

# Reproductive health and well-being in rural Ethiopia: mothers and infants 2010—13

Philippa Bevan<sup>1</sup>

## CONTENTS

INTRODUCTION .....	2
CHANGES IN RURAL MATERNAL AND INFANT HEALTH AND WELL-BEING 2003-13. ....	3
<i>Rural maternal and infant health and well-being in 2003</i> .....	3
<i>Changes between 2003 and 2013</i> .....	4
FOUR MAIN RISK AREAS: DIET, WATER, WORK, HEALTH.....	5
<i>Diets</i> .....	5
<i>Water</i> .....	5
<i>Women’s work and the mother-baby couple</i> .....	6
<i>Mother and infant health</i> .....	6
FOUR FEATURES LINKED TO THE RISKS: DROUGHT, SEASONALITY, POVERTY, REMOTENESS 2010-13 .....	6
<i>Drought and the mother-baby couple</i> .....	7
<i>Seasonality and the mother-baby couple</i> .....	9
<i>Poverty and the mother-baby couple 200-13</i> .....	10
<i>Remoteness and the mother-baby couple</i> .....	12
GOVERNMENT INTERVENTIONS INDIRECTLY AFFECTING MOTHER-INFANT WELLBEING 2010-13 .....	15
<i>Diets</i> .....	15
<i>Access to drinking water</i> .....	15
<i>Work</i> .....	16
<i>Drought and other threats to farming</i> .....	16
<i>Seasonality</i> .....	17
<i>Poverty</i> .....	17
REPRODUCTIVE HEALTHCARE FOR MOTHERS AND NEWBORNS.....	18
<i>Health infrastructure: government health posts, health centres, and private clinics</i> .....	18
<i>Staffing the Health Extension system</i> .....	20
<i>Ante-natal care</i> .....	21
<i>Delivery</i> .....	23
<i>Post-natal care</i> .....	25
SOME LONGER-TERM PROBLEMS ASSOCIATED WITH PREGNANCY, DELIVERY AND EARLY INFANCY.....	26
CONCLUSIONS AND POLICY CONSIDERATIONS.....	27
<i>Indirect interventions</i> .....	27
<i>The design of mother-baby services</i> .....	27
<i>Different mixes of mother-baby services for differently located communities</i> .....	28
<i>Mainstreaming maternity in development discourses and practice</i> .....	29
REFERENCES .....	30

---

<sup>1</sup> Many thanks for the very useful contributions from my peer reviewer Helen Amdemichael, for suggestions from all the Discussion Brief peer reviewers during meetings in February and September 2015, and for comments on various drafts from the other WIDE team members. I would also like to thank the WIDE community members and research officers and supervisors who over the years made the data on which the chapter draws, the various funders who financed the research phases, and the useful comments of senior Government officials at the High Level Discussion Forum in March 2016 convened by the Ethiopian Development Research Institute and organised by its Economic Policy Analysis Unit.

## Introduction

This chapter is about a major and risky experience which occupies some years in the lives of most rural Ethiopian women: producing children, or as it is described here, the pregnancy/ delivery/ infancy (PDI) cycle. This lasts roughly fifteen months and consists of three stages. For the mother nine months or so of pregnancy, then delivery, followed ideally by at least six months of exclusive breast-feeding. From the infant's perspective an embryo develops and matures in the womb; then an infant is born and requires the provision of food and care. A woman who has five children is somewhere in this cycle for more than six years in total.

Raising children is very difficult for women. It is just tiresome. First throughout the pregnancy women worry about their child and they continue to do so for the rest of their lives. *Woman from Oda Haro*



The health and well-being of the mother-baby couple is inter-twined in complex ways, and is affected by the prior history of the mother and by what happens in the couple's environment. The health and well-being of a woman moving into pregnancy can be affected by a number of prior experiences, including physical and mental harms, illnesses and traumas, and the number of pregnancies she has already had. Some physical and mental problems follow from the community practices and norms described in the chapter on the reproductive health of girls in transition to adulthood: circumcision, rape, forced abduction, early marriage, exclusion of girls who become pregnant before marriage, disapproval of contraception for unmarried girls, and customary abortions.

The chapter is mainly about mother-baby couple environments in the WIDE3 communities but, given the paucity of data directly related to women's and infants' experiences, the focus of the chapter is on community-level properties of mother-baby environments with potential to affect their health and well-being. The four major risk factors are inadequate diets, inadequate access to water for drinking and hygiene, work that is too heavy and/or time-consuming, and inadequate access to ante- and post- natal care and skilled assistance with complicated deliveries. These risk factors are linked to one or more of four important community features: (1) risks of drought and other weather-generated crises; (2) seasonal variabilities in weather, work, and food and water availability; (3) poverty; and (4) remoteness. There are various Government interventions which directly or indirectly reduce these risks.

The chapter begins with a brief discussion of changes in maternal health and well-being in the WIDE communities between 2003 and 2013. Section 3 describes how four risk factors affect the health and well-being of mother-baby couples: the mother's diet, use of water, work, and access to health-care. Section 4 presents the WIDE3 evidence on the four risk-related community attributes: drought, seasonality, poverty, and remoteness. Government interventions in the communities with indirect consequences for the risk factors and community attributes are described in Section 5 under the headings: diets, access to drinking water, women's work, drought, seasonality, and poverty. Remoteness is considered in Section 6 which describes availability and use of government and private healthcare services by mothers during pregnancy, delivery and early infancy. Following a brief note on some longer-term problems associated with pregnancy, delivery and early infancy the chapter concludes with a short policy discussion.

I mainly use data made in the twenty WIDE communities between 2010 and 2013 (WIDE3). However, since the protocols were not deliberately designed to answer the questions posed in this chapter, there are data gaps, some of which are filled with data made in 2003 during WIDE2 and statistics from the 2005 and 2011 Ethiopian Demographic Health Surveys.

## Changes in rural maternal and infant health and well-being 2003-13.

### *Rural maternal and infant health and well-being in 2003*

The 2003 fieldwork was undertaken at a time when many of the communities were affected by severe drought and just before the government introduced the Sustainable Development and Poverty Reduction Programme (SDPRP, 2003-5) which launched an expanding programme of donor-supported investment in economic, human development and social protection services for rural communities<sup>2</sup>. In a paper I wrote on the basis of the 2003 data I concluded that many mothers and babies in rural Ethiopia were experiencing acute and/or chronic suffering as they moved through the pregnancy/ delivery/ infancy cycle. 'Women suffered as a result of experiences of :

- infertility
- unwanted pregnancies and too many pregnancies
- botched abortions and miscarriages
- difficult pregnancies and illnesses during pregnancy
- starvation or nutritional failures during pregnancy
- overwork during pregnancy
- absence of, poor or costly health facilities during pregnancy
- lack of care and support during pregnancy
- difficult deliveries and absence of, or poor or costly health facilities during delivery
- post-delivery complications and absence of, or poor or costly health facilities for the new mother and baby
- overwork once the baby was born
- starvation or nutritional failures while breastfeeding
- being responsible for the physical welfare of the children, especially in times of famine
- worry about feeding the family and the health of the baby

Babies suffered as a result of the experiences of:

- nutritional failures while in the womb
- problematic birth experiences
- local diseases and illnesses
- neglect connected with the duty of mothers to make ends meet in hunger periods' (Bevan, 2004: 33)

Many problems related to *being pregnant* were raised by women interviewed in 2003. They included pain, sickness, fatigue, inappropriate work activities, anxiety, and pregnancy-related illnesses. Poor diets during pregnancy were problematic for both mothers and their infants. Starving pregnant women suffered extra pain, psychological problems, vulnerability, anaemia, exhaustion and inability to function, delivery problems, and long-term physical damage.

*Delivery problems* reported included pain, bleeding, the position of the baby, the narrowness of the birth canal, and retained placentas. Circumcision, unspaced births, and physical immaturity were cited as causes of some problems. Reasons why babies were born dead included physical stress, maternal malnutrition, illness during pregnancy (malaria, high blood pressure), inadequate ante-natal care; use of harmful medical drugs, alcohol, smoking, damage from previous deliveries or abortions, delivery problems, prematurity, hereditary factors, God's will, witchcraft and various superstitions.

In *early infancy* health was a major worry for mothers. Diarrhoea and vomiting were widely reported and often associated with 'poor hygiene'. Respiratory illnesses were also widely reported, some of

---

<sup>2</sup> The SDPRP was followed by PASDEP 2006-10 (Plan for Accelerated and Sustainable Development), GTP1 2010-15 (Growth and Transformation Plan) and GTP2 2015-20.

which may have been related to smoky houses. Malnutrition was identified in eight sites, not all of them in famine-prone areas, while malaria was reported as a considerable threat to babies in eight sites. Measles was a problem in eight sites. If a baby fell ill most respondents said that, unless the household was rich, the first resort was home remedies and the second traditional healers; in most cases the baby was only taken to local health facilities if these failed. Factors taken into account included the type of illness and its progress, the types of local home remedies, types of local traditional healers, proximity of health centres and hospitals, availability of transport and a person with time to travel and wait, and the wealth of the household. Clothing and childcare when the mother had to work were also described as problems.

In 13 of the 20 sites at least one respondent reported that babies were given butter as soon as they were born. Asked what food babies should be fed in the first month of life in fourteen sites the response was breastmilk only or breastmilk plus water (and perhaps sugar). However, maternal malnutrition could lead to insufficient breastmilk. Many respondents reported pain, tiredness, hunger and illness associated with breastfeeding. Maternal illness could also be a problem especially when it was accompanied by a lack of medication and hard work associated with lack of time. Some respondents said that ignorance played a role. If babies did not get enough to eat their physical development was affected and they were vulnerable to disease, they were unhappy and cried a lot and sometimes died (Bevan, 2004).

### *Changes between 2003 and 2013*

The data made in the return to the WIDE communities in 2010-13, some of which are described below, suggest that there had been considerable overall improvements in the health and well-being of mothers during pregnancy and infants after birth, particularly since 2005<sup>3</sup>. For example, describing infant care in 2013 a respondent from Kormargefia, North Shewa said that in 'the past people used second hand clothes for babies, but they are more likely to buy them new clothes now. Parents also use traditional medicines for their children less frequently and are more likely to go to the pharmacy for medicines. In the past older children, relatives and neighbours did a large amount of the care for babies, but now mothers take much more of the responsibility' (*Kormargefia Community Report: 98*).

These improvements were linked to interactions among a range of ongoing state-led modernisation processes. Increases in community wealth and average household incomes were linked to agricultural modernisation, growing non-farm sectors and in some places migration (see the chapter on migration) driven by a mix of government interventions, rural entrepreneurship (see the chapters on economic success and innovation and learning) and urban demand (see the chapter on urbanisation). In eleven communities the Productive Safety Net Programme and/or Emergency Food Aid supplemented incomes. Rising incomes, agricultural diversification and health education contributed to improvements in diets, while Government action, donor funding, NGO participation and community contributions of cash and labour, increased access to safe water. Richer parents could afford to buy modern baby clothes and equipment.

A second set of processes improved access to maternal and infant health services. Government and community worked together to build Health Posts and maintain and upgrade internal roads. The efforts of thousands of Health Extension Workers contributed to improvements in hygiene and environmental sanitation in rural communities, activities to prevent and control local diseases, and family health services. Government, private clinics and non-profit organisations invested in modern curative and reproductive health services.

These economic and health service developments were accompanied by some changes to local cultural beliefs and practices. Rapidly improving communications, expanding education (see the

---

<sup>3</sup> There was no WIDE data about maternal or infant mortality neither of which changed much nationally between 2003 and 2010 according to the Ethiopia Demographic Health Surveys (see below).

chapter on education), thickening urban links (see the chapter on urbanisation), and government awareness-raising programmes brought modern ideas to rural areas. Improvements in the status of women were boosted by the expansion of education, access to contraception leading to reduced fertility rates, greater participation in the cash economy (see the chapter on women's economic participation), and implementation of women's rights legislation and other programmes to reduce gender inequality directly.

However, while the ten years between 2003 and 2013 saw considerable improvements in the health and well-being of mothers and infants in the WIDE communities there were still many problems remaining in 2013 which are described below. In particular many of the developments were not reaching women equally, with mother-baby couples in remote places and/or in poverty most likely to be at risk of harm.

#### **Four main risk areas: diet, water, work, health**

##### *Diets*

Pregnant women need sufficient food in terms of calories, plus extra amounts of five important nutrients: calcium, vitamin B9 (folates), iron, vitamin A, and protein (MoH, ANC Part 2, n.d.: 21). A diet of a staple such as injera plus whole grains and legumes can provide energy and most nutrients but is improved by the addition of leafy green and other vegetables, fruit, dairy products, eggs and/or meat and supplements of iron, iodine and vitamin A.

The fat-protein-carbohydrate combination in breast milk is not directly dependent on what the mother eats and women who are not well-fed can feed their babies well since, if they don't consume enough of the necessary nutrients their bodies will tap into their own stores to fuel the milk production. Though depleting the body's store of nutrients is risky for short and long-term health. The HEAT (Health Education and Training) programme developed for Ethiopia has the following advice about diet for breast-feeding mothers.

After delivery, women's routine food intake should be increased to cover the energy cost of breastfeeding and for her to recover her normal energy and health. She should eat about 10% more than before she was pregnant if she is not moving around much or doing her usual work, and about 20% more if she is physically active. In practical terms, she is advised to take at least one or two additional meals every day. (MoH, PNC, n.d.: 45)

They also recommend supplements of iodine, vitamin A, iron and folate.

Wereda officials responsible for the Somodo kebele said that 'pregnant and lactating mothers are affected by malnutrition more than children, because of birth complications, work burden, and the culture for mothers to give priority to feed their children and other household members so that they do not eat an adequate and balanced diet' (*Somodo Community Report*: 160).

##### *Water*

During pregnancy '(a)long with eating healthy foods, women should drink plenty of clean water and other healthy fluids every day (MoH, ANC, n.d.: 24). Dehydration during pregnancy can lead to headaches, nausea, cramps, oedema and dizziness. Water helps prevent urinary infections which are common during pregnancy, and eases constipation, haemorrhoids, oedema and water retention. And water is also required for washing. 'During pregnancy, women should be especially careful about personal hygiene. Pregnant women ... may be more vulnerable to infection by germs in the environment. Keeping the body clean helps prevent infection. Hand washing with soap is the most important hygiene action she can take, especially before preparing food and after going to the toilet. If possible, a pregnant woman should wash her body every day with clean water' (*ibid*). Online advice in UK is to drink 2-3 litres of fluid a day during pregnancy and while breast-feeding, though

milk supply is only affected if the mother is seriously de-hydrated. Dehydration while breast-feeding can cause the same health problems as in pregnancy.

### *Women’s work and the mother-baby couple*

The work a woman was expected to do depended on the size and wealth of the household and the season of the year. Potential activities included household management, housework, childcare, food preparation, marketing, providing water and wood, working on household fields, agricultural daily labour, animal management, non-farm activities, Food-for-Work (in some communities), community labour, and social networking.

In the first trimester pregnant women are prone to fatigue, and they should not carry heavy loads throughout the pregnancy, particularly in the later months. Following delivery and while fully breast-feeding women should avoid hard physical work.

One of the Somodo Health Extension Workers described how work demands interfered with infant care. ‘Many infants were brought to the Health Centre with diarrhoea and vomiting as their mothers make them start additional food (such as cow’s milk and grain soup) before they are six months old. This is because mothers have to carry out different activities that are not easily compatible with breast-feeding’ (*Somodo Community Report*: 171).

### *Mother and infant health*

During pregnancy problems may be caused by established medical conditions, diseases such as malaria and German measles, and complications of pregnancy such as (pre-)eclampsia, breech presentation, and multiple foetuses. Delivery complications for the mother include haemorrhage, obstructed labour, a retained placenta, and puerperal sepsis, while the infant is at risk of infection, pre-term birth and asphyxia from a number of potential problems related to the placenta, maternal blood circulation, and the amniotic fluid.. Some of the risks to mothers and infants arise from lack of information about hygiene, dietary needs, and pregnancy, delivery and postpartum danger signs. These risks are reduced by access to ANC (ante-natal care), delivery, and PNC (post-natal care<sup>4</sup>) services.

### **Four features linked to the risks: drought, seasonality, poverty, remoteness 2010-13**

Mother-baby couples in the WIDE3 communities faced different levels of the four risks described in the previous section depending partly on four key features in their environment: drought, seasonality, poverty and remoteness (see Table 1).

**Table 1: Links between key community features and four risks to the mother-baby couple**

Community features	Risk factors			
	Diet	Water	Women’s work	Access to health care
Drought-proneness – some communities	X	X	X	
Seasonal weather & economic activities patterns	X	X	X	X
Poverty at community and household levels	X	X	X	X
Remoteness				X

When *drought* hits a community food and water shortages affect the quantity of food, quality of diets and access to water for drinking and hygiene of the mother-baby couple. Also in some communities women’s work for income to buy food increases, for example collecting and selling wood. Rural weather patterns, demand for women’s agricultural labour, and food availability have *seasonal rhythms*. Diets, access to water and women’s work vary through the year with consequences for mother-baby couples at different stages in the pregnancy-infancy cycle. In addition access to health care is more difficult in rainy seasons. *Poverty* is linked to higher risks of

<sup>4</sup> In the first six weeks of the infant’s life.

poor diets and risky women's work while charges for safe drinking water and costs associated with accessing mother-infant health care deter poor women. *Remoteness* makes health care access more difficult. In this section the experiences of the twenty WIDE communities in relation to these four variates are described.

### *Drought and the mother-baby couple*

Droughts led to food shortages, drinking water shortages, and in some communities women taking on work, such as firewood selling, in order to get income to buy food. The 2003 WIDE research recorded in some detail the devastating effects of drought on pregnant women and their foetuses, and on mothers trying to breastfeed during the infant's early months. They included maternal and infant deaths, physical and mental harm to mothers with longer-term consequences, and infant malnutrition with likely consequences for future physical and mental development (Bevan, 2004).

Between 2003 and 2011 ten of the WIDE communities suffered severe droughts in two or more years. All benefited from the Productive Safety Net Programme (PSNP 8 sites) and/or Emergency Food Aid (EFA) from around 2005 (see below), but even so the droughts would have caused harm to mothers and infants and human deaths were reported from two communities in SNNP (2008 and 2010) and one in East Tigray (2008). At the time of writing (June 2016) nine of the eleven food insecure communities and four of the nine 'food secure' communities were suffering from the effects of the El Niño drought (Box 1 and Tables 2 and 3<sup>5</sup>).

#### **Box 1: The impact of the 2015/16 El Niño drought on pregnant women and breast-feeding mothers**

**CARE press release ADDIS ABABA (May 26, 2016)** — As the effects of the El Niño drought in Ethiopia continues, the poverty-fighting organization CARE warns that of the 10.2 million people affected, an estimated 404,000 pregnant women and breastfeeding mothers are at particular risk of malnutrition and complications during pregnancy due to the devastating food shortages. It is expected that 27,000 women will give birth this month alone, facing the prospect of not being able to provide sufficient food and milk for their new-borns.

"From our work with affected communities, we know that pregnant and breastfeeding women are at greater risk of malnutrition and they experience high levels of stress during droughts. Traditionally, women are often the last to eat in a household, and with families being forced to reduce meals to one a day, pregnant and lactating women will not get the nutrition they need," says Esther Watts, country director for CARE in Ethiopia.

"Without proper nutrition, pregnant women will give birth to malnourished infants. Children deprived of good nutrition during the first thousand days of life often have stunted growth, poor cognitive development and low immunity to disease. It is a very vicious cycle."

CARE workers also are observing that lactating mothers are forced to cut the frequency of breastfeeding due to their increased workload. As a result of the drought, women have to walk further to get water and many spend all day collecting firewood to sell at markets<sup>6</sup>.

<sup>5</sup> Thanks to Catherine Dom for producing the information on the FEWSNET projections.

<sup>6</sup> <http://www.care.org/newsroom/press/press-releases/more-400000-pregnant-women-and-breastfeeding-mothers-risk-ethiopia>. Accessed on 13<sup>th</sup> June 2016

**Table 2: Incidence of droughts in the WIDE communities prone to recurrent drought (10)**

Community	Region	Droughts in last 5 years	Government responses	FEWSNET projections May-Sep 2016
Geblen 2010	Tigray	2002 & 2005 minor droughts; 2003, 2004, 2006 and 2008 severe droughts; 2008 cattle died due to lack of fodder.	2004 PSNP and EFA (together covered everyone) and nutritious food for malnourished children	Crisis
Harresaw 2011	Tigray	No rain at all 2008; massive death cattle & shoats; 30 people died of hunger. Massive migration of young..	PSNP; Government support late (Feb 2009)- fodder, food handouts, FAFA & oil for under-5s with severe malnutrition.	Crisis
Dinki 2010	Amhara	2008 and 2010 droughts resulting in the death of people and animals	Regular EFA	Crisis
Korodegaga 2010	Oromiya	2009 drought & crop failure many cattle died due to shortage of fodder; food shortage and hunger	PSNP started 2005	Crisis
Adele Keke 2011	Oromiya	2005 severe drought and frost 2010 and 2011 drought + frost	PSNP and EFA	Crisis
Gelcha – pastoralist 2011	Oromiya	2004/5 and 2010 severe droughts – many cattle and shoat deaths, females suffered anaemia, deaths from AWD	PSNP	Crisis
Gara Godo 2011	SNNP	Droughts 2008 & 2011– severe hunger, some human & animal deaths – some food aid.	PSNP; sometimes EFA for poorer households or vulnerable people. Seasonal food aid for child or breast-feeding mothers	Stressed
Aze Debo'a 2011	SNNP	Drought 2008 – food aid, rain delay of 3 months 2010 and 2011 led to shortage of food throughout the kebele	PSNP since 2005	Will be stressed later (June assessment)
Do'oma 2011	SNNP	2008 and 2010 droughts resulting in the death of people and animals	PSNP but no EFA	Minimal
Luqa - pastoralist 2011	SNNP	2007 crop pests – food aid; 2009-11 drought dried crops – food aid	EFA – maize, edible oil and nutrition food for children and lactating mothers	Minimal

**Table 3: Incidence of droughts in the WIDE communities not prone to recurrent drought (10)**

Community	Region	Droughts	Government responses	FEWSNET projections May-Sep 2016
Shumsheha 2011	Amhara	No serious drought in last 5 years; crop damage - unseasonal rain, hail and frosts	PSNP and other FFW	Crisis
Turufe 2010	Oromiya	Drought rare – one in 2008	Some food aid	Crisis
Yetmen 2010	Amhara	None	NA	Crisis
Kormargefia 2013	Amhara	None	NA	Crisis
Oda Dawata 2013	Oromiya	None	NA	Stressed
Sirba 2013	Oromiya	None	NA	Minimal
Somodo 2013	Oromiya	None	NA	Minimal
Oda Haro 2013	Oromiya	None	NA	Minimal
Girar 2010	SNNP	None	NA	Minimal
Adado 2013	SNNP	None	NA	Minimal

The tables show that ten WIDE communities were 'in crisis' in June 2016 due to the 2015/16 El Niño drought, and three were 'stressed' or soon to become so. Mother-baby couples in these communities would be at increased risk. Two of the ten usually drought-prone communities were not being affected but four of the communities which had not been prone to recurrent drought were 'in crisis' and one was 'stressed'.



### Seasonality and the mother-baby couple

In 2003 respondents were asked to describe a good time of the year to give birth. The common answer was harvest time, which varied by location and livelihood system. Reasons were: availability of food and cash; availability of water; temperature neither too hot nor too cold; disease prevalence, especially malaria; and the timing of women's agricultural work.

By 2010-13 economic growth meant that communities were better-off and irrigation in thirteen communities had reduced the seasonality of cash availability, although it had introduced agricultural work (especially weeding) for women in new seasons. Water access and the diets of many mother-baby couples were still affected by dry and hungry seasons. Other seasonal occurrences with potential impact on the different stages of the PDI cycle included rains and very cold or hot weather which made travel to health facilities difficult while rain damage to internal roads, paths and bridges were also a problem. Where there were no bridges to external roads swollen rivers could cut access to the outside world for days at a time. Table 4 provides an example of how seasonality affected the weather, income streams, and work in one of the WIDE communities: a community producing niche coffee in Gedeo zone (with no irrigation).

**Table 4: Example of a WIDE3 community seasonal calendar: Adado, Gedeo, SNNP**

		Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	
Weather	Rainy and dry seasons	Rain								Rain		Rain		
	Heat, frost, wind etc			Dry season										
Income streams: high..hungry season				Coffee sale – higher income							Less income	Less income	Less income	
Major holidays/festivals 2012/13														
Work on main cash crop	Land preparation			Coffee										
	Planting								Coffee					
	Weeding		Coffee											
	Harvesting			Coffee										
	Selling			Coffee										
Work on other rainfed crops	Land preparation					Maize								
	Planting								Maize					
	Weeding									Maize				
	Harvesting		Maize											
	Selling		Maize											
Work on irrigated crops	Land preparation													
	Planting													
	Weeding													
	Harvesting													
	Selling													
Livestock-related work	Fattening cattle/shoats													
	Milk production													
	Other livestock products													
Other farm-related work e.g. fencing, terracing														
Community work mobilised by government		No seasonality												
Non-farm work	Trade and business			Coffee trading, transport etc										
	Manufacturing													
	Services			Tea houses, food catering										

Events at one time in a seasonal year can have later consequences. For example a ‘poor harvest one year (due to shortage of rain or late rain or flooding or poor quality inputs) leads the family to have to buy food before the next harvest. This results in hunger as meals are reduced and quantity cut (as food costs are high), loss of variety in diet and debt’ (*Oda Haro Community Report: 47*).

*Poverty and the mother-baby couple 200-13*

Community poverty

In terms of *absolute poverty* mothers and infants living in poorer communities will, on average, have fewer assets and lower incomes than those living in richer ones. There is considerable inequality among rural communities in terms of assets and incomes, although I could find little other documentation of this. Survey data made in randomly selected households in four WIDE communities in 2004 revealed considerable differences in ownership of important local assets. Constructing a rural asset wealth score economist Maureen Dekker (2006) produced comparable measures of absolute asset wealth for each community, the poorest being Korodegaga with a score of 1.61 (maximum 5) and Yetmen being the wealthiest with a score of 4.59 (Table 5).

**Table 5: Community wealth: absolute rural asset wealth scores in four WIDE communities (2004).**

	Korodegaga	Dinki	Turufe	Yetmen
<i>Rural asset wealth scores across the communities (min 0; max 5)</i>				
	1.61	2.57	3.11	4.59

Korodegaga and Dinki were both remote and drought-prone, while Turufe and Yetmen expected good weather for agriculture, produced crops for export, and were closer to towns.

Household poverty

Within the WIDE sites in 2010-13 we found considerable household inequality which had increased since 2003 (see the chapter on inequalities). This was evidenced in observable lifestyles: for example quality of house (see pictures), house furnishings and equipment, and clothes, and expenditures on food, education and health.

Woman and daughter’s house, Dinki



Successful businessman’s house, Somodo



Using the same survey data made in randomly selected households Pankhurst and I calculated locally relevant productive asset wealth scores for each of the four communities we were studying

in-depth, and allocated each household to one of seven *relative wealth* categories. Table 5 shows that across the four communities between 34% and 44% of households were estimated to be relatively poor in terms of productive assets, and 5-9% were estimated to be 'destitute'.

**Table 6: Household wealth: relative productive asset wealth in four WIDE sites in 2004**

	Korodegaga	Dinki	Turufe	Yetmen
<i>Relative productive wealth within each community</i>				
	%	%	%	%
Very rich	2	7	9	3
Rich	13	12	9	12
Upper Middle	10	26	19	19
Lower Middle	31	21	22	25
<b>Total relatively poor</b>	<b>44%</b>	<b>34%</b>	<b>41%</b>	<b>41%</b>
Poor	31	12	24	18
Very poor	4	15	11	18
Destitute	9	7	6	5

Source: Bevan & Pankhurst 2007: 27

There were many examples in the WIDE3 research of reports that poor pregnant women and mothers were more at risk of inadequate diets and heavy and time-consuming work, with likely consequent effects on the health and wellbeing of their developing foetuses and infants in need of breast-feeding. For example '(i)n poor households, when grain reserves run out in the rainy season before the next harvest, they may reduce the amount of food consumed at each meal' (*Kormargefia Community Report*: 91). Box 2 illustrates some of the differences in diet found among poorer and richer households. Notably the wife in the poor male-headed household says that she buys vegetables for her husband and children but not for herself as she does not have enough money.

**Box 2: Dietary changes in households of different wealth in Harresaw, East Tigray**

**Poor Female-Headed-Household** – More wheat (bread, injera, porridge) as she is producing it compared to the past when their only staple food was *tihilo* from barley. They consume less milk because she lost many sheep, fewer eggs because she sells them on the market and she also lost chickens, and less meat (they only eat chickens as women traditionally do not slaughter sheep and anyway she has fewer of them).

**Poor Male-Headed-Household** – They consume barley and wheat and more injera than five years ago, and less porridge. They consume more vegetables – she buys potatoes, tomatoes, onions and garlic, though as she does not have enough money these are for her husband and children. They do not eat milk, butter, meat and eggs because of poverty and this has not improved in the past five years.

**Richer Female-Headed-Household** – She also consumes more wheat-based products as the household produces it. They also eat more vegetables of all sorts, that she produces or buys (she buys potatoes, tomatoes and green pepper). They also buy oranges, which is new, and consume lemons that one of the sons brings back from Afar. They drink milk and consume more butter and eggs than five years ago. They also eat pulses and beans which previously were uncommon and they now produce, in the form of *kik* and *shiro*. Like many people in the community (she said) they are eating more meat. Not by greediness but because they know it is making people to be healthy like milk and eggs too. She uses more spices (cumin, ginger and black spices) and more factory food which was totally unknown by the household five years ago (pasta, rice, biscuits and candy for the children).

**Middle wealth Male-Headed-Household** – They eat injera, tiliho, roasted grain, porridge, stew, kita and bread and use wheat, which is new, in addition to barley. Injera is new for them since two years ago. They also eat more vegetables, and consume oranges and bananas which they did not do five years ago. But they drink less milk and consume less butter because they lost livestock. They eat more eggs

because of their nutritional value. They also have come to like pulses (beans, lentils and peas) and consume a lot more of them. Like in the past they eat meat (sheep and chicken) on holy days. They sometimes eat pasta and macaroni, which is new.

**Politically important Male-Headed-Household** – The wife started using vegetables two years ago because they produce them and she buys some that they do not produce (green peppers and carrots). They have started eating corn when it grows – roasted and boiled. It is also used for kita, bread and injera when it gets dry. They eat more pulses (beans and lentils) but buying them from the market. Now they use beans to cook stew, no longer only for kita. They consume more meat and eggs because it makes people healthy although it is expensive. Milk and butter are less often consumed because the livestock is less productive due to the zero-grazing intervention. They also consume more oil.

**Economically successful Male-Headed-Household** – They still use more barley but also wheat as it is what the government provides. They prepare bread and injera while four years ago it was mainly *tihilo*. They also consume vegetables, which they were not doing, following government teachings about their value. They buy them on the market in Dera (previously they were not available). They also eat more pulses in the form of stew instead of simply boiling them. They consume less milk and butter because they sold livestock. They eat more chicken meat but less sheep because she prefers selling them as they get a good price on the market. They also consume more oil. *Harresaw Community Report p114*

Poor women were less likely to use ante-natal check-up services and, even if pregnancy complications were identified and modern delivery interventions advised, found it hard to afford the costs of transport to and from the Health Centre or hospital, and charges for services, food and/or drugs when there. In the ANC online training document for HEWs there is the following advice for the first ANC visit. 'Advise her and her partner to save money in case you need to refer her, especially if there is an emergency requiring transport to a health facility. She may also need money for additional drugs and treatments' (MoH, ANC, Part 2, n.d.: 8). Poor mothers were less likely to take sick infants to modern health services.

#### *Remoteness and the mother-baby couple*

The ease with which pregnant women and mothers of infants access ante-natal care, help with complicated deliveries, and post-natal care is dependent on the distance of their home from functioning health posts and centres, and hospitals. Four factors come into play: how far their community is from urban centres; the quality of external roads; how remote their house is in relation to the kebele centre and/or external roads; and the density and quality of internal roads and paths which may be related to the local topography.

In this section distance from hospitals is used as an extreme example of the problems caused by remoteness; access to services at health posts and health centres is considered below. Tables 7-10 sort the communities into four types in terms of the journeys pregnant women with identified problems and women in labour needing urgent skilled treatment would have faced in trying to get to a hospital. It is worth reading the tables in detail.

In all communities pregnant women seeking modern health facilities outside their community using external roads first faced the challenge of negotiating internal roads. Almost all internal roads in the twenty communities were dryseason only; during rains vehicles could not enter and walking was difficult. In dry seasons in nine communities vehicular access to some parts was possible; in seven of these there had been recent improvements. The remaining eleven had few or poorly constructed roads hampering general access to the outside world or access from remoter parts even in dry seasons. Internal and/or external bridges were inadequate in a number of communities. The main reason for the poor quality of internal roads was that in most communities they had been constructed and maintained by community labour, which lacked technical knowledge and modern equipment.

Table 6 includes the four best-situated communities. In two of them there were hospitals bordering the kebele, and in two others the kebele centre was less than 10 kms from a hospital. Even so, as many women lived considerable distances from their kebele centres and/or the main road they would have faced problems navigating internal paths and dryweather internal roads, especially in rainy seasons. Modes of transport might have involved walking, being carried in a ‘cultural ambulance’, riding donkeys or horses, carts, motorbikes, and cars depending on the wealth of the community and where the woman lived within it. Women living in hilly areas with dispersed settlement patterns would have faced the worst journeys. The community rows in Tables 7-10 are ordered in terms of flatness and house dispersion with communities where journeys would have been easiest at the top. On arrival at the kebele centre or road they would then have faced the problem of transport to the hospital: ‘in small villages, when a woman has a problem in labour it is very difficult for her to go to a health centre or hospital. Few or no villagers have cars, and even in urban areas most taxi drivers refuse to take a woman in labour to hospital’ (MoH, ANC part 1, n.d.: 4).

**Table 7: Ten kms or less from a hospital, community on or bordering a main road (4)**

Community	Region	Nearest hospital	Settlement pattern	Internal roads & bridges	External roads & bridges
Turufe	Oromiya	Kuyera; hospital borders Turufe	Compact villagised settlement with some living on farmsteads who have less access to services	Dirt road to main road not maintained 2 bridges connecting to neighbours built	Main road Addis Ababa-Shashemene near
Gelcha	Oromiya	Metahara factory hospital 6 km	Land flat and lowland: five villages with clusters of households	1 all-weather road; internal road improved but poorly made bridges	Main road along kebele boundary
Kormargefia	Amhara	Debre Berhan 10 kms	Three ex-Derg villages on flat land plus scattered homesteads on hilly parts. From most remote part of kebele it takes 1.5 hours to reach main road to Debre Berhan.	Only 1 dryweather road wide enough for cars; recent new road crossing SW	Main road Addis Ababa-Debre Berhan goes through
Shumsheha	Amhara	Lalibela nine kms (2 hours walk) on rocky road; 24 kms on asphalt road on kebele border.	9 gots – 8 with clusters of scattered rural hamlets many not reachable by car	Direct road to Lalibela steep, dry-weather, rockfalls; other rocky roads damaged by floods	Main road to Lalibela from airport on edge of kebele

In seven communities the (sub-) kebele centres were between 11 and 23 kilometres from a hospital. This journey would be subsequent to an internal journey which would vary according to where the woman lived. In Sirba few houses were far from the main road, while in Geblen a journey from the remotest *kushet* to the allweather road might take 3 hours.

**Table 8: On or bordering an allweather road and 11- 23 kms from a hospital (7)**

Community	Region	Nearest hospital	Settlement pattern	Internal roads & bridges	External roads & bridges
Sirba	Oromiya	Debre Zeit 20 kms av 50 <i>birr</i>	One of the kebele’s three main villages + a few scattered hamlets	Dryweather roads very muddy in rains	Main road Debre Zeit-Mojo goes through
Somodo	Oromiya	Jimma 17 kms poor cannot afford	Area more or less flat; 11 villages established during the Derg. Settlement is dense along the main road and fairly scattered in other parts.	Internal roads not well-maintained; difficult in rains	Allweather road goes through; new one built
Girar	SNNP	Catholic hospital 12 kms expensive	Rural villages on both sides of main road; villages bordering Imdibir urbanised	Internal seasonal roads; maybe impossible in rains Seasonal bridges	Allweather gravel road Wolkite-Hosaena passes through

Community	Region	Nearest hospital	Settlement pattern	Internal roads & bridges	External roads & bridges
Gara Godo	SNNP	Catholic church hospital Areka 11 kms: expensive	Relatively flat and densely populated; some remote households.	Vehicles in dry seasons; much better than 5 yrs ago Wooden bridges unsafe in rainy season	All-weather road to Areka recently upgraded.
Oda Dawata	Oromiya	Asela 12 kms asphalt	39% of land is steeply sloping with gullies – houses in small hamlets or scattered; rest flat and much settlement semi-urban.	2 gravel and 1 tarred pass through; no vehicular access to 2 sub-kebeles New bridge broke in floods; River completely cuts off 1 sub-kebele	Main Asela-Adama road goes through
Adele Keke	Oromiya	Dire Dawa 23 kms	Hilly terrain with 5 prominent gorges that fill with flood water during rainy season. 25 villages scattered through the kebele; some bunched together & some quite isolated. Takes 2-3 hours to walk across widest part	Vehicles can enter most villages in dry season Small paths & bridges through PSNP	Main road near boundary
Geblen	Tigray	Adigrat 18 kms, 40 mins, good service, need money	Start of urban settlement in one kushet; people in two other kushets down the escarpment live in homesteads far apart and have poor access to roads (may take 3 hours to get to kebele centre).	Poor all-weather road from kebele centre to the main road (10 kms); Remote community 600m down escarpment built very steep gravel path over many years	Poor all-weather joins tarred road between the wereda centre one way and the zonal capital the other

In eight communities the distance to the nearest hospital from the kebele centre was between 42 and 94 kilometres. The table has more examples of extreme journeys: for example a woman from a house in a remote village in Oda Haro with not feeder road or path would have to descend to the flat area and the main road, find transport, and travel 94 kilometres to the nearest hospital.

**Table 9: Kebele centre on or near an allweather road but 42 - 94 kms from a hospital (6)**

Community	Region	Nearest hospital	Settlement pattern	Internal roads & bridges	External roads & bridges
Yetmen	Amhara	Not mentioned; hospital in Debre Markos 64 kms.	Villagisation during the Derg – houses cluster around the town and encircled by farmland and grazing land.	Villagised around Yetmen town Bridge built on internal road to sub-kebele	Main road Dejen-Bichena goes through
Do'oma	SNNP	Sawla 88 kms	Mostly flat; expansion of two small settlement villages from the 1980s	Rainy season mud everywhere stops cars and walkers No well-constructed internal bridge; problems getting to Wacha during rains	New road from Wacha to Morka constructed with 2 modern bridges
Oda Haro	Oromiya	Nkemte 94 km; hospital to be built in Bako 17 kms	Large flat area prone to flooding. One mountainous sub-kebele. Three major villages and about 16 scattered hamlets	Improved since 5 yrs ago; dryweather; some villages without feeder roads/paths	Main road Ambo Nekemte goes through
Luqa	SNNP	Jinka 63 kms	Most flat or gradually sloping; mountain in south. Seven sub-kebeles, remoter ones up to 7 kms from the main road.	Internal roads built since 2005; some damaged in rains	Main road Jinka-Weito passes through
Aze Debo'a	SNNP	Sodo 53 kms	27 gots; residents in the hilly parts (less than a quarter) have less access to all services and infrastructure - no vehicular access	Annually maintained; some passable by trucks; uphill villages no vehicles	Main road Durame to Sodo needed repair
Harresaw	Tigray	Wukro 42 kms 30 <i>birr</i>	3 kushets divided into 5 hamlets; two remote.	Small dry-weather roads link kushets; poor access in rains. No bridges making some roads impassable in rains	Allweather road passes through near one border

In three communities arrival at the (sub-)kebele centre or ‘main road’ did not mean arrival at an allweather road.

**Table 10: Problems getting from the (sub-)kebele centre to an allweather road to get to a hospital (3 communities);**

Community	Region	Nearest hospital	Settlement pattern	Internal roads & bridges	External roads & bridges
Korodegaga	Oromiya	Adama 24 kms example of cost of treatment 1500 birr	Land mostly flat. Nine villages scattered over a large area all somewhat remote though some are more isolated than others; 2 hours to walk from some villages to others	25 km dirt road to Dera; raft to allweather road	Other side of Awash is main Sodere-Adama road A bridge over Awash would greatly benefit people
Dinki	Amhara	8 kms on paths to Aliyu Amba before getting transport to Debre Berhan (42 kms)	Five gots in kebele of which Dinki is one; topography is rugged and hilly – small scattered hamlets perched on hillsides.	New roads built to all 5 gots	Main road Aliyu Amba–Afar needed repair; 2 rivers en route to Dinki have no bridges
Adado	SNNP	Dilla 25 kms	Mountainous; urban-like settlement in Adado town; elsewhere scattered fairly dense settlement. Getting around on mountainous and often muddy paths is a problem.	Internal roads and paths easily damaged by water in rains	1 main road crosses – unusable for some days in rains

### **Government interventions indirectly affecting mother-infant wellbeing 2010-13**

This section includes selected WIDE3 evidence on government interventions not specifically designed to improve mother-infant well-being but having that as one of its consequences. Interventions targeting mothers and infants directly are covered in the next section.

#### *Diets*

There was evidence of campaigns to improve diets for all, with HEWs teaching about the content and preparation of balanced diets. In some places Development Agents taught women how to cultivate vegetables and improve feeding of lactating cows for increased milk production, and there was provision of improved breed chickens in some communities. In Somodo (Jimma) there was an experiment with high protein maize seeds from Sasakawa Global 2000. ‘They tried it on about 1.5 hectares on the Farmers’ Training Centre land and the land of three model farmers. The interest of this new variety is in its nutritional benefits for children and breast-feeding mothers. The NGO trained around 400 farmers on this crop’ (*Somodo Community Report*: 109).

#### *Access to drinking water*

Though there had been improvements in access to safe water in most communities wereda programmes were still beset with problems in 2013. Communities fell into four categories (Table 11):

- In four communities all drinking water was unsafe
- In four communities with some protected water points most people got drinking water from rivers, streams, ponds, and/or unprotected springs.
- In seven communities there was a mix of safe water points and unsafe water; in two of these there was rationing of the safe water.
- In five communities virtually everyone had access to safe water although in one those who could not afford it used the river.

**Table 11: Drinking water**

All drinking water unsafe		A few safe points; very inadequate		Mix of safe points & unsafe		Virtually all can access safe water	
Dinki	Amhara	Harresaw	Tigray	Kormargefia	Amhara	Sirba	Oromiya
Gelcha	Oromiya	Geblen	Tigray	Shumsheha	Amhara	Somodo	Oromiya
Korodegaga	Oromiya	Adado	SNNP	Yetmen	Amhara	Adele Keke	Oromiya
Girar	SNNP	Luqa	SNNP	Oda Dawata	Oromiya	Aze Debo'a	SNNP
				Turufe	Oromiya	Do'oma	SNNP
				Oda Haro	Oromiya		
				Gara Godo	SNNP		
All 4 remote; 3 drought-prone		All 4 remote; 3 drought-prone		5/7 better connected; none drought-prone		4/5 better connected; 2 drought-prone	

All eight communities with no or very inadequate safe water were remote. Two were not in drought-prone areas. In many communities not all waterpoints were operational and problems getting spare parts and plumbers were common. Most communities with good access had been helped by NGOs. In some places access to safe water was seasonal being better in, and shortly after, the rains.

### *Work*

There were reports of Health Extension Workers advising pregnant women to rest and avoid lifting heavy objects. However, there was not general awareness of the maternity risks associated with heavy and/or prolonged work. This affected women not only as wives but also as community members. Only one of the nine PSNP communities reported an official rule preventing pregnant (6 months+) and lactating women from participating in heavy work associated with Public Works and there was no evidence anywhere of formal exemptions for other community work. In Adado three women reportedly suffered miscarriages as a result of carrying heavy loads during road maintenance.

### *Drought and other threats to farming*

The Government's response to droughts and other threats to crops such as floods, frost and pests was to provide Emergency Food Aid (EFA) often in the form of Food-for-Work. Eight of the nine WIDE3 communities in receipt of PSNP were drought-prone and the other subject to other regular shocks; all nine received EFA either regularly (Table 12 - 4 communities) or following crop failures (Table 12 – 5 communities).

**Table 12: PSNP communities receiving regular Emergency Food Aid (4)**

Communities	Emergency Food Aid	What
Harresaw	EFA every year since 2008 -for those not in PSNP; deaths in 2008	Wheat Husk and straw for livestock
Shumsheha	Most years (annual) in response to natural disasters, death of livestock, crop failure; help poor and wealthier – first poor non-PSNP, then those who had an accident, then middle wealthy, then rich depending on availability.	Food for work – white (foreign) wheat
Gelcha	Annual for some since 2007	
Adele Keke	EFA normally each year for one or two months – 2011 9% of hhs. Gvt + NGO	Sorghum

**Table 13: PSNP communities receiving Emergency Food Aid following crop failures (6)**

Communities	Emergency Food Aid	What
Geblen	Those in PSNP can also get this	
Korodegaga	After 2009 when PSNP stopped EFA twice	Wheat, fafa, oil
Turufe	Food aid 2008 following drought; pests destroyed crops in 2009 – seeds and food aid distributed	
Aze Debo'a	2008 drought food aid and feeding programme from NGOs – delay led to 30 deaths. Also problem 2010	



Do'oma	2008 and 2011 following rain failure and in 2010 after floods led to food shortages and deaths	Wheat, oats, haricot beans, and palm oil; FFW
Gara Godo	65-70%hhs demanded food aid in 2009 and 2011 during hunger seasons. Not enough for all eligible; targeted to children and mothers. Very small-scale support programmes	Grain and edible oil; limited to very few; only lasted a week

Two communities received EFA on a regular basis (Table 13) and one in a community normally producing a surplus received it on two occasions (Table 14).

**Table 14: Communities in non-PSNP weredas receiving Emergency Food Aid regularly**

Communities	Emergency Food Aid	What
Dinki	2005, 2006, 2009, 2010	FFw; maize flour and peas; wheat, oil
Luqa	Big warehouse to store food aid. Pests 2006/7. Serious droughts in 2008/9 and 2010/11; flooding 2010	Wheat, maize, beans and oil; public works; sometimes comes late; escalating numbers needing it

**Table 15: Community in non-PSNP weredas receiving occasional Emergency Food Aid**

Communities	Emergency Food Aid	What
Turufe	Food aid 2008 following drought; pests destroyed crops in 2009	seeds and food aid distributed

### Seasonality

There were two government interventions which took account of seasonal risks. In the malaria-prone communities government-initiated preventive actions had included house-spraying, bednet provision, and community work to reduce standing water and there was improved access to drugs to treat the illness. The PSNP responded to seasonal changes in access to food and income.

### Poverty

#### Community poverty

One aim of the Productive Safety Net Programme (PSNP) was to increase community wealth in communities with big annual food gaps by providing households with incomes so that they did not need to sell productive assets to buy food. PSNP aid was channelled through Weredas with high proportions of kebeles with big food gaps which tended also to be drought-prone or affected by other weather-related shocks. This meant no PSNP for such kebeles in Weredas where they were small minorities. Among the WIDE 3 communities this applied to Dinki and Luqa who received regular Emergency Food Aid instead.

The PSNP played different roles in different communities as Table 16 shows. In the two Tigrayan communities nearly every household was involved in the PSNP and/or received EFA while 70% of households in the Arsi community benefited from the PSNP. In these communities these social protection transfers boosted the incomes of all or most households. In five communities the proportions of households receiving PSNP aid were 27% to 42%, which is fairly similar to the estimated proportions of households in relative poverty, although see the next section on poverty targeting. In Gara Godo only 9% of household were included in the programme

**Table 16: Proportions of households receiving PSNP aid**

Communities	PSNP
Harresaw	Estimated 80% households- other 20% got EFA
Geblen	Estimated 90% households
Korodegaga	Estimated 70% community; stopped 2009 followed by two rounds of EFA
Gelcha	42% households
Shumsheha	40% households.
Aze Debo'a	33% households
Do'oma	32% households
Adele Keke	27% households

Communities	PSNP
Gara Godo	9% households

We concluded from the WIDE3 evidence that the PSNP aid and/or regular EFA made considerable contributions to increases in community wealth in the poorer communities which received it.

#### Household poverty

PSNP aid was designed to be targeted to poorer households and much of it did reach poor households. Although there were claims in most communities that officials excluded some poor people and included non-poor said to be 'in their networks'. In Gara Godo, for example, where 108 households were in the programme the kebele vice-chair 'provided statistics showing 50% of PW beneficiaries were poor, 29% of medium wealth, and 21% rich. 80% of direct beneficiaries were poor, 20% of middle wealth and 9% rich' Gara Godo Community Report: 77).

Free healthcare for selected poor people was no longer available in most communities. NGOs in a number of communities helped small numbers of poor people in various ways. For more on household poverty see the chapter on inequalities

### **Reproductive healthcare for mothers and newborns**

Health care for the mother-baby couple in the PDI cycle comes in three stages: ante-natal care (ANC), assistance with delivery, and post-natal care (PNC). Through ANC programmes mothers can be given vaccinations and pregnancy supplements and education in how they should look after themselves and the signs of potential problems. They can be directly monitored for some problems so that those found to be potentially at risk at different stages of the pregnancy can be sent for appropriate interventions. Referral plans can be made for skilled assistance for those identified as likely to face delivery problems. Some delivery problems do not emerge until the mother is in labour and for these women there is a need for a rapid emergency response. The first task of a PNC programme is to monitor mothers and newborns in the first few days after delivery including educating them about danger signs.

The provision of good reproductive healthcare for mothers and newborns in rural communities requires an integrated but geographically dispersed mix of buildings, equipment, medical supplies, and health staff which local women are willing to make use of. In this section WIDE3 evidence on health infrastructure, staffing of the health extension system, ante-natal care, delivery, and post-natal care is presented.

#### *Health infrastructure: government health posts, health centres, and private clinics*

Household remoteness was one factor influencing the take-up of modern health services. Ante-natal and post-natal care involved either the mother (+ baby) travelling to the Health Post or Health Centre, or a Health Extension Worker travelling to the house. Delivery by a skilled professional required travel to a Health Centre, and in case of difficult cases to a hospital. In an earlier section we saw that the distance from the community centre to the nearest hospital for help with deliveries varied from walking distance to 94 kilometres. This section is about Health Posts, Health Centres and private clinics.

Tables 17-19 organise the communities into three kinds: (1) those with a Health centre in, or on the border of the community (7); those with a Health Post but no Health centre in the community (8); and those with no Health Centre and no or a little-used Health Post (5).

**Table 17: Health Centre in the community (7)**

Community	Region	Remoteness	Health Post in community	Distance to health centre	Private clinics
Harresaw	Tigray	Remote	YES – electricity & safe water in HP	On edge of community	In towns quite far
Adado	SNNP	Remote	NO - because of Health Centre	In community	Dilla
Gara Godo	SNNP	Fairly remote	NO Lost due to kebele split – new one planned	At centre of community – new municipality	In community - preferred
Shumsheha	Amhara	Fairly remote	YES - no electricity or safe water in HP*	In community	In towns quite far
Yetmen	Amhara	Fairly connected	YES – no information on electricity or water	At centre of community - Yetmen town	Yetmen town; significant use
Oda Dawata	Oromiya	Fairly connected; remote high area	YES in remote sub-kebele – no electricity or safe water in HP	In community	Asela & other towns
Sirba	Oromiya	Very well connected	NO Burned down – being re-built	In community	2 in community

\* Safe water nearby

Seven communities had a Health Centre in the community; four also had a Health Post. In one it was located in a high-up remote sub—kebele and visited two days a week by the HEWs. On the other days they worked in the rest of the kebele. Two communities had no Health Post due to a fire (being re-built) and a kebele re-organisation (a plan to rebuild). In one community the Health Centre stood in for the Health Post. In two communities the Health Centre was in a municipality at the centre of the rural kebele.

**Table 18: Health Post but no Health Centre in the community (8)**

Community	Region	Remoteness	Health Post in community	Distance to health centre	Private suppliers
Geblen	Tigray	Very remote	YES - no electricity or safe water in HP	45 mins walk, good, need money	Private pharmacy associated with HC
Dinki	Amhara	Very remote	YES – no information on electricity or water	8 kms on paths	Aliyu Amba 8 kms
Luqa	SNNP	Very remote	YES - no electricity or safe water in HP*	Key Afer 21 kms	Key Afer
Korodegaga	Oromiya	Remote	YES - no electricity and no safe water nearby	Dera 20+ kms dirt road	8 km
Girar	SNNP	Fairly remote	YES - no electricity and no safe water nearby	Imdibir - costly for poor	Catholic hospital 12 kms; expensive
Oda Haro	Oromiya	Fairly remote	YES - no electricity or safe water in HP	Tibe town, poor service	Tibe town preferred over Health Centre
Aze Debo'a	SNNP	Fairly connected	YES - electricity but no safe water in HP*	Durame 3 kms	Durame
Somodo	Oromiya	Well connected	YES - no electricity or safe water in HP*	Belida 4 km	Belida & other towns

\* Safe water nearby

Eight communities had no Health Centre. Distances from the centre of the kebele to the nearest Health Centre varied from 3 to 21 kilometres. In the two more connected communities the distances were 3 and 4 kilometres on allweather roads. However in both communities pregnant women and women in labour in remoter parts faced problems getting to the main road, and HEWs faced problems doing house-to-house visits.

In the four very remote and remote communities distances and quality of paths to the Health Centre were problematic for access to ANC and PNC monitoring and safe delivery, suggesting the need for

more responsibilities and training to be given to Health Extension Workers in Health Posts in such communities.

**Table 19: No or little used Health Post and no Health Centre in the community (5)**

Community	Region	Remoteness	Health Post in community	Distance to health centre	Private clinics
Gelcha	Oromiya	Fairly remote	YES but little used – no electricity & no safe water nearby	2 miles no drugs	Harro Adi
Kormargefia	Amhara	Quite well connected	YES but HEWs rarely there – no electricity and no safe water in HP*	Debre Berhan 10 kms	Debre Berhan 10 kms
Turufe	Oromiya	Very well connected	YES but not appreciated – no electricity and no safe water in the HP*	Kuyera town; near	Kuyera, Shashemene
Do’oma	SNNP	Very remote	NO - destroyed by wind – plan to re-build	Wacha town 5 kms poor road	3 clinics in Wacha
Adele Keke	Oromiya	Well connected	NO - half built for a long time	Different ones	Dire Dawa, Harar

\* Safe water nearby

In two communities there was no Health Post and HEWs had to base themselves elsewhere; in Adele Keke they used the room which one of them rented to live in. In Kormargefia the recently appointed HEWs operated mainly in the part of the community adjacent to Debre Berhan where they lived and were rarely seen at the Health Post in the centre of the kebele. In two communities community members did not seem to be keen to use the Health Post.

#### *Staffing the Health Extension system*

Table 20 shows the number of Health Extension Workers in place in the communities at the time of fieldwork.

**Table 20: Number of Health Extension Workers in each community**

Community	Region	Remoteness	No of HEWs	Health Post in community
Turufe	Oromiya	Very well connected	3	Not appreciated – no electricity and no safe water in the HP*
Sirba	Oromiya	Very well connected	3; 2 did not speak Oromiffa	Burned down – being re-built
Dinki	Amhara	Very remote	2 + nurse	YES – no information on electricity or water
Yetmen	Amhara	Fairly connected	2 +nurse	YES – no information on electricity or water
Harresaw	Tigray	Remote	2	YES – electricity & safe water in HP
Aze Debo’a	SNNP	Fairly connected	2	YES - electricity but no safe water in HP*
Girar	SNNP	Fairly remote	2	YES - no electricity and no safe water nearby
Korodegaga	Oromiya	Remote	2 – long commute	YES - no electricity and no safe water nearby
Oda Haro	Oromiya	Fairly remote	2 - not living in community	YES - no electricity or safe water in HP
Kormargefia	Amhara	Quite well connected	2 – rarely in HP	HEWs rarely there – no electricity and no safe water in HP*
Gelcha	Oromiya	Fairly remote	2	Little used – no electricity & no safe water nearby
Do’oma	SNNP	Very remote	2	Destroyed by wind
Gara Godo	SNNP	Fairly remote	2	Lost due to kebele split – new one planned
Adele Keke	Oromiya	Well connected	2	Half built for a long time
Oda Dawata	Oromiya	Fairly connected	2 – work at HP 2 days a week	YES in remote sub-kebele – no electricity or safe water in HP
Shumsheha	Amhara	Fairly remote	2 – 1 ‘trained on job’ kebele manager’s wife	YES - no electricity or safe water in HP
Geblen	Tigray	Very remote	1	YES - no electricity or safe water in HP
Somodo	Oromiya	Well connected	1	YES - no electricity or safe water in HP*
Adado	SNNP	Remote	1	No HP because of Health Centre
Luqa	SNNP	Very remote	1 – 6 months training	YES - no electricity or safe water in HP*

\* Safe water nearby

In two Amhara communities there were two HEWs plus a nurse in Health Posts that had been downgraded from Health Centres and two Oromiya communities had three HEWs, one for each of the three sub-kebeles, although in one community two of them did not speak Oromiffa. Five communities only had 1 properly trained HEW and in one the training had only been for six months. Four of these communities were in remoter areas where the need for good health extension support would have been higher than elsewhere. One problem is that most HEWs do not want to live in remoter communities. The HEWs in a number of communities said that two was not enough to cover the large kebele area. Some mentioned that lack of transport was a problem.

The roles of HEWs and the voluntary community institutional structures supporting them changed somewhat between Stage 1 (early 2010) and Stage 3 (up to November 2013). In 2010 HEWs were supported by volunteer Health Promoters, some of whom received training from NGOs and some incentives. By 2013 these posts had been abolished and attempts made to set up a system of women volunteers organised in Development Teams (DTs) and 1-5s. The rest of this section focuses on the Stage 3 communities providing some snapshots of the state of health extension support for women in the PDI cycle in 2013.

In these six communities HEWs were either overworked (e.g. in Adado and Somodo in each of which only one was present for some months) or said to be not very helpful (e.g. in Oda Haro, Oda Dawata and Kormargefia) partly because they wouldn't live in the community (no facilities) but in the neighbouring town (even though in Oda Dawata there was a residence for them). In Sirba two new appointees did not speak the local language, Oromiffa. In Oda Dawata they were heavily involved in agricultural and political activities. In some instances the replacement of HEWs dropping out, or going on maternity leave, had to wait for a new batch of trainees or was seemingly not prioritised (e.g. in Adado).

In *Oda Haro* the HEWs should have been working very closely with zone and DT leaders. Previous health volunteers had stopped working in 2013. But the activity of female sub-kebele structures was reportedly low (no structures at zone and DT level, 1-5s not functional). In *Oda Dawata* there was supposed to be a health army of 1-5 networks (teaching one another, sharing experience, checking on and helping pregnant women) but the kebele manager said it was not effective. In *Kormargefia* in 2012 health volunteers were replaced by the Women Development Army (female Development Teams and 1-5s), responsible for following up and checking implementation of the packages and passing information to their members. Kebele officials had organised female DTs the year before but these were not active at the time of field work.

In *Sirba*, until 2011 health volunteers, mostly men, helped the HEWs; the system was replaced by the female 1-5s (by 2013 30 women in 6 groups); according to an HEW there were also 7 DT leaders with better education, most closely working with the HEWs. In *Somodo* previous health volunteers were supposed to be replaced by the DT and 1-5 structures, much effective according to officials (antenatal care, vaccination etc.) while most community members reported that these were not active. In *Adado* the female DTs and 1-5s (health army, volunteers leading female DTs), described by wereda officials and the HEW when speaking 'officially', were in reality not functioning as they should, and the HEW admitted to being confused as to whom she should work with.

One problem in presenting the WIDE3 data on the health extension service is the gap between what some HEWs said when they were speaking 'officially' and what some of them and other community members said more informally. The pressure on Government employees to report that they have met targets casts some doubts on the reliability of our data and also that coming from the health management information system.

#### *Ante-natal care*

'To make a difference to maternal and newborn health in developing countries, or anywhere else, health promotion, disease prevention and effective healthcare have to begin even

before the occurrence of pregnancy. This helps to evaluate the physiological maturity and psychological readiness of the mother, and also her medical fitness to conceive and carry the pregnancy. As a continuum of preconception care, effective antenatal care is a very crucial aspect of the health service. It can detect established medical problems and reduce the occurrence of some pregnancy-related complications; it gives the opportunity for pregnant women and their families to become familiar with the health facility environment and accept home visits by health professionals, such as the Health Extension Practitioners of Ethiopia; it alerts pregnant women to possible danger signs, so that they are aware of pregnancy and delivery-related problems that may arise later, and thus can make practical and financial preparations for possible emergencies ahead of time' (MoH, ANC Module n.d.: v).

The 2014 EHDS estimated that 35% of rural women received some ANC from a skilled provider and 19% from an HEW, who were not defined as 'skilled'. There were no direct questions on ANC in WIDE3 and it is difficult to establish patterns for different kinds of community for two reasons. First, the government push to increase use of ANC between 2010 and 2013 and, second, the fact that the communities researched in 2013 were richer. Given changes in government policy between 2010 and 2013 Tables 21-23 organise the evidence in terms of fieldwork timing.

**Table 21: Ante-natal care early 2010: mix of poorer and richer communities**

Community	Region	Health Post	Distance to health centre	Ante-Natal Care
Geblen	Tigray	Yes	45 mins walk, good, need money	Monthly visits at HP; vaccination but sometimes shortages
Dinki	Amhara	Yes + nurse	8 kms on paths	Not mentioned
Korodegaga	Oromiya	Yes –no water or electricity	Dera 20+ kms dirt road	No ANC or PNC at HP; Advised to have vaccination and blood test; checks at HC in town – poor service; private clinic preferred
Girar	SNNP	Yes –no clean water or electricity	Imdibir; near - costly for poor	HEW – provided ANC with help from trained volunteers - home-to-home visits and immunisations; women discouraged by distance to Imdibir town. Women at risk referred to HC or hospital
Turufe	Oromiya	Yes - not appreciated	Kuyera town; near	Not yet properly set up in HP; available at HC but some did not go
Yetmen	Amhara	Yes +nurse	Yetmen town; near	An estimated 50% went for monthly check-ups to HC; service said to be good; iodine for pregnant and breast-feeding women from wereda

**Table 22: Ante-natal care end 2011: poorer communities mostly remote**

Community	Region	Health Post	Distance to health centre	Ante-Natal Care
Adele Keke	Oromiya	Half built	People use the closest in different places	HP advice but no stethoscope, blood pressure instrument, or anthropomorphic measuring scales; community volunteers house-to-house. Due to lack of equipment women referred to HC but some reluctant.
Gara Godo	SNNP	Lost due to kebele split	In community municipality	Community weak perception of services importance; wereda figures not believable
Do'oma; very remote	SNNP	Damaged by wind	Wacha town 5 kms poor road	More than half using ANC at HC – but long queue and mistreatment of clients tho recent improvements. HEW vaccination and advice – what to eat, keep from hard work, personal hygiene. Severe cases sent to hospital.
Aze Debo'a	SNNP	Yes - electricity	Durame 3 kms	HEW data said 93% but little detail from respondents' interviews.
Harresaw	Tigray	Yes	In community	Iodine capsules & iron; women 6 months pregnant exempted from PSNP

Community	Region	Health Post	Distance to health centre	Ante-Natal Care
Shumsheha	Amhara	Yes- electricity, no water	In community	HEWs said mothers got immunisation and pregnancy checks regularly
Gelcha	Oromiya	Yes - little used	2 miles no drugs	No electricity so vaccinations can't be kept in HP. 15 women used advice at HP in 2010 and HEW visits. Monitoring service at HC – but use?
Luqa	SNNP	Yes –no water or electricity	Key Afer 21 kms	HP advice but no monitoring or vaccinations. Only 1 HEW so can't do out-reach work. TBAs provide advice and monitoring.

By the end of 2011 HEWs generally were advising on good diets, avoiding hard work, taking rest, eating fresh food, and environmental and personal hygiene. Iodine, iron and immunisation were mentioned. Programmes to identify and treat malnourished pregnant women were reported from at least three communities. It was not clear what 'ANC; involved in the different communities. One HEW said she had no stethoscope, blood pressure instrument or scales so referred women to the Health Centre though some were reluctant to go. Some high figures provided by HEWs and wereda officials, who were under pressure to meet targets, did not match what community members said.

**Table 23: Ante-natal care 2013: richer communities mostly well-connected**

Community	Region	Health Post	Distance to health centre	Ante-Natal Care
Kormargefia	Amhara	Yes - poor service	Debre Berhan 10 kms	HEWs often absent from HP; advice on nutritious diet and immunisation; 2 pregnant respondents had no checks
Oda Dawata	Oromiya	Yes – no water	In community	Far more care than in past – followed by an HEW and check-ups from 3 months. Women called to HP/HC. Health army not functional
Somodo	Oromiya	Yes built 2009	Belida 4 km	Health army to overcome resistance; check-ups at HP; 1 respondent had been 3 times
Oda Haro	Oromiya	Yes –no water or electricity	Tibe town, poor service	Women seen regularly - usually home visits. Nutrition advice. Follow-up book and ID card so they can estimate the date – but HEW untruthful during visit by senior researchers
Sirba	Oromiya	Burned down	In community	Conferences, HEW follows pregnant women, Male and female DT leaders trained on maternal and child health to avoid death during delivery. NGO provides bednets
Adado	SNNP	None	In community	Women want to know position of baby and information; if they know they are healthy feel they don't need to go to HC for delivery.

In the 2013 research in six richer communities the limited information we have shows that ANC was variously provided at Health Centres, Health Posts, and through home visits, though what the care consisted of is not known. Generally there was lack of agreement on what the Health Development Army (HDA) was.

Considering all the twenty communities supply barriers to getting the necessary ANC tests mentioned included lack of instruments, distance to Health Centres and rude service. There was no demand from many women, particularly those who were poor and/or remote.

### *Delivery*

#### Place of delivery

EDHS data showed a rapid increase in deliveries in rural health facilities from 4.1% in 2011 to 10.3% 2014. Delivery with help from skilled professionals increased from 4% to 9.1%. According to Ethiopia's Health Sector Transformation Plan most of these will have been rich women in communities close to towns: 'the increase in percentage of deliveries attended by skilled health personnel has been achieved mainly through improvements among the rich and urban groups' (MoH 2015a: 57). The obverse statistic is that in 2014 90.9% of rural women delivered their babies without skilled assistance; most of these were helped by family members, neighbours or Traditional Birth

Attendants; 5.7% delivered their babies themselves.

We do not have good WIDE 3 evidence on delivery. In 2010 delivery equipment was being supplied to Health Posts and HEWs were being trained in clean and safe delivery although in particular Health Posts the two did not always match. It is likely that there were very few deliveries managed by HEWs. In the richer sites researched in 2013 there were signs that government policy that all deliveries should take place in Health Centres (or hospitals) was starting to be implemented: delivery-friendly environment in one Health Centre, wereda ambulances and kebele 'cultural ambulances' in some, HEW advice to deliver at the Health Centre, and threats to Traditional Birth Attendants who helped during home deliveries. However there were supply constraints on skilled delivery, including distance to Health Centres (see above), inadequate staff and drugs, unreliable ambulance services, distance to hospitals and the costs of hospital service and transport. Box 2 summarises extracts on delivery at Health centres from the summary report on the six communities researched in 2013. One feature emerging again is the pressure on HEWs to claim that what ought to be happening was happening.

**Box 3: Summarised extracts from the Stage 3 Summary Report on delivery at Health centres 2013**

*Adado:* Recent shift with main focus now on ante-natal care, delivery at health centre, post-natal and infant care. Yet, delivery at health centre was the least popular package.

*Somodo:* Pregnant women were registered (HEW travelling to sub-villages) and strongly advised to attend antenatal care when they were 'linked to a health institution to go for delivery'. There was 1 ambulance at nearby HC.

*Oda Haro:* In relation to skilled deliveries the HEW said there was a monthly education programme for pregnant women and male household heads through DT and 1-5 leaders; although community members said these structures were not functional; peer experience sharing programme; wereda ambulance though no fuel budget

*Oda Dawata:* 1-5s were supposed to help pregnant women to get to a health facility to deliver - mixed accounts as to whether this was effectively done

*Sirba:* Skilled deliveries: HEW (maybe newly appointed in late 2013) said there had been recent training for all DT leaders (men and women); monthly pregnant women's conferences (since 4 months); free ambulance service (since July 2013); HEW monthly meeting with 1-5s (education, information); porridge-eating ceremonies at HC; HEWs trained on safe deliveries but discouraged from practising. TBAs rewarded for bringing mothers to deliver at HC. However there was a counter-claim, maybe from the HEW working in April that most babies were born with the help of the HEWs, one of whom had been trained to provide safe delivery services. When two senior researchers visited the Health Centre in November 2013 the water supply was not working and there was no sign of an impending, current or recent delivery.

*Kormargefia:* The HEWs and wereda officials gave a conference to warn TBAs to stop helping with deliveries, but they rejected this. There was an ambulance but it had never been available when called (no fuel, gone for another trip...). (WIDE3, 2014)

Even in the richer and more connected communities researched in 2013, many women were reluctant to deliver in Health Centres. Some reasons given were that Health Centres were of poor quality and/or had insufficient or only male staff, transport and drug costs, ambulances rarely/never came when called and would not take you home after delivery, it was culturally unacceptable to be out in public six hours after giving birth, and there was no need if ANC monitoring showed no problems.

Reasons given in the 2014 mini EDHS for not delivering in a health facility in the last five years by the 84% of rural and urban respondents who delivered their babies at home were:



- Cost too much 2.4%
- Facility not open 4.0%
- Too far/no transport 21.6%
- Poor quality service 1.1%
- No female provider 0.4%
- Husband/family against 1.4%
- Not necessary 44.8%
- Not customary 33.2%
- Other 0.6%

### Maternal deaths

There is no information on maternal deaths in the WIDE3 data apart from a few anecdotes. The EDHS 2011 found that average maternal mortality rate for the 7 years preceding 2011 was 676 maternal deaths per 100,000 live births (EDHS 2011) in 2005 the average figure was 673. This suggests that there was no change between 2005 and 2010, though when an average over seven years is taken it is impossible to pick up year-on-year variations. There seems to be evidence for some improvements after 2011; for example one estimation for the annual rate in 2013 was 497 per 100,000 live births (Lancet 2014) although the data source is not declared.

### Infant deaths

Women interviewed in 2003 said that babies were born dead as a result of physical stress (pregnant woman falling over, carrying heavy things, being beaten by husband, or having heavy sexual intercourse), malnutrition, illness during pregnancy, inadequate antenatal care, use of medical drugs or harmful substances during pregnancy, damage resulting from previous deliveries or abortions, delivery problems, prematurity, hereditary factors, God's will, witchcraft, and various superstitions.

There is no data about infant deaths in WIDE3. The 2011 EDHS indicated that perinatal death rates (stillbirths + deaths in the first 7 days) over the previous 5 years were similar in rural and urban areas, being 46/1000 pregnancies of seven or more months duration. In the 2005 EDHS the rural perinatal death rate was less being 37/1000 pregnancies of seven or more months duration, suggesting an increase in perinatal deaths between 2005 and 2011, though once again there is the problem of averaging over a number of years.

Neonatal mortality rates (first month of life, rural + urban) in the previous five years had not changed much between 2005 and 2011 (from 39/1000 to 37/1000). In 2014 WHO estimated that prematurity (37%), infection (28%) and birth asphyxia (24%) were the most common cause of death

in neonates. The proportion of neonatal deaths due to malaria, measles, HIV, diarrhoea, and pneumonia had declined since 2005 (MoH, 2015a: 24).



### *Post-natal care*

The WIDE3 communities variously described provision of vitamin A, vaccinations, nutritious food for lactating mothers, and teaching about not working too soon after delivery, sole breast-feeding for 6 months and mother's nutrition, infant hygiene, better clothes, taking infants for health treatment, and no discrimination between boys and girls. Awareness of what mothers ought to do in these respects was widespread thanks to the efforts of Health Extension Workers. However, not all mothers practised what they had learned: some were too busy, some reluctant, and some too poor. In three sites (and maybe more) HEWs said there were programmes to identify and treat

malnourished pregnant and lactating mothers. In Harresaw women had 10 months leave from PSNP after delivery.

In WIDE2 in 2003 the most frequently mentioned infant illnesses were diarrhoea, vomiting, respiratory illnesses, malnutrition and malaria. Incidence of all these is likely to have been reduced as a result of the increase in numbers using safe water, improved stoves and kitchens, economic growth, food aid, and the malaria prevention and treatment initiatives. Women also said that lack of time to feed and care for infants was a major problem. For example: 'We start work after only a week and we are too busy even to breastfeed our babies (Gara Godo)'.

There is no direct WIDE3 data about infant illnesses. There was evidence that those who could afford it, and were within relatively easy reach of a Health Centre, were more likely to take a sick infant for treatment than in the past. There was infant monitoring at functional Health Posts (see the picture from Geblen in Tigray).

Box 3 demonstrates that HEW education on care for infants had made some impact in the richer Stage 3 communities. Poorer women found it harder to implement many of the recommendations.

#### **Box 4: Summarised extracts from the Stage 3 community reports: care for infants 2013**

*Adado:* The most noted changes are about vaccination and check-ups at the health centre, as well as better food and hygiene. Women know babies should not be given solid food before 6 months and that they should frequently wash their bodies and clothes. They have more clothes than in the past.

*Kormargefia:* Compared to the past, there is now greater availability and awareness of the importance of vaccinations for infants. There is also more attention paid to hygiene and parents get infants new clothes. Mothers devote more time to looking after babies than in the past when other relatives did more of the work.

*Oda Haro:* The community as a whole have become more aware of the need for care to be taken with mothers and infants. One woman explained that in the past people thought that "*children grow by chance*" (poor FHH). It was known that breast-feeding mothers need supplementary food and that babies should be fed nothing except breast milk for the first six months. As a result babies were receiving more breast milk than they did in the past. Infants were now more closely looked after by their parents, their personal hygiene was better and they were given clothes.

*Oda Dawata:* There seem to have been a number of changes in the way that new born babies are cared for. More care is taken to ensure that babies do not get cold. New born babies are no longer fed butter and boiled water but are given breast milk. Babies have more clothes and are better cared for in terms of their hygiene and the medical treatment they receive.

*Sirba:* They are given vaccinations and the HEWs follow their progress. In the past mothers used to give new-borns butter for a few days before starting to breastfeed. This is now considered to be a harmful traditional practice and is less common.

*Somodo:* Unlike ten years ago infants are given better care as advised by the HEW. They are vaccinated – which is made easier as the HEW goes to sub-villages so mothers do not have far to go. They are taken to the health centre for medical check-ups. Nowadays women do not start working immediately after giving birth, to keep the baby healthier.

#### **Some longer-term problems associated with pregnancy, delivery and early infancy**

Once the baby is born mother and/or child may have to live with long-term problematic consequences. What happens to an infant in the womb, during delivery, and in the first six months of life may result in long-term physical and psychological damage. What happens to a woman's body

and mind as she goes through pregnancy, delivery, and the first weeks and months of life with a highly dependent infant can have long-term physical and/or psychological consequences for herself, for her relationship with the child, and for her family.

There are a number of potential longer-term physical problems *for women* resulting from complications of pregnancy and childbirth, notably fistula, a recognised problem, and prolapse, which affects even more women. A recent study involving pelvic examinations of 294 women in North West Ethiopia found that 55% of them had anatomical pelvic organ prolapse of varying degrees of severity (Berihun *et al*, 2013). According to Nardos (2016) a preliminary ongoing survey of three regions in Ethiopia estimated that while 5,000 to 6,000 women had obstetric fistulas, over 250,000 suffered from pelvic organ prolapse.

In 2003 respondents said that longer-term physical consequences of a poor maternal diet for *infants* on delivery included: underweight and sickness, inability to feed and develop properly, vulnerability to disease, mental retardation, and skin problems. If infants did not get enough to eat after birth their physical development was affected and they were vulnerable to disease.

## **Conclusions and policy considerations**

These are considered under three headings: interventions with indirect consequences for the health and well-being of the mother-baby couple; mother-baby services; and mainstreaming maternity in development discourse and practice.

### *Indirect interventions*

Improvements to the health and well-being of pregnant and lactating mothers and infants in rural communities depend on more than mother-infant health services. The WIDE3 evidence suggests that internal and external road improvement programmes which reduce remoteness, community-wide provision of safe water points, and increased and diversified crop and livestock and livestock product production have particular benefits for the mother-baby couple.

Poverty is a major cause of mother-baby couple ill-being and at a time when rural inequality is increasing there is a case for government to re-visit local tax and contribution systems which in the WIDE3 communities tended to be quite regressive. One notable feature was the low levels of land taxation given the considerable sums paid to rent land in some places; another was a move in 2013 in some places to require very small enterprises, including some run by women, to get licences and pay taxes, putting some of them out of business.

Focused interventions to improve the use of health services by all poor people, such as community-based health insurance and exemptions from charges, would benefit the mother-baby couple.

### *The design of mother-baby services*

WIDE3 provided evidence that many poorer women could not afford the costs of using maternity services and accessing them was difficult for many other women. Ideally the state would take full responsibility for the health and well-being of all pregnant women and infants. Maternity rights for women institutionalised at local levels could include ANC and PNC as near home as possible, and free skilled delivery or obstetric care for all identified at risk during ANC, or suffering an emergency during labour. There is also a case for a campaign to raise general male awareness about pregnant and lactating women's needs related to diet, drinking water, workloads, lifting heavy objects, rest, ANC and PNC. The establishment of an advisory period of maternity leave would contribute to this.

The most risky time for the mother-baby couple is the delivery process. This is also a time when rural reproductive health care can make a big difference. In the WIDE communities the big supply constraints on skilled delivery were distance to Health Centres along poor internal roads, inadequate staff and drugs, rare ambulance service, and costs of hospital service and transport. Barriers to

demand included poverty, perceived lack of need, especially if ANC monitoring showed no problems, rude staff, taboos about male staff, and the cultural unacceptability of being out in public six hours after birth. Moving to a fully modernised delivery system across the country will be a slow process. Investment in health facilities, staff and internal roads will improve supply, and sensitivity to women's cultural beliefs and choices as well as subsidies for poor women could increase demand. But in the meantime inadequate supply, remoteness, poverty, and personal choice will prevent many pregnant women from delivering at Health Centres and hospitals in the near future.

The development and management of a system with five options of place of delivery would improve the safety net for rural women and their infants and contribute to reductions in maternal and infant deaths. These options would be home, Health Post, Health Centre, Government hospital, and private clinic or hospital. The management of such an outreach system would be facilitated by the roll out of the 'second generation health extension programme' from 2015 (HSTP, 2015:13), which involves upgrading HEWs to diploma level through in-service training and improving health posts (*op cit*: 41). Health Extension Workers, networked with staff in Health Centres and hospitals, would play a number of key roles.

Through ANC checks they would identify pregnant women at risk and manage and monitor their referral to government Health Centres and/or hospitals. Ideally there would be a system of subsidies for poor women unable to afford costs of transport and the delivery service would be free. HEWs would also support women not identified as being at risk to deliver in Health Centres if they so chose. They would keep an eye on women choosing to deliver in private facilities.

Upgrading of Health Posts and the skills of HEWs, including use of the HEAT module on Labour and Delivery (n.d.), could include re-instatement of an improved level of 'safe and clean delivery' at Health Posts managed by HEWs and including an arrangement for rapid transport of women in labour in an emergency.

There should also be an outreach service for women choosing to deliver at home, or forced to when unexpected labour is rapid, or because of long and difficult journeys to the Health Post or Health Centre. This service would be in place in remoter villages and hamlets and involve women volunteers, including eligible Traditional Birth Attendants, who had been trained in the basics of safe and clean delivery and emergency procedures.

As the final back-up, and remembering that in 2014 5.7% of babies were delivered by the mother alone and 91% had no skilled assistance, the Health Development Army could be used to educate all women likely to assist with deliveries in clean and safe practices and emergency procedures.

The networked staff involved in this delivery care team would also provide ANC and PNC. Health Extension Workers would be at the centre of the system, supervising trained volunteers and educating pregnant women and their families on the one hand, and referring and liaising with skilled staff in Health Centres and hospitals on the other.

The work of many HEWs could be made much more efficient by occasional or regular subsidised access to appropriate local transport including motorbikes, equines, and 4-by-4s. Grid electricity and non-grid electricity from solar and wind power and micro-hydels could power mobile phone apps and allow skyping among Health Post, Health Centre, and hospitals and potentially to a national skilled delivery advisory service in times of emergency. The successful agricultural extension service hotline (8028<sup>7</sup>) is a relevant example.

### *Different mixes of mother-baby services for differently located communities*

The WIDE3 evidence illustrated some of the variety of terrains, settlement patterns, and urban proximities found in Ethiopia's rural communities, and showed how big the differences in access to

---

<sup>7</sup> <http://www.ata.gov.et/highlighted-deliverables/8028-agricultural-hotline/>

mother-baby services can be. Villagised communities near big cities and relatively well-resourced Health Centres and private facilities do not need the same kinds of Health Post and services as remote communities with populations scattered in mountainous conditions. Wereda, zonal and Regional data-mapping of rural communities would enable an efficient targeted approach to local designs of mother-baby services (see Bevan Chapter X for more on providing government services to people living in remote places). In communities with remoter residents ANC and later PNC checks might be scheduled on market days and near marketplaces when many women would be going to town anyway.

### *Mainstreaming maternity in development discourses and practice*

#### Development discourse silos

Attempts to bring women into development discourses began in the 1970s with the 'Women in Development' (WID) movement which argued for female economic empowerment criticising the 'welfare approach' in which women were identified almost solely as wives and mothers. Subsequently the WAD (Women and Development) followed by the GAD (Gender and Development) approaches (Wikipedia: Gender & development) contributed to institutionalisation of 'gender mainstreaming' as a UN policy in 1997 which was defined as:

'..the process of assessing the implications for women and men of any planned action, including legislation, policies or programmes, in all areas and at all levels. It is a strategy for making women's as well as men's concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres so that women and men benefit equally and inequality is not perpetuated. The ultimate goal is to achieve gender equality' (UN, 2002: 1)

In Ethiopia 'The National Policy on Ethiopian Women (1993), the National Population policy (1993), Education and Training Policy (1994) and the Health Policy (1993), HIV/Aids (1998) policies all provide good examples of gender mainstreaming. Government's commitment to gender equality is evidenced through the establishment of the Ministry of Women's Affairs (1993 and 2006) with Department's in all Ministries and Bureau's in all regions, responsible to initiate, coordinate and monitor gender responsive development...(though)...(d)espite improvement, women are still under-represented in political decision-making at all levels (Lakech, 2014: 1).

One problem with patchy top-down gender mainstreaming is that policies and programmes planned at macro level in different ministries are designed with just one women's role in mind, but when they are introduced to communities by different kinds of government employee they encounter real women struggling to combine a mix of roles. These might include: domestic worker, food producer, social networker, income generator, student, community voluntary worker, 1-5 member, child socialiser, and baby maker. Recognition of these issues by local policy implementers, including wereda and kebele bureaucrats and political cadres, health and education workers, and credit-providers, and greater co-ordination among them, could produce more mother-baby friendly campaigns and resource allocations.

Another problem is that 'gender mainstreaming' practitioners often marginalise the baby-making role. Practical maternity mainstreaming in community-level development interventions, designed at macro-level but supported by institutionalisation of maternity rights at community level, could contribute considerably to improvements in the health and well-being of the mother-baby couple. The examples presented here are drought and other natural disasters, education, and women's economic empowerment.

#### Drought and other natural disasters

Eleven WIDE communities suffered severe droughts and/or other natural disasters in two or more years between 2003 and 2011. All had received PSNP support and/or Emergency Food Aid from

around 2005 but still human deaths were reported from three communities in 2008 and 2010. In June 2016 as a result of the drought linked to El Niño ten of the communities were reported as in 'crisis', two communities were 'stressed' and one was predicted to become stressed before September. The mainstreaming of maternity in the PSNP and Emergency Food Aid programmes would ensure that during all droughts and other natural disasters special nutrition programmes for pregnant and breast-feeding mothers and emergency baby milk in case of breast-feeding failure were in place. While PSNP regulations exempt women from heavy work in late pregnancy and soon after delivery they were mentioned in only one of the nine PSNP sites in 2012 suggesting a problem of local-level implementation. There is also a case for increasing the exemption periods during pregnancy and after birth. These provisions should be extended to all Food-for-Work programmes.

### Education

'Sex education' in schools for females and males could include a module on pregnancy, labour, delivery, and post-natal care of mothers and infants. Encouragement of pregnant women and breast-feeding mothers in education to continue to attend schools and colleges would support them, while involving them in maternity education would improve it.

### Economic 'empowerment'

In the minds of some gender specialists there is still a bias against government interventions to aid 'traditional women's activities' such as keeping chickens or growing vegetables, since these reinforce gendered economic stereotypes and are consequently not 'empowering'. However, work associated with chickens and vegetables is not physically hard, can be done near the house, and the outputs can be sold for income or used to improve the diets of pregnant and lactating women. A view that women's economic empowerment requires them to move into activities previously dominated by men is likely to exclude many pregnant and lactating women.

Another way of mainstreaming maternity in economic empowerment activities would be to institute debt repayment 'holidays' for women stopping work because of pregnancy and early infancy before repaying all their debt.

There are likely to be many other development interventions whose benefits for the mother-baby couple would be enhanced by maternity mainstreaming. Consultations and other research with pregnant and lactating women would be a first step.

## **References**

- Berihun Megabiaw , Mulatu Adefris, Guri Rortveit, Getu Degu, Mulu Muleta, Astrid Blystad, Torvid Kiserud, Tesfahun Melese, Yigzaw Kebede, 'Pelvic floor disorders among women in Dabat district Northwest Ethiopia: a pilot study' *International Urogynecology Journal*, July 2013, Volume 24, Issue 7, pp 1135-1143
- Bevan, P., 2004. Hunger, Poverty and Famine in Ethiopia: Mothers and Babies under Stress. *In: Proceedings of the Second Ethiopian Economics Association International Conference, 2004-01-01.*
- Bevan, P. and A. Pankhurst, 2007 *Power Structures and Agency in Rural Ethiopia: Development Lessons from Four Community Case Studies*, World Bank, [http://siteresources.worldbank.org/INTEMPowerment/Resources/Ethiopia\\_Power\\_Structures\\_and\\_Agency.pdf](http://siteresources.worldbank.org/INTEMPowerment/Resources/Ethiopia_Power_Structures_and_Agency.pdf) accessed 18/08/16.
- Central Statistical Authority, Addis Ababa, Ethiopia: Ethiopia Demographic and Health Survey 2005. <http://www.dhsprogram.com/pubs/pdf/FR179/FR179%5B23June2011%5D.pdf> accessed 1/8/16.
- Central Statistical Authority, Addis Ababa, Ethiopia: Ethiopia Demographic and Health Survey 2011. <https://dhsprogram.com/pubs/pdf/FR255/FR255.pdf> accessed 1/8/16 accessed 1/8/16.

- Central Statistical Authority, Addis Ababa, Ethiopia: Ethiopia Mini Demographic and Health Survey 2014. [http://www.unicef.org/ethiopia/Mini DHS 2014 Final Report.pdf](http://www.unicef.org/ethiopia/Mini_DHS_2014_Final_Report.pdf) accessed 1/8/16.
- Dekker, M, 2006, 'Estimating Wealth Effects without Expenditure Data: Evidence from Rural Ethiopia' *Ethiopian Journal of Economics* Vol.15(1) pp35-54.
- Dom, C., 2011, The Role of the 'Government Go-betweens' in Changing Rural Ethiopia, Ethiopia WIDE, <http://ethiopiawide.net/wp-content/uploads/Go-between-Paper.pdf>
- Kassebaum, N.J. et al 2014 'Global, regional, and national levels and causes of maternal mortality during 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013' *Lancet*, 384: 980–1004. Published Online May 2, 2014 (unclear where the 2013 figure came from) [http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736\(14\)60696-6.pdf](http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(14)60696-6.pdf) accessed 18/08/16.
- Federal Democratic Republic of Ethiopia (FDRE), 2015, Growth and Transformation Plan 2 (GTP2) 2015-20 *Draft* <https://www.africaintelligence.com/c/dc/LOI/1415/GTP-II.pdf> accessed 18/08/16.
- Federal Democratic Republic of Ethiopia (FDRE), 2010, Growth and Transformation Plan 1 (GTP1) 2011-2015 <https://www.imf.org/external/pubs/ft/scr/2011/cr11304.pdf> accessed 18/08/16.
- Federal Democratic Republic of Ethiopia (FDRE), 2002, Sustainable Development and Poverty reduction Programme (SDPRP) 2003-5, <https://docs.google.com/file/d/0B9N7VXwltcDScHdiSjc5OTVRNEE/edit> accessed 18/08/16.
- Federal Democratic Republic of Ethiopia (FDRE), 2006, Plan for Accelerated and Sustainable Development 2006-10 [http://www.afdb.org/fileadmin/uploads/afdb/Documents/Policy-Documents/Plan for Accelerated and Sustained \(PASDEP\) final July 2007 Volume I 3.pdf](http://www.afdb.org/fileadmin/uploads/afdb/Documents/Policy-Documents/Plan_for_Accelerated_and_Sustained_(PASDEP)_final_July_2007_Volume_I_3.pdf) accessed 18/08/16.
- Ministry of Health FDRE, 2015a, 'Health Sector Transformation Plan 2015/16-2019/20' <http://www.moh.gov.et/documents/26765/0/Health+Sector+Transformation+Plan/5542a23a-9bc7-46a2-8c1f-8b32c2603208?version=1.0> accessed 18/08/16.
- Ministry of Health FDRE, 2015b, 'Success Factors for Women's and Children's Health' WHO, [http://www.who.int/pmnch/knowledge/publications/ethiopia\\_country\\_report.pdf](http://www.who.int/pmnch/knowledge/publications/ethiopia_country_report.pdf) accessed 18/08/16.
- Ministry of Health FDRE, n.d. Ante-Natal Care, Part 1: Blended Learning Module for the Health Extension Programme, Health Education and Training (HEAT in Africa) [http://www.open.edu/openlearnworks/pluginfile.php/71934/mod\\_resource/content/1/HEAT\\_AN\\_C\\_Part\\_1\\_Final\\_Print\\_Output\\_cropped.pdf](http://www.open.edu/openlearnworks/pluginfile.php/71934/mod_resource/content/1/HEAT_AN_C_Part_1_Final_Print_Output_cropped.pdf) accessed 18/08/16.
- Ministry of Health FDRE, n.d. Ante-Natal Care, Part 2: Blended Learning Module for the Health Extension Programme, Health Education and Training (HEAT in Africa) <https://www.glowm.com/pdf/Textbook-OpenUniversity-HEAT-Antenatal%20Care-Part2-CC%20BY%20NC%20SA.pdf> accessed 18/08/16.
- Ministry of Health FDRE, n.d. Labour and Delivery Care Learning Module for the Health Extension Programme, Health Education and Training (HEAT in Africa) [http://www.open.edu/openlearnworks/pluginfile.php/71993/mod\\_resource/content/1/HEAT\\_LD\\_C\\_Final\\_Print\\_Output\\_Cropped.pdf](http://www.open.edu/openlearnworks/pluginfile.php/71993/mod_resource/content/1/HEAT_LD_C_Final_Print_Output_Cropped.pdf) accessed 18/08/16.
- Ministry of Health FDRE, n.d. Post-Natal Care Learning Module for the Health Extension Programme, Health Education and Training (HEAT in Africa) [http://www.open.edu/openlearnworks/pluginfile.php/72017/mod\\_resource/content/1/HEAT\\_PN\\_C\\_Final\\_Print\\_Output\\_cropped.pdf](http://www.open.edu/openlearnworks/pluginfile.php/72017/mod_resource/content/1/HEAT_PN_C_Final_Print_Output_cropped.pdf) accessed 18/08/16.

Nardos, R. 2016 (5 May) The Opinion Pages, New York Times, [http://kristof.blogs.nytimes.com/2016/05/06/a-scourge-for-mothers-pelvic-organ-prolapse/?\\_r=0](http://kristof.blogs.nytimes.com/2016/05/06/a-scourge-for-mothers-pelvic-organ-prolapse/?_r=0) accessed 18/08/16(to avoid having to login search for Nardos etc).

United Nations, 2002, 'Gender Mainstreaming: an Overview' <http://www.un.org/womenwatch/osagi/pdf/e65237.pdf> accessed 21/8/16.

WIDE3, 2014 Stage 3 Summary Report <http://ethiopiawide.net/wp-content/uploads/Stage3FinalReport.pdf> accessed 18/08/16

WIDE3, 2013, Kormargefia Community Report, [http://ethiopiawide.net/wp-content/uploads/Kormargefia-Community-Report\\_Web.pdf](http://ethiopiawide.net/wp-content/uploads/Kormargefia-Community-Report_Web.pdf) accessed 18/08/16

WIDE3, 2013, Somodo Community Report, [http://ethiopiawide.net/wp-content/uploads/Somodo-Community-Report\\_Web.pdf](http://ethiopiawide.net/wp-content/uploads/Somodo-Community-Report_Web.pdf) accessed 18/08/16

WIDE3, 2013, Oda Haro Community Report, [http://ethiopiawide.net/wp-content/uploads/Oda-Haro-Community-Report\\_Web.pdf](http://ethiopiawide.net/wp-content/uploads/Oda-Haro-Community-Report_Web.pdf) accessed 18/08/16

WIDE3, 2011, Gara Godo Community Report, [http://ethiopiawide.net/wp-content/uploads/Gara-Godo-Community\\_Web.pdf](http://ethiopiawide.net/wp-content/uploads/Gara-Godo-Community_Web.pdf) accessed 18/08/16

WIDE3, 2011, Harresaw Community Report, [http://ethiopiawide.net/wp-content/uploads/Harresaw-Community-Report\\_Web.pdf](http://ethiopiawide.net/wp-content/uploads/Harresaw-Community-Report_Web.pdf) accessed 18/08/16

Wikipedia, Gender and development, accessed 21/8/16. [https://en.wikipedia.org/wiki/Gender\\_and\\_development](https://en.wikipedia.org/wiki/Gender_and_development)