from two types of government agents, rural development agents, and government (political) officials; and (2) the households' access to services that are generally provided by the government and the quality of those services, including access routes (roads, trails), schools, health services, facilities for veterinary services, and agricultural extension services.

Information received was measured using the number of topics from which respondents' households received information (out of a possible 7) from either a rural development agent or a government official in the last year. Data from the community survey were used to measure access to and quality of services.

Quality of Roads/Trails. A household was considered to have access to a good quality road/trail if a road/trail is available in the community it resides in, and the road/trail can be used for travel throughout the year.

Quality of Primary Schools. A 4-point quality scale was constructed as follows:

- No school (scale = 0);
- There is a school, but there are not enough teachers, and it is not in good physical condition (classified as poor or very poor) (scale = 1);
- There is a school, there are not enough teachers, but it is in good physical condition (classified as "good" or "very good") or vice versa (scale = 2); and
- There is a school and there are enough teachers, and it is in good physical condition (classified as "good" or "very good") (scale = 3).

Quality of Health Services. A 4-point quality scale was constructed as follows:

- No health center within 5 km (scale = 0);
- There is a health center within 5 km, but its physical condition is classified as "poor" or "very poor," or there was a time in the last year when people needed health services but could not get them from the health center because of quality problems[22] (scale = 1);
- There is a health center within 5 km, and either the physical condition is not good, or there are quality problems (but not both) (scale = 2); and
- There is a health center within 5 km, and its physical condition is good and there are no quality problems (scale = 3).

Quality of Facility for Veterinary Services. A 4-point quality scale was constructed using the same criteria as for the quality of health services.[23]

Quality of Agricultural Extension Services. A 3-point quality scale was constructed as follows:

- No agricultural extension services provided (scale = 0).
- Agricultural extension services are provided, but there was a time in the last year when people needed services but could not get them because of quality problems[24] (scale=1); and
- Agricultural extension services are provided, and there were no quality problems cited in the last year (scale = 2).

[22] These problems could be: (1) No beds, health center was full; (2) No staff in the health center; (3) Health center was destroyed/burnt; (4) No drugs at the health center; (5) Quality of the health service is very poor.

[23] The quality problems could be: (1) No staff in the veterinary center; (2) Veterinary center too busy; (3) Veterinary center was destroy/burnt; (4) No equipment/drugs at the veterinary center; (5) Quality of the services is poor.

[24] The problems could be: (1) Extension service center closed; (2) No extension workers; or (3) Quality of the services is poor.

Survey Questions: hh1101 hh1102 cm313, cm314, cm320, cm 323, cm 324 cm330-cm339, cm341 cm344.

Factor analysis is used for calculating the bonding and bridging social capital indexes. All indexes are placed on a 0–100 scale to enable cross-index comparisons.

A3.2 Index of Aspirations and Confidence to Adapt

This index is based on indicators of three underlying concepts:

- **Absence of Fatalism.** The absence of the sense of being powerless to enact change and that one has no control over life's events.
- **Sense of Individual Power.** A sense of having the power to enact change as an individual rather than being subject to the decisions of more powerful people.
- **Exposure to Alternatives to the Status Quo.** The degree to which a person has been exposed to alternative ways of life than one's own.

The concepts are measured using the answers to both subjective and objective questions asked of household survey respondents that fall into three categories:

1. Yes/no questions regarding whether or not people agree with certain viewpoints or engage in certain behaviors;
2. Questions about the number of times in the previous month the respondent engaged in various behaviors; and
3. A series of statements about which respondents were asked to tell whether they "strongly agree," "disagree," "slightly disagree," "slightly agree," "agree," or "strongly agree." Responses to these statements can be put on a 6-point agreement scale.

Respondents' responses are used to calculate indexes, one for each of the three concepts.

The **absence of fatalism** index is based on four variables: two yes/no questions, one regarding the degree to which respondents agree that each person is responsible for his/her own success or failure in life and another regarding the degree to which a person can rely on luck rather than hard work to be successful. The second two correspond to the following 6-point agreement scale statements:

- My experience in my life has been that what is going to happen will happen.
- It is not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune.

Survey Questions: hh1401, hh1402, hh1413, hh1415.

The **individual power** index is based on five variables: two yes/no questions, the first regarding whether a person is willing to move somewhere else to improve their lives and the other on whether

the respondent agrees that one should always follow the advice of elders, and the remaining three based on binary variables constructed from the 6-point agreement scale statements:

- I can mostly determine what will happen in my life.
- When I get what I want, it is usually because I worked hard for it.
- My life is determined by my own actions.

Survey Questions: hh1403, hh1404, hh416, hh1417, hh1418.

The **exposure to alternatives** index is based on three questions. Two are yes/no questions regarding communications with people outside of one's community and engagement in economic activities with members of other clans. The remaining question is based on the answer to the question, "How many times in the past month have you stayed more than two days outside this village?"

Survey Questions: hh1405, hh1406, hh1409.

Factor analysis is used to calculate the indexes. The final overall index of aspirations and confidence to adapt is calculated using factor analysis. All indexes are placed on a 0-100 scale.

A3.3 Index of Absorptive Capacity

The index of absorptive capacity is constructed from seven indicators, some of which are themselves indexes based on primary data collected in the household or community survey. The indicators and explanations of their calculation are as follows.

1. **Bonding Social Capital.** See Section A3.1 above.

2. **Asset Ownership.** Asset ownership is measured based on four categories of assets: consumer durables, agricultural productive assets, animals, and land. Consumer durables ownership is measured as the number of consumption assets owned out of a total of 39. Ownership of agricultural productive assets is measured as the number of productive implements owned out of 25. Animal ownership is measured in Tropical Livestock Units (TLUs) based on 15 categories of animals. Land is measured in terms of hectares farmed in the last 12 months. An overall asset index is constructed from the three measures using factor analysis.

Survey Questions: hh205, hh206, hh209, hh501, hh506b, hh507, hh507a, hh508.

3. **Whether the household currently holds cash savings.**

Survey Question: hh1001.

4. **Access to Informal Safety Nets.** This indicator is the number of community organizations providing safety nets that are available in each household's community. The seven organizations are:

- Credit or microfinance group;
- Savings group;
- Mutual help group (including burial societies);
- Civic ("improving community") group;
- Charitable group ("helping others");
- Religious group; and
- Women's group.

Survey Questions: cm401, cm359_3.

5. **Hazard Insurance.** A binary (dummy) variable equal to one if the household lives in a community with institutions where people can receive assistance due to losses of livestock.

Survey Question: cm368.

6. **Availability of Disaster Preparedness and Mitigation.** Binary (dummy) variable equal to 1 if the household lives in a community with (1) a government disaster planning and/or response program; (2) an NGO disaster planning and/or response program; (3) a community disaster planning group; or (4) an emergency plan for livestock offtake if a drought hits.

Survey Questions: cm502, cm504 cm401, cm348.

7. **Support for conflict mitigation**. Dummy variable indicating whether or not the community of residence has an institution providing conflict mitigation.

Survey Question: cm803.

The indicators of absorptive capacity are combined into an index using factor analysis. The index is placed on a 0–100 scale.

A3.4 Index of Adaptive Capacity

The index of adaptive capacity is constructed from eight indicators. Again, some of these are themselves indexes based on primary data collected in the household or community survey. The indicators and explanations of their calculation are as follows.

1. **Bridging Social Capital.** See Section A3.1 above.

2. **Linking Social Capital.** See Section A3.1 above.

3. **Household Aspirations and Confidence to Adapt.** Section A3.2 above.

4. **Diversity of Livelihoods.** Calculated as the number of livelihood activities engaged in over the last year. The question asked to identify these livelihoods is "What were the source of your household's food/income over the whole last 12 months?," with 21 possible

Survey Question: hh1201.

5. **Access to Financial Resources.** The variable is equal to zero if there is no institution in a household's community providing credit or savings support, to one if there is one type only, and two if there are institutions that provide both types of support.

Survey Questions: cm358, cm360.

6. **Asset Ownership.** See Section A3.3.

7. **Human Capital.** Calculated based on an index constructed from two variables.[25] The first is whether any household adults have a primary or higher education, also a binary variable. The second is the number of trainings the respondent or any other household member has had, where the possibilities are: vocation (job) training, business development training, natural resource management training, adult education (literacy or numeracy or financial education), and training on how to use a cell phone to get market information like prices. Factor analysis is used to calculate the index.

Survey Questions: hh113_x, hh1326, hh1328, hh1332, hh1336, hh1338.

8. **Exposure to Information.** Number of topic respondent has received information on in the last year, out of seven topics.

Survey Question: hh1101.

The indicators of adaptive capacity are combined into an index using factor analysis. The index is placed on a 0–100 scale.

A3.5 Index of Transformative Capacity

The index of transformative capacity is constructed from seven indicators, as follows.

1. **Bridging Social Capital.** See Section A3.1 above.

2. **Linking Social Capital.** See Section A3.1 above.

3. **Access to Markets.** The number of markets available within 20 kms of the household's community. The possible markets are:

   – Livestock market;
   – Market for selling agricultural products; and
   – Market for purchasing agricultural inputs.

[25] Note that for the RISE I surveys human capital was measured using three indicators, the two here and a third: whether any adults in the household can read or write.

Survey Questions: cm345, cm346, cm348a, cm349, cm350, cm352, cm353.

4. **Access to Services.** A score that adds 1 point for each of the following conditions:

   – Household's community has a primary school or within 5 km;
   – Household's community has a health center within 5 km;
   – Household's community has a facility for veterinary services within 5 km;
   – Household's community has agricultural extension services "offered in this area";
   – Household's community has financial services (savings and credit institutions); and
   – Household's community has security services that can reach the community within 1 hour.

Survey Questions: cm320, cm321, cm330, cm331, cm335, cm336, cm341, cm358, cm359, cm360, cm361.

5. **Access to Infrastructure.** A score that adds 1 point for each of the following conditions:

   – Piped water is one of the main sources of drinking water in the household's community;
   – At least half of the households in the household's community have electricity;
   – The household's community either has cell phone service or a public telephone; and
   – The community can be reached with a paved road.

Survey Questions: cm304, cm304a cm304b, cm305, cm305a, cm305b, cm307, cm310, cm311, cm313.

6. **Access to Communal Natural Resources.** A score that adds 1 point for each of the following conditions:

   – Household's community has communal grazing land;
   – Household's community has a communal water source for livestock; and
   – People in household's community get their firewood form communal land.

Survey Questions: cm208, cm211, cm214.

7. **Access to Formal Safety Nets.** This indicator is the number of formal safety nets available in each household's community. The possible formal safety nets are:

   – Institution in community where people can receive food assistance;
   – Institution in community where people can receive housing and other non-food items;
   – Institution in community where people can receive assistance due to losses of livestock; and
   – Availability of a disaster response program from government or an NGO.

Survey Questions: cm364, cm366, cm368, cm502, cm504.

The index of transformative capacity is calculated using factor analysis. It is placed on a 0–100 scale.

A3.6 Index of Household Resilience Capacity

The overall index of resilience capacity is calculated using factor analysis, with the indexes of absorptive, adaptive, and transformative capacity as inputs. It is placed on a 0–100 scale.