

Qualitative Study

# Agriculture and Nutrition in Mali through a Gender Lens

Literature Review – 2015

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The Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) project is a five-year USAID-funded Cooperative Agreement to strengthen global and country efforts to scale up high-impact nutrition practices and policies and improve maternal and child nutrition outcomes. The project is managed by JSI Research & Training Institute, Inc., with partners Helen Keller International, The Manoff Group, Save the Children, and the International Food Policy Research Institute.

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# Acronyms and Abbreviations

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BMI	body mass index
CAFO	Coordination of Women’s Non-Governmental Associations and Organizations
CERPOD	Centre d’Etudes et de Recherche sur la Population pour le Développement
CU2	children under two years of age
DHS	Demographic and Health Survey
DNSI	Direction Nationale de la Statistique et de l’Informatique
EHA	Essential Hygiene Actions
ENA	Essential Nutrition Actions
FAO	Food and Agriculture Organization of the United Nations
FGM/C	female genital mutilation/cutting
GDP	gross domestic product
HIV/AIDS	human immunodeficiency virus/ acquired immune deficiency syndrome
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
INSTAT	Institut National de la Statistique
MCC	Millennium Challenge Corporation
MDG	Millennium Development Goal
MPA	mean probability of adequacy
MPFEF	Ministry for the Promotion of Women, Children and the Family
NGO	non-governmental organization
OPM	Office de Pêche Mopti (the Mopti Fish Office)
ORS	oral rehydration solution
PLW	pregnant and lactating women
PNIP-SA	National Strategic Plan for Agricultural Investment in Mali (Plan National D’Investissement Prioritaire dans le Secteur Agricole au Mali)
PPP	purchasing power parity
PRSP	Poverty Reduction Strategy Paper
SBCC	social and behavior change communication
SPRING	Strengthening Partnerships, Results, and Innovations in Nutrition Globally
UN	United Nations
UNDP	United Nations Development Program

UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children’s Fund
USAID	U.S. Agency for International Development
WASH	water, sanitation, and hygiene
WAWI	West Africa Water Initiative
WHO	World Health Organization
WRA	women of reproductive age



# Executive Summary

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Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) is a five-year U.S. Agency for International Development (USAID)-funded Cooperative Agreement to strengthen global and country efforts to scale up high-impact nutrition practices and policies and to improve maternal and child nutrition outcomes. SPRING/Mali's goal is to improve the nutritional status of women of reproductive age (WRA), pregnant and lactating women (PLW), and children under two years of age (CU2) in the Mopti region. Because our primary focus is on WRA and PLW, conducting an analysis of gender barriers in Mali, and more specifically Mopti, was necessary for understanding the challenges women face in their environment. Through this research, we hope to identify behaviors and strategies we can incorporate into our programming to reduce these barriers.

The literature reviewed for this study focuses on gender barriers with regard to specific topics related to our activities: household decision making, access to land and seeds for gardening, household food distribution, access to health facilities, and women's aspirations for economic autonomy. Fifty journal articles, assessments, and conference proceedings were identified; thirty-seven were included in the literature review. The study locations for the articles cover all regions in Mali, with the majority focusing on Bamako, Mopti, Sikassou, Ségou, Koulikoro, Kayes, Gao, and Timbuktu. Two studies included all of southern Mali and 12 studies appeared to include data representative of the entire country.

Key findings show that men are the primary decision makers within the household—they uphold family norms, control and manage household wealth, decide how to use family land, and make decisions about the family's subsistence. Men mainly produce the cash crops, while women produce the foods crops. The average woman works 15-hour days in rural areas compared to the 13-hour days the average rural man works. Older women tend to have more time to devote to agriculture activities or other income-generating activities because they are not rearing young children and more junior household members are responsible for completing household chores. Women rely on community groups to increase their economic power, and their participation in women's groups increases their employment security. In general, civil society organizations are strong in Mali and should be used as a way to build collective influence. Given the man's high status in the family, it may be assumed that men also make the health decisions for the family. In reality, the mother-in-law has the greatest influence over health decisions for her grandchildren. Birth spacing is a major influencing factor for cases of severe malnutrition. Availability of water is a major concern for the residents of Mopti, and women are the main users of water and the ones who are responsible for fetching it and recruiting other family members to help them fetch it. However, despite water being a critical resource, and women being the primary users, they are often not included in the decision making about the location and management of water points.



# Mali Snapshot

Indicators	National	Mopti	Remarks
Population of Mali	14,854		
Sex ratio	1.1		
Human Development Index	176		out of 187
Gender-Related Development Index	143		out of 148
Global Gender Gap Rank	138		out of 142
Social Institutions and Gender Index (SIGI)	0.51636		
GDP per capita PPP	\$1,195		US dollars
Literacy rate	34%	10%	
Literacy rates (M/F, 15+ years of age)	43%/25%		
Average household size	5.7		
Women in Parliament (%)	9.5%		
Women in ministerial positions (%)	12.1%		
Life expectancy at birth M/F	55.1/54.9		
Total fertility rate	6.1		
Infant-child mortality	77.6		Per 1,000 births
Maternal mortality	550		Per 100,000 live births
Age at first marriage, female	17.8		Data from 2006
Age at first marriage, male	24		Data from 2006
HIV/AIDS prevalence (total)	1.1%	0.7%	
Female genital mutilation/cutting (FGM/C)	91%	88%	Women ages 15–49
Rural population	64%	98%	
Women with a Body Mass Index < 18.5 (%)	10%		
Child stunting	24.5%		
Child wasting	7.7%		
% of children 6–59 months with anemia	82%	89%	
Improved water source (% of population with access/% of rural population with access)	67.2%/54.2%		
Improved sanitation facilities (% of population with access/% of rural population with access)	21.9%/14.5%		
Employees, agriculture (% of female employment/ % of male employment)	63.9%/67.8%		

Note: For sources see Snapshot Sources in the References section.



# Introduction

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## SPRING/Mali

Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) is a five-year U.S. Agency for International Development (USAID)-funded Cooperative Agreement to strengthen global and country efforts to scale up high-impact nutrition practices and policies and to improve maternal and child nutrition outcomes. SPRING is managed by the JSI Research & Training Institute, Inc. in collaboration with Helen Keller International (HKI), The Manoff Group, Save the Children (SCI), and the International Food Policy Research Institute (IFPRI). We focus on state-of-the-art technical support for the prevention of childhood stunting and maternal and childhood anemia in the first 1,000 days and nutrition-sensitive agriculture.

SPRING/Mali's goal is to improve the nutritional status of women of reproductive age (WRA), pregnant and lactating women (PLW), and children under two years of age (CU2) in the Mopti region. We do this by promoting the adoption of Essential Nutrition Actions and Essential Hygiene Actions (ENA/EHA), improving delivery of nutrition in health services, and increasing the availability and consumption of nutritious and diverse diets.

To achieve improved nutritional outcomes, we will pursue three primary objectives:

**Objective 1:** Increased access to diverse and quality foods

**Objective 2:** Increased access to quality nutrition services

**Objective 3:** Increased demand for key agriculture; nutrition; and water, sanitation, and hygiene (WASH)-related practices and services

Because our project focuses primarily on WRA and PLW, conducting an analysis of gender barriers in Mali, and more specifically Mopti, was necessary for understanding the challenges women face in their environment. Through the study, we hope to identify behaviors and strategies that we can incorporate into our programming to reduce these barriers. The study will look at gender barriers and evaluate household decision making, access to land and seeds for gardening, household food distribution, access to health facilities, and women's aspirations.

Our team developed a set of study questions to guide the literature review. The questions span three overarching areas: agriculture and livelihoods; nutrition and health; and WASH (Appendix A).

The overall results of SPRING/Mali's gender barrier study will inform the development of our social behavior change communication (SBCC) plan, which will use a gender-sensitive lens to focus all activities.

## Methodology

JSI Librarian, John Carper, conducted the first database search on January 28, 2015. Using the search terms "gender," "Mali," "agriculture," and "Mopti," the JSI Librarian searched through the ProQuest, CAB, Elton B. Stephens Co (EBSCO), and Web of Science databases. The author conducted her own Google and Google Scholar search using the terms "Gender in Mali" and "women in Mali." A second Google Scholar search was conducted on February 3, 2015, using the terms "WASH," "Mali," and "Gender"; the author also searched SPRING's Zotero library for any journal articles containing the word "Mali." In total, 50 journal articles, assessments, and conference proceedings were identified; 37 of the 50 documents were included in the literature review (Appendix B). Documents were excluded if they were published more than 10 years ago (2005 or before), unless the research

was heavily cited by peers. Documents were also excluded if the results of the research were not relevant to the study questions or if the study was of poor quality.

The study locations for the articles covers all regions in Mali, with the majority focusing on Bamako (12), Mopti (7), Sikassou and Ségou (6), Koulikoro (4), Kayes (3), Gao and Timbuktu (2). Two studies included all of southern Mali and 12 studies appeared to include data representative of the entire country. In many cases, the journal article did not mention the ethnic groups of the study participants. Ethnic group was considered as an influencing factor in the research in Castle (1993) and Simon, Adams, and Madhavan (2002). Castle studied the Dogon and Fulani, and Simon, Adams, and Madhavan focused on the Bamanan and Fulbe ethnic groups. Mali has eight main ethnic groups: the Bambara (or Bamanan), the Malinke (Mandingo), the Sarakolé (Soninke or Marka), the Peul (Fula), the Senufo/Minianka, the Dogon (or Dogonon Habé), the Sonraï (and Songhoï Arma), and the Tuareg (CPS/SSDSPF et al. 2014).

# Context in Mali

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The West African country of Mali is one of the poorest countries in the world and is considered to be one of the worst environments for women in regard to gender equality (UNDP 2014a; World Economic Forum 2014). The Gross Domestic Product per capita (Purchasing Power Parity) for this country of over 14 million people is a meager USD \$1,195 (UNESCO 2012). UNDP ranked Mali 176 out of 187 countries on the Human Development Index and 143 out of 148 in the Gender-Related Development Index (UNDP 2014b). More than half of the population is under the age of 15, and the average life expectancy is 55 years (World Bank 2014). The Food and Agriculture Organization (FAO) of the United Nations has classified the country as a Low-Income Food Deficit Country (FAO 2015). Seventy-eight percent of the poor live in rural areas (CPS/SSDSPF et al. 2014); likewise, the poverty rate in rural areas is 76 percent compared with 30 percent in urban areas (World Bank 2006a).

Regarding international commitments to gender equality, Mali has consistently ratified treaties and conventions that support equal rights for women and girls. In 1986, Mali ratified the Convention on the Elimination of All Forms of Discrimination against Women (UN 1979). In 1990, Mali was one of the first countries to ratify the Convention on the Rights of the Child (UN 1989); in 2004, Mali signed the Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa (African Union 2003; Rupp, Diallo, and Phillipps 2012).

According to the World Bank, attempts at addressing gender inequality at the policy level have fallen short—the Ministry for the Promotion of Women, Children and the Family (MPFEF) does not have the ability to work across sectors or ministries, and thus remains a vertically oriented, stand-alone institution (World Bank 2006a, 64). The MPFEF lacks the power to truly influence policies and programs and as a consequence did not provide input in the design and implementation of two major national programs: Programme Décennal de Développement de l'Éducation (PRODEC), (a 10-year educational development program, and Programme de Développement Sanitaire et Social (PRODESS), a health and social development program. As of 2012, the government had not developed a gender strategy, often cited instead are the four obstacles to gender equality described in the Poverty Reduction Strategy Paper (PRSP): 1) illiteracy, 2) women's health, 3) the persistence of socio-cultural obstacles that negatively affect the legal and social status of women, and 4) the high fertility rate that keeps women from fully participating in "the management of public life." However, without robust gender disaggregated data, the removal of these obstacles cannot be effectively measured (World Bank 2006a, 57).

Civil society organizations have been wary of working with the MPFEF because they feel as if the ministry is "encroaching on its territory"; likewise, the MPFEF sees civil society as purposely leaving it out of the loop and failing to share information that could be used to inform its work (World Bank 2006a, 60).

From 2001 to 2011, Mali's average annual economic growth was 5.5 percent, higher than the 3.9 percent regional average within the West African Economic and Monetary Union (Konaté, Dicko, and Diarra 2015). A military coup on March 22, 2012, combined with political unrest and violence in the north, negatively impacted the macroeconomic and fiscal frameworks of the country, resulting in a slowdown in economic activity. The political instability caused negative economic growth of -1.2 percent; foreign aid was temporarily suspended (CPS/SSDSPF et al. 2014; Konaté, Dicko, and Diarra 2015). However, despite the economic downturn, the primary sector continued to see growth (8.6 percent in 2012), thanks primarily to agriculture, which grew 13.9 percent. The livestock, fishing, and forestry industries were not so lucky and saw negative growth during this period (CPS/SSDSPF et al. 2014, 3). After the presidential and parliamentary elections in 2013, Mali began to recover economically, and foreign aid resumed. Positive economic growth returned, but the social situation has not been

so quick to recover. Before 2012, Mali was on track to meet Millennium Development Goal (MDG) targets for universal primary education, controlling the spread of HIV/AIDS, and access to safe drinking water, but these goals were ultimately not reached (Konaté, Dicko, and Diarra 2015).



# Findings

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## Sociocultural Environment

Regarding the socio-cultural environment, Mali is a patriarchal society: men are seen as superior to women and hold most of the power when it comes to decision making, while women are expected to be subordinate to men. Mali exhibits a gendered “socialization that assigns specific roles to boys and girls, women and men, determines responsibilities, duties and division of labor in the family and in the society” (World Bank 2006a, 65). For example, business and politics are viewed as men’s domains, requiring authority and power which are attributes that only men can possess (World Bank 2006a). Gender stereotypes and prejudices reinforce values and norms adopted by the community, resulting in a hierarchy that is based on age and gender (World Bank 2006a; Rupp, Diallo, and Phillipps 2012).

Men are the key decision makers within the household: they make the rules, control, and manage household wealth; decide how to use family land; and make decisions about their families’ subsistence. Men’s authority also often extends to decisions about the health of the wife and when or how often she can visit her family. The absolute authority of the male cuts across all wealth quintiles and education levels (CPS/SSDSPF et al. 2014, 273). Girls’ education is closely tied to gender equity in Mali. In families that cannot send all their children to school, the boys are enrolled first. Parents justify this choice because they know someday the boy will be the head of a household (World Bank 2006a, 20). Girls are not being enrolled in school because they are expected to work in the home; they are often married young and are expected to have children right away. Their duties as a wife and mother are prioritized over education (World Bank 2006a).

Women are expected to respect and obey the male head of the household and support him as the decision maker for the family and the representative of the family within the community. Household chores (such as cooking, collecting fuel, and fetching water) and care for children are the sole responsibility of women (World Bank 2006a, 65). The rural exodus of men to urban areas creates yet another burden for women as they are responsible for even more work than before (World Bank 2006a, 15). This rural exodus is often seasonal and can include young girls and boys as well, who leave rural areas for cities to work as maids or for other small jobs part of the year and return home for the harvest; they give the money they earned to their families. Women also have responsibilities within their community; they are the ones who organize events, such as marriages and other family ceremonies, as well as care for the sick. Men have community responsibilities as well, but theirs are more related to decision making (World Bank 2006a, 17). Women are not usually consulted in public fora where decisions are made (Gottlieb 2014, 21). Women are more likely to participate in decision making if they are: paid in cash for work (15 percent versus 5 percent not paid in cash); have some formal education; and are the highest wealth quintile (12 percent compared with 6 percent in the medium quintile) (CPS/SSDSPF et al. 2014).

No matter whether a woman lives in a rural or urban area, she still faces many of the same obstacles because of her status as a woman. Women own few assets, and it is only through social capital and networks within interest groups that they gain any decision making power within the community. In all regions of the country, a woman’s workload is greater than men’s mainly because they are often participating in income-generating activities in addition to meeting the demands of the household, which includes rearing children. Rural women in Mali are “extremely overworked,” spending seven to eight hours on domestic chores and then devoting any remaining time to agricultural activities, leaving little time to attend school (Rupp, Diallo, and Phillipps 2012). Given all these duties, women have little time left to actively engage in the advancement of their communities (Bourdet,

Doumbia, and Persson 2010; World Bank 2006a). A women's ability to care for herself and her children and the excess time and energy expenditure resulting from the workload distribution is a key underlying causes of malnutrition (Ruel and Alderman 2013).

## Marriage

The social status of men and women is strongly tied to marriage, both in the northern and southern regions of Mali (World Bank 2006a, 18). Eighty-five percent of women ages 15–49 and sixty-three percent of men in the same age group are married (CPS/SSDSPF et al. 2014, 53). The majority of women marry by age 18, while men marry later, on average at around 24 years of age (World Bank 2006b). "After marriage, women live with their husband's family, where men have legally recognized authority over them" (Konate, Djilbo, and Djire 1998; Boye et al. 1991). The husband's family usually will pay a bride price, and the bride will bring with her a dowry with bedding, cooking pots, kitchen utensils, and a small wardrobe" (Walle 2013). If a woman is widowed or divorced, her assets return to the husband or the husband's family, including her right to the husband's land (Walle 2013).

Polygamy is considered to be a sign of a man's power in a patriarchal society and is practiced throughout Mali. The practice is more common in the south than the north, with 35 percent of women and 19 percent of men in a polygamous union (World Bank 2006a, 17; CPS/SSDSPF et al. 2014). In Mopti, 38 percent of women reported living in a polygamous union, and 25 percent of men reported having more than one wife (World Bank 2006a, 19). Forced marriages are also common in Mali, particularly among the Peul ethnic group, where girls as young as 12 can be married (World Bank 2006a, 19).

In addition to polygamy, *levirate* and *sororate* marriages are a common practice. A levirate marriage is when a widow marries her late husband's brother, and a sororate marriage is when the widower marries his late wife's sister. A levirate marriage is advantageous because the husband's family is able to keep the widow's bride price, as well as the children born from the marriage. Two issues that arise with levirate marriages are women are often forced remarry and these marriages can increase the risk of exposure to HIV/AIDS because the late husband's brother may already have one or more wives (World Bank 2006a, 19). Dominique van de Walle (2013, 3) points out that in some places, levirate marriages are becoming less common, but no "alternative livelihood opportunities" exist for these widows.

A closer examination of widowhood exposes an often unseen problem: widows often face more poverty than married women, and they pass on the "detrimental effects" of their widowhood to their children, even when they remarry. If widows remarry, they often join polygamous households where they are the second, third, or fourth wife. This is often the case for women who divorce, as well (Walle 2013).

## Education

In Mopti, 79 percent of women have not received any formal education (compared to 67 percent overall). Less than 1 percent of women surveyed in Mopti had completed secondary school, and 15 percent had completed some primary school (Abu-Ghaida and Klasen 2004). Of the men surveyed in Mopti, 75 percent had no formal education, while 16 percent had completed some primary school (Abu-Ghaida and Klasen 2004). Eighty-seven percent of women age 15–49 have not had any formal education and 79 percent of men age 15–49 have not had any formal education (Abu-Ghaida and Klasen 2004). Only 10 percent of women in Mopti age 15–49 are literate compared to 20 percent of men.

Dina Abu-Ghaida and Stephen Klasen (2004) estimated that the economic consequences of Mali not reaching its MDG target of equal access to education for men and women by 2015 resulted in a poor economic growth rate of 0.4 percentage points per year for the period of 2005–2015.

## Agricultural Economy

Most Malians are employed in the formal and informal agricultural sectors. Very few people are employed in public service (42,000 jobs) and the private sector (36,500 jobs), while an estimated 3.97 million people work in the rural sector and 1.18 million people work in the informal sector, totaling 5.2 million (World Bank 2006a, 34). The only instance when more women are employed in the formal sector more than men is for women ages 15–19, otherwise a higher percentage of men are employed in the formal sector than women (Bourdet, Doumbia, and Persson 2010, 14). The majority (95 percent) of Malian women work in one of four domains: agriculture, commerce, manufacturing, or household work.

Employment security is positively correlated with several cross-cutting factors, such as: increasing age, the job stability of a spouse, female empowerment, and working in the agricultural sector. Higher fertility levels and increased time to fetch water were negatively correlated with employment security (Jacobi 2014). Interestingly, research conducted in 2014 revealed a positive relationship between women being able to actively engage in community events and employment security. This relationship was especially apparent for the subgroup of women ages 25–34 and for mothers of 5 to 6 children (moderate high fertility) (Jacobi 2014, 848).

## Women's Time and Labor

Forty-three percent of women are involved in the informal sector (World Bank 2006a, 42; DNSI - Ministère de l'Économie, de l'Industrie et du Commerce 2003). Other informal income comes from the production of handicrafts and working in restaurants and local produce processing (World Bank 2006a). Because women are largely involved in the informal sector, national data and statistics are not an accurate reflection of their true economic contribution (World Bank 2006a, 67). Women are primarily involved in productive activities, which are often not acknowledged as work, and their efforts for this work are unpaid (World Bank 2006a, 17; Bourdet, Doumbia, and Persson 2010, 20; Gottlieb 2014). This productive work in agriculture often includes physically taxing activities such as “threshing, transplanting in rice fields and gathering on cotton plantations” (World Bank 2006a, 17). Off-farm activities also play an important role in income generation. Women often produce charcoal and shea nut butter and make hand brooms (Wooten 2003).

Malian women, more often than not, work more hours than men. In rural areas, women work 15-hour days compared to 13-hour days for the average rural man (World Bank 2006a, 37). Women ages 15–49 living in rural areas spend an hour a day collecting wood and fetching water; men only spend a fifth of that time involved in those activities, freeing up more time to devote to leisure or income-generating activities. Women's workload only begins to decrease once they reach their later years (ages 50–65), mainly due to a decrease in childrearing responsibilities (Bourdet, Doumbia, and Persson 2010). The evidence is clear that for women to be involved in development activities, their workload must be lightened and their informal and domestic work recognized as equal value to work done in the formal sector (World Bank 2006a).

In Mopti, 34 percent of the households fall in the lowest economic quintile, 31 percent in the second, 21 in the third, 9 in the fourth, and only 6 in the highest quintile (DNSI - Ministère de l'Économie, de l'Industrie et du Commerce 2003, 275). Compared to the other regions included in the Demographic and Health Survey (DHS), the region of Mopti has the largest percentage of the population in the lowest quintile. Ninety-six percent of men

currently work a paying job compared to thirty-nine percent of women (DNSI - Ministère de l'Économie, de l'Industrie et du Commerce 2003, 275). There does not seem to be a correlation between level of educational instruction and whether a person is employed (DNSI - Ministère de l'Économie, de l'Industrie et du Commerce 2003, 275).

As for income, 84 percent of women in Mopti say they think they earn less than their husbands do (DNSI - Ministère de l'Économie, de l'Industrie et du Commerce 2003, 275). In Mopti, 74 percent of women say they alone decide how they will use the money they earn, while 5 percent of women make the decision with their partners, and 21 percent say their partners decide for them. Ninety-three percent of husbands in Mopti say they do not include their wives in deciding how to spend the money they earn; however, 86 percent of women say they help decide how money earned by the husband will be spent (DNSI - Ministère de l'Économie, de l'Industrie et du Commerce 2003, 275). Among the Bamanan ethnic group, wives and husbands do not share incomes (DNSI - Ministère de l'Économie, de l'Industrie et du Commerce 2003, 275).

## Financial Inclusion

At the national level, women ages 15–19 (66 percent) and women living in households in the lowest wealth quintile (66 percent) are the least likely to decide for themselves how their money is spent. Level of education seems to have an influence over financial autonomy, as 74 percent of women with no formal education decide how to spend their money compared to 84 percent of women with a primary education; 81 percent of women with the most education say they have financial autonomy (DNSI - Ministère de l'Économie, de l'Industrie et du Commerce 2003, 275). One of the main reasons women continue to work in the informal sector is because their access to traditional financial services is very limited. While progress has been achieved in “the micro-finance sector through savings and credit unions, access to financial services remains limited” (World Bank 2006a, 67). According to the Malian Minister of Economy and Finance, in 2005, 40.3 percent of microfinance clients were women, with their participation increasing by 73.5 percent from 2001 to 2005. However, the majority, if not most, savings groups are made up of women; each group is only counted once, no matter how many women make up the group. This makes it difficult to determine the exact number of women participating, but it appears to be fewer than men (Koloma 2007).

Because women often cannot access credit individually, networking associations, such as women's solidarity groups, work collectives, women's groups organized in support of their microenterprise, and credit and savings associations (*tontines*), are a way in which women can build their social capital and gain access to financial resources as a group. . By forging alliances through these networking associations, Malian women gain political and economic power within their communities (Downs 2007).

## Women's Associations

Considering that a woman's social safety net is built through participation in community groups (World Bank 2006a, 55; Wooten 2003), it is no surprise that economic empowerment for women is most easily achieved through these groups. In fact, Jacobi (2014, 843) found that a woman's membership in an association or group was positively correlated with social participation overall. Simon, Adams, and Madhavan (2002) found that “women's passivity/helplessness is lower and felt control greatest “for women who participate in village credit schemes, a type of women's association.

In general, civil society organizations are strong in Mali (Rupp, Diallo, and Phillipps 2012), perhaps thanks in part to the creation of the Coordination of Women's Non-Governmental Associations and Organizations (CAFO) in 1992. The CAFO brings together women's associations and non-governmental organizations (NGOs) to help build

capacity. Since 2006, CAFO has grown considerably and has a nationwide presence, strong political influence, and high visibility. According to the World Bank's 2006 gender assessment of Mali, CAFO "serves as a strategic instrument for the promotion of women in Mali." The CAFO's goal is to be involved in making "important decisions related to the management of public affairs." This includes providing input in the formulation, implementation, and follow-up of the PRSP (World Bank 2006a).

The effects of the growth of the women's association movement are varied. One positive outcome comes in the form of economic benefits (e.g., productivity, income, and sales) (Baden 2013). However, Baden (2013, 304) found that many women continue to sell their products on their own to meet daily income needs, in addition to selling them through the women's group, even though their profits are much higher when they go through the group. Besides the economic benefits, women are increasing their knowledge and strengthening their negotiation skills, which in turn boosts their confidence and entrepreneurial spirit (World Bank 2006a, 21). On the negative side, women often must get permission from their husbands before joining a group. While there does not seem to be direct opposition from men in allowing their wives to join, Baden (2013) noted that in many cases women dropped out of women's groups because their husbands disapproved of their participation.

For women, joining an association or group does not absolve them of their other duties, making it difficult for most women to participate (Baden 2013). Many women's groups attempt to accommodate women's schedules and workload, but most of them do not include activities to reduce their workload or try to change attitudes to help women gain better access to markets (Baden 2013, 304). Therefore, it is not surprising that the majority of active participants in women's collective action groups seem to be older married women who can delegate household chores to their co-wives or daughters (Baden 2013, 301).

One way women have adapted to the constraints of the patriarchal system is to include men in women's collective action groups. Having a few men in the group as "honorary" members opens up more opportunities for group members than if the group was solely made up of women. These honorary members help the women negotiate with the village chief and communicate with other community leaders. In addition, they can help gain support from other men in the community who are involved in aspects of production and marketing typically handled by men, such as "land preparation, irrigation, looking for new buyers, and transporting goods to more distant markets." Because men have more time to leave the village and "fewer cultural restrictions on their movement," it is quite strategic to have the male members of the group be the ones to take the product to market for sale (Baden 2013, 303; Baden and Pionetti, 2011).

## **Access to Land**

The goal of many women's groups in Mali is to increase agricultural productivity and income. To achieve this goal, the issue of land rights—access to and use of land—must be addressed. According to Malian law, all land belongs to the state, but the village and customary chiefs manage it. In many cases, village leaders believe land should be reserved for men only, even though the Government of Mali has a policy of "allocating 10 percent of developed lands to women and youth" (Groupe de la Banque Africaine de Développement). However, according to Rupp, Diallo, and Philipps (2012), women rarely are able to take advantage of this policy.

The majority of Malians are Muslim, and traditional Islamic inheritance rules of descent dictate that houses and land are to be passed down to men. Husbands are the sole owners of family property, and daughters inherit half of what sons inherit. As a result, 51 percent of women do not own a home and 61 percent do not own land for cultivating (CPS/SSDSPF et al. 2014, 279). In many cases, women only have the right to use their husband's land. If a woman is widowed or divorced, however, these land use rights are usually revoked (Walle 2013, 2).

The issue does not stop with having access to any land—access to fertile land for women is crucial. Men are always prioritized in the allocation of plots, and thus get the most fertile ones, while women are given the less fertile plots of land left to fallow. In addition, women are given smaller plots—female heads of household get 0.3 hectares of land, while male heads of household get 3.5 hectares (World Bank 2006a, 40). These smaller plots must meet household consumption needs, as well as produce enough to sell in the market to generate income to pay for school fees, clothing, and other household needs (Gottlieb 2014, 8).

Providing more women with their own land for cultivation can facilitate their access to credit, and is critical for increasing agricultural productivity in Mali and supporting rural development (Bourdet, Doumbia, and Persson 2010, 62). From 2007 to 2012, the Millennium Challenge Corporation (MCC) implemented a large-scale project to increase access to farmland for rural women farmers. The Alatona Irrigation Project created 54 women's associations that would own and manage 500 square meters of market garden land. These associations were legal entities that included, on average, 20 beneficiary households. One of the biggest successes for this project was the joint titling of land, i.e. having the land in the name of both the husband and wife. Forty percent of beneficiaries adopted joint titling of their land (Rolfes and Seitz 2013, 11).

Under the Alatona Irrigation Project, Malian citizens purchased 4,940 hectares of irrigated land, 37 percent of which was owned by women. The MCC's biggest lesson learned over the five years of the project was the "importance of gender-responsive public outreach." A well-designed, well-implemented outreach program was a critical component because it educated beneficiaries about their rights and responsibilities as landowners and the benefits of joint titling for their entire family (Rolfes and Seitz 2013, 13).

In addition to land rights, studies and analyses have shown that lack of equal access to "agricultural inputs, technology and extension services" is to blame for smaller farm yields for women compared to men (Ajeigbe et al. 2013) and thus is a major handicap to economic growth (Bourdet, Doumbia, and Persson 2010, 47; Ajeigbe et al. 2013). Married senior men almost always have "priority access to the most lucrative domains" (Wooten 2003, 168). Women's (2003, 175) exclusion "from commercial farming activities inhibits improvement to their standard of living" in Mali. Indeed a domino effect for women in which lack of access to land impedes access to credit, which then makes it difficult to invest in new technologies and modern farming techniques; this keeps agricultural production and revenues low for rural women (Bourdet, Doumbia, and Persson 2010, 47; Ajeigbe et al. 2013).

## **Agricultural Production**

When it comes to agricultural production, men mainly produce the cash crops, while women produce the food crops. With regards to livestock, men traditionally rear the cattle and women the small ruminants. Both women and men rear poultry. For fishing, men usually catch the fish, and women prepare it for sale. The fish is prepared at home most of the time so women can do other activities simultaneously (World Bank 2006a). When women contribute to the cultivation of male family members' cash crops, they are often not paid for that work. This agricultural work is done in addition to their domestic duties and household chores (World Bank 2006a, 37; Rupp, Diallo, and Phillipps 2012; Wooten 2003). Before working on their own plots, women are expected to help with the household plot the senior male household member manages (Walle 2013, 2). Unmarried girls are rarely involved in agriculture; rather, they are mainly responsible for domestic chores (Wooten 2003, 168).

Women who work on other plots besides their own often do not receive remuneration for their work – thus exacerbating gender inequity. Of women ages 15–49 working in agriculture, 57 percent are not paid. Fifty-seven percent of women work for themselves; forty-two percent work for a family member, and for seventy-six percent of all women, their work is seasonal (CPS/SSDSPF et al. 2014, 45).

Increased demand for horticultural produce has made market gardening an increasingly lucrative business. Once an exclusively woman's activity, it is now quite popular among men looking for additional income (Wooten 2003; World Bank 2006a). In fact, market gardens have the potential to yield high profit margins, especially for those cultivating shallots and potatoes (versus rice, maize, or tomatoes). However, three major barriers exist for market gardening: limited available market, seasonal activity, and proper storage and packaging conditions. In Mopti, water scarcity is the fourth, and quite possibly the most significant barrier, because water must be rationed between horticulture crops and cereals. While the reasons why men would be drawn to the potentially high profits of market gardening are understandable, their entry into this activity "threatens women's ability to participate because they have less capital to invest in inputs than men and decreased access to land" (World Bank 2006a, 38). Men also have more helping hands at their disposal, as brothers and other male household members are often recruited to pitch in. Women, on the other hand, do not necessarily have a readily available labor force from which to recruit (Wooten 2003, 172). This constraint is on top of the other gendered constraints previously described for female workers, such as domestic duties and child-rearing. The added workload of a market garden on an already overburdened woman can have a negative impact on nutrition for her and her children (SPRING 2014b).

Initiatives (from the government and from NGOs) have targeted women working in agriculture. The National Strategic Plan for Agricultural Investment in Mali targets the value chains women dominate, such as milk and fish-production, and supports the improvement of non-agricultural activities, such as retail trade and processing (Rupp, Diallo, and Phillipps 2012; Republique du Mali 2010).

The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in Mali has set up and executed several participatory plant breeding projects using the Farmer Field School approach. Since sorghum is considered a man's crop and groundnuts are considered a woman's crop, ICRISAT focused on working with female groundnut producers. In Mali, over 50 percent of the groundnut plots belong to women. Mali has set up and executed several farmer field schools and participatory plant breeding projects. Because women are the main producers of groundnuts in Mali, ICRISAT encouraged these female groundnut producers to form an association called Bankora. By 2008, there were 195 women in the group. Bankora uses a "community-based seed production (CBSP) approach," which allows the women farmers to produce more affordable seeds at the local level. Furthermore, the women have the opportunity to enhance their seed production and seed marketing skills. Thanks to their success, the women sell their groundnuts outside the district. The success has also led to the expansion of the project to five districts in Koulikoro through a partnership with ICRISAT and Plan Mali, reaching 150 women (Ajeigbe et al. 2013, 364).

### **Agriculture in Mopti**

Mopti lies in the Sahelien agro-ecological region, which is arid with rainfall between 250 and 550 mm per year, with a long dry season of 9 to 11 months. Within this Sahelien zone lays the Niger River delta and its flood plains. Both agro-ecological zones pose their own unique challenges for agriculture (Coulibaly 2003). According to the most recent DHS survey, 66 percent of people in Mopti reported being within 15 minutes of a water source (DNSI - Ministère de l'Économie, de l'Industrie et du Commerce 2003). However, these water sources do not provide water year-round. In Mopti, 98 percent of the population is rural; for two-thirds of these rural inhabitants, drought is the main underlying cause of poverty (World Bank 2006a, 31). Forty-two percent of women in Mopti work in agriculture as do seventy-seven percent of men. Married women are more frequently involved in agricultural activities (29 percent) compared to non-married women (16 percent) and separated women (13 percent) (CPS/SSDSPF et al. 2014, 42).

Fifty-nine percent of women in Mopti do not own land. Of the women who do own land: twelve percent of women are the sole owner; twenty-six percent of women own it with someone else; and three percent of women own some land as the sole owner and other land is co-owned with someone else. Thirty percent of men in Mopti are the sole owner of land; twenty-three percent of men co-own land with someone else; and forty-seven percent of men do not own any land at all. The likelihood that a person will own land increases with age for men and women (CPS/SSDSPF et al. 2014, 280).

According to the World Bank, “in the reclaimed areas of Mopti, every married woman is entitled to a personal plot situated on the land” belonging to her family. She has complete claim over all money or produce that comes from the cultivation of this plot and can choose how to spend this money. Further analysis of this system shows that women were allocated these lands so that they could produce food for the household, like “the sauce foods” such as Tigatedena and green okra sauce that are the responsibility of women. It is, in fact, an obligation of the community to make sure women have land upon which to produce these foods for their household. A woman loses access to this land if she divorces or separates from her husband (World Bank 2006a, 46).

There are women’s associations for fish wholesalers in Mopti; the Mopti Fish Office, Office de Pêche Mopti (OPM) works with the Rural Development Office of Selingue, Office de Développement Rural de Selingue (ODRS), to provide training and supervision for the members. “The OPM has 19 extension bases, which supervise 16,469 households, who live mainly on fishing, and supports 135 women’s associations” (World Bank 2006a, 39).

OPM works with village associations, as well, provisioning land to men and women for rice cultivation. To qualify for a rice paddy, the person “must be a head of family or head of a production unit and possess adequate equipment or sufficient financial resources to develop the land.” This is a major barrier for most women to have their own rice paddy because men are usually the ones designated as the head of household, not their wives, and men are given priority in their request for land. When a woman manages to get her own land to grow rice, the Mopti Rice Office only allocates 0.21 hectares to her but allocates 0.3 hectares to men (World Bank 2006a, 45; Gottlieb 2014).

## **Linking Agriculture and Nutrition**

The conceptual pathways between agriculture and nutrition help us understand and measure how various agricultural investments or activities can improve access to food and health care; how they affect and are affected by the enabling environment; and how they ultimately affect the nutrition of women and children (see Annex C) (SPRING 2014a). Agriculture can also pose threats to family nutrition, especially when women must work at times and in places that interfere with the feeding of their infants and young children (UNICEF and Liverpool School of Tropical Medicine 2011); this is why gender barriers related to agriculture and nutrition practices in Mali need to be explored. SPRING’s [Improving Nutrition through Agriculture Technical Brief Series](#) (SPRING 2014a) offers a more detailed introduction to the pathways, including the pathway from women’s empowerment to improved nutrition. Research has shown that one of the most effective ways to improve program nutrition-sensitivity is to “optimize women’s nutrition, time, physical and mental health, and empowerment” (Ruel and Alderman 2013).

## **Nutrition and WASH**

Women in Mali are the primary patrons of health services because of their reproductive functions within the household and their duties as mothers and caregivers. Because they are frequent users of the health system, women are often more invested in the availability of services and quality of care that public and private health care providers offer (World Bank 2006a, 25).



Most Malians do not have health insurance (97 percent); the case is the same for the majority of the residents in Mopti, 98 percent of whom do not have insurance (CPS/SSDSPF et al. 2014, 46). Of the reasons cited for why women in Mopti do not access healthcare, the primary reason was not having enough money (70 percent). The second most common reason was distance to the health facility (57 percent); this was followed by not having permission to seek treatment (41 percent) and not wanting to go to the facility alone (35 percent). Even in rural areas, money, rather than distance to a health facility, was the number one reason why women did not seek care (CPS/SSDSPF et al. 2014, 120).

In Malian society, the family unit is the most “important basic element in most communities ... and maternity is at the center of family and community life” (World Bank 2006a, 17). The high esteem put on motherhood results in enormous pressure put on women to bear children; women are expected to “give her husband children.” Women who do not adhere to this expectation are rejected by society (World Bank 2006a, 17).

Since the 2001 DHS, the fertility rate has decreased in Mali from 6.8 to 6.1 children per woman, but it still remains high. Women with no formal education have, on average, 2.5 more children than women who have a secondary level of education or higher (CPS/SSDSPF et al. 2014, 74). The fertility rate in Mopti is higher than the national average at 6.5 children, which is identical to the ideal number of children women in Mopti reported that they would like to have. Thirty-eight percent of births are spaced by 24–35 months, thirteen percent by 18–23 months, and nine percent by 7–17 months. Only 40 percent of births are spaced 36 months or more as recommended (CPS/SSDSPF et al. 2014, 70). Among women in Mopti ages 20–49, the average age at first birth is 19.5; for women ages 25–49, it is 19.9 (CPS/SSDSPF et al. 2014, 74).

### **Decision making for Maternal, Newborn, and Child Health**

Intra-household dynamics affects a woman’s health-seeking behaviors for maternal and child health. For example, to seek care for a sick child, the mother must obtain authorization from the most senior male in the household, regardless of whether that man is the child’s father. The senior-most woman in the household is responsible for identifying the illness, and then depending on who is present. The father, senior woman, or senior man (in that order) will decide if the child should be taken to a health center. Ultimately, the father’s quick action (or lack thereof) and ability or willingness to pay will determine the health outcome for the sick child (Ellis et al. 2013). However, regarding payment of the health care for their children, if a mother cannot obtain money from the father of the children, she will often ask for credit from neighbors or sell some of her belongings (Ellis et al. 2013, 753).

Ellis et al. (2013) found that while the father does play a significant role in his children’s health, “the decision to seek modern, institutional health care falls—at least in part—in the domain of the mother-in-law.” Their research found that the mother-in-law influenced not only whether a woman gave birth in a health facility but whether she received postnatal care. A woman was more likely to give birth in a health facility and receive adequate postnatal care if the mother-in-law reported that her son held more decision making power than her daughter-in-law when it came to maternal health choices (White et al. 2013).

In addition, White et al. (2013) found that “the preferences and opinions of mothers-in-law were associated with the maternal health behaviors of their daughters-in-law.” Furthermore, “women’s own perceptions of their self-efficacy, the value of women in society and the quality of services at the local health facility were...independently associated with their preventive and health-seeking practices.” They did not find an association between the husbands’ preferences and opinions and any outcome (White et al. 2013). They concluded that even though men

are supposed to make the maternal health decisions, the mother-in-law is the one who has the greatest influence over these decisions; in some societies, her influence “overshadows” that of the father (White et al. 2013, 66).

A woman’s attitude about her local health center is another influential factor in seeking maternal health care (White et al. 2013, 65). In rural areas, 35 percent of women received 4 or more antenatal care visits, while 30 percent did not receive any antenatal care visits. Five percent of rural women made one visit, and twenty-nine percent of rural women made two or three visits (CPS/SSDSPF et al. 2014, 108). Sixty percent of women in Mopti ages 15–49 who had a live birth in the past five years received antenatal care from a trained health worker, the lowest average among all surveyed regions and well below the seventy-four percent national average. Of those 60 percent who received antenatal care from a trained professional, 36 percent saw a nurse or midwife; 19 percent saw a “Matrone,” or an auxiliary midwife; and 2 percent saw a doctor (CPS/SSDSPF et al. 2014, 106). As part of their antenatal care, 54 percent of women in Mopti reported taking iron pills or syrup during a pregnancy in the past five years (CPS/SSDSPF et al. 2014, 109).

Furthermore, in rural areas, women are more likely to follow traditional birth practices (World Bank 2006a, 26; CPS/SSDSPF et al. 2014), and 52 percent of women give birth at home (CPS/SSDSPF et al. 2014, 111–112). In Mopti, the majority of women give birth at home (71 percent), with others giving birth in a public health clinic/hospital (24 percent) or in a private health clinic/hospital (2 percent). Major disparities exist among socioeconomic status, as 86 percent of women in the highest wealth quintile give birth in a public sector clinic/hospital, whereas only 6 percent of women in the same quintile give birth at home (CPS/SSDSPF et al. 2014).

Postnatal care in Mali occurs less frequently than antenatal care. According to the DHS, in Mopti, 75 percent of women do not receive any postnatal care; 21 percent of women receive care within the recommended 48-hour period after giving birth, whereas 17 percent of women (out of 21 percent) receive care less than 4 hours after giving birth (CPS/SSDSPF et al. 2014, 115). The majority of women who receive postnatal care within the first 48 hours see a doctor, nurse, or midwife (12 percent out of 21 percent); 4 percent see a Matrone; and 4 percent see a traditional birth attendant (CPS/SSDSPF et al. 2014, 116).

In general, the weight of the newborn is only known in 30 percent of the cases, most of which occur in Bamako or in the highest wealth quintile (CPS/SSDSPF et al. 2014, 123). In Mopti, only 13 percent of women knew the weight of their newborn at birth. Of the 13 percent of women who knew the weight, 16 percent of the newborns were very small or smaller than average. Seventy-eight percent of newborns were average or above average (CPS/SSDSPF et al. 2014, 124).

## Women’s Nutrition

The 2025 Malian prospective study conducted by the President’s Office found that 75 percent of Malians are not eating the recommended number of meals per day. Malnutrition impacts more women than men because of “taboos, dietary patterns, frequent pregnancies and too much work” (World Bank 2006a, 27). In Mopti, 14 percent of women have a Body Mass Index (BMI) below 18.5, and very few are obese (3 percent). Mopti is in line with the national averages, which are 12 percent for BMI under 18.5 and 5 percent for a BMI above 30, which is categorized as obese (CPS/SSDSPF et al. 2014, 185). “Underweight women were more prevalent in southern Mali, while obesity was more frequent in the northeast. Women in major urban areas were more likely to be obese than their rural counterparts” (Gewa, Leslie, and Pawloski 2013).

The nutritional status of women is strongly associated with wealth (Gewa, Leslie, and Pawloski 2013, 1581). At the national level, 9 percent of households reported not having enough to eat or at least 1 person going to bed hungry in the past 4 weeks. In Mopti, 10 percent of households reported not having enough to eat or at least one

person going to bed hungry during the previous 4 weeks. Of those households that did not have enough to eat, the majority (58 percent) said this occurred rarely, while 29 percent said sometimes (3–10 times in 4 weeks), and 13 percent said often (11 times or more) (CPS/SSDSPF et al. 2014, 186).

Fifty-one percent of women in Mali are anemic, and sixty percent of pregnant women are anemic. Anemia is more prevalent among women in the lowest wealth quintile and for women who have no formal education. In Mopti, 57 percent of women are anemic (CPS/SSDSPF et al. 2014, 173).

Ayoya et al. (2007) investigated the high rates of anemia among pregnant women in Mali, and they found that infections and food accessibility were the two main contributing factors. Women did not necessarily have access to food because it was not available, but rather because women were avoiding these foods or at least rarely consuming them. These self-imposed food restrictions stemmed from beliefs such as eggs and milk cause malaria, or salt, bananas, meat, and eggs increase the size of the baby, making the baby larger and causing a difficult birth. (Ayoya et al. 2007).

The traditional Malian diet consists of a “starchy staple, mainly refined white rice, refined wheat flour or millet, accompanied by a sauce typically made from vegetables and beef or fish” (Kennedy et al. 2010, 3). Forty-five percent of women between the ages of 15 and 49 reported consuming grains and grain-based foods. Thirty-eight percent of women reported drinking milk, either fresh or powdered. In 36 percent of cases, women ate meat, poultry, or seafood. Least often consumed by women were foods made with palm oil (7 percent), eggs (5 percent), and cheeses or other dairy products (3 percent). No matter the food group, it was often the youngest (ages 15–19) and the oldest (45–49) women who consumed the smallest portions. Women in rural areas ate far fewer dairy products (3 percent), fruits and leafy green vegetables (10 percent), eggs (4 percent), or foods made with palm oil (6 percent). Women in the highest wealth quintile ate more eggs, dairy products, and foods made with palm oil than women in the lowest wealth quintile (CPS/SSDSPF et al. 2014, 189).

In Mopti, 41 percent of women reported drinking milk (either fresh or powdered), but only 2 percent ate other dairy products such as cheese or yogurt. In Mopti, 49 percent of women ate grains or grain-based foods; 10 percent ate fruits or vegetables rich in Vitamin A; 10 percent ate roots or tubers; 19 percent reported eating leafy green vegetables; 7 percent reported eating fruits or vegetables; 14 percent reported eating legumes or nuts; 38 percent reported eating meat, fish, seafood, or poultry; 3 percent ate eggs; 11 percent ate food made with oil, butter, or fat; 5 percent ate food cooked with palm oil; 6 percent ate sugary foods, such as cakes, chocolates, cookies, or pastries; and 27 percent reported eating insects, snails, worms, spicy foods, or fish powder (CPS/SSDSPF et al. 2014, 188).

At the national level, 50 percent of women received Vitamin A within 2 months of giving birth; in Mopti, it was 33 percent of women. Thirty-two percent of women did not take any iron supplements during their last pregnancy. In Mopti, 46 percent did not take any iron supplements during their last pregnancy. A woman’s level of education and wealth quintile had a major influence on whether she took Vitamin A or iron supplements (CPS/SSDSPF et al. 2014, 177).

An analysis of the micronutrient intake of women of reproductive age (WRA) in urban Mali revealed a strong positive relationship between mean probability of adequacy (MPA) and the quantity consumed of nut, seeds, and dark leafy green vegetables. There was also a significant positive correlation between MPA and the consumption of foods in the milk and yogurt group and foods rich in vitamin C. The results showed that vulnerable populations in Mali could benefit from increased consumption of dark green leafy vegetables to help improve micronutrient

intakes. In general, dietary diversification is an effective strategy to improve micronutrient intake of WRA in Mali, whether they are vulnerable or not (Kennedy et al. 2010).

## Child Nutrition

In Mali, 25 to 30 percent of children under 5 are stunted, and 19 percent of these cases are severe (UNICEF/WHO/World Bank 2015; CPS/SSDSPF et al. 2014). Acute malnutrition affects 13 percent of children under 5, while 5 percent of children are severely malnourished. Twenty-six percent of children under five are underweight, and nine percent are severely underweight (CPS/SSDSPF et al. 2014, 161). Fifty percent of children born fewer than twenty-four months after the previous child suffer from malnutrition compared to thirty-three percent of children who were born forty-eight months or more after the previous child (CPS/SSDSPF et al. 2014). For cases of severe malnutrition, birth spacing is an influencing factor: 29 percent of children born 24 months or less after the last child are malnourished compared to 14 percent of children born more than 48 months apart. Rural children are more likely to be malnourished than children living in urban areas (42 percent compared to 23 percent).

A higher percentage of stunting exists in Mopti compared to the national average: 47 percent of children are stunted, with 26 percent severely stunted (CPS/SSDSPF et al. 2014, 182).

For children in Mopti under 5 with reported cases of diarrhea in the past 2 weeks, 14 percent were given more liquids, and the amount of food given was increased in only 6 percent of cases (CPS/SSDSPF et al. 2014, 137).

Researchers have put concerted effort into determining the underlying factors that lead to child malnutrition. As previously discussed, the mother-in-law has a strong influence over health care decisions in the household. Simon, Adams, and Madhavan (2002) found consistent data showing the negative impact a supportive mother-in-law has on a child's nutrition. These results are counterintuitive, but were "corroborated by Castle's work among Fulbe women in Mali, which identified mothers-in-law as important resource keepers of food and cash for illness management and treatment" (Castle 1993). If a woman was the only daughter-in-law living in the household with her mother-in-law, her children had higher rates of malnutrition. Simon, Adams, and Madhavan (2002, 208) postulate (along with Castle) that the reason for this relationship is that as physical and emotional proximity of the mother-in-law increases, fewer resources reach her grandchildren.

Other underlying factors influencing child nutrition is seasonality, in which child wasting increases during the rainy season compared to the dry season. For further investigation, Simon, Adams, and Madhavan found an association between a mother obtaining Koranic education (which 20 percent of the women in their sample had participated in) and her children being malnourished ( $p < 0.01$ ) (Simon, Adams, and Madhavan 2002; Ruel and Alderman 2013).

At the national level, 82 percent of children aged 6–59 months are anemic, with 9 percent being severely anemic. Lower wealth quintiles have a higher percentage of anemia compared to the higher wealth quintiles (CPS/SSDSPF et al. 2014, 171). In Mopti, anemia is higher than national averages and the highest compared to all other regions surveyed. Eighty-nine percent of children 6–59 months have low levels of anemia, and fifteen percent are severely anemic (CPS/SSDSPF et al. 2014).

Most babies are breastfed in Mali (97 percent), and bottle feeding is very rare (World Bank 2006a). Exclusive breastfeeding, however, is not as widespread (33 percent) (CPS/SSDSPF et al. 2014, 161), and less than half (42 percent) of children are not breastfed within 1 hour of being born nor are they given colostrum or fed on demand (CPS/SSDSPF et al. 2014, 163). By 12–15 months of age, 95 percent of babies are still breastfeeding, but on average, babies are breastfed until they are 23.1 months (World Bank 2006a, 27). In Mopti, 98 percent of children

are breastfed; 62 percent of newborns are breastfed within 1 hour of birth, and 23 percent of babies are given something other than breastmilk during the first 3 days following birth (CPS/SSDSPF et al. 2014, 163).

In Mali, 33 percent of children aged 0 to 5 months are exclusively breastfed. The median duration of exclusive breastfeeding is 0.7 months. In Mopti, the median duration for exclusive breastfeeding is higher than the national average at 1.6 months (CPS/SSDSPF et al. 2014, 166).

In Mali, complementary foods are not adequate: fewer than half (45 percent) of children aged 6–9 months receive solid or semi-solid foods. Only 8 percent of children between the ages of 6 and 23 months are fed according to the three optimal feeding practices for infants and young children (Minimum Acceptable Diet).

In Mopti, 10 percent of children aged 6–23 months are fed from 4 or more different food groups; 28 percent are fed the minimum number of recommended meals, and less than 4 percent are being fed according to optimal infant and young child feeding practices (CPS/SSDSPF et al. 2014, 169; WHO 2010).

In Mali, more than half of children aged 6–23 months consume Vitamin A-rich foods (55 percent). The percentage increases with age: in Mali, 28 percent of children aged 6–8 months consume Vitamin A-rich foods, and 65 percent of children aged 12–17 months and 71 percent of children aged 18–23 months consume Vitamin A-rich foods. In Mopti, 50 percent of children aged 6–23 months consume Vitamin A-rich foods, the lowest of all the regions surveyed, and 48 percent of children in Mopti receive Vitamin A supplements (CPS/SSDSPF et al. 2014, 175).

Implementing a Vitamin A supplementation campaign during National Nutrition Week was found to be an extremely effective strategy for increased Vitamin A supplementation intake—reaching at least 80 percent of children. The most effective communication channels were those that were more “traditional,” such as town criers, friends, and family members. More “modern” forms of communication, such as radio and television, were less effective in reaching the target groups. The most effective messaging targeted fathers (Ayoya et al. 2007).

Similar to Vitamin A-rich foods, iron consumption increases with the age of the child; 24 percent of children aged 6–8 months consume iron rich food along with 66 percent of children aged 18–23 months. With all age groups of children combined, 49 percent consume iron-rich foods. Children not being breastfed consume more iron-rich foods than children being breastfed (63 percent versus 47 percent). In Mopti, only 41 percent of children aged 6–23 months receive iron-rich foods, the lowest of all regions surveyed. Twenty percent of children in Mopti receive iron supplements (CPS/SSDSPF et al. 2014, 175).

## **Water and Sanitation**

Women are the main users of water and the ones who fetch it and recruit other family members to help them fetch it (Gleitsmann, Kroma, and Steenhuis 2007, 146). In 2010, 76 percent of Malians had access to potable water, not taking into account broken water pumps, nonfunctioning water points, and pump equipment that is difficult to use, all of which make the chore of fetching water even more arduous for women and girls. Sixty-six percent of households have access to an improved water source; in rural areas, it is 59 percent (CPS/SSDSPF et al. 2014, 13). In Mali, only 22 percent of households have a modern latrine or a modern shared latrine. In rural areas, it is 17 percent (CPS/SSDSPF et al. 2014).

In the northern regions of Mali, waste is taken outside the village. In urban and rural areas, women are responsible for disposing waste, and they either do it themselves or pay someone else to do it (World Bank 2006a, 29).

In Mopti, 32 percent of households do not have water, soap, or any other cleaning product available to wash their hands. Twenty-two percent of households have an observed place for handwashing, while twenty-nine percent have soap and water available (CPS/SSDSPF et al. 2014, 21). One study in Mopti found that most households do not filter their water, and if they do, it is mainly to filter out large particles and debris (Halvorson et al. 2011, 453).

Women are often not included in decision making about the “siting, management and technical maintenance of water points” (World Bank 2006a, 29). Only 34 percent of committees that manage water points consist of women (République du Mali 2011; Groupe de la Banque Africaine de Développement 2011). However, men must be included in decision making for water resources because they are responsible for obtaining water for their livestock (Gleitsmann, Kroma, and Steenhuis 2007, 147).

The West Africa Water Initiative (WAWI) implemented in Mali, Ghana, and Niger provided rural populations with access to “improved rural water supply, participatory natural resource management, and capacity building at community and organizational levels. It also focus[ed] on hygiene promotion and sanitation around established boreholes within the selected communities in the target regions.” Gleitsmann, Kroma, and Steenhuis’s 2007 assessment of WAWI revealed that while projects were taking positive steps in the right direction to improve rural water supplies, the projects were not responding to the needs of the communities and were unsustainable in the long run. All stakeholders must be involved in the decision making process to better inform the design and choice of technology (Gleitsmann, Kroma, and Steenhuis 2007).

## Hygiene

In places with water scarcity, the use of water for hygiene purposes is seen as less important, so when there is no water, people do not practice hygiene behaviors (Gleitsmann, Kroma, and Steenhuis 2007, 148). Many mothers do not understand the severity of diarrhea nor can they recognize the symptoms of dehydration and malnutrition caused by severe diarrhea (Halvorson et al. 2011, 454).

In Mopti, the peak of diarrheal disease occurrence is June and July at the beginning of the rainy season and the onset of flooding (Halvorson et al. 2011, 454; Findley et al. 2005). Thirty-three percent of households dispose of the feces of children under five in a hygienic manner (CPS/SSDSPF et al. 2014, 139). An additional behavior that leads to increased diarrhea in children is the customary practice for the mother to give newborn babies water as soon as two days after birth (Halvorson et al. 2011).

Halvorson et al. (2011) conducted WASH research in four villages along the Niger River in the Mopti region. They found that even when pit latrines are available in a community, they run the risk of flooding during the rainy season and contaminating water sources. Because the latrines were unavailable, people defecated in the river instead, “thereby adding to oral–fecal contamination present in the environment” (Halvorson et al. 2011, 453). In addition, they noted that recontamination was a major contributing factor to fecal contamination—the water source was uncontaminated, but unhygienic water handling practices led to recontamination. The women in the study sites did not associate diarrhea with unsafe drinking water and thought the water they used was safe, even though there were “observations of sources of fecal contamination in and around households” (Halvorson et al. 2011).

In these same villages in Mopti, mothers were ill-informed on how to recognize symptoms of dehydration caused by diarrhea (Sodemann et al. 1996; Halvorson et al. 2011). Mothers often tried to cure their children’s diarrhea with medicinal plants or medicines purchased from street peddlers, with only 16 percent visiting a health facility. The most common drugs used to treat diarrhea were gandida (Sulfadimidine) and toopie (Amoxicillin). Unfortunately, only 15 percent of mothers mentioned using Oral Rehydration Solution (ORS)” (Halvorson et al. 2011).

# Conclusion

The findings of the literature review help answer some of the study questions developed before the study began. A summary of the findings that answer the study questions are provided in the table below. Gaps and additional questions raised from the literature review are listed in the third column of the table.

## Summary of Literature Review Findings

Study Questions	Findings	Gaps and Additional Questions
<b>Agriculture and Livelihoods</b>		
<p>To what extent do women have access and control over land in Mopti? Knowledge of rights around land tenure; barriers women experience; what do they do in the face of these barriers?</p>	<ul style="list-style-type: none"> <li>• Women most often are given smaller, less fertile plots of land to cultivate.</li> <li>• Most women do not own a home or own their own land for cultivating. In many cases, women rely on land-use rights granted to them as wives for their husband’s land. If a woman is widowed or divorced, however, these land use rights are usually revoked.</li> <li>• The Mopti Rice Office provides land for women to cultivate.</li> <li>• Women find ways to “work around” lack of access to land, often by joining a women’s collective.</li> </ul>	<ul style="list-style-type: none"> <li>• Still unclear how knowledgeable women in Mopti are about their land rights.</li> <li>• Need more information about how women overcome these barriers in addition to joining women’s collective groups.</li> <li>• Is communal land available?</li> </ul>
<p>How are decisions made in the household on what is produced on available land? What role do women play? What crops are planted and why?</p>	<ul style="list-style-type: none"> <li>• Men are the key decision makers within the household—they make the rules, control and manage household wealth, decide how to use family land, and make decisions about the family’s subsistence.</li> <li>• Men often take over activities that women are involved in when they see that they are lucrative, so they need to be involved, not excluded, from income-generating activities.</li> <li>• Men mainly produce the cash crops, while women produce the foods crops.</li> <li>• The choice of what to grow in a market garden depends on available market, the season, and storage and packaging conditions.</li> <li>• For two-thirds of the rural inhabitants of Mopti, drought is the main underlying cause of poverty.</li> </ul>	<ul style="list-style-type: none"> <li>• Which nutrient-rich food crops yield the highest profit?</li> <li>• Do men join women’s groups out of necessity or because they want access to/control of resources and/or profits?</li> </ul>

Study Questions	Findings	Gaps and Additional Questions
<p>To what extent do women have access and control over a range of household assets? How does this impact nutrition?</p>	<ul style="list-style-type: none"> <li>• Among certain ethnic groups, women manage their own earnings, and men manage theirs.</li> <li>• Women are overworked: In rural areas, women work 15-hour days compared to 13-hour days for the average rural man.</li> <li>• Older women tend to have more time to devote to agricultural activities or other income-generating activities because they are not rearing young children and more junior household members take care of household chores.</li> </ul>	<ul style="list-style-type: none"> <li>• How much control do women in Mopti have over their earnings?</li> <li>• Still unclear how women's access to household assets affect nutrition specifically. Need more information on the connection to nutrition.</li> <li>• What specific resources do women need access to in order to have a successful market garden?</li> </ul>
<p>To what extent do women have access to income and credit? Explore participation in tontines, access to formal and informal banking. What activities do they engage in? How do they benefit? Do they maintain access and control over these benefits within the household? To what extent does this impact nutrition?</p>	<ul style="list-style-type: none"> <li>• Women have limited access to financial resources and agricultural inputs.</li> <li>• Bankora's "community-based seed production (CBSP) approach" has been successful and might be able to be adapted to the context in Mopti.</li> <li>• Participation in women's groups increases employment security; women rely on community groups to increase their economic power.</li> <li>• Civil society organizations are strong in Mali and should be used as a way to build collective influence. The CAFO has a great deal of influence nationwide.</li> <li>• Widowed or divorced women are often the poorest women in a community and the ones with least access to resources.</li> </ul>	<ul style="list-style-type: none"> <li>• What are the micro credit options for women in Mopti?</li> <li>• What are the negative impacts (if any) of women's participation in civil society organizations?</li> <li>• Which groups or organizations are currently active in Mopti?</li> <li>• How frequently do men participate in these groups?</li> <li>• How many PLW are participating in these groups?</li> <li>• How can men help support the savings groups and market gardening activities? Are there certain cases where men are required to participate in these women's groups?</li> <li>• How can mothers-in-law help support or be included in the savings groups and market gardening activities?</li> </ul>
<p>To what extent do women have access to agricultural extensions services, etc.?</p>	<ul style="list-style-type: none"> <li>• Men's recent entry into market gardening hampers women's ability to participate because they do not have the same level of access to resources as men.</li> <li>• In addition to land rights, studies and analyses have shown that lack of equal access to "agricultural inputs, technology and extension services" are to blame for smaller farm yields</li> </ul>	<ul style="list-style-type: none"> <li>• How many women take advantage of the services offered by the government or by organizations and NGOs?</li> <li>• Which local organizations are currently active in helping to support women farmers?</li> </ul>



Study Questions	Findings	Gaps and Additional Questions
	<p>for women compared to men.</p> <ul style="list-style-type: none"> <li>•Several local organizations in Mopti help support women farmers, such as ONG-SABA, Réseau des Femmes Transformatrices de Produit Agro-alimentaires, and Coopérative “Jigi-Sèmè.”</li> <li>•The Mopti Fish Office works with women’s associations and offers training and support.</li> </ul>	
Nutrition		
<p>Do women have authority to produce and purchase foods, including animal products to feed children? And for their own consumption during pregnancy and lactation?</p>	<ul style="list-style-type: none"> <li>•Women do have the authority to produce and purchase foods; in fact, they are a major contributor to household food production, but they often lack resources (financial and otherwise) to purchase high-priced animal products. In some cases, they may choose to sell these high-value items instead of keeping them for their own consumption.</li> </ul>	<ul style="list-style-type: none"> <li>•How can we motivate PLW to keep nutrient-rich foods for household consumption rather than selling them, or serving them to male members of the household?</li> <li>•How has migrant work (of men and women) affected household nutrition?</li> </ul>
<p>How is food partitioned in the household?</p>	<ul style="list-style-type: none"> <li>•No concrete information is available on this for households in Mopti.</li> </ul>	<ul style="list-style-type: none"> <li>•What is the average household size and level of consumption in the villages where SPRING works?</li> </ul>
<p>During the six months of exclusive breastfeeding do women receive support to succeed?</p>	<ul style="list-style-type: none"> <li>•Most women in Mopti are not exclusively breastfeeding for the full six months.</li> <li>•Based on evidence linking severe malnutrition and lack of adequate birth spacing, we can assume PLW do not receive adequate support.</li> </ul>	<ul style="list-style-type: none"> <li>•What kinds of support are lactating women receiving? Does this support any kind of breastfeeding practices?</li> </ul>
<p>What is the division of labor in household chores? Is it equitable?</p>	<ul style="list-style-type: none"> <li>•Division of labor for household chores is not equitable—women are expected to maintain the household (cooking, cleaning, etc.). In addition to their household work, they usually are expected to help cultivate their husband’s plot of land, and then they can tend their own plot, if they have time.</li> <li>•Women are often not remunerated for their work.</li> </ul>	<ul style="list-style-type: none"> <li>•Not a great deal of information on the division of labor in a polygamous household. Does having co-wives free up more time for income-generating activities?</li> </ul>
<p>Do women have authority to seek</p>	<ul style="list-style-type: none"> <li>•Even though men are supposed to</li> </ul>	<ul style="list-style-type: none"> <li>•What is the best approach for having</li> </ul>

Study Questions	Findings	Gaps and Additional Questions
health care for themselves and children (without approval of husband)?	<p>make the health decisions for the family, the mother-in-law is the one who has the greatest influence over health decisions for her grandchildren.</p> <ul style="list-style-type: none"> <li>• Mothers are ill-informed on how to recognize symptoms of dehydration caused by diarrhea and do not treat children with ORS.</li> </ul>	<p>the mothers-in-law become advocates for the nutrition of PLW and children under 2? What will be the motivating factors?</p> <ul style="list-style-type: none"> <li>• Are mothers-in-law receiving nutrition messaging; are they sharing ENA/EHA practices with their daughters-in-law?</li> </ul>
What types of nutritious food are available in the market places?	<ul style="list-style-type: none"> <li>• In Mopti, 19 percent of women reported eating leafy green vegetables; 7 percent reported eating fruits or vegetables; 14 percent reported eating legumes or nuts; 38 percent reported eating meat, fish, seafood, or poultry; 3 percent ate eggs.</li> <li>• In Mopti, pumpkins, red or yellow yams or squash, carrots, red sweet potatoes, mangoes, and papayas are the locally grown vitamin A-rich foods.</li> </ul>	<ul style="list-style-type: none"> <li>• Need more information on how frequently women are serving the kinds of nutritious foods that are available to their families; 24 hour-recall data do not provide this information.</li> <li>• What are the types of vegetables consumed by women and children under five?</li> </ul>
<b>WASH</b>		
Who has the authority to ensure cleanliness of compound and build and use latrines?	<ul style="list-style-type: none"> <li>• Women are often not included in decision making about the “siting, management and technical maintenance of water points.”</li> </ul>	<ul style="list-style-type: none"> <li>• Need more information on availability and control over water resources in Mopti.</li> </ul>
Can women influence handwashing of all family members?	<ul style="list-style-type: none"> <li>• Women are the main users of water and the ones who are responsible for fetching it and recruiting other family members to help them fetch it. They can have an influence but may be misinformed about EHA.</li> </ul>	<ul style="list-style-type: none"> <li>• Need to involve entire households in the adoption of EHA. If mothers-in-law have the greatest influence over health decisions, then they should be the target group for EHA messaging.</li> </ul>

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# Appendix A. Study Questions

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## **Agriculture and Livelihoods**

1. To what extent do women have access and control over land in Mopti? Knowledge of rights around land tenure; barriers women experience; what do they do in the face of these barriers?
2. How are decisions made in the household on what is produced on available land? What role do women play? What crops are planted and why?
3. To what extent do women have access and control over a range of household assets? How does this impact nutrition?
4. To what extent do women have access to income and credit? Explore participation in tontines, access to formal and informal banking. What activities do they engage in? How do they benefit? Do they maintain access and control over these benefits within the household? To what extent does this impact nutrition?
5. To what extent do women have access to agricultural extensions services, etc.?

## **Nutrition**

1. Do women have authority to produce and purchase foods, including animal products to feed children? And for their own consumption during pregnancy and lactation?
2. How is food partitioned in the household?
3. During the six months of exclusive breastfeeding do women receive support to succeed?
4. What is the division of labor in household chores? Is it equitable?
5. Do women have authority to seek health care for themselves and children (without approval of husband)?
6. What types of nutritious food are available in the market places?

## **WASH**

1. Who has the authority to ensure cleanliness of compound and build and use latrines?
2. Can women influence handwashing of all family members?



## Appendix B. Extraction Table

Date Sourced and Location	Publication Date	Title	Authors	Health Outcome or Topic	Location	Study period	Objective	Information and/or Data Source	Methods	Findings	Full Citation	Included in Literature Review Y/N
Referenced in Bourdet et al. (2010)	Feb 2004	The Costs of Missing the Millennium Development Goal on Gender Equity	Abu-Ghaida and Klasen	Gender	Global	N/A	The purpose of the paper is therefore to estimate to what extent these countries will suffer losses in terms of economic growth, as well as foregone reductions in fertility, child mortality, and undernutrition.	World Development Indicators central database and several other studies (see page 24 for list)	We will show and quantify that countries that fail to meet the MDG on gender inequality will have to face considerable costs in terms of foregone economic growth, as well as forgone reductions in fertility, child mortality, and undernutrition.	Our estimates suggest that, by 2005, the countries that are off track are likely to suffer 0.1-0.3 percentage points lower per capita growth rates as a result and will have 0.1-0.4 more children per woman, and, by 2015, an average of 15 per 1000 higher rates of under five mortality and 2.5 percentage points higher prevalence of underweight children under five.	Abu-Ghaida, Dina, and Stephan Klasen. The Costs of Missing the Millennium Development Goal on Gender Equity, February 2004.	Y

Date Sourced and Location	Publication Date	Title	Authors	Health Outcome or Topic	Location	Study period	Objective	Information and/or Data Source	Methods	Findings	Full Citation	Included in Literature Review Y/N
SPRING Zotero library March 1st	2006	Determinants of Anemia among Pregnant Women in Mali	Mohamed Ag Ayoya, Gerburg Maria Spiekermann-Brouwer, Abdel Kader Traoré, Rebecca Joyce Stoltzfus, and Cutberto Garza	Anemia	Banconi, a suburb of Bamako, Mali	June to August 2002	To examine the prevalence and likely etiologies of anemia in pregnancy in a poor urban population in Bamako, Mali.	190 pregnant women randomly selected hemoglobin measured and gynecological exam conducted	The relative and attributable risks of anemia were calculated, and adjusted odds ratios for anemia and low serum iron were estimated by multivariate logistic regression.	Our data suggest that infections and food accessibility contribute to the high rates of anemia during pregnancy in Mali.	Ag Ayoya, Mohamed et al., "Determinants of Anemia among Pregnant Women in Mali," Food and Nutrition Bulletin 27, no. 1 (March 2006): 3–11.	N
John Carper 1/28/2015	Autumn 2010	Migration, remittances and the women left behind	Sofie Ahlin and Åsa Dahlberg	Gender, migration	Kayes and Sikassou Regions, Mali	2010	The purpose of this study is to find out in which way international migration and remittances influence the role and lives of women in Mali. We look more specifically on whether migration and	40 interviews (20 men, 20 women) and interviews with NGOs	Qualitative analysis	Our results show that remittances and migration have little impact on women's empowerment and ability to make choices. However remittances can influence their material well being and lessen their	Ahlin, Sofie, and Åsa Dahlberg. "Migration, remittances and the women left behind." (2010).	N

Date Sourced and Location	Publication Date	Title	Authors	Health Outcome or Topic	Location	Study period	Objective	Information and/or Data Source	Methods	Findings	Full Citation	Included in Literature Review Y/N
							remittances change existing gender roles and empower women.			work burden, which can serve as a prerequisite for empowerment, but only if it is combined with other variables such as changes in traditional gender values.		
John Carper 1/28/2015	2013	Involving women in research for economic growth through agricultural technologies and practices: ICRISAT's initiatives in sub-Saharan Africa	Hakeem A. Ajeigbe Chanda Gurung Goodrich Bonny R. Ntare Eva Weltzien Jupiter Ndjeunga	Agri-culture	Mali, Niger, and Nigeria	Mali: 2007-2009	ICRISAT's core research areas in Mali are agronomy, pearl millet, sorghum, and groundnut breeding, with a specific focus on market-orientated production and value addition.	Not stated	Not stated	The initiatives cited were all in these lines, where the gender inequalities and barriers against women were removed by targeting women as the main partners, thus creating an enabling environment where their contribution in the more "formal and	Ajeigbe HA, Goodrich CG, Ntare BR, Weltzien E, Ndjeunga J, 2013. Involving women in research for economic growth through agricultural technologies and practices: ICRISAT's initiatives in sub-Saharan Africa. Secheresse 24: 359-66. doi:	Y

Date Sourced and Location	Publication Date	Title	Authors	Health Outcome or Topic	Location	Study period	Objective	Information and/or Data Source	Methods	Findings	Full Citation	Included in Literature Review Y/N
										mainstream" economic growth could be visible and counted for.	10.1684/sec.2013.0405	
SPRING Zotero library March 1st	9/29/2010	Simple Food Group Diversity Indicators Predict Micronutrient Adequacy of Women's Diets in 5 Diverse, Resource-Poor Settings	Mary Arimond, Doris Wiesmann, Elodie Becquey, Alicia Carriquiry, Melissa C. Daniels, Megan Deitchler, Nadia Fanou-Fogny, Maria L. Joseph, Gina Kennedy, Yves Martin-Prevel, and Liv Elin Torheim	Dietary Diversity Women	Bamako, Mali	Feb.-April 2007	To assess the potential of simple indicators of dietary diversity, such as could be generated from large household surveys, to serve as proxy indicators of micronutrient adequacy for population-level assessment.	5 existing data sets (from Burkina Faso, Mali, Mozambique, Bangladesh, and the Philippines) with repeat 24-h recalls	Constructed 8 candidate food group diversity indicators (FGI) and calculated the mean probability of adequacy (MPA) for 11 micronutrients.	All 8 FGI were correlated with MPA in all sites; regression analysis confirmed that associations remained when controlling for energy intake. Assessment of dichotomous indicators through receiver operating characteristic analysis showed moderate predictive strength for the best choice indicators, which varied by site. Simple FGI	Arimond, Mary, Doris Wiesmann, Elodie Becquey, Alicia Carriquiry, Melissa C. Daniels, Megan Deitchler, Nadia Fanou-Fogny, et al. "Simple Food Group Diversity Indicators Predict Micronutrient Adequacy of Women's Diets in 5 Diverse, Resource-Poor Settings." The Journal of Nutrition 140, no. 11 (November 1, 2010): 2059S –	N

Date Sourced and Location	Publication Date	Title	Authors	Health Outcome or Topic	Location	Study period	Objective	Information and/or Data Source	Methods	Findings	Full Citation	Included in Literature Review Y/N
										hold promise as proxy indicators of micronutrient adequacy.	2069S. doi:10.3945/jn.10.123414.	
SPRING Zotero library March 1st	2/27/2007	Determinants of high vitamin A supplementation coverage among pre-school children in Mali: the National Nutrition Weeks experience	Mohamed Ag Ayoya, Mohamed Ag Bendeche, Shawn K Baker, Fatimata Ouattara, Konaké Alima Diane, Lina Mahy, Lisa Nichols, Aménatou Toure and Ciro Franco	Vitamin A	Kayes, Sikasso, Mopti, Tombouctou and Gao, and the District of Bamako	Not given	To assess vitamin A supplementation (VAS) coverage of children aged 6–59 months and the factors that favour or limit this coverage during the National Nutrition Weeks in Mali.	Cross-sectional study.	Interviews about demographic factors and children’s adherence to the vitamin A capsule distribution programme were conducted. Professionals’ knowledge of vitamin A and various aspects related to the supplementation strategy were assessed.	At least 80% of the children received the supplement. More ‘traditional’ communication channels (town criers, friends and family members) appeared to be more effective in reaching the target groups than modern methods, i.e., radio and television. National Nutrition Weeks provide a	Ayoya, Mohamed Ag, Mohamed Ag Bendeche, Shawn K Baker, Fatimata Ouattara, Konaké Alima Diané, Lina Mahy, Lisa Nichols, Aménatou Touré, and Ciro Franco. “Determinants of High Vitamin A Supplementation Coverage among Pre-School Children in Mali: The	Y

Date Sourced and Location	Publication Date	Title	Authors	Health Outcome or Topic	Location	Study period	Objective	Information and/or Data Source	Methods	Findings	Full Citation	Included in Literature Review Y/N
										successful example of a periodic VAS strategy with high coverage among children aged 6–59 months in Mali. Campaigns aimed at informing and sensitising populations during the Nutrition Weeks should also target children’s fathers.	National Nutrition Weeks Experience.” Public Health Nutrition 10, no. 11 (February 27, 2007).	
Referenced in Baden (2013)	2011	Women’s Collective Action in Agricultural Markets: Synthesis of Preliminary Findings from Ethiopia, Mali and Tanzania	Baden and Pionetti	Gender and Agriculture	Ethiopia, Mali (Koulikoro and Sikassou regions), and Tanzania	Not given	This paper presents preliminary findings from the second phase of the Researching Women’s Collective Action’ (RWCA) project. The project’s focus is on primary-	A secondary literature review and data collection and A field study comprising: a) key informant interviews to develop sub-sector maps, identify districts and communities for	For each country, findings from the field study were compiled and analysed for each subsector and across sub-sectors, in conjunction with findings from the literature review,	Policy context and external interventions are major influences shaping smallholder CA in markets in all three countries, with ambitious targets being set in Ethiopia in particular. Mali	Baden, Sally and Carine Pionetti (2011) ‘Women’s Collective Action in Agricultural Markets: Synthesis of Preliminary Findings from Ethiopia, Mali and Tanzania’,	Y



Date Sourced and Location	Publication Date	Title	Authors	Health Outcome or Topic	Location	Study period	Objective	Information and/or Data Source	Methods	Findings	Full Citation	Included in Literature Review Y/N
							level collective action (CA) by smallholder farmers in agricultural markets—in formal, informal, single- and mixed-sex groups—including rural producer groups, farmers' associations, agricultural co-operatives, and savings and credit groups. The second phase consisted of a broad literature review and three country studies covering a total of 15 agricultural	study, and gather information about the subsectors and CA, and b) focus group discussions conducted at community level.	to answer the main research questions	appears to have the most positive enabling environment for WCA, combining both traditional social capital and government intervention. Changes in the legislative and policy context in all three countries are clearly impacting on the scope for women to participate in CA, but in Overall, the study found that policy context and external interventions are major influences shaping the	unpublished research paper, October, Oxford: Oxfam GB	

Date Sourced and Location	Publication Date	Title	Authors	Health Outcome or Topic	Location	Study period	Objective	Information and/or Data Source	Methods	Findings	Full Citation	Included in Literature Review Y/N
							sub-sectors across two regions each in Ethiopia, Mali, and Tanzania.			scope for CA by women smallholders in markets in all three countries, with ambitious targets being set in Ethiopia in particular. Mali appears to have the most positive enabling environment for WCA, combining both traditional social capital and government intervention. Changes in the legislative and policy context in all countries are clearly affecting the scope for women's participation in CA, while liberalisation and commercial-		

Date Sourced and Location	Publication Date	Title	Authors	Health Outcome or Topic	Location	Study period	Objective	Information and/or Data Source	Methods	Findings	Full Citation	Included in Literature Review Y/N
										isation of agricultural markets are creating new opportunities for, and new challenges to, women's participation in and benefits from markets. Less clear, but potentially areas to explore further, are the impacts of migration and technology change on opportunities for and benefits of rural CA for women.		
John Carper 1/28/2015	2013	Women's collective action in African agricultural markets: the limits of	Sally Baden	Gender and Agriculture	Koutiala Circle of Sikasso, Mali	January - June 2012	Researching Women's Collective Action (RWCA) was a three-year research and learning	Researchers employed a mix of qualitative case study and quantitative survey methods to answer the	qualitative and quantitative assessments	Current interventions, however, do not sufficiently take into account or address gendered	Baden, Sally. "Women's Collective Action in African Agricultural Markets: The Limits of	Y

Date Sourced and Location	Publication Date	Title	Authors	Health Outcome or Topic	Location	Study period	Objective	Information and/or Data Source	Methods	Findings	Full Citation	Included in Literature Review Y/N
		current development practice for rural women's empowerment					project (2019/12) which aimed to understand the role of WCA in contributing to women's incomes, control over assets and economic empowerment, in key agricultural sectors: honey in Ethiopia, Shea butter in Mali, and vegetables in Tanzania.	research questions developed through preliminary research.		barriers in marketing systems and the wider structural inequalities underlying these. To increase the impact of their support to women's collective action, development policymakers and practitioners need to incorporate awareness of broader gender constraints such as women's limited access to land, their time poverty, and constraints on their mobility due to social attitudes. Presently, these are rarely factored into	Current Development Practice for Rural Women's Empowerment." Gender & Development 21, no. 2 (July 2013): 295–311. doi:10.1080/13552074.2013.802882.	

Date Sourced and Location	Publication Date	Title	Authors	Health Outcome or Topic	Location	Study period	Objective	Information and/or Data Source	Methods	Findings	Full Citation	Included in Literature Review Y/N
										interventions supporting women's collective action.		
John Carper 1/28/2015	2010	Inégalités de genre, croissance et lutte contre la pauvreté au Mali	Yves Bourdet, Assa Gakou Doumbia, Inga Persson	Gender	Mali	N/A	The objective of this report is to analyze the "gender" dimension in the division of labor and the distribution of resources and opportunities Mali. It is also to assess the impact of gender inequality on economic growth. It is then better understand the structural and institutional constraints that perpetuate gender inequalities	Not stated	Not stated, but looks to be a literature review and analysis based purely off the literature	Some provisions of the new Family Code, particularly those related to women's rights to inheritance, can help bridge this gap, provided of course they are implemented. Greater access of women to land agriculture can facilitate their access to credit, which is critical for increasing agricultural productivity and rural development. It should also benefit from	Bourdet, Yves, Assa Gakou Doumbia, and Inga Persson. "Inégalités de genre, croissance et lutte contre la pauvreté au Mali," 2010.	Y

Date Sourced and Location	Publication Date	Title	Authors	Health Outcome or Topic	Location	Study period	Objective	Information and/or Data Source	Methods	Findings	Full Citation	Included in Literature Review Y/N
							and are obstacles to the poverty reduction strategy. Finally, it is to discuss the progress of the brief new Code of individuals and families in the light of our analysis.			greater access of women to education, which makes it easier to adapt production methods more modern and accelerating the demographic transition can have a positive impact on savings and household investment.		
Referenced in White, Dynes, Rubardt, Sissoko and Stephenson (2013)	Nov.-Dec. 1991	Marriage Law and Practice in the Sahel	Boye AK, Hill K, Isaacs S, Gordis D	Gender	Burkina Faso, Mali, Niger, and Senegal	1986	A comprehensive study of the legal and social status of women regarding marriage, divorce, employment, and reproductive health	A comprehensive study of the legal and social status of women regarding marriage, divorce, employment, and reproductive health in Burkina Faso, Mali, Niger, and Senegal was	Drawing from and updating the original French publication of the study.	Unifying colonial legal heritage with indigenous African customary law is post-independence Africa's greatest legislative challenge.	Boye, Abd-el Kader, Kathleen Hill, Stephen Isaacs, and Deborah Gordis. "Marriage Law and Practice in the Sahel." Studies in Family Planning 22, no. 6 (November 1991): 343. doi:10.2307/1966448.	Y

Date Sourced and Location	Publication Date	Title	Authors	Health Outcome or Topic	Location	Study period	Objective	Information and/or Data Source	Methods	Findings	Full Citation	Included in Literature Review Y/N
								conducted by the Sahel Institute in 1986. It was researched by law, education, and health professionals.				
Referenced in Ellis et al. (2013)	1993	Intra-household differentials in women's status: household function and focus as determinants of children's illness management and care in rural Mali	Castle SE	MNCH	Mali	unknown	To assess how women differ from each other, rather than how they differ from men, in terms of their socioeconomic and political power within the domestic environment.	Anthropological and demographic data were collected among rural Malian Fulani and Dogon populations who possess similar health beliefs and who live in the same ecological area		It is concluded that variations in health behaviour and mortality outcomes within these populations reflect not simply 'ethnic' differences in beliefs or culture, but rather real differences in mothers' social positions within their family environments and in their access to household	Castle, S. E. "Intra-Household Differentials in Women's Status: Household Function and Focus as Determinants of Children's Illness Management and Care in Rural Mali." Health Transition Review: The Cultural, Social, and Behavioural Determinants of Health 3, no. 2 (October 1993):	Y

Date Sourced and Location	Publication Date	Title	Authors	Health Outcome or Topic	Location	Study period	Objective	Information and/or Data Source	Methods	Findings	Full Citation	Included in Literature Review Y/N
										resources for children's treatment and care.	137–57.	
2/25/2015 StatCompiler website	May 2014	Enquête Démographique et de Santé au Mali 2012-2013	Institut National de la Statistique (INSTAT/MPATP), INFO-STAT et ICF International	Demographic and Health Survey	Kayes, Ségou, Sikasso, Bamako and one county in Mopti	2012-2013	La cinquième Enquête Démographique et de Santé au Mali (EDSM V) a été réalisée dans le but de disposer de données statistiques actualisées, désagrégées et de qualité au plan national sur la situation sociodémographique et sanitaire des populations maliennes et, en particulier, des enfants et des femmes	Household surveys: 10,743 households. 3 Types of survey: household, women, and men	During the DHS V, interviews were conducted with the tablet PCs and the information entered directly during the interview. Questionnaires were downloaded using the CSPro software developed jointly by the Office of the US Census and DHS Program. Three people in the central office were responsible for the receipt and	The security and political crisis in Mali has had negative impacts on the achievement of the Millennium Development Goals (MDGs). These negative impacts have resulted primarily from losses of economic and social rights, as well as a shortfall development actions that have led to structural changes in the implementation	Cellule de Planification et de Statistique (CPS/SSDSPF), Institut National de la Statistique (INSTAT/MPATP), INFO-STAT et ICF International, 2014. Enquête Démographique et de Santé au Mali 2012-2013. Rockville, Maryland, USA : CPS, INSTAT, INFO-STAT et ICF International.	Y



Date Sourced and Location	Publication Date	Title	Authors	Health Outcome or Topic	Location	Study period	Objective	Information and/or Data Source	Methods	Findings	Full Citation	Included in Literature Review Y/N
							afin de rendre compte des progrès accomplis vis-à-vis des OMD et d'autres engagements mondiaux et nationaux en matière de développement social.		verification of the data entered in the field and sent to the mainframe INFO-STAT and INSTAT using the Internet.	of the MDGs delivery system. (See page 4 for more info on Mali and the MDGs)		
Referenced in White, Dynes, Rubardt, Sissoko and Stephenson (2013)	June 1998	The Impact of Family Planning on the Lives of New Contraceptive Users in Bamako	Mamadou Kanl Konate, Amlnatou Djibo and Mamadou Djire	Reproductive Health	Bamako, Mali		The study explores women's expectations of family planning, their experiences as new users, and the influence of family members in shaping women's contraceptive experience. The study also investigates strategies	A sample of 55 women who had never used contraception was interviewed at two time periods.	This exploratory study used a prospective design with qualitative methods to follow the family planning experiences of 55 new users. Women were interviewed at the time they initiated a contraceptive method, then again nine months and 18	The results of this study suggest that family planning is a process that starts long before the actual decision to seek contraception. The process may begin with discussions among women in the extended family, or perhaps among women working	Centre d'Etudes et de Recherche sur la Population, and Family Health International. "Mali. Impact of Family Planning on the Lives of New Contraceptive Users in Bamako," 1998. <a href="http://pdf.usaid.gov/pdf_docs/pnace046.pdf">http://pdf.usaid.gov/pdf_docs/pnace046.pdf</a>	Y

Date Sourced and Location	Publication Date	Title	Authors	Health Outcome or Topic	Location	Study period	Objective	Information and/or Data Source	Methods	Findings	Full Citation	Included in Literature Review Y/N
							women develop to overcome obstacles in family planning.		months later.	together or socializing in a community group.		
John Carper 2/3/2019	2004	Strengthening Hygiene Promotion in the West Africa Water Initiative (WAWI) Partnership in Ghana, Mali and Niger	Lynne Cogswell	WASH	Accra and Tamale, Ghana; in Bamako, Bla, and San, Mali; and in Niamey and Zinder, Niger	Jan. 18 to Feb. 12, 2004	An EHP consultant was asked to visit Ghana, Mali, and Niger to conduct a three-country assessment of WAWI partners' capacity to promote hygiene, and based on this assessment, provide guidance on possible hygiene promotion next steps, partner capacities to	Quantitative self-assessments, interviews, focus group discussions, observational site visits and document and material review.	Qualitative and quantitative assessments	WAWI should consider (1) developing a WAWI-wide hygiene promotion strategy to complement the work that each partner is presently engaged in and enhance the HP work that the partnership will be able to complete; (2) training WAWI partner staff in behavior change techniques — to focus on new	Cogswell, Lynne. Strengthening Hygiene Promotion in the West Africa Water Initiative (WAWI) Partnership in Ghana, Mali and Niger, Environmental Health Project (Office of Health, Infectious Diseases and Nutrition: Bureau for Global Health U.S. Agency for International Development, September	N

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							strengthen, and capacities to share among partners.			and complementary techniques and build the capacity of the partnership to use these techniques; and (3) maximizing use of existing partner HP capacity — to rely more on what each HP capacity or set of HP capacities an individual partner brings to the strategy, only to pull in outside expertise when the partnership feels it is necessary	2004), <a href="http://www.ehpr.org/PDF/Activity_Reports/AR-138%20WAWI%20Assessment%20FORMAT.pdf">http://www.ehpr.org/PDF/Activity_Reports/AR-138%20WAWI%20Assessment%20FORMAT.pdf</a> .	
John Carper 1/28/2015	2002	International Workshop on Processing and Marketing of Shea Products	Common Fund for Commodities (CFC)	Agriculture	Dakar , Senegal	N/A	Workshop (jointly funded by CFC and FAO) to bring together a			The extended benefits of the workshop are likely to include a more regional	Common Fund for Commodities (CFC). "CFC Technical Paper	N

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		in Africa					variety of stakeholders in order to address critical issues of shea processing and trade across the African Shea zone.			approach to shea development across Africa, with attention to sustainability, producer equity, and women's traditional role as custodians of the shea resource	No. 21." Dakar, Senegal: Centre de Suivi Ecologique, 2002.	
John Carper 1/28/2015	2009	Pots and political economy: enamel-wealth, gender, and patriarchy in Mali	Jeremy Cunningham	Gender	Djenné, Mali	2001-2003	This article examines how the consumption of domestic vessels allows women from the Inland Niger Delta of Mali to negotiate the political economies they enter following their marriage.	200 semi-structured interviews with a diverse cross-section of potters and consumers and inventoried the contents of 100 random households	Not stated	Enamels do represent a significant store of economic capital that has been mobilized in an environment where control over economic power is increasingly important for status and prestige. Yet, instead of creating blanket hedonism and individualism,	Cunningham, Jerimy J. "Pots and political economy: enamel-wealth, gender, and patriarchy in Mali." Journal of the Royal Anthropological Institute 15, no. 2 (2009): 276-294.	N

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										<p>enamels reinforce social relations between women related to one another through their natal homes by being the focus of trousseau displays and their associated gifting. Rather than being duped by the allure of commodities, women in Mali seem to have purposefully engaged with commodity markets precisely to challenge local (qua 'authentic') political economies that separate them from their labour and</p>		

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										place them at the margins of domestic power.		
John Carper 1/28/2015	5/2009	Between dialogue and contestation: gender, Islam, and the challenges of a Malian public sphere	Rosa De Jorio	Gender and Religion	Bamako	11-15 Dec 2004	This paper examines how Islam has become a widely used idiom in discussions about gender in Mali. It foregrounds ordinary Malians' and particularly women's reflexive engagements with broadly debated religious and political questions. Centred on a 2004 five-day conference on gender issues, this paper examines the forms of	information collected during a 2004 five-day conference on gender issues in Bamako in December 2004	Not stated	Instead, the findings indicate the importance of examining women's reflexive engagement with the religious in public debates, reflexive modalities that, as Mahmood (2005) reminds us, are grounded within specific regimes of power.	De Jorio, Rosa. "Between dialogue and contestation: gender, Islam, and the challenges of a Malian public sphere." Journal of the Royal Anthropological Institute 15, no. s1 (2009): S95-S111.	N

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							Muslim women's involvement in the Malian public sphere, some of the challenges these women encounter, and their discursive attempts to reconcile their emancipatory agendas with their identities as Muslims.					
Referenced in World Bank (2006)	2003-2004	Mali - Enquête Légère Intégrée Auprès des Ménages 2003	National Directorate of Statistics and Informatics (IN) - Ministry of Economy, Trade and Industry	Health, Education, Employment	Mali	2001	To provide detailed information on the education of children, adult literacy, health status of the population, employment and access to basic essential services; - Appreciate the	Household and individual survey sample data	not stated	The economic situation of households in Mali has improved over the period 2001-2003. More than two out of three households (67%) felt that improvement. But the improvement	Direction Nationale de la Statistique et de l'Informatique (DNSI) - Ministère de l'Economie, de l'Industrie et du Commerce. Mali - Enquête Légère Intégrée Auprès des Ménages. Programme des	Y

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							different trends in these areas and update the data; - Establish a reliable database on the living conditions of households.			has benefited the rural population more than the urban population. In rural areas, nearly three quarters (71%) of households have felt against just over half (56%) of households in urban areas;	Nations Unies pour le Développement - PNUD et la Banque Africaine de Développement - BAD, 2004 <a href="http://catalog.ih.sn.org/index.php/catalog/3233">http://catalog.ih.sn.org/index.php/catalog/3233</a> .	
John Carper 1/28/2015	2011	Is Adaptation to Climate Change Gender Neutral? Lessons from Communities Dependent on Livestock and Forests in Northern Mali	H. Djoudi and M. Brockhaus	Climate Change and Gender	We worked at different levels: national (Bamako), regional (Timbuktu), district (Goundam), and two local Lake Faguibin	July to October 2008	To assess gender differences in vulnerability and adaptive strategies to climate variability and change for livestock and forest based livelihoods.	6 single gender participatory workshops in two communities.	Participatory rural appraisal	Our results show divergences in the adaptive strategies of men and women. Migration represented one of the most important strategies for men. Women perceived this strategy more as a cause of	Djoudi, H., and M. Brockhaus. "Is adaptation to climate change gender neutral? Lessons from communities dependent on livestock and forests in northern Mali." International Forestry Review 13, no. 2 (2011): 123-135.	N



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					<p>e communities (Tin Aicha and Ras El Ma)</p>					<p>vulnerability than an adaptive strategy. Traditionally male activities have been added to the workload of women (e.g. small ruminant herding). The historical axes show that development projects targeting women have not integrated climate change and variability into their planning. Most activities have been built around small scale agriculture.</p>		

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John Carper 1/28/2015	2003	Gender equality at work in sub-Saharan Africa: A case study of Mali's modern sector	Saliha Doumbia and Dominique Meurs	Gender	Mali	Jan. And Feb 2001	To analyze individual workers' wages by sex and investigates the causes of the average pay gap between men and women in the private sector and in the civil service. Additional survey conducted in the Ministry of Trade	Individual and organization-wide survey of private enterprises in the modern sector	Econometric analysis	In the public and modern private sectors alike, the male-female gap in average pay is entirely explained by wage differentials linked to the structure of employment (civil service) or enterprise characteristics (private sector).	Doumbia, Saliha, and Dominique Meurs. "Gender equality at work in sub-Saharan Africa: A case study of Mali's modern sector." International Labour Review 142, no. 3 (2003): 295-316.	N
John Carper 1/28/2015	2007	Microcredit and Empowerment Among Women Cloth Dyers of Bamako, Mali	Maxine Downs	Women's Economic Empowerment	Bamako, Mali	1999	This dissertation is an assessment of a microcredit program located in Bamako, the capital of Mali, West Africa to assess whether or not the CEE	participant/observation; open-ended and structured interviews; focus groups; socio-demographic survey; photographs; NGO's literature; and published and	The data collected and results of this study are a combination of qualitative and quantitative research methods.	The data and analysis discussed in this chapter suggest that the CEE program helped, as predicted, in making inroads toward meeting women's practical needs.	Downs, Maxine. "Microcredit and empowerment among women cloth dyers of Bamako, Mali." PhD diss., University of Florida, 2007.	Y

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							model has had an impact on women's empowerment, resulting in behavioral changes as an outcome of participants' long-term program exposure.	unpublished studies and brochures		As a result of long-term exposure to health and nutritional training, CEE participants did make behavioral changes compared to other cloth dyers of the same community. These behavioral changes occurred at the individual, household, and group or community levels.		
John Carper 2/3/2015	4/22/2014	Household Roles and Care-Seeking Behaviours in Response to Severe Childhood	AMY A. ELLIS, SEYDOU DOUMBIA, SIDY TRAORE, SARAH L.	Childhood illness	Kati District in Koulikoro Region, Mali	Oct. 2006-January 2007	This study examines how household members interact during episodes of severe febrile	case studies of 25 rural Malian households	Thematic analysis approach	This study contributes to the understanding of intra-household roles and dynamics	Ellis, Amy A., Seydou Doumbia, Sidy Traoré, Sarah L. Dalglish, and Peter J. Winch. "Household	Y

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		Illness in Mali	DALGLISH and PETER J. WINCH				illness in children, and how actual behaviour contrasts with stated social norms about the roles of different household members.			and emphasizes that health programmes must widen their focus beyond targeting only mothers if they hope to significantly impact the management of severe childhood illness. The role that mothers play is undoubtedly central, but their behaviour and ability to pursue care-seeking for their children may be dramatically influenced by other members of their household.	Roles and Care-Seeking Behaviours in Response to Severe Childhood Illness in Mali." Journal of Biosocial Science 45, no. 06 (November 2013): 743–59. doi:10.1017/S0021932013000163.	

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Referenced in Halvorson (2011)	July 2005	Season-Smart: How Knowledge of Disease Seasonality and Climate Variability Can Reduce Childhood Illnesses in Mali	Sally E. Findley, Seydou Doumbia, Daniel C. Medina, Boubacar Guindo, Mahamadu B. Toure, Nafomon Sogoba, Moussa Dembele, and Daouda Konate	Child Health	Niono, Segou, Mali	1995-2004	This manuscript documents the seasonality of childhood illnesses for the district of Niono, in the Sahelian Mali, and proposes a “season-smart” forecast application for the three main childhood illnesses— malaria, measles, and acute respiratory infection.	Incidence rates for malaria, measles, and ARI were estimated from monthly consultations at the community health center(CSCOM) in each of the six regions. These data were assembled from records kept at the 17 CSCOMs in Niono for 1996-2004.	Spectral analyses	Spectral analysis demonstrates marked seasonal fluctuations for major childhood infectious disease in Niono, Mali, namely diarrhea, ARI, and malaria. These seasonal patterns vary with latitude, which is in turn associated with fluctuations in rainfall, related to the location of the ITCZ, and other components of climate variability.	Findley, Sally E., Seydou Doumbia, Daniel C. Medina, Boubacar Guindo, Mahamadou B. Tour, Nafomon Sogoba, Moussa Dembele, and Daouda Konate. “Season-Smart: How Knowledge of Disease Seasonality and Climate Variability Can Reduce Childhood Illnesses in Mali.” In Session 905: Climate, Population and Health. Tours, France, 2005.	Y

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John Carper 2/3/2015	10/17/2012	Geographic distribution and socio-economic determinants of women's nutritional status in Mali households	Constance A Gewa, Timothy F Leslie and Lisa R Pawloski	Nutrition	Rural and urban areas of Mali	2006 DHS	The present study aimed to (i) describe geographic and health variations of women of reproductive age, (ii) describe geographic variations of household salt iodine levels and (iii) investigate potential factors associated with women's anthropometric status and use of adequately iodized salt among households in Mali.	Demographic and Health Survey data	multistage-stratified cluster sampling	Nineteen per cent of the women were overweight or obese while 11% were underweight. Seventy-eight per cent of the households utilized adequately iodized salt. Underweight women were more prevalent in southern Mali, while obesity was more frequent in the north-east and within the major urban areas. Households located within the southern parts of Mali were more likely to utilize adequately iodized salt.	Gewa, Constance A, Timothy F Leslie, and Lisa R Pawloski. "Geographic Distribution and Socio-Economic Determinants of Women's Nutritional Status in Mali Households." Public Health Nutrition 16, no. 09 (September 2013): 1575–85. doi:10.1017/S136898001200451X.	Y

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										Education, age, modern contraceptive use, breast-feeding status at time of the survey and household wealth index were significantly associated with the women's BMI or households' use of adequately iodized salt.		
John Carper 2/3/2015	5/2007	Analysis of a rural water supply project in three communities in Mali: Participation and sustainability	Brett A. Gleitsmann , Margaret M. Kroma and Tammo Steenhuis	WASH	Yadianga , Ogodour oukoro and Benebou rou. Koro District, Mopti, Mali	not stated	This paper presents a qualitative assessment of the participatory water management strategies implemented at the community level in rural	Direct observation of water-use behaviour and formal and informal surveys with residents of each village. The formal survey instrument developed included both structured and	qualitative assessment	Results of the study indicate that while community-based rural water supply is a positive step in responding to the needs of rural Malians, the installation of boreholes with hand	Gleitsmann, Brett A., Margaret M. Kroma, and Tammo Steenhuis. "Analysis of a Rural Water Supply Project in Three Communities in Mali: Participation	Y

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							Mali through a water supply project — The West Africa Water Initiative (WAWI) —	open-ended questions. This was administered to head women of 10 households per village		pumps informed merely by consultative participatory approaches and limited extension involvement will not necessarily proffer sustainable rural water supply in the region. A “platform” approach to rural water supply management that can mobilize the assets and insights of different social actors to influence decision making at all stages, including the design and choice-of-technology stages, in water	and Sustainability.” Natural Resources Forum 31, no. 2 (May 2007): 142–50. doi:10.1111/j.1477-8947.2007.00144.x.	



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										supply interventions is instead advocated.		
John Carper 1/28/2015	1/4/2014	Why women participate less in civic activity: Evidence from Mali	Jessica Gottlieb	Women's participation	the five cercles or districts of Kati, Koulikoro, Segou, Macina, and Baraoueli in Mali	early 2011	This paper investigates two potential explanations for the gender gap in participation: asymmetric costs to participation and deficits of civic information.	A field experiment that randomly assigns a civic education course to 64 Malian localities. demographic data from the survey with data on participation in civic activity across treatment and control groups. The data on civic participation is from the household survey and an event register. The former contains self-reports on the frequency of	Quantitative and qualitative methods	While information deficits proved a surmountable obstacle to participation among men, women faced additional constraints to civic participation that overshadowed any informational benefit they might have received. In fact, the particular information intervention actually increased existing gender disparities in	Gottlieb, Jessica. "Why Women Participate Less than Men in Civic Activity: Evidence from Mali," 2014. <a href="http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2451419">http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2451419</a> .	Y

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								participation in civic events while the latter contains detailed self-reports of participation in discrete civic events., interviews and focus groups		civic participation in Mali. This perverse effect is caused, in part, by the intervention making civic participation more salient and thus more costly for women.		
Referenced in Rupp, Diallo, and Phillipps (2012) 3/1/2015	Décembre 2011	Mali Profil du Genre Pays	African Development Bank	Gender	Mali	March 2011	Le principal objectif du Profil Genre est d'identifier à court terme, ainsi qu'à moyen et à long terme les problématiques liées aux inégalités de genre qui sont pertinentes pour la réduction de la pauvreté. Elles seront à traiter et à intégrer	Unclear, but I think they used the National Gender Policy (PNG) National Planning Policy and Gender Responsive Budgeting (PBSG) policies and sectoral action plans.	not stated	Ultimately, the main process bottlenecks should be removed through better communication around the themes sparking debate, advocacy and awareness actions in favor of fairness and justice, especially education to advance these	Groupe de la Banque Africaine de Développement, "Mali Profil Du Genre Pays," December 2011, <a href="http://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Mali_-_2012_-_Profil_du_genre_pays.pdf">http://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Mali_-_2012_-_Profil_du_genre_pays.pdf</a> .	Y

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							<p>dans les interventions du Groupe de la Banque, du gouvernement malien, et des autres partenaires au développement, en vue d'identifier les stratégies ou actions les plus appropriées par secteur pour y remédier. De manière spécifique, le Profil Genre du Mali a pour objectif d'analyser les questions de genre qui affectent le développement économique et social du pays.</p>			<p>egalitarian female to male values, thereby achieving a significant level of sustainable human development.</p>		

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John Carper 2/3/2018	1/13/2011	Water quality and waterborne disease in the Niger River Inland Delta, Mali: A study of local knowledge and response	Sarah J. Halvorson a,n, Ashley L. Williams a, Sidy Ba b, Florence V.Dunkel c	WASH	four villages along the Niger River in the Mopti region of Mali	9/1/2008	The study addresses four objectives: (1) to document mothers' collection, transport and storage of household water, drinking water quality, and family hygiene and sanitation practices in relation to hydrographic seasonal variability of the Niger River; (2) to develop an understanding of mothers' knowledge of diarrheal diseases in terms of causality, perceived severity, and treatment of	(1) semi-structured interviews with mothers of one child or more;(2 ) structured household observations;(3) structured interviews with key informants engaged in the health sector, including clinicians, pharmacists, and general health officials; (4) a survey of governmental and non-governmental statistics and public health documents; and (5) a spatial assessment of water sources, water collection sites, and women's daily water and	For the water testing, The method employed was Colierts,3 which tests for presence/absence of coliforms and E. coli.4	The major findings suggest: 1) water use behaviors and diarrheal disease management are influenced by the tremendous seasonal fluctuations in the riverine environment; (2) local awareness of the relationship between poor water quality, oral–fecal disease transmission, and waterborne disease is low; (3) interventions to mitigate the high incidence of childhood diarrhea and degraded water quality are	Halvorson, Sarah J., Ashley L. Williams, Sidy Ba, and Florence V. Dunkel. "Water Quality and Waterborne Disease in the Niger River Inland Delta, Mali: A Study of Local Knowledge and Response." <i>Health &amp; Place</i> 17, no. 2 (March 2011): 449–57. doi:10.1016/j.healthplace.2010.10.002.	Y

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							the disease; (3) to gain an understanding of the level of adoption of knowledge and practice introduced through water supply and sanitation programs and health officials; and (4) to identify potential and relevant linkages between women's water management, health and hygiene practices, and disease transmission.	environmental health-related activities. Quantitative water quality methods included collection and processing of drinking water samples.		limited by ongoing socio-economic, cultural, and environmental factors; and (4) women's level of health knowledge is socially and culturally dependent		
SPRING Zotero library March 1st	9/29/2010	Food Groups Associated with a Composite	Gina Kennedy <sup>5</sup> , 6,* <sup>6</sup> , Nadia Fanou-	Dietary Diversity Women	Bamako, Mali	February-April 2007	The main objective of the WDDP was to analyze the	This study used 2 nonconsecutive days of 24-h	The relationship between food group intake (grams) and	The overall MPA for the composite measure of 11	Kennedy, G., N. Fanou-Fogny, C. Seghieri, M. Arimond, Y.	Y

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		Measure of Probability of Adequate Intake of 11 Micronutrients in the Diets of Women in Urban Mali	Fogny <sup>5,7</sup> , Chiara Seghieri <sup>8</sup> , Mary Arimond <sup>9</sup> , Yara Koreissi <sup>5,10</sup> , Romain Dossa <sup>7</sup> , Frans J. Kok <sup>5</sup> , and Inge D. Brouwer				relationship between simple FGI and the micronutrient adequacy of the diet of women in resource-poor settings.	dietary recall from women age 15-49	estimated usual micronutrient intake and food group intake and MPA was assessed by Spearman correlation. Binary logistic regression models were used to assess these categorical food group intake variables as predictors of MPA.0.50.	micronutrients was 0.47 6 0.18. Grams of intake from the nuts/seeds, milk/yogurt, vitamin A rich dark green leafy vegetables (DGLV), and vitamin C-rich vegetables food groups were correlated (Spearman's rho = 0.20–0.36; P , 0.05) with MPA. Women in the highest consumption groups of nuts/seeds and DGLV had 5- and 6-fold greater odds of an MPA . 0.5, respectively.	Koreissi, R. Dossa, F. J. Kok, and I. D. Brouwer. "Food Groups Associated with a Composite Measure of Probability of Adequate Intake of 11 Micronutrients in the Diets of Women in Urban Mali." Journal of Nutrition 140, no. 11 (September 29, 2010): 2070S – 2078S. doi:10.3945/jn.110.123612.	

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John Carper 1/28/2015	2012	Gender and Competition between Economic or Non-economic Labor and Schooling: Evidence from EPAM Mali	Sandrine Koissy-Kpein	Gender and Education	Mali	2007	This paper uses the UCW project definition of child labor and EPAM Mali 2007 to analyze the gender difference in the co-choice between labor and schooling.	The Mali Permanent Household Survey (EPAM)	A quadri-variate Probit estimation is used to highlight the interdependence and the trade-off between school and child labor.	The main result suggests that boys (girls) have an increased (decreased) probability to go to school and a decreased (increased) probability to make labor activities.	Koissy-Kpein, Sandrine. "Gender and Competition between Economic or Non-economic Labor and Schooling: Evidence from EPAM Mali." African Development Review 24, no. 1 (2012): 107-123.	N
John Carper 2/3/2018	2011	Microfinance and Gender: Poverty Assessment of Beneficiaries in Mali	Yaya KOLOMA, Ph.D.	Microfinance and Gender	Mali	2007-2008	The objective of our paper is to understand the difference in poverty according to gender of the recipients of services in Mali. The question is whether there is a difference in poverty levels between	literature review and data from the survey "Microfinance and Poverty Reduction" conducted between December 2007 and January 2008 by the Observatory for sustainable human development	The paper adopts the methodology of identifying the poor based on the micro-multidimensional measure of poverty developed by Chakravarty, Mukherjee and Ranade (1998). Our study approaches this	Overall, this approach has found a supremacy of the incidence of non-monetary poverty by gender but not significantly ( $\eta = -0.322$ ) higher among women members (0.444) than male recipients (0.437).	Koloma, Yaya. "Microfinance and gender: Poverty assessment of beneficiaries in Mali." Available at SSRN 2409830 (2011).	N

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							men and women beneficiaries of microfinance programs. Or, otherwise, do women beneficiaries of microfinance services have a higher poverty level than men beneficiaries regardless of the duration of membership?	and the fight against poverty (ODHD / LCP) and national Institute of Statistics (ex DNSI), based on the beneficiaries of microfinance services	issue from two angles. First, we specify the theoretical approaches, our conceptual and methodological framework for assessing non-monetary poverty. Then, we will apply a comparative descriptive analysis of the level of non-income poverty by gender and beneficiaries' status (new beneficiaries or long term beneficiaries), according to their area of residence and socioeconomic group.	Differences in poverty are not significant for new members. For long date recipients, women have a poverty incidence significantly higher than men in urban areas ( $\eta = - 2.081$ ) and in rural areas ( $\eta = - 1.797$ ). These differences are due to lack of educational capability in urban areas and housing and durable goods for rural people.		



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Googl Scholar search 4/27/2015	2007	Microfinance et Réduction de La Pauvreté En Afrique Subsaharienne : Quels Résultats Au Mali ?	Yaya KOLOMA, Ph.D.	Microfinance and poverty	Mali	2005	The purpose of this paper is to describe the outstanding facts of the microfinance's sector in Mali, its context, its characteristics, and its articulation with the public policies of poverty reduction, and in particular the gender inequalities.	Data from the Rapport annuel 2005 sur le secteur de la microfinance au Mali, Ministère de l'Economie et des Finances, République du Mali and the 2006 Comptes économiques du Mali, Ministère de l'économie et des finances, République du Mali.	Not stated	The case study of Mali, through the few impact assessments that have been conducted, shows that, although a certain improvement of the living conditions of certain customers or clients receiving services cannot be ruled out, proving any reduction in poverty is difficult.	Koloma, Yaya. "Microfinance et Réduction de La Pauvreté En Afrique Subsaharienne: Quels Résultats Au Mali ?" Université Montesquieu-Bordeaux IV, 2007. <a href="http://www.arabic.microfinancegateway.org/sites/default/files/mfg-fr-etudes-de-cas-microfinance-insuffisante-pour-reduire-pauvrete-mali-2007.pdf">http://www.arabic.microfinancegateway.org/sites/default/files/mfg-fr-etudes-de-cas-microfinance-insuffisante-pour-reduire-pauvrete-mali-2007.pdf</a> .	Y
John Carper 1/28/2017	1998	Welfare impacts of technological change on women in southern Mali	Nina Lilja, John H. Sanders, Catherine A. Durham, Hugo De Groot,	Women, Agriculture	Southern Mali	1994-1995	This study estimates the income gains and losses from reallocation of women's labor	Survey Data	First, we compare income gains of the private plot-producer women and nonprivate plot-	This study shows that the expansion of cotton cultivation on the household communal fields	Lilja, Nina, and John H. Sanders. "Welfare impacts of technological change on women in	N

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			and Issiaka Dembele				from private production to communal production		producer women from their increased labor contribution in communal production. These wage payments are based upon the coefficient estimates from the empirical model for the change in wage rate due to technological change. Second, the income losses due to the reduction in private-plot labor allocation are compared with the increased wage payments for the increase in communal labor allocation. Then, policy implications and	in southern Mali associated with the introduction of new technologies results in increased payments to women for their increased labor on the cotton fields. Unfortunately, these payments are small compared to the loss of revenue from private-plot production. Thus, the net effect of the expansion of household cotton cultivation is a reduction in incomes of women who cultivate private plots	southern Mali." Agricultural Economics 19, no. 1 (1998): 73-79.	

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									a discussion of the dynamics of the technological change process in southern Mali are presented. Finally, some concluding observations are made.			
John Carper 1/28/2017	1996	Factors Influencing the Payments to Women in Malian Agriculture	Nina Lilja, John H. Sanders, Catherine A. Durham, Hugo De Groote, and Issiaka Dembele	Gender and agriculture	Three villages in the Sudano-Guinean zone and two villages in the Sudanian zone of Mali.	1995	We consider the impacts of technological change, opportunity costs, and family bargaining conditions in determining the daily wages paid to women and the relative female-male wage ratio.	household survey data	Empirical analysis	The income effects of opportunity costs on communal wages are small but the statistical results show that women's income is positively influenced by new economic opportunities. In spite of much discussion on the force of tradition,	Lilja, Nina, John H. Sanders, Catherine A. Durham, Hugo De Groote, and Issiaka Dembélé. "Factors influencing the payments to women in Malian agriculture." American journal of agricultural economics (1996): 1340-1345.	N

Date Sourced and Location	Publication Date	Title	Authors	Health Outcome or Topic	Location	Study period	Objective	Information and/or Data Source	Methods	Findings	Full Citation	Included in Literature Review Y/N
										the empirical evidence indicates that both the introduction of technological change on the farm and increased off-farm employment opportunities increase the communal daily wages paid to women.		
John Carper 1/28/2015	2013	Improving community development by linking agriculture, nutrition and education: design of a randomised trial of "home-grown" school feeding in Mali	Masset and Gelli	Nutrition, Agriculture and education	Mali	TBD (a future date)	This study aims to evaluate the impact of school feeding programmes sourced from small-holder farmers on small-holder food security, as well as on school children's education, health and	116 primary schools in 58 communities in food insecure areas of Mali	The analysis will follow the intention to treat approach as protocol and as treated, using econometric and simulation analysis, for all the relevant outcomes of the intervention. Impact will be assessed for the different	Since the impact evaluation has not yet been conducted, there are no findings. The hypothesized findings include: The intervention will have a moderate impact on the diet because food purchases by communities	Masset, Edoardo and Aulo Gelli, "Improving Community Development by Linking Agriculture, Nutrition and Education: Design of a Randomised Trial of 'home-Grown' School Feeding in	Y* Mentioned in a note, but not included in the review

Date Sourced and Location	Publication Date	Title	Authors	Health Outcome or Topic	Location	Study period	Objective	Information and/or Data Source	Methods	Findings	Full Citation	Included in Literature Review Y/N
							nutrition in Mali. In addition, this study will examine the links between social accountability and programme performance.		treatment arms using regression analysis to account for potential confounding variables, using a "difference-in-difference" estimator.	and mayors do not follow nutritional guidelines and nutrition education is absent. The intervention will have little or no impact on micronutrient status as the food provision is not fortified and only moderate effects on diet diversity are expected.	Mali," Trials 14, no. 1 (2013): 55, doi:10.1186/1745-6215-14-55.	
John Carper 1/28/2015	3/1/2007	Maternal income-generating activities, child care, and child nutrition in Mali	June N. Pierre-Louis, Diva Sanjur*, Malden C. Nesheim, Dwight D. Bowman, and Hussni O. Mohammed	Nutrition	Kolondiéba, Mali	6/1/1993	The objective of the study was to examine whether maternal income-generating activities, maternal food production,	Data were collected from a cross-sectional sample of mother-child pairs on maternal time use, child anthropometry, maternal food production,	The data were analyzed by multivariate regression and controlled for confounding variables.	Own-account cash crop farming by mothers benefits children's nutrition. Maternal income generating activities in the	Pierre-Louis, June N., Diva Sanjur, Malden C. Nesheim, Dwight D. Bowman, and Hussni O. Mohammed. "Maternal Income-Generating	N

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			d				and child care were determinants of the nutritional status of children in rural West Africa. The study hypotheses were that maternal income-generating activities and maternal food production are positively associated with children's dietary intake and anthropometry, and that maternal income-generating activities are not associated with child care.	dietary intake, parasitic infection, and household, maternal, and child determinants of child nutritional status. The children were 12 to 36 months of age and included breastfed and nonbreastfed children. Food intake was assessed by the 24-hour recall method.		context of extended families, sibling caretaking, and prolonged breastfeeding do not adversely affect child care.	Activities, Child Care, and Child Nutrition in Mali." Food and Nutrition Bulletin 28, no. 1 (March 2007): 67–75.	

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John Carper 1/28/2015	2003	Women and literacy in rural Mali: a study of the socioeconomic impact of participating in literacy programs in four villages	L. Puchner	Women's Education	four villages in a district in southern Mali. The villages ranged in population from 200 to 1500, and were located seven to twelve kilometers from the town of Sana	1994-1995	To assess assessing the socio-economic impact of participation in literacy programs on women in rural Mali.	The main sources of data in the study were observations, interviews, and administration of a test and questionnaire.	Not stated	The study found that lives of literate women in the communities studied differed little from their nonliterate counterparts. Despite the presence of literacy programs in the villages, it was difficult for women to become literate, and women who had obtained literacy skills rarely used them. The author argues that subtle ideological forces in the communities made it difficult for literacy to bring about	Puchner, Laura. "Women and literacy in rural Mali: a study of the socio-economic impact of participating in literacy programs in four villages." International Journal of Educational Development 23, no. 4 (2003): 439-458.	N

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										socio-economic change in women's lives. Rather, 'women's literacy' had been appropriated into the prevailing male-dominant socio-political culture. The study indicates that simply providing literacy skills may not guarantee positive consequences for women in certain contexts. © 2003 Elsevier Science Ltd. All rights reserved.		
Bourdet et al. (2010) reference an earlier CSCR	12/28/2011	CSCR 2012-2017 : Cadre Stratégique pour la Croissance et	Republic of Mali	Poverty Reduction	Mali	2007-2011	Accelerate the implementation of the MDGs through inclusive	DNPD, INSTAT	N/A	N/A	République du Mali. "Cadre stratégique pour la croissance et la	Y



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		la Réduction de la Pauvreté					development based on the reduction of poverty and inequality.				réduction de la pauvreté," December 28, 2011. <a href="http://www.mali.apd.org/spip.php?article6">http://www.mali.apd.org/spip.php?article6</a> .	
John Carper 1/28/2016	Feb 2012	Augmentation des Revenus et Empowerment des Femmes par la Valorisation des Savoirs Locaux Sur Les Plantes. le Cas Des Femmes Herboristes du District de Bamako au Mali	Rokia Sanogo, Sergio Giani	Women's empowerment and environmental sustainability	Bamako, Mali	2002-2011	The general objective of the actions taken was to fight against poverty and insecurity and improve the quality of life of women herbalists of the District of Bamako, while participating in the sustainable management of natural resources.	not stated	not stated	The most important and concrete results achieved so far has been the provision of twenty-cinq kiosques for the sale of medicinal plants for market women herbalists of Bamako. Which helped to improve their working conditions, income and quality of medicinal plants sold to customers,	Rokia, Sanogo, and Giani Sergio. "AUGMENTATION DES REVENUS ET EMPOWERMENT DES FEMMES PAR LA VALORISATION DES SAVOIRS LOCAUX SUR LES PLANTES. LE CAS DES FEMMES HERBORISTES DU DISTRICT DE BAMAKO AU MALI." In Universitas Forum: International Journal on	N

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										while reducing pressure on natural resources. At the same time, stocks have improved the image herbalists relation to themselves and the perception of the importance of their work with clients, respective families and community	Human Development and International Cooperation, vol. 3, no. 1. 2012.	

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John Carper 1/28/2015	2013	Providing Farmland Ownership Rights to Women In Rural Mali: The MCC Experience	Seitz and Rolfes	Land rights for women	Segou Region, Mali	2007-2012	Using this approach, the project designed and executed a three-pronged effort to help women gain rights to the newly developed irrigated land: (i) the titling of women's market gardens on irrigated land; (ii) promoting allocation of five-hectare farms to women; and (iii) designing a gender-responsive outreach program to encourage joint titling.	Not stated	Not stated	The measures designed and implemented resulted in 37 percent of the 4,940 hectares of irrigated land going to the ownership of women through women's market garden associations, joint titling or awards through the lottery.	Rolfes, Jr., Leonard, and Virginia Seitz. "Providing Farmland Ownership Rights to Women In Rural Mali: The MCC Experience." Washington, DC: Millennium Challenge Corporation, 2013.	Y*

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Sent by Madeleine Smith June 16, 2015	2013	Nutrition-Sensitive Interventions and Programmes: How Can They Help to Accelerate Progress in Improving Maternal and Child Nutrition	Marie T. Ruel and Harold Alderman	Nutrition and MNCH		1996-2013	Review evidence of the nutritional effect of programmes from different sectors, and discuss how such investments could be made more nutrition-sensitive.	Not stated	Literature review of nutrition-sensitive programs	Ways to enhance programme nutrition-sensitivity include: improve targeting; use conditions to stimulate participation; strengthen nutrition goals and actions; and optimise women's nutrition, time, physical and mental health, and empowerment.	Ruel, Marie T., and Harold Alderman. 2013. "Nutrition-Sensitive Interventions and Programmes: How Can They Help to Accelerate Progress in Improving Maternal and Child Nutrition?" The Lancet 382(9891): 536–51. doi:10.1016/S0140-6736(13)60843-0.	Y

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Google search 2/3/2015	5/1/2012	Mali Gender Assessment	Emily Rupp from USAID/Senegal, Assitan Diallo, Malian Gender Specialist, and Sharon Phillipps, Gender Advisor for the Africa Bureau	Gender	Not stated but appears to be Bamako, Mali	February 2012	In preparation for writing their Country Development Cooperation Strategies (CDCS), USAID/Mali requested the completion of a gender assessment to inform their new strategy and comply with ADS requirements. A CDCS is a forward looking documents that will take into consideration input from other USG agencies, host-country governments, other donors, the private	key informant interviews (27) from internal and external individuals (see appendix for complete list)	qualitative analysis	<ul style="list-style-type: none"> <li>• Mali's cultural and ethnic norms weigh heavily against women. This coupled with poverty, especially in rural areas, determines the low indices recorded for women.</li> <li>• Women have very limited capacity to make decisions or act independently. They have limited voice or agency.</li> <li>• Many of the cultural practices that women are subjected to are harmful and threaten</li> </ul>	Rupp, Emily, Assitan Diallo, and Sharon Phillipps. "Mali Gender Assessment," July 2012. <a href="http://bit.ly/1EZ6fJj">http://bit.ly/1EZ6fJj</a> .	Y

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							sector, and local civil society stakeholders. The aim of the CDCS is to ensure that USAID resources follow a strategic vision, critical development goals are achieved and needs are met in the most efficient manner.			<p>their well-being. Female Genital Mutilation (FGM) and early marriage are among these, as well as domestic violence and other forms of Gender-Based Violence (GBV).</p> <ul style="list-style-type: none"> <li>• Rural women are extremely overworked. Women spend 7 to 8 hours on domestic chores, apart from the time they spend working in the fields.</li> <li>• The majority of women who work in agriculture are not remunerated</li> </ul>		

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										<p>for their labor.</p> <ul style="list-style-type: none"> <li>• Women's lack of agency contributes to the high fertility rates, and maternal and infant mortality.</li> <li>• There is a strong correlation between women's level of education and the drop in fertility rates, the increased wellbeing of children and many other indices of development.</li> <li>• Every effort should be made to provide literacy training to</li> </ul>		

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										<p>women through the different programs the Mission supports.</p> <ul style="list-style-type: none"> <li>• Along with literacy, training in entrepreneurship and in other areas that will promote their sense of empowerment and leadership should be undertaken.</li> <li>• Men should be enlisted as partners that recognize women's contributions and provide them support.</li> </ul>		



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John Carper 1/28/2015	4/1/2002	Women's Social Power, Child Nutrition And Poverty In Mali	DOMINIQUÉ SIMON*, ALAYNE M. ADAMS† □ □ □ SANGEETHA MADHAVAN	Gender, Child Nutrition, Poverty	the remote north-western administrative Cercle of Mopti.	1996-1997	This paper aims to assess the extent to which social power mediates the influence of poverty on child nutritional status among the agro-pastoral Fulbe of Mali.	The data used in this paper are drawn from a comparative study of women's social networks and health among Bamanan and Fulbe of Mali. 500 ever-married women respondents (aged 15–49) were sampled randomly based on complete household censuses conducted in each village.	The analyses in this paper are confined to the assessment of cross-sectional survey data for a subsample of Fulbe women with children 5 years of age and under.	The measures constructed to assess social power demonstrate marginal significance in the right direction: women who score higher in passivity/helplessness are more likely to have children who are malnourished (wasted and/or stunted), while children whose mothers score better in felt control are more likely to fall within the normal range of z-scores for weight-for-height.	Simon, Dominique, Alayne M. Adams, and Sangeetha Madhavan. "Women's Social Power, Child Nutrition and Poverty in Mali." <i>Journal of Biosocial Science</i> 34, no. 02 (April 2002): 193. doi:10.1017/S0021932002001931.	Y

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Referenced in Halvorson (2011)	1996	Maternal Perception of Cause, Signs and Severity of Diarrhoea in a Suburban West African Community	Sodemann, M., M. S. Jakobsen, K. Mølbak, C. Martins, and P. Aaby	MNCH	Bandim, Guinea-Bissau		The objective of the study was to investigate perceived morbidity and care seeking behaviour,	Household Survey of 319 episodes of diarrhea	Longitudinal study	The chance of consultation increased with the number of symptoms reported by the mother. The appearance of the eyes and how the child breastfed were early warnings that mothers recognized best. By contrast, there was an 80% reduction in the likelihood of seeking consultation when the mother perceived the diarrhoea as caused by teeth eruption (n= 96). Children with "teething diarrhoea" were, however, just as likely to develop signs of	Sodemann, M., M. S. Jakobsen, K. Mølbak, C. Martins, and P. Aaby. 1996. "Maternal Perception of Cause, Signs and Severity of Diarrhoea in a Suburban West African Community." <i>Acta Paediatrica</i> 85(9): 1062–9. <a href="http://onlinelibrary.wiley.com/doi/10.1111/j.1651-2227.1996.tb14218.x/abstract">http://onlinelibrary.wiley.com/doi/10.1111/j.1651-2227.1996.tb14218.x/abstract</a>	Y

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										dehydration as children with non-teething diarrhoea. We conclude that health education concerning diarrhoea should emphasize early signs of dehydration and the discouragement of "teething" as an explanation of natural diarrhoea.		
John Carper 1/28/2015	2013	The energy-enterprise-gender nexus: Lessons from the Multifunctional Platform (MFP) in Mali	Benjamin K. Sovacool*, Shannon Clarke, Katie Johnson, Meredith Crafton, Jay Eidsness,		Mali	March and April 2012	This study introduces readers to the rural energy situation in Mali and describes the history of the MFP project. It then discusses the benefits	interviews of stakeholders and an extensive literature review	Not given	The underlying lesson here is that energy access projects work best when they couple that access with productive uses, income generation, and elevating the	Sovacool, Benjamin K., Shannon Clarke, Katie Johnson, Meredith Crafton, Jay Eidsness, and David Zoppo. "The energy-enterprise-gender nexus:	N

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			David Zoppo				the project achieved, as well as five sets of challenges the MFP faces.			social and economic status of underprivileged groups	Lessons from the Multifunctional Platform (MFP) in Mali." Renewable Energy 50 (2013): 115-125.	
Received from Madeleine Smith 2.17.2015	6/1/2010	Gender Assessment USAID/Senegal I	Deborah Rubin, Team Leader, Cultural Practice LLC with assistance from Oumoul Khayri Niang-Mbodj, DevTech Systems, Inc.	Gender	cities and towns of Dakar, Thiès, Kaolack, and Tambacounda and villages near each of them, Senegal	March 20 to April 11, 2010	Identify key gender issues in Senegal, including gender disparities in access to education, unequal allocation of land and other productive resources, and gender-based violence (such as domestic violence, female genital cutting [FGC], and rape), as well as examples of USAID/Senegal	Interviews and focus groups, number of people interviewed and number of participants in FGs not given	The interviews and focus groups were conducted using a set of key questions about the informants' understanding of gender, their processes for identifying and addressing gender issues in their programs, their successes and challenges, and their ideas on emerging issues related to gender.	The mission still faces challenges in finding the time and resources to design and implement programs to overcome critical gender disparities in the country. Improving gender integration strategies will be particularly important in the new activities to be funded under USAID's recently announced	United States Agency for International Development, "Gender Assessment USAID/Senegal," 2010, <a href="http://pdf.usaid.gov/pdf_docs/pdacr976.pdf">http://pdf.usaid.gov/pdf_docs/pdacr976.pdf</a> .	Y* used as a guide

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							's programming to address these problems.			United States Government "Feed the Future" initiative and in new democracy and governance programs. By building on the findings in this assessment and conducting more targeting gender studies in key areas, the mission will not only support women and girls and "Most At Risk Populations" (MARPs) with targeted activities, but may also begin to address institutional disparities where women and men have been historically		

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										disadvantaged and create opportunities for more equitable involvement in the market and in political arenas, from community to national levels.		
John Carper 1/28/2015	11/1/2013	Lasting Welfare Effects of Widowhood in Mali	van de Walle	Gender	Mali	2006	The paper focuses on the welfare effects for women and their children associated with a potentially severe shock—widowhood.	Mali’s 2006 Enquete Legere Integree Aupres des Menages (ELIM) and 2006 DHS data	Regression analysis	An examination of individual measures of well-being further reveals that, relative to other women, worse outcomes for ever-widowed women persist through remarriage. These detrimental effects are passed on to children, suggesting an intergeneration	van de Walle, Dominique. “Lasting Welfare Effects of Widowhood in Mali.” World Development 51 (November 2013): 1–19. doi:10.1016/j.worlddev.2013.05.005.	Y

Date Sourced and Location	Publication Date	Title	Authors	Health Outcome or Topic	Location	Study period	Objective	Information and/or Data Source	Methods	Findings	Full Citation	Included in Literature Review Y/N
										al transmission of poverty stemming from widowhood		
John Carper 1/28/2015	2014	The Role of Social Participation for Women's Ability to Combine Motherhood and Employment Security in Mali and Ghana	Nadia von Jacobi	nutrition and agriculture	Ghana and Mali	2006 & 2008	This study explores the complex and multilevel relations between fertility, employment security and social participation in two African countries	Demographic and Health Survey (2006) are complemented by contextual characteristics calculated using the Afrobarometer surveys (2008).	A random coefficients model is used to explain variation in female vulnerability through individual and contextual characteristics. Social participation enters into the model as an aggregate measure of the context	The results are indicative of a positive relation between participation and employment security, especially for the subgroup of adult women between 25 and 34 years and for mothers of 5 to 6 children (moderate high fertility).	von Jacobi, Nadia. "The Role of Social Participation for Women's Ability to Combine Motherhood and Employment Security in Mali and Ghana." African Population Studies 28, no. 2 (September 2, 2014): 834. doi:10.11564/28-2-599.	Y
John Carper 2/3/2018	2013	The Influence of Intrafamilial Power on Maternal Health Care in Mali: Perspectives of	Darcy White, Michelle Dynes, Marcie Rubardt, Koman	MNCH	Bandiagara and Bankass in the Mopti region	June-July 2011	To understand how intrafamilial power dynamics and the attitudes of women, their	Projet Espoir Baseline Survey	Data analysis	In multivariable analyses, the preferences and opinions of mothers-in-law were associated with the	White, Darcy, Michelle Dynes, Marcie Rubardt, Koman Sissoko, and Rob Stephenson. "The Influence	Y

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		Women, Men And Mothers-in-Law	Sissoko and Rob Stephenson				husband and their mother-in-law are associated with maternal health practices.			maternal health behaviors of their daughters-in-law. Women's own perceptions of their self-efficacy, the value of women in society and the quality of services at the local health facility were also independently associated with their preventive and health-seeking practices. Husbands' preferences and opinions were not associated with any outcome.	of Intrafamilial Power on Maternal Health Care in Mali: Perspectives of Women, Men And Mothers-in-Law." International Perspectives on Sexual and Reproductive Health 39, no. 02 (June 2013): 058–068. doi:10.1363/3905813.	



Date Sourced and Location	Publication Date	Title	Authors	Health Outcome or Topic	Location	Study period	Objective	Information and/or Data Source	Methods	Findings	Full Citation	Included in Literature Review Y/N
Referenced in Gottlieb (2014) and van de Walle (2013)	2003	Women, Men, and Market Gardens: Gender Relations and Income Generation in Rural Mali	Stephen Wooten	Gender and Agriculture	Niamakori, central Mali	1992-1994	Explore the relationship between gender and commodity production in central Mali	14 month ethnographic study including interviews with household heads, community census, and physical surveys of fields, gardens and marketing dynamics	Qualitative and quantitative	By documenting patterns of garden leadership in relation to privileged avenues of access to land and outlining labor constraints, this study reveals how existing gender relations of production support men's participation in and women's marginalization from the commercial gardening realm.	Wooten, Stephen. "Women, Men, and Market Gardens: Gender Relations and Income Generation in Rural Mali." Human Organization 62, no. 2 (June 1, 2003): 166–77.	Y
Google search 2/3/2015	Feb 2006	Strategic Gender Assessment of Mali	World Bank	Gender	three areas of the country: Sikasso, a rural area in	April-May-June 2005,	This issues paper provides the Government of Mali and its partners with proposals	The assessment was carried out by way of documentary review, interviews with gender	The information gathered contributed to socio-cultural, economic, legal, and institutional sectoral studies.	Observation 1: Inequality in status and position within the family and society, which limits the	World Bank. 2006. Strategic Gender Assessment of Mali. World Bank, Bamako. © World Bank.	Y

Date Sourced and Location	Publication Date	Title	Authors	Health Outcome or Topic	Location	Study period	Objective	Information and/or Data Source	Methods	Findings	Full Citation	Included in Literature Review Y/N
					the South, Gao, a rural area in the North and the District of Bamako, an urban area		aimed at improving policies and activities that promote gender equity and equality (GEE). These proposals will be discussed by the authorities and development partners at the national and international levels. They will contribute to improving the integration of the gender perspective in strategy papers such as the Poverty Reduction Strategy Paper (PRSP), the World Bank's assistance strategy, and various	stakeholders, and a field survey.	These studies were utilized and analyzed in an issues paper, which in turn was discussed and validated at a national workshop organized in Bamako as well as at a regional one held in Segou.	abilities of women and hinders their participation. Observation 2: Unequal level of instruction, education and qualification. Observation 3: Precarious reproductive health situation of women and adolescent girls. Observation 4: Substantial contribution by women to both the household and market economies, but rather low visibility of the work they do in economic aggregates, and poor access to developmental benefits. Observation 5: Varying	<a href="https://openknowledge.worldbank.org/handle/10986/12604">https://openknowledge.worldbank.org/handle/10986/12604</a> License: CC BY 3.0 Unported	

Date Sourced and Location	Publication Date	Title	Authors	Health Outcome or Topic	Location	Study period	Objective	Information and/or Data Source	Methods	Findings	Full Citation	Included in Literature Review Y/N
							cooperation programmes by other donors working in Mali.			enjoyment of rights and exercise of roles of men and women within the family and society, notwithstanding the Constitution's provisions of equal rights. Observation 6: Poor representation and participation of women in decision making. Observation 7: The system's failure to recognize the multi-sectoral nature of gender.		



# Appendix C: Understanding and Applying Primary Pathways and Principles



LINKING AGRICULTURE & NUTRITION  
PATHWAYS | PRINCIPLES | PRACTICE

BRIEF  
1

IMPROVING NUTRITION THROUGH AGRICULTURE TECHNICAL BRIEF SERIES

## Understanding and Applying Primary Pathways and Principles

MARCH 2014









**SPRING**

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