MELA RESEARCH

Model Family Program Impact, Challenges and Sustainability: *A Case study in SNNPR, Ethiopia*

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EXECUTIVE SUMMARY

Training of families to become model families is among the main components of the Ethiopia Health Extension Program (HEP). The training of model families takes approximately three months to complete. In order to graduate and receive a certificate of recognition as a model family, trainee families should demonstrate that they have implemented 75 percent of the HEP program packages. The HEP is made up of 16 basic, preventive and selected high impact curative health services.

Using a mixed method approach, this study examined the model family program with particular emphasis to its impacts, sustainability and challenges. The study employed a cross sectional, sequential mixed methods design conducted in Kambata-Tembaro and Wolaita Zones of the Southern Nation Nationalities and People's Region (SNNP). Phase one was a quantitative Static Group comparison of model families vs. non-model families based on an equally split sample of 1400 families. This was followed by a qualitative evaluation of the program. The study was conducted during December 2010 - January 2011.

The study documented perceived and actual positive impacts of the model family program on the health of individual families and communities in the study areas. Favourable community perceptions of and receptivity to the program have been noted, which may well be translated to actual practices.

The model family program when viewed in its totality is undoubtedly a success story; but this shouldn't override the challenges and gaps in the individual components that make up the program package. A greater understanding of the program can only be achieved when the individual program components are examined separately. This study attempted to gain an in-depth understanding of implementation of the different components of the program and revealed wide disparity in the intensity of practicing the different program components by the families and lack of sustainability. Several barriers that work against program implementation and sustainability of the key components have been identified and discussed in this report. The barriers can be broadly categorized as economic, socio-cultural and programmatic-related factors. We underscore that the different barriers are relevant in influencing the successful implementation of the program although the degree of influence of these attributes may vary in accordance with the nature and type of activity. Findings of this study also points to the importance of programmatic factors, especially follow up and supportive supervision to model families after graduation by the HEWs and certification of model families as the most important factors for program success. It also identified gaps in regards to the breadth and depth of the trainings given to the model families.

The main body of this report presents in greater detail the findings of the study and discusses the programmatic implications of the key findings.

I. BACKGROUND AND OBJECTIVES

In 2003 the Ministry of Health of the Federal Government of Ethiopia launched its flagship health service delivery system known as the health extension program (HEP). The HEP aims at achieving universal coverage of primary health care to make sure that all Ethiopians have equitable access to health services. The program seeks to improve the health status of families by creating access to packages of basic, preventive and selected high impact curative health services that target households. The main components of the HEP are disease prevention and control, hygiene and environmental sanitation, family health, and health education and communication. Expanding physical health infrastructures and recruiting, training and deploying Health Extension Workers (HEWs) in every community are the cornerstones of the program. Of the various activities of HEWs, training a select group of families called model families is prominent. The training of model families takes approximately 3 months to complete. In order to graduate and receive a certificate of recognition as a model family, trainee families should demonstrate that they have implemented 75 percent of the following program activities:

- Construction of pit latrine that includes a hand washing facility
- Separate dwellings for people and cattle
- Construction and use of fuel saving stoves
- Keeping personal hygiene and healthy home environment
- Preparing a shelf for household utensils
- Ownership of insecticide treated net
- Availability of narrow-necked water container
- Immunization (for infants as well as mothers)
- Use of family planning service
- VCT uptake
- Exclusive breastfeeding of children under six months
- Use of pit latrine
- Use of insecticide treated net

Since the deployment of the first batch of 2,800 HEWs in 2004 (after a year of intensive training) their number has grown to over 34,000 with expanded geographic coverage reaching thousands of villages. So far, the Ethiopian Health Extension Program received acclaim from various corners. This study is an in-depth look into one of the well known and widely publicised aspects of the program, the model family. It seeks to examine the impact, sustainability and challenges of the model family program. More specifically this study has the following objectives:

- To examine the effect of the Model family program on the health behaviors and practices of the community
- To asses model families' perception of the health and health related practices/behaviours
- To asses the sustainability of good health behaviors by model families

- To assess the link between some program inputs and effectiveness including the training and follow up of and support to model families
- To get HEWs and other health workers perception concerning the model family program, challenges and gaps

II. METHODOLOGY

2.1. Study Design and Study Areas

This study employed a cross sectional, sequential mixed methods design conducted in Kambata-Tembaro and Wolaita Zones of the Southern Nation Nationalities and People's Region in Ethiopia. Phase one is a quantitative Static Group comparison of Model families vs. non-model families based on an equally split sample of 1400 families. The quantitative data collection was conducted in 4 Woredas (two each) of the two Zones during December 2010 and January 2011. While Kembata-Tembaro contributed 55% of the total sample the remaining 45% came from Wolyita zone. Nearly a third of the sample, for the quantitative study, was drawn from Kacha Bira Woreda. This is because Kacha Bira has a much larger population compared to the other Woredas. Table 1 shows the distribution of model and non-model families included in this study by source Zones and Woredas.

Table 1. Distribution of study participants by zone and Woreda; according to type of family, SNNPR, December 2010

	Model family N=700	Non-model family N=700
Zone		
Kembata-Tembaro	55.1	55.1
Wolyita	44.9	44.9
Woreda		
Kacha Bira	31.7	43.3
Kedida Gamela	23.4	12.6
Ofa	14.7	14.7
Kindo Diday	30.2	29.4

Two separate questionnaires, the first one with sub-sections for the household and individual women and the second for HEWs, were administered. Respondents were any adult family member, a woman (usually the wife) in a sample family and HEWs respectively.

This was followed by a qualitative study (Phase two) conducted in two Woredas designated as high and low performer (in terms of model family outcomes) based on scores from the quantitative study. Two Kebeles per Woreda were visited for the actual data collection in June of 2011. A total of 12 Focus Group Discussions (8 women and 4 men groups) and 21 in-depth interviews (IDI) were carried out. The in-depth interviews were conducted with various actors including the HEWs, Voluntary Community Health Workers (vCHWs), Kebele chairpersons, religious leaders, community elders, women and youth association representatives, teachers, agricultural extension workers, health centres professionals, and Woreda and zone health offices representatives.

The goal of the quantitative part of the study was to document behavioural changes (if any) based on retrospective behavioral assessment of Model families- at time of graduation versus at time of survey. This was compared to health behaviours observed among non-model families.

It was also set to conduct Kebele-level model family program input assessment. Accordingly, analysis of the quantitative data showed some successes, and identified some gaps and challenges in terms of the performance of model families upon graduation and onwards.

However, providing detail explanation and interpretation for these and other findings was beyond the scope of the quantitative study. It was therefore decided to conduct a qualitative second phase study in selected Woredas to gain further insights to the observed patterns from the quantitative analysis. In particular, the qualitative study was intended to provide a rich contextualized narrative of some aspects of the performance of model families learned at phase one (through the quantitative analysis). As such, the qualitative analysis was geared towards answering the *why* and *how* questions, while the quantitative investigation focus was answering the *what* question. The methodology used for the quantitative and qualitative studies is described in detail in Annex 1 and 2.

2.2. Data analysis

EPI-INFO and STATA 10 software were used for quantitative data entry and analysis respectively. Simple descriptive univariate and bivariate analyses were used to compare model versus non-model families. For the qualitative study both FGDs and in-depth interviews were tape recorded and transcribed verbatim into Amharic and where at a later stage translated into English. The transcript file included descriptions of participant characteristics and a summary of interviewers' observation of basic program implementation. This enabled the research team to learn even more on model families and to allow expanding on key dimensions obtained from the statistical analysis. The transcripts were content analysed. The qualitative study allow for consistency checks of findings obtained from the quantitative study. In addition, the qualitative analysis permits further explanations by providing richer meaning to the quantitative findings.

This report integrates findings from phase one (quantitative) and phase two (qualitative) of the study. The use of mixed methods demonstrates the comprehensiveness of findings when statistical findings are further explained through rich narratives obtained from the qualitative analysis. Direct quotes, illustrating the views of respondents with regard to the performance of model families, were included whenever we present and discuss findings on an aspect of the program.

III. ANALYSIS AND PRESENTATION OF FINDINGS

3.1. Background characteristics (Phase one)

The quantitative analysis shows that the average family size for model and non-model families was 6.7 and 5.8 respectively. In both model and non-model families women of reproductive age constitute a comparable proportion (23%). Children under the age of 5 were about 11% among the model families compared to 13% for the non-model (see annex 3).

Women respondents from model families were relatively younger than respondents from non-model families (mean age of 40.6 vs. 43.3). Overall women respondents have lower level of education compared to their husbands. The illiteracy rate was significantly higher for women from non-model than model families (72.3% vs. 68%). Only 6% of the women from model families and 5.6% from non-model reported to have at least 7 years of schooling. Significantly more women from model than women from non-model families were married (85.8% vs. 69.8%). As table 2 below shows, fertility appeared to be high in the study area irrespective of family type. However, women from model families have on average 5.5 children compared to their counterparts from non-model families who have 5.1 children. One would normally expect fertility to be lower for model families compared to non-model families. One possible explanation could be the high prevalence of marriage, within which most births take place, among model families.

Table 2. Selected background characteristics of women respondents by type of family, SNNPR, December 2010.

	Model family N=700	Non-model family N=700
Age of respondent		
15-19	1.7	4.5
20-24	7.0	7.6
25-34	29.1	28.0
35-49	32.3	16.1
50+	27.8	42.4
Missing age	2.1	1.4
Mean age (95% CI)	40.6 (39.5-41.6)	43.3 (42.0-44.6)**
Education		
Cannot read/write	68.0	72.3*
Read/write only (no formal education)	2.2	1.6
1-6 grader	23.8	20.5
7+	6.0	5.6
Marital status		
Currently married	85.8**	69.8
Not currently married	14.2	30.2
Number of children ever born		
0	4.3	4.9
1-2	13.7	17.5
3-5	32.7	32.1
6-9	41.8	38.6
10+	7.5	6.9
Mean CEB (95% CI)	5.5 (2.8-5.2)	5.1(2.9-4.9)
Husband's education		
Cannot read/write	32.6	37.6
Read/write only (no formal education)	1.1	1.3
1-6 grader	34.2	22.7
7+	17.9*	8.1
Not currently married	14.2	30.2

missing cases are excluded
**p<0.05, **p<0.001*

3.2. Model family program entry points and recruitment

Early adopters of the model family program were recruited by the HEWs and vCHWs. At the start of the model family program potential model family households were recruited based on their previous activities and participations in their respective Kebeles. Health Extension Workers and vCHWs were instrumental in convincing and recruiting families to participate in the program. In particular, households with good track record in community health activities were the targets when the program was initiated. The assumption was that such families not only successfully practice the desired behaviours but also can sustain the behaviours to become role models for others. This is critical since the program rests on the premise of the health behaviour diffusion model.

....we were invited by extension workers [HEWs] to attend the training [Model family training] because we were active in health issue in our community Women FGD participant (early graduate)

.... health extension workers repeatedly educated us on how to prevent diseases and we decided to become model families by attending the training Male FGD participant (early graduate)

After the first batch of model families graduated, subsequent batches were recruited either by HEWs or joined the program by their own. According to reports of FGD participants, some model families decided to participate in the program as they were encouraged by their neighbour model families and witnessed the health and social benefits that model families were enjoying as a result of participating in the program. The idea that participation in the model family program can help reduce the risk of high morbidity and mortality, due to malaria and others diseases, motivated many to join the program. Below are some remarks from FGD participants.

I decided to participate in the program [Model family program] because I wanted myself and my family to be healthy. Female FGD participant (early graduate)

I wanted to become a model family since I witnessed what previous model families achieved in terms of hygiene and health. Female FGD participant (early graduate)

....our community have been suffering from malaria and other diseases. So, we decided to participate in the model family program to prevent diseases. Men FGD participant

3.3. Program organization

Woreda health offices, in collaboration with respective Kebele administrations, oversee the model family program in their respective jurisdictions. In particular, the offices are responsible for program monitoring, organizing graduation ceremonies and issuing certificates. Regional governments and zonal administrations also provide support in capacity building and budget allocations. The HEWs supervisors, who are assigned by the Woreda health office, are responsible to supervise five Kebeles (Health Posts) each. They are scheduled to pay one visit one Kebele a week for the purpose of monitoring and follow-up of the program.

It was also reported that community groups such as churches, youth and women associations are involved in some areas by mobilizing the community to participate in the program.

[Our] church supports the model family program by encouraging the community to participate in the program and by allowing extension workers to deliver their message to the congregation during church services Kebele Informant, Religious Leader

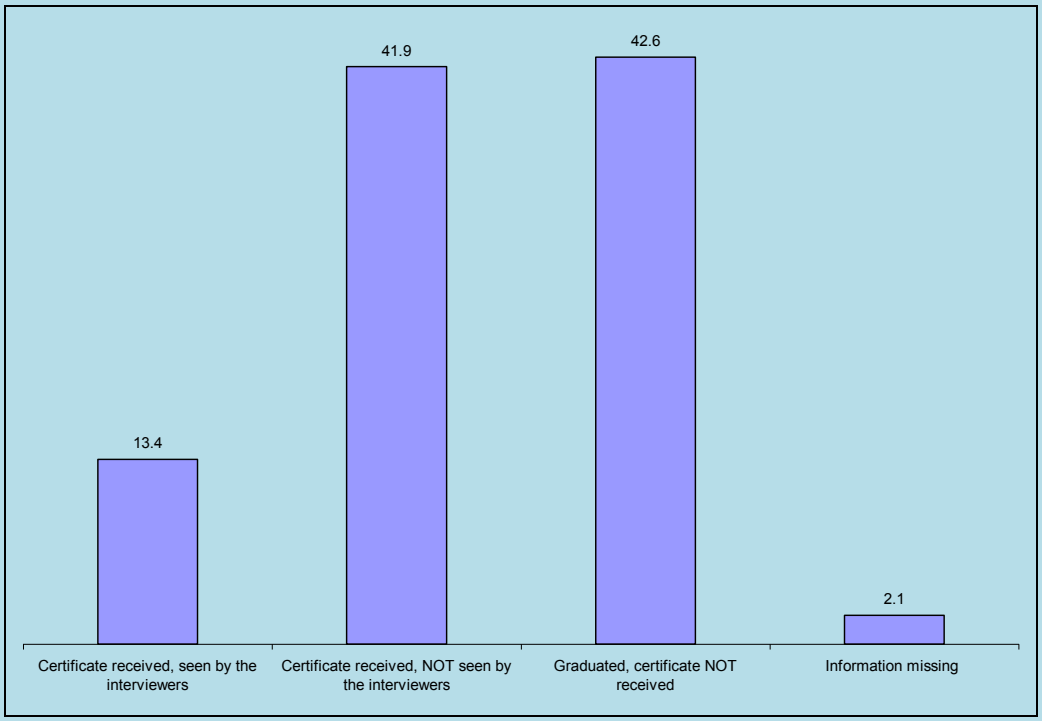
I am the head of the women's association in this Kebele. I assist extension workers [HEWs] by encouraging women to participate in the model family program and practice the appropriate health practices Kebele informant, head of women association.

The frontline implementers of the model family program are the HEWs. They select and train prospective model families on the various packages of the health extension program. The

training runs for about four months during which trainee families are expected to attend 96 hours of theoretical and practical training sessions. After the training, HEWs conduct follow-ups to identify households that have implemented at least 75% of the package- requirement for graduation and entitlement of the certificate. Model families that fulfilled the requirement will be recommended for graduation and certification to Woreda health office. HEWs are expected to support and encourage certified model families to ensure program sustainability.

The model family program is organized in such a way that it acknowledges, by awarding certificates, families that successfully completed the training and implemented three-quarters of the activities they are trained for. Certification helps motivate participant families to stay in the program and practice the desired health behaviors. However, the quantitative study revealed that not all model families were given certificate upon graduation. When interviewers asked those who responded to have completed the training to produce their certificates, it was only 13.4% of them who were able to do so. Another 42% claimed that they indeed graduated with certificate although they could not show their certificates to the data collectors for various reasons. About 43% of respondents reported that they were not given certificates despite their completion of the training and graduation. (Figure 1). It appears that model families graduated in 1999 were less likely than recent graduates to receive certificate of graduation . That is, while 63.4% of those graduated in 1999 were not given a certificate; this proportion ranged between 39 and 41% among those who graduated between 2000 and 2002 (see annex 4)

Figure 1. Percent distribution of model families (n=700) according to certification status, SNNPR, December 2010.



3.4. Comparison Of Model And Non-Model Families

This section discusses findings about the key components of the model family program with emphasises on their level of implementation by the individual model families, challenges and sustainability. It is important to underline the fact that not all components of the program are presented and discussed here mainly due to lack of sufficient and reliable information.

3.4.1. Pit latrine

Pit latrine construction and use has been the major part of the health extension program long before the model family program was initiated.

> *I have constructed and used latrine way before I start participating in the model family program. Community Informant, Elder*

Community-based surveys in rural areas have shown dramatic improvement in pit latrine ownership following the implementation of the health extension program. Surveys in 2008-2010 showed up to 60-70% of the rural households in SNNPR reported to have pit latrine[1,2].

The emphasis on pit latrine construction and use by the HEP has been further intensified with the advent of the model family program. Model family program participants are expected to build their own pit latrine and start using it in order to successfully complete their training and receive their certificates. Health Extension Workers train model families on how to construct pit latrines using model demonstration latrines. A finding from the quantitative study shows that a significantly higher percentage (82.7%) of model families at the time of the survey own pit latrines compared to 36.8% among non-model families. In some Kebeles, community/public latrines were also constructed as part of promoting environmental hygiene. Community members participate by providing labour, material and nominal financial contributions.

> *I have participated in mobilizing the community, especially the youth, to participate on environmental sanitation, digging and preparing pit for waste disposal, constructing public latrine Informant, Kebele youth association*

> *Each members of [our] Women Association contributed 2 birr and wood that was used to construct about 16 community latrines. Kebele informant/Chairwoman- Women's association*

Although pit latrine construction and use is highly prevalent among individual model families and the community at large, its implementation hasn't been without challenges. Major inputs for the construction of pit latrines are labour, wood, nail and depending on the type of latrine, slabs and thatch or corrugated iron sheet. Nevertheless, most pit latrines in the study area do not have slabs and are without roofs. Earlier model family program graduates saw a number of challenges associated with pit latrine construction. These include challenges related to

[1] ESHE end-line surveys in Amhara, Oromia and SNNPR - ESHE/JSI, 2008
[2] Last 10 Kilometer (L10K) baseline survey - August 2009

inappropriate soil type, shortage of resources such as labour in some families, issues with pit latrine durability resulting in repeated digging of pits.

Latrine durability: the nature of the soil determines the durability and strength of pit latrines. Latrines constructed on loose and sliding soil do not last long. The unavailability of proper soil type, in some areas, has been mentioned by interviewees as a challenge. The research team also observed that most pit latrines are constructed without slabs; no roofs made of corrugated iron or proper thatch, and often shallow. They reach maximum capacity in a short time and get flooded easily during the rainy season. All these put some families back to scratch and forced them to dig a new latrine every now and then, at times every 6 months. A Female FGD participant from the initial graduate group of the model family program explains this:

> *The soil in this area is quite slack that slides and fills the pit latrine quickly. This requires digging pits frequently which is tiring. Lack of money prevents us from constructing solid and permanent latrines.*

Frequent digging of new latrines due to their quick deterioration has emerged as a real challenge to pit latrine construction and use aspect of the model family program activities.

Lack of resources: Most rural households reported that the cost of constructing a durable latrine, made of slab and corrugated iron sheet, is unaffordable. There are households with out an adult male member who can be a potential source of required labour. Female headed households, households with only elderly members and the sick often lack the necessary labour to construct and maintain a pit latrine

Despite these real challenges, most model families are found to be determined to continue building and using pit latrines. For most model families there is no other alternative to owning and using pit latrines for personal hygiene. In this respect, it can be said that strong behavioural change and community acceptance of using pit latrines has surfaced.

3.4.2. ITN ownership and use

Malaria is one of the major health problems in the study area. The country's health program has given greater emphasis to the wider distribution and use of bed nets treated with insecticides. This is highly promoted by the HEP as well. Bed net ownership and use was frequently mentioned by model families when asked to list activities widely implemented. The reduction in the incidence of malaria has been mentioned time after time, by most model families, as an important benefit of using bed nets properly and regularly. Continuous and regular use of bed nets, even years after graduation, was reported by most model families participating in this study.

> *During peak malaria seasons we ask for additional bed nets and we got what we asked for Female FGD participant (recent graduate)*

> *....the family use bed net strictly and protected from malaria Male FGD participant*

Overall, model families were significantly more likely than non-model families to own an ITN (66.9% vs 53.3%). On average model families reported to own 1.2 ITNs which was

significantly higher than that for non-model families with 0.8 ITN. ITN ownership slightly differs among model families according to women's education level

Table 3. Distribution of model and non-model family households according to Insecticides Treated Net (ITN) ownership and the number of ITNs in the households, SNNPR, December 2010.

	Model family Households N=700	Non-model family Households N=700
Households with ITN	66.9**	53.3
Number of ITNs		
0	33.7	47.4
1	25.1	26.1
2	33.2	23.6
3+	8.0	2.9
Mean numbers of ITNs (95% CI)	1.2 (1.1-1.2)**	0.8 (0.7-0.8)

***p<0.001*

Findings from the quantitative study also show that ITN use was significantly higher among model than non-model families. The proportion of households that reported someone has slept under ITN the previous night was 58.4% among model families. This figure was 42.6% for non-model families (Table 4).

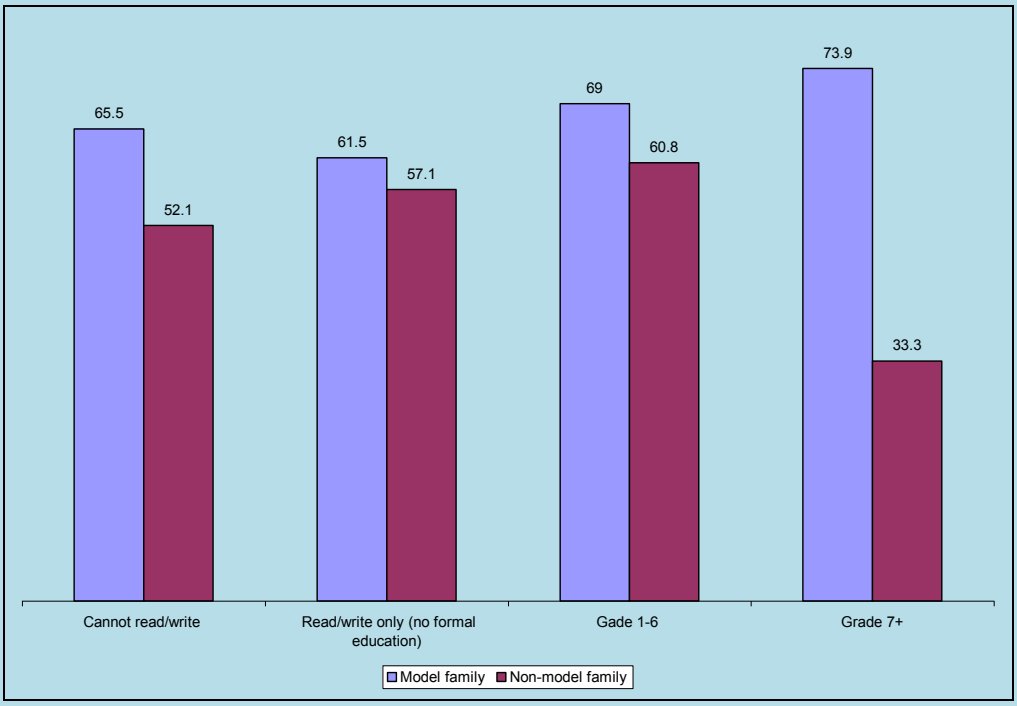
Table 4. Distribution of the number of ITNs in model and non-model family households according to type of ITN, the date ITN obtained and ITN use (last night), SNNPR, December 2010.

	Number of ITNs in Model family HHs N=799	Number of ITNs in Non-model family HHs N=574
ITN seen by the interviewers:		
Yes	98.7	99.9
No	1.3	0.1
	N=787	N=573
Type of ITN		
Long lasting	96.3	88.2
Pre-treated	0.1	0.0
Unknown	3.6	11.8
When did you obtain the ITN		
<1 month ago	1.2	0.1
1-6 months ago	43.0	26.7
7-12 months ago	46.1	54.1
13-36 months ago	3.3	9.0
Over 36 months ago	2.9	6.1
Do not know	3.5	4.0
Any one slept under ITN last night		
Yes	58.4**	42.6
No	41.6	57.4

***p<0.001*

Within model families, ownership of ITN is reported to be higher among the relatively better educated women. For instance, while 74% of those with at least 7 years of schooling were owning ITN this percentage was 65.5% among those who cannot read/write. On the other hand, there is no clear pattern between education and ITN ownership among non-model families (Figure 2).

Figure 2. ITN ownership by women's education, SNNPR, December 2010.



Regarding ITN use recent graduates of model family program appear to be frequent users than earlier graduates (see Annex 5). Model families that have their certificates at hand, as confirmed by interviewers, were significantly more likely than those who did not receive a certificate to have someone who slept under ITN the previous night (see Annex 6).

Findings from the qualitative study confirmed most of the findings discussed earlier. It was reported that the majority of model families and other community members use bed nets irrespective of the study Woredas and the year of graduation of model families. The implication being that the practice of this particular health behaviour by model families has a spill over effect among non-participants.

3.4.3. Narrow necked water container

Availability and accessibility of adequate clean water is a serious problem that most rural communities face. In addition, poor handling of available water in the household is among the main causes of water contamination which increases the risk of contracting waterborne diseases for family members. Waterborne diseases affect mainly children in most parts of rural areas. The model family program promotes the use of narrow necked water container to reduce and avoid water contamination. The benefits of keeping water in a narrow-necked

container appeared to be well understood and appreciated by model families. Accordingly, it was observed that the use of narrow necked water container was among the widely practiced activities of model families. In practice there was no significant difference between model and non-model families in terms of owning and using narrow necked water containers. The results show that 69.8% and 61.2% of model and non-model families, respectively, own and use a narrow necked water container.

Most model families reported that they were using a plastic narrow-necked container called *Jerican*. This material is easily available in the local markets at a reasonable price and most model families reported that they owned at least one *Jerican* to keep water clean, especially drinking water. Some model families reported that Woreda offices donated them narrow-necked container and other accessories, a practice which confirms the political will from the part of the local government to promote the model family program. This was confirmed by a chairperson of one of the Kebeles visited for this study as contained in the following quote:

> *....Woreda health office has supported the program by providing narrow-necked water containers and water purifying agents along with other materials*

Once a family acquires a narrow-necked container it often lasts long and sustainability is not an issue. Despite the wider use of narrow-necked containers, access to clean potable water and water for personal sanitation remains a critical challenge for families in the study areas. As a result many in the community are still exposed to waterborne diseases. Thus, sustaining adopted health behaviour such as the use of narrow necked water container needs to be supported through creating access to adequate water sources.

3.4.4. Family planning, child immunization and child feeding practices

one of the activities that the model family program is the promotion of child immunization, improved child feeding practices and family planning awareness and practices in rural communities. Recent studies have documented that these services have been expanded dramatically with the advent of the HEP[3]. This is true for both the model and non-model families. The improvement in child immunization, child feeding practices and family planning knowledge and use should also be attributed to the expansion of the HEP in general and to the model family program in particular.

The model family program has helped in consolidating community awareness and practices of these services in three major ways. First, model families are expected to use family planning and have their children immunized as part of the 16 packages of the program. Exclusive breast feeding has also been promoted both as a means of protecting infants from illnesses and delaying births. Second, model families are better positioned to gain more information which could lead to increased awareness thereby improving receptiveness to these services. Third, the model family program created a real opportunity especially to family planning promotion by educating men as part of the whole package. Indeed, in most instances it was men who participated in model family training programs representing their families. Although training one person per family is mentioned as a drawback, because in most cases the one person is a male head of the family, an unintended but beneficial effect of this is that makes men more

[3] Ibid, 2,3

receptive to use of family planning for themselves and their wives. In the study area it is still men who seem to have the ultimate decision making power when it comes to the number of children a couple should have.

Family planning use is significantly higher among model families than non-model ones. The proportion of women who ever used family planning was 45.4% and 33.6% for model and non-model families respectively (Table 5). The contraceptive prevalence rate (CPR) was also significantly higher among the model families (32%) compared to non-model (18.5%). Relatively better educated women (those with 7 or more years of schooling) show high contraceptive use. Model families with a certificate of graduation were also better users of family planning (annex 7). Injectables were the predominant method choice among 25.9% model families and 10.7% non-model families. For both model and non-model families, the major source of current method was the health post followed by health centre.

Table 5. Among married women age 15-19 years, the proportion that ever used and currently using a family planning method and the type and source of the current method; according to type of family, SNNPR, December 2010

	Model family N=459	Non-Model family N=379
Ever used any method	45.4***	33.6
Currently using any method	32.3***	18.5
Education -Current users		
Cannot read/write	29.8	16.1
Read/write only (no formal education)	30.0	20.0
1-6 grader	33.6	24.8
7+	50.0	38.1
Type of current method		
Injectables	25.9**	10.7
Implanon	2.7	2.2
Pills	1.3	2.5
Other modern methods	1.0	2.5
Method not specified	1.4	0.6
Source of current method:		
Health post	68.4	62.6
Health center	22.7	23.1
Government Hospital	0.5	0.0
Others (not specified)	8.7	14.3

The sustainable use of family planning by model families received mixed assessment by the participants of this study. A good portion of participants didn't see any challenge in the continuity of family planning use. On the other hand, a few others argued that continuous family planning use could be compromised because of household food insecurity and side-effects such as excessive and prolonged menstrual bleeding experienced by some women. Of these sceptics, some women reported that they were contemplating to discontinue family planning use due to their husbands' disapproval, unfavourable community perception and fear of infertility. A woman FGD participant, who is among the earliest graduates, shared her view as follows:

> *.....I did not give birth for four years since I was using family planning. Some people here start considering me as barren*

Another woman who is also an early adopter of the model family planning program explains the pressure some women receive from their husbands to stop using contraceptives as follows:

> *Some husbands intimidate or warn their wives that they would divorce them if they continue to use family planning and do not give birth to as many children*

With regards to child feeding practices, about two-thirds of children under 5 months in both model and non-model families were exclusively breastfed. Breastfeeding is not only universal but also its duration extends for over a year. Almost all model families with children under the age of 5 months reported breastfeeding their children for at least one year. The corresponding figure for the non-model family was 90%. Only 26.1% and 25.7% of children age 6-8 months in the model and non-model families, respectively, were given solid or semi-solid food the previous 24 hours. Bottle feeding is found to be less common in the study area. In general, there was no difference between the two types of families in their child feeding practices.

Table 6. Prevalence of key breastfeeding and bottle feeding practices by child age and type of family, SNNPR, December 2010.

	Model family	Non-Model family
Exclusive breastfeeding (0-5 months old)	n=70	n=62
	67.6	66.1
Continued breastfeeding at 1 year (12-15 months old)	n=39	n=24
	100.0	90.0
Continued breastfeeding at 2 years (20-23 months old)	n=9	n=11
	92.8	85.8
Complimentary feeding (6-8 months)	n=23	n=35
	26.1	25.7
Bottle feeding among children, by age of child		
0-5 months old	n=71	N=62
	18.3	13.3
6-23 months old	n=115	n=124
	16.0	25.5
0-23 months old	n=186	n=186
	16.9	22.0

With the expansion of HEP and the wide spread of health posts throughout the rural Kebeles, community access to child immunization is nearly universal. It should be stressed that both model and non-model families have equal access to child immunization services. The quantitative study didn't show any evidence of better immunization coverage among model families compared to non-model families (see Table 7). For example, BCG prevalence was 84.8% and 79.3% among children of model and non-model families respectively. Similarly, the recommended three doses of Pentavalent was received by 62% and 59% of children from model non-model families respectively. Almost equal percentage of children from model and non-model families received measles vaccine. The use of vitamin A supplements in the previous 6 months was about 51% and 57% for children (age 6-23 months) from model and non-model families respectively.

Table 7 Proportion of children age 12-23 months that received the different vaccines by type of family, SNNPR, December 2010

	Model family N=66	Non-Model family N=58
% With vaccination card	37.8	27.6
BCG	84.8	79.3
POLIO0	22.7	22.4
POLIO1	86.4	86.2
POLIO2	80.3	74.4
POLIO3	69.7	56.9
DPT1/PENTA 1	81.8	81.0
DPT2/PENTA 2	80.3	69.0
DPT3/PENTA 3	62.1	58.6
Measles	72.7	74.1
Fully immunized	50.0	48.3
	n=105	n=112
Vitamin A (among 6-23 yrs old)	51.4	57.1

Overall, as Table 6 and 7 above shows our study found no significant difference in child feeding practices in the receipt of child immunization and vitamin A supplementation between model and non-model families. This is may be due to the fact that access is nearly universal and some vaccines are also provided through well coordinated national campaigns creating access to all children. Despite the claim by participants for a near universal child immunization our quantitative study revealed that only half of the children age 12-23 months from model families were fully immunized and the dropout rate was also high. This is against our expectation that the benefits of child immunization to the health of their newborns and infants should well diffused in by the time this study was conducted. This statement, however, should be interpreted with caution as our sample number of children (age 12-23 months) were few for any meaningful analysis; only 66 and 58 in model families and non-model families, respectively. Thus, it is the research team's impression that further study in this area is worthwhile at some point.

3.4.5. HIV Counselling and testing (HCT)

Female and male FGD participants appeared to be well aware of HIV and the associated preventive methods. As Table 8 shows, women from model families were significantly more likely than those from non-model families to uptake HCT (47.3% versus 35.2%). Likewise, 42.3% and 35.8% of the husbands of women from the model and non-model families, respectively, received HCT. HCT uptake among model families increases with the women's level of education. The proportion of non-educated women who had HCT in model families

was 48.4%. This figure compares to 76.1% among those with at least 7 years of schooling. There is however no clear association between education and HCT uptake among the non-model families. Previous HIV testing as part of the model family program was reported by some participants and there was a good portion of the participants who didn't test for HIV as a perquisite to graduate as a model family. Fear of receiving HIV positive result and the long standing stigma surrounding HIV were reported as some of the barriers to testing. For example, a woman FGD participant said *When I went for HIV testing people were gossiping that I was HIV positive*. She explained that she was not happy about this and others might also opt not to go for HCT to avoid similar perceptions from others.

Table 8. Proportion of women who reported having had HIV Counselling and Testing (HCT), their educational status and their husbands HCT uptake; by type of family, SNNPR, December 2010

	Model family N=700	Non-Model family N=700
Ever tested for HIV	47.3**	35.2
Education -Current users		
Cannot read/write	48.4	34.2
Read/write only (no formal education)	61.5	85.7
1-6 grader	69.6	65.7
7+	76.1	79.2
How many months ago was the most recent HIV test		
<6 months ago	19.0	12.5
6-11 months ago	11.2	12.5
More than 11 months ago	17.1	10.4
Not tested for HIV	52.8	64.6
Husband tested for HIV (among currently married)	N=605	N=504
Yes	42.3**	35.8
No	41.7	47.7
Do not Know	16.0	16.5

3.4.6. Household and Environmental hygiene

Household and environmental hygiene is promoted through establishing mechanisms for dry and liquid waste disposal. It was reported that proper dry and liquid waste disposal is a common practice among model families as it is one of the required activities to be fulfilled for graduation in the program. The participants reported understanding the benefits of having dry and liquid waste disposal. These activities are also considered easy to implement. At the time of graduation, over 95% of model families practiced dry and liquid waste disposal. This was substantially reduced to 23% for dry waste disposal, while liquid waste disposal become negligible a few years after graduation. Our findings clearly imply that the sustainability of household and environmental hygiene component of the model family program is questionable.

Few participants indicated that the main challenge to continuous maintenance of dry and liquid waste disposal is that the fact that the places are prepared for temporary purposes and they often fill quickly and become out of service in few months. In particular, some model families

that graduated 2-3 years ago reported that there is often fatigue in preparing new sites now and then and therefore they stopped having the facilities. On the other hand, preparing permanent and long lasting dry and waste disposal sites was reported to be a challenge as it requires resources and skills that are not easily available.

3.4.7. Fuel saving stoves and shelve for utensils

Building a fuel saving stove and cabinet to keep kitchen utensils were by far the least implemented activities among both model and non-model families. Fuel-saving stoves were available for less than 3% each of model and non model families. For every 6 model families a little over 1 model family reported to have built and used a kitchen cabinet which is a simple shelf like structure. The practice is almost non-existent among non-model families, about 1.5%. These findings were corroborated by those from the qualitative study. Most model families reported that building fuel-saving stoves is one of the activities they found difficult to implement. Shelf construction was also reported to be challenging. Major challenges to this, according to FGD participants, revolve around lack of skills and resources. In particular FGD participants complained that the process (or the how to) of making fuel-saving stoves and shelves were a poorly demonstrated activity during the training. As a result most model families graduated without acquiring the necessary skill to properly implement these activities. The lack of financial and material resources, such as wood and suitable soil type, were also mentioned as reasons for the unsatisfactory implementation of building and using fuel-saving stoves and cabinets by model families. As most model families reiterated maintaining fuel-saving stoves and cabinets would have been easier if they had been given the opportunity to build one. Respondents believe that, once built, fuel-saving stoves and cabinets last long without requiring much maintenance.

3.4.8. Separate dwelling units for cattle and people

The model family program promotes separate living units for cattle and people. This activity goes against the traditional practice and faces challenges. A good proportion of the population in remote rural villages sees nothing wrong with human beings and cattle sharing the same living space. Culturally cattle are part of the household and in some highland areas residents believe that their presence under the same roof with humans will keep the unit warmer. As a result, convincing people to adopt the practice of having separate dwelling units for humans and cattle remains a challenge in the study area. For instance, a female FGD participant who is for the practice to continue said that *in our culture cattle are part of our life and we live with them.* Other participants also had the following to say:

> *I can afford to construct separate house for my cattle and my family, but I am scared of cattle rustlers. For this reason I didn't do it. Male FGD participant*

Another FGD participant who actually built separate units but still living together with his cattle argued the same way. He commented:

> *Although I have constructed separate house for my cattle and my family, we [the family] still keep the cattle with us because of fear of rustlers.*

A different reason for not constructing separate dwelling units for cattle and people was shortage of resources.

I can't construct a separate house for the cattle because I do not have the money to buy necessary materials such as wood and grass. Male FGD participant

The quantitative analysis also showed that only a third of model families have reported having separate dwelling units for cattle and humans. In comparison, fewer than 3% of non-model families had a separate dwelling for people and cattle. Across the FGDs there was a general agreement that keeping people and cattle separately is difficult to implement and sustain. Even in the event that some families construct separate dwelling units they were not keeping their cattle apart from the family. Emotional attachment with their cattle, fear of cattle rustlers, and lack of resources for the construction of separate dwellings were the main barriers for the less impressive implementation of this activity.

3.5. Community attitude and perceived benefits

Community acceptance of the model family program was a gradual process. There were reports of resistance by the community members at the start of the program. In particular, community members didn't welcome some of the program components especially HIV testing and family planning use. This is understandable given the high stigma associated with being HIV positive. Unfounded rumours about contraceptive causing infertility worked against families acceptance of the family planning in some community. For some, preparing pit latrine and waste disposal places were also seen as unnecessary endeavours and a waste of time.

Initially most community members considered that we were wasting time and energy when they saw us digging pit latrines and waste disposals. After looking at the health advantage we have gained, everybody has started to implement the health package. Male, FGD participant (earlier graduate)

Although such negative attitude still lingers among few households and individuals, it has dramatically faded away when communities witnessed the health benefits that model families are enjoying. The changing attitude towards model families can also be seen by the fact that most community members start to seek advise from model families and considered them as "health workers". With more and more families joining the program, it has become so apparent that the community have now embraced the program.

The community had a negative attitude towards some of the program components at the beginning and also held some negative attitude towards the health extension workers, considering them working only for salary. They (community) gradually have become receptive of the model family program after witnessing the program benefits. Informant, Woreda Health Office

Because they [community] have seen the health benefits of using latrines, family planning and other activities most have accepted the program. Informant, Health Extension Worker

The findings of the quantitative survey that compared model and non-model families clearly demonstrated that model families have better performance in a number of health and health related behaviours and practices. This can also be corroborated by the responses of the FGD and IDI participants of this study. Perhaps the most frequently cited benefit of the program was the change in attitude and practice related to personal hygiene. Pit latrine construction and use and hand washing practices were implicated by far the major achievements of the program by most participants. Bed net use, child immunization and family planning use were also frequently mentioned by the study participants. Some model families also noted the direct

health benefits of the program, as they witnessed reduction in childhood illnesses, reduction in malaria and other illness often caused by poor personal and environmental hygiene.

Below are selected remarks made by Key informant and FGD participants concerning the perceived and actual benefits of the program.

> *There are some creditable changes on latrine construction and use, bed net use, keeping personal hygiene and environmental sanitation, family planning use, and children immunization. More importantly, the community has developed good awareness towards personal and community health. Informant, Regional Health Bureau*

> *....personal and environmental hygiene situation in our rural Kebele is almost similar with what [you] see in towns. This is because of the model family program. Informant, Kebele chairperson*

> *....the most important outcome of the program [I think] is that the community has developed a good tradition of using health posts and health centres. Informant, Woreda Health office*

> *Because we [Model families] have been able to use clean water, wash our hands with soap or ash after toilet use, safely dispose liquid and solid wastes, and use bed nets, diseases such as malaria and diarrhoea are not as common. Male FGD participant*

> *I have been giving birth almost every year previously. After participating in the model family I haven't given birth in the past few years now. Female FGD participant (earlier graduate)*

> *...we [community] understand and appreciate the health and economic benefits of family planning use. With fewer children we have been able to feed them well and provide timely education. Male FGD participant*

> *Death of mothers and infants has decreased recently because most mothers use family planning, have their children immunized, use antenatal and postnatal care services. Health Extension Worker*

3.6. Sustainability of health behaviour:

In order to establish whether the various health behaviour are still maintained by a model family respondents self reported list of activities, at the time of graduation were compared to a list of those activities directly observed by interviewers at the time of the survey. As shown in Table 9, not all model families necessarily accomplished all activities at the time of graduation. However, most model families reported to have implemented pit latrine construction, maintaining a clean compound and environment, owning and using narrow necked containers, having their children immunized and using ITN at the time of graduation. Model families were less likely to implement the construction and use of fuel-saving stove and shelf for utensils, separate dwelling units for people and cattle, and HCT among others.

They reported to maintain most of the good practices after graduation. Among those model families who had toilet facilities at graduation, 82.4% still have toilet facilities. Likewise, among those who had separate dwelling for people and cattle at graduation, 82.9% have the facility at the time of interview. A narrow necked bottle was present at graduation as well as now in

79.1% of the model family households. Among model families who had ITN at graduation, 90.2% still have the ITN at the time of interview.

There are however some health practices that were less likely to be maintained through time. Among families with fuel saving stove at graduation, only 19% reported to have fuel saving stove at the time of interview. Only 45% of the model family households that have a shelf at graduation have it now.

In general, there is no significant trend in this health practices by year of graduation, suggesting that most of these practices are maintained through time.

Model families which received and owned certificate appeared significantly more likely than those who did not receive certificate to perform most of the activities at the time of graduation (annex 8). Similarly, model families who have received their certificates continue to perform most of the activities significantly better than those without their certificates at the time of the survey. This finding implies that a model family's certificate ownership positively relates with the implementation of the various health related activities at the time of graduation and maintaining those behaviours then after (annex 9 & 10). However, there is no clear trend between the activities accomplished at the time of the graduation and year of graduation (annex 11).

Table 9. Among model families that performed the different health practices at the time of graduation, the proportion that practiced the health behaviors Now (at time of interview) according to the year of graduation, SNNPR, December 2010.

	Year of graduation				
	1999	2000	2001	2002	Total
A pit latrine available	N=450	N=12	N=163	N=8	N=671
At graduation and now	84.2	83.3	77.3	82.6	82.4
At graduation; Not now	15.8	16.7	22.7	17.4	17.6
A separate dwelling for people and animals (among HH with livestock)	N=32	N=79	N=79	N=67	N=257
At graduation and now	93.7	88.6	73.4	82.1	82.9
At graduation; Not now	6.3	11.4	26.6	17.9	17.1
Fuel saving stove	N=9	N=11	N=14	N=8	N=42
At graduation and now	22.2	9.1	21.4	25.0	19.0
At graduation; Not now	77.8	90.9	78.6	75.0	81.0
A shelf to store utensils	N=40	N=71	N=67	N=47	N=225
At graduation and now	45.0	46.5	44.8	42.5	44.9
At graduation; Not now	55.0	53.5	55.2	57.4	55.1
A narrow-necked water container	N=40	N=71	N=67	N=47	N=225
At graduation and now	77.5	78.8	80.6	78.7	79.1
At graduation; Not now	22.5	21.1	19.4	21.3	20.9
ITN availability	N=55	N=128	N=128	N=140	N=451
At graduation and now	83.6	89.1	94.5	90.0	90.2
At graduation; Not now	16.4	10.9	5.5	10.0	9.8

3.7. Program related factors influencing implementation and sustainability

This section presents the different programmatic factors that possibly influence the successful implementation and sustainability of the model family program. It in particular focuses on the training, certification, and follow up and support given to the model families.

3.7.1. Kebele-Level Model Family Related Inputs And Activities

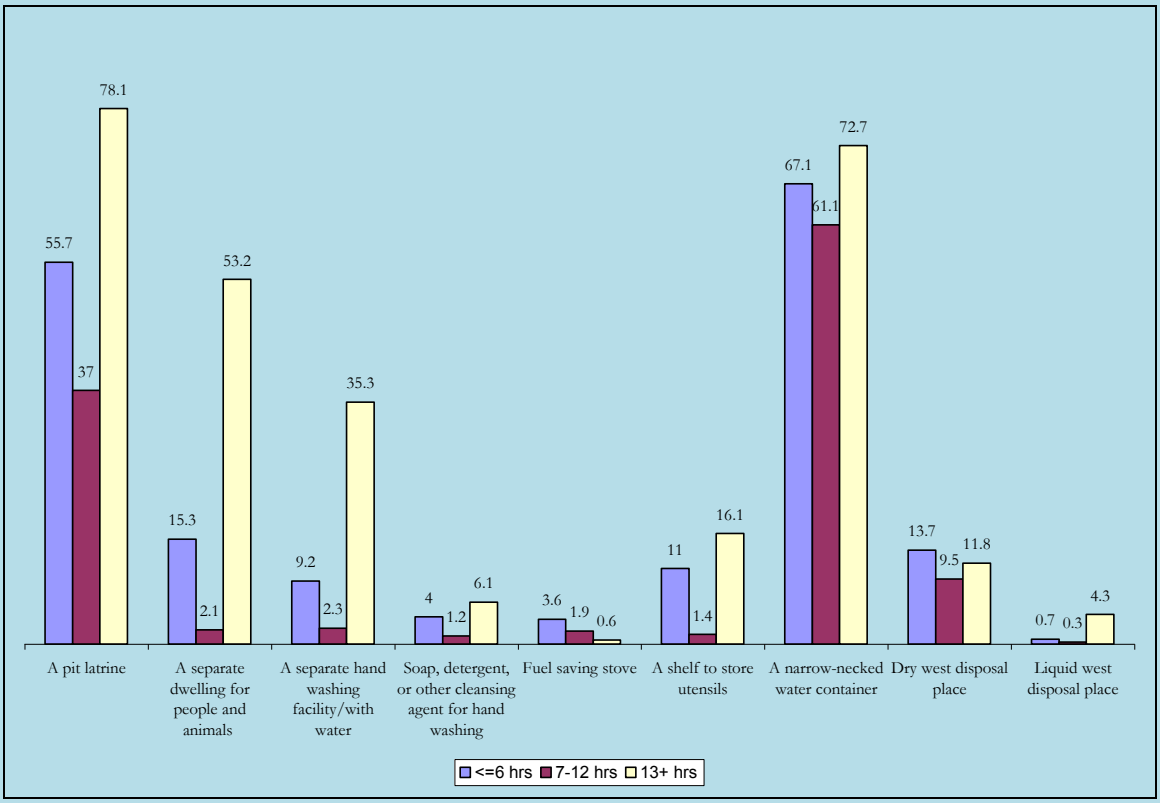
HEWs in the sampled Kebeles were asked about the contents of the model family training. Twenty HEWs were interviewed in 20 Kebeles. As shown, in Table 10, it was reported that 25 topics are included in the training. Most of the Kebeles sampled reported to provide these trainings. However, some topics are given relatively marginal attention including newborn care, premarital HIV testing, first aid, FGM, Uvulectomy and early marriage.

Table 10. Reported contents of model family trainings by the HEWs (n=20), SNNPR, December 2010

Contents of the model family trainings	N=20
Personal hygiene	95.0
Pit latrine construction and use	95.0
Water supply and safety measures	95.0
ANC, delivery and PNC services	80.0
Immunization	100.0
Breastfeeding	65.0
Family planning service	100.0
Nutrition for pregnant and breastfeeding mothers	90.0
Newborn care	55.0
Malaria prevention and control	95.0
HIV/AIDS prevention and control	100.0
Food hygiene and safety measures	75.0
Environmental sanitation	95.0
Healthy home environment	95.0
Solid and liquid waste disposal	90.0
Control of insects and rodents	75.0
Additional food for infants	80.0
Child health	90.0
Adolescent reproductive health	75.0
Premarital HIV testing	40.0
First aid	40.0
Epidemic prevention	80.0
FGM	40.0
Uvulectomy	45.0
Early marriage	40.0

HEWs in all the 20 Kebeles sampled reported that they provided training and doing follow-ups. The time HEWs spent on model families training varies across Kebeles. In 40% of the Kebeles HEWs reported to spend a maximum of 6 hours per week, in 35% of the Kebeles they spent 7-12 hours and in 25% of the Kebeles 13 hours or more. It seems there is association between the time HEWs spent on model families training and subsequent performance by families. Model families residing in Kebeles where HEWs spent 13 or more hours on training tend to perform well in most health and related behaviors (Figure 3).

Figure 3. Selected activities accomplished by model families (at the time of interview) according to the time HEWs spent on training and follow up of model families in a Kebele, SNNPR, December 2010



Only in a little over a third (35%) of the Kebeles HEWs reported to have received in-service training on model family. Model families residing in Kebeles where the HEWs received in-service training performed much better than those model families from Kebeles where the HEWs did not receive in-service training (annex 12). Non-governmental organizations reported to provide support to the model family program in 35% of the Kebeles. Model families in Kebeles where there was NGO support appeared to perform significantly better than those without such support (Table 11, annex 13).

In general, good health practices and performance of model families are positively and significantly influenced by model family program inputs at Kebele level, including, but not limited to, in-service training to the HEWs, relatively longer duration on model family training and follow up, as well as NGO support to the program (Table 12).

Table 11. Kebele/health post level inputs to the model family program, as reported by the health extension workers (HEWs, n=20), SNNPR, December 2010

	N=20
HEWs Provide training/follow up to model families	100.0
Number of hours (on average) HEWs spend on model family training (per week):	
<=6 hrs	40.0
7-12 hrs	35.0
13+ hrs	25.0
HEWs Provided training/follow up to model families last months	100.0
Materials available for the model families training with HEWs	100.0
HEWs received in-service training on training and follow-up model families	35.0
NGOs/private sector provided support to the model families (such as technical, financial, materials, etc)	35.0
Model family input composite score	
Kebeles with low score (<3 points)	35.0
Kebeles with medium score (3 points)	30.0
Kebeles with high score (>3 points)	35.0

Table 12. Selected health and related activities observed (by the interviewers) to be accomplished by model and non-model families in accordance with Kebele level model family program input score, SNNPR, December 2010.

Observation by the interviewers:	Kebele-level Model family program input score@	
	Low/Moderate N=415	High N=248
A pit latrine	77.1	87.1*
A separate dwelling for people and animals (among HH with livestock)	22.5	53.2***
A separate hand washing facility/with water	15.9	41.5***
Soap, detergent, or other cleansing agent for hand washing	10.6	11.7
Fuel saving stove	3.9	1.6
A shelf to store utensils	15.6	21.0
A narrow-necked water container	76.1	69.3
Dry west disposal place	29.2*	18.6
Liquid west disposal place	2.2	7.7**

***p<0.001 ***p<0.0001*
@Kebele level information is missing in one Kebele

3.7.2. Perceptions on model family Training

The content, duration and quality of the training are important factors in influencing the proper implementation of the program by model families. Prospective model families are trained on the various topics by the HEWs. The training has theoretical and practical parts on the more than sixteen topics included in the health extension package[4]. It was stated in the original plan that each HEW is expected to train between 40-60 households per quarter. The training was expected to take over ninety-hours and each session meets for 2 hours a day, 3 days a week for a total of four months.

In the study areas, it was reported that the model family training approach changed from individual-based to group-based after 2007/8. At the early years of the program each family was trained separately in their own premises by the HEWs. As the number of participants grew

[4] (TB and HIV/AIDS and other STI prevention and control, malaria prevention and control, first Aid and emergency measures), promotion of the utilization of family health service (Maternal and child health, family planning, immunization, adolescent reproductive health and nutrition), maintenance of personal hygiene and environmental sanitation (Excreta disposal, solid and liquid waste disposal, water supply and safety measures, food hygiene and safety measures, personal hygiene, healthy home environment, control of insects and rodents) and creation/promotion of health awareness (behavior change communications, health education and Communication).

this approach has become cumbersome for the two HEWs who are serving over 500 rural households with several competing activities.

Participants appeared to have differing opinion on the adequacy of the topics covered in the training. In fact, most FGD participants were unable to evaluate whether the topics covered were adequate. Nevertheless, a good portion of them believed that the training was adequate and it equipped them with the necessary knowledge and skills to implement and sustain the desired health practices in the household and community.

> *We [model families] were trained on several topics and the training has adequately equipped us to implement the activities Female FGD participant. (recent graduate)*

> *.....It [the training] has enabled me to implement the activities and maintain my own and my family's health. Female FGD participant . (recent graduate)*

> *We [model families] have received trainings on the use of bed nets, HIV/AIDS prevention, construction and use of latrines, how to prepare and use solid and liquid waste disposal pits among others. Female FGD participant (earlier graduate)*

> *The training was good. We are changed because of the training. Female FGD participant (earlier graduate)*

> *It [the training] helped us to know much about appropriate health practices. Female FGD participant (earlier graduate)*

On the other hand, some FGD participants and most key informants have cast their doubts on the adequacy of the topics covered. According to these informants, the training lacks demonstration, especially for the making of fuel saving stoves, shelves for utensils and pit latrine. Others also expressed their dissatisfaction with the training because it is not standardized in the use of appropriate manuals and guidelines. As a result, according to these informants, the depth and quality of the training varied from trainer to trainer.

Perhaps one of the most important comments that emerged concerning the training was that it doesn't bring together families, especially couples and other adult family members together in one setting. The list of individuals trained in the Kebeles is available with the HEWs and it shows that in most instances it was men, in particular the husbands that were trained. There are also a limited number of households where the wives were trained. The fact that the training didn't bring together family members concomitantly was mentioned as one of its major drawbacks.

> *We did not receive adequate training in wider health issues Female FGD participant (earlier graduate)*

> *Although we were trained on various issues, I think we should have been trained on more health topics Male FGD participant*

The duration of the training was also reported to be short by most participants. Some FGD participants said that time was short for them to digest the volume of information channelled

to them in a short period of time. However, most informants emphasized that this is what the HEWs could offer in the face of the time constraints due to competing tasks.

> *I do not think the time allocated for the training was adequate. I do not think we are trained about appropriate health practices due to time limitations. Female FGD participant (recent graduate)*

> *As farmers we need more time to understand the topics and therefore the duration of the training was inadequate. Male FGD participant*

> *Because the training is extremely important for us, it should have been given for extensive period of time Female. FGD participant (recent graduate)*

> *The training is intended to cover wide topics (16 health packages) within short period of time. Informant, Kebele Manager*

> *Although the topics covered were relevant, the training was not adequate in terms of duration. There should have been refreshers or in-depth trainings. Informant, Woreda Health Office head*

This study also assessed participants' perception concerning HEWs competence and skills to provide the training to model families. In general, most FGD participants and some of the key informants thought that HEWs are well equipped and skilful to provide the training.

> *Extension workers (HEW) come to our houses to train and demonstrate everything very clearly . Female FGD participant (earlier graduate)*

> *I can confidently claim that we are competent to provide this training. However, we need training of trainers course and refresher and upgrading trainings. Health Extension workers*

> *The training was given in such a way that farmers can easily understand. Male FGD participant*

Some FGD participants and most of the key informants, on the other hand, argued otherwise. For instance, the limited knowledge of HEWs in some topics such as fuel saving stove and shelf making, pit latrine construction, and HIV counselling, among others was mentioned by the participants. Some informants hold responsible the virtual absence of training of trainers (ToT) courses to the HEWs among the possible causes for the alleged lack of skill to provide training to model families.

> *I think the practical training was inadequate because some of the demonstration materials were not available. Woreda Health office head*

> *There were some extension workers (HEWs) who were not competent in delivering the training . Female FGD participant (earlier)*

> *Capacity of HEWs in handling the training vary; some are good and competent while others are not. Informant, HEW supervisor*

The lack of refresher training to earlier graduates was also implicated among the reasons for unsustainable heath practices by a good portion of the model families.

3.7.3. Certification

One of the gaps that were identified from the findings of the quantitative study was that not all model families were issued with a certificate. In fact, over 40% of those who graduated were not issued with a certificate and this emerges as an area of concern. Here we assessed the reasons behind the failure to issue certificates to graduating model families.

Although it is not clear to this study how the 75% threshold is computed to graduate and certify model families and whether there are required and optional activities, the discussion we held with the model families hinted at the fact that most families performed certain key activities before graduation. In particular, activities such as construction of pit latrine, hand washing facilities including ash/soap, keeping personal hygiene, especially hand washing before and after meals and toilet use were reported to be the most widely practiced activities to graduate as model family. Next to these, child immunization, the use of bed nets and keeping the house premise and surrounding clean (i.e. availing dry and liquids waste disposal) were cited among the commonly performed practices to grant model family status.

The fact that most model families graduated without certificate has been reiterated in one of the Woredas this study fielded. Based on the quantitative data we considered this particular Woreda as low-performing. This was in particular more so among those who graduated after 2007.

Budget shortage to print the certificates was mentioned as the main reason for not issuing certificates to all model families by most informants emerging from the Woredas and Kebele offices. Some model families said they were told by the Kebele and Woreda officials to wait until the budget was released for the certificate preparation although this was reported long overdue.

> *Most model families in this Woreda (low performing) did not receive certificate because Woreda health office lack budget to prepare certificate. Informant, HEW supervisor*
>
> *Only model families who graduated in 1999 Ethiopian Calander have received certificate in this Kebele. Male FGD participant*
>
> *Except those model families who graduated in 1999 E.C, others didn't receive certificate; they are told to wait until certificate is printed. Informant, Head of women association*
>
> *I think it is due to lack of budget to prepare certificate and the graduation ceremony. Informant, Woreda Health Office*

On the other hand, key informants form the zone said that budget was not an issue as it was uniformly allocated to all Woredas for this propose and held responsible the Woreda for failing to print the certificate.

> *.....I do not think that it is a problem of budget; rather due to the weakness of some Woreda health offices. Adequate budget has been allocated and distributed to all Woreda health offices for certificate issuance and for some motivating rewards to model families. Informant, Regional Health Bureau*

Some Woreda level informants argued that those families who didn't receive certificate are those who failed to complete the 75% requirements and shouldn't be considered as model families. This comment is difficult to comprehend since the HEWs reported a large portion of families without certificate as model families. Due to contradicting responses from different respondents, this study is unable to verify the most legitimate reason for not issuing certificate to model families.

> *Those who did not receive the certificates are those who failed to implement the model family package and those who did not complete the training. Woreda Health office head*

Of note, this study didn't find any certification problem in the Woreda that was designated as high-performing. It was also confirmed that the vast majority of the model families in this particular Woreda were given certificate at the time of graduation.

3.7.4. Follow-up visits and support to model families

Graduating as a model family is the foundation for families to put in practice what they have acquired during the training and sustain the good health behaviours. The primary responsibility of sustaining the good health practices mainly rests on the families themselves. However, the program is designed in such a way that HEWs and others actors including Kebele officials and Woreda health office are expected to provide support and follow up. In particular, the HEWs are expected to pay frequent visits to model families, provide technical and other supports as deemed necessary.

HEWs in the study Kebeles were asked concerning the visits to and follow up of model families and most said they visited model families on a regular basis. It should be emphasized that there is no clear plan or standard schedule for the visit and follow up of model families by the HEWs. This makes it difficult to evaluate the adequacy of the visits made by the HEWs.

There was varying responses concerning the adequacy of the follow up visit by HEWs between the recent and earlier model families. In general, recent graduate model families saw the follow up by HEWs as adequate while earlier graduates said it was inadequate and diminishing with time.

> *We have been receiving continuous home to home visits, follow ups and encouragements from the health extension workers [HEW]. Female FGD participant (recent graduate)*

> *Follow up, advice and assistance of the HEWs is adequate but there is no other support or incentives to model families from other concerned bodies including Woreda health office. Informant, Kebele chairperson*

> *.....we [HEWs] provide adequate follow up and assistance to model families. Health Extension Worker*

The two study Woredas appeared to some how differ in terms of the follow-up visits model families receive from the HEWs. The frequency of visit reported to be much better in the high performing Woreda than in the low performing.

Most key informants held the view that HEWs are not providing adequate follow up visits and support to model families mainly due to time constraints, as they are engaged in several competing activities. The ever increasing number of model families, the size and topography of the Kebeles, and in-service training burden are among the major factors that obstruct follow up visit by the HEWs. Absence of adult household members during visit was also implicated among the challenges by some of the HEWs participating in this study.

> *I do not think that model families have received adequate support and follow ups from us [Woreda health office], supervisors and HEWs because of time constraints and other priority commitments. Woreda Health Office*

> *Too many families to be followed, tough topography, scattered population settlement , time constraints, difficulty to find people during visits are the major obstacles. HEW supervisor*

> *Although there is some follow up it is not adequate because there is shortage of health professionals, logistic limitations (finance, transportation etc), large population in scattered areas, etc. Woreda Health office*

Follow up visit to model families by other actors including Woreda health offices and HEWs supervisors was reported to be rare although it was reported much better in the high performing Woreda. For instance the Chairpersons of the Kebeles in the high performing Woreda reported that they followed and encouraged model families to practice and sustain the behaviours. By contacting families that discontinued practicing some of the behaviours the Kebele chairpersons and HEWs encourage such families to treinitiate the activities. Community conversation meetings were also reported among the approaches used to encourage model families to practice the health behaviours. Similar involvement by such actors was rarely reported from the low performing Woreda.

> *....together with the HEWs we contact model families who discontinued from practicing health activities and advice and encourage to re-initiate the activities. Kebele Manager [High performing Woreda]*

> *We held community conversation meetings and advice model families to continuously practice all the activities and also encourage those model families who performed best through rewards. Kebele Chairperson [High performing Woreda]*

> *We provide awareness creation and education on health issues such as latrine usage, clean water usage, personal hygiene and environmental sanitation to our students in order that they practice at their home and village and educate their families. Teacher [High performing Woreda]*

Experts in the Woreda health offices reported visiting 10 model family houses every week in the high performing Woreda. On the other hand in the low performing Woreda this was reported once in 3 months.

> *We have made effort to follow up and provide support of ideas and advice by visiting 10 model families every week. Woreda Health office [High performing Woreda]*

> *People from the Woreda make a supervisory visit once every three months . Woreda Health office [Low performing Woreda]*

IV. CONCLUSION AND RECOMMENDATIONS

This study has certain limitations that can affect the validity of the findings. For instance, participants may not be equally credible and researchers may also introduce bias. Although this study attempted to address most of the key components of the model family program package, some program components were not sufficiently discussed in this report mainly because of lack of sufficient and reliable information.

With these limitations the use of mixed methods helps enrich our analysis. The study bring out perceived and actual positive impact of the model family program on the health of individual families and community. Favourable community perception of and receptiveness to the program has also been noted, which may well be translated to actual practices.

The model family program when viewed in its totality is undoubtedly a success story; but this shouldn't override the challenges and gaps in the individual components that make up the program package. Indeed, a greater understanding of the program can only be achieved when the individual program components are examined separately. This study attempted to gain an in-depth understanding of implementation of the different components of the program and revealed wide disparity in the intensity of practicing the different program components by the families and lack of sustainability.

Several barriers that work against program implementation and sustainability of the key components have been identified and discussed in this report. The barriers can be broadly categorized as economic, socio-cultural and programmatic-related factors. We underscore that the different barriers are relevant in influencing the successful implementation of the program although the degree of influence of these attributes may vary in accordance with the nature and type of activity.

Findings of this study also points to the importance of programmatic factors, especially follow up/support to model families after graduation by the HEWs and other important actors and certification of model families as the two most important factors that discriminate between the "high performing" and "low performing" Woredas. Surprisingly, there is no evidence of variation between the two Woredas in terms of the underlying economic and socio-cultural barriers.

Below we present a summary of the different factors influencing program implementation and sustainability as well as selected programmatic recommendations.

Economic related barriers:

Economic related barriers have emerged as important factors for some of the model family program components including construction of separate dwelling for cattle and people, the making of fuel saving stove, shelves for utensils and pit latrine construction and maintenance. These activities were singled out by most study participants as those needing resources from the families, which makes it difficult to implement and sustain. In particular, the primary barrier to the making of fuel saving stove and separate dwelling for people and cattle

implicated as lack of resource. Pit latrine is universally available although it is suffered from quick deterioration since it is often constructed out of cheap and less durable materials. For most families preparing a long lasting and durable latrine with slab and proper materials was reported to be unbearable.

- **There is no an immediate magic bullet to address economic problem influencing program implementation. Nevertheless program may need to seek ways to support the relatively poor model families with the necessary and basic inputs for the making of fuel saving stoves, shelf for utensils and pt latrine construction. Putting in place a credit scheme to promote these activities could be a viable option.**

Socio-cultural factors:

It is not unique to this study to find the role of socio-cultural factors influencing health behaviours and practices. We have identified some of the key program components including family planning use, HCT, and the making of separate dwelling for people and cattle to be influenced by socio-cultural factors. Fear of infertility, husband's disapproval, attitude towards large family and the belief that taking contraceptive without adequate food is harmful all work against family planning adoption and continuous use. Stigma and fear of positive HIV result remain to be a major impendent to HCT uptake. Emotional attachment to cattle and the belief that cattle should reside with people and fear of cattle thieves prevents families from constructing separate dwelling for people and cattle and keeping the two separately.

- **Program needs to strengthen community awareness of and promote favourable behavioural change towards the various components of the model family program. The model family training needs to give proper emphasis to awareness creation and behavioural change of prospective and candidate model families.**
- **Dispel misconceptions about family planning use, work towards reducing attitude towards large family and involve men as partners in family planning.**
- **Continue to address HIV related stigma and increase community awareness towards the benefits of HCT**

Training gaps and challenges:

Several training gaps have been identified by this study. The training is criticised by study participants for inadequate coverage of some of the topics, especially the practical demonstrations for fuel saving stove, shelves and pit latrine construction, being of short duration, failing to bring together family member in one venue (mostly the men are attending the training), for not having a manual or supporting materials and lack standardization. Moreover, the HEWs allegedly reported to be less proficient to give the training since they were not given TOT course on model family. Their busy schedule and work burden also said to affect their efficiency in providing the training. On top of these training gaps, the lack of refresher training to those who graduated 2-3 years ago has also been stressed among the major gaps of the training.

- **Provide training of trainers (ToT) courses to model families. This should in particular focus on equipping the HEWs with practical demonstration, adult education methods, model family program follow up and monitoring.**

- **The training should find ways to bring together adult family members, especially couples in one venue.**
- **Strengthen the practical demonstration for some of the activities including fuel saving stove, shelf for utensils, and pit latrine construction.**
- **In order to standardize the training and program implementation, it is imperative that training manuals and standard operation procedure are put in place**
- **Program may need to involve vCHWs in the training and follow up of model families and can lessen the work burden of HEWs. To this end, vCHWs need to be given ToT courses on model family.**
- **The adequacy of the training duration needs to be revisited**
- **Refresher training to those model families who graduated 2-3 years ago may be critical in order to ensure sustainability.**

Lack of follow up and support to model families

Although it is not clear to this present study whether there is a standard schedule to follow model families after graduation, the HEWs and other actors including HEWs supervisors and Woreda health offices are expected to pay regular visits and provide encouragement and support to model families. This is considered an important aspect of the program to ensure sustainability.

This present study unveils critical gap in the follow up of and support to model families by the HEWs as well as other actors. In particular, earlier graduated model families reported that follow up by the HEWs has diminished with time and there is little support to them after graduation. Critical time constraints reported the primary reason for the HEWs not to offer proper and timely follow up to model families. The ever increasing number of model families, the size and topography of the Kebeles, in-service training burden are among the major factors that obstruct follow up visit by the HEWs.

This study also identified difference in the level of follow up by the HEWs and other actors between the "high performing" and "low performing" Woredas. Follow up visit to model families by the HEWs and other actors reported to be much better in the "high performing" Woreda than in the "low performing". Although the direct linkage between the level of follow up and program outcome cannot easily be established, we can posit here that the noted better performance of model families in the "high performing" Woreda, according to finings of the quantitative study, can partly be attributable to the relatively better intensity of follow up to model families in this particular Woreda.

- **Strengthen follow up and support to model families. In conjunction with this program need to outline a follow up plan and schedule that is to be implemented by the HEWs and the other actors.**
- **There is a need to involve Woreda health offices, Kebele officials and community groups in model family program monitoring and follow up**

Requirements for graduation and certificate issuance to model families:

It is not clear to this study on how the 75% threshold is computed to graduate and certify model families and whether there are strict criteria for required and optional activities. The

quantitative study on the other hand showed a large portion of the families did not meet this criteria when graduated. Activities such as construction of pit latrine, hand washing facilities including ash/soap, keeping personal hygiene, especially hand washing before and after meals and toilet use were reported to be the most widely practiced to graduate as model family.

- **Program may need to put in place a clear criteria on how to compute the 75% threshold and identified required and optional activities to graduate as a model family.**

Certification is an important incentive to model families. It not only boosts their morale but also serves as an encouragement to continually practicing the activities. The failure to provide certificate to the largest portion of graduated model families has been identified in the "low performing" Woreda this study fielded. Although contradicting responses were forwarded by different study participants concerning the reasons for not issuing certificate, the Woreda health office is the one to blame the most for this. Budget shortage for certificate printing and issuance was repeatedly suggested by the Woreda office. This was challenged by the zone offices that claimed budget has been uniformly dispatched to all Woredas. Whichever the valid reason may be, the failure to issue certificate coupled with the lack of follow up/support to model families in this particular Woreda may well explain the recorded low performance of model families in this particular Woreda, as revealed by the quantitative study.

- **Program needs to insure that all graduates receive certificate of recognition by lifting the different barriers to certificate issuance.**

Annex 1: METHODOLOGY (quantitative study)

- **Study area:**
  - Kembata and Tembaro & Woliyta Zones of SNNPR
  - 4 Woredas from these zones
- **Study design:**
  - Cross-sectional study design
  - Static Group comparison - Model families vs. non-model families
  - Retrospective behavioral assessment of Model families- at time of graduation vs. at time of survey (now)
  - Kebele-level model family program input assessment (operational)
- **Sample size :**
  - Sample size was computed based on scientific method
  - 700 model families and 700 non-model families
- **Sampling method:**
  - Multi-stage Cluster sampling was used
  - 2 Zones were selected purposely
  - 2 Woredas were selected per zone (purposely) - The presence of malaria was the key criteria
  - Kebeles were selected using probability proportion to size (PPS)
  - In each of the selected Kebeles the list of model and non-model families were obtained from the HEWs
  - In each Kebele 35 model and 35 non-model families were selected from the list
- **Respondents/method of data collection**:
  - Any adult family member (interview)
  - Adult woman (the wife) in a HH (interview)
  - Observation by interviewers
  - The HEWs in the selected Kebeles (interview)
- **Questionnaires :**
  - HH and individual women section
  - Observation checklist
  - HEWs questionnaire
- **Training and Fieldwork**
  - 12 data collectors and 2 supervisors
  - 3-day training to survey team in *Durame/KT*(December 8-10)
- **Data management and analysis**
  - 2 data entry clerks
  - Data entry -EPI-INFO
  - Analysis – STATA 10
- **Ethical clearance**
  - SNNP regional Ethical clearance board/committee

Annex 2. METHODOLOGY (qualitative study)

Study Design and Study Areas

The qualitative methods primarily used focus group discussion (FGD) and in-depth interview (IDI). The study was conducted in two purposely selected Woredas where the quantitative study was fielded. Based on analysis of the quantitative data, these Woredas designated as high performing (Woreda 1) and low performing (Woreda 2) in terms of Model family outcomes, among the four Woredas included in the quantitative study (see Table 1). In each of these Woreda, information was gathered from 4 Kebeles, 2 per Woreda.

Ranking of Woredas according to Model families' performance
(*Source: Model family study, SNNPR)*

Health practices/behaviours	Ranking based on performance (1=lowest,....4=highest)			
	Woreda 1	Woreda 2	Woreda 3	Woreda 4
pit latrine	1	2	3	4
separate dwelling for people and animals (among HH with livestock)	1	2	3	4
Separate hand washing facility/with water	1	2	3	4
Soap, detergent, or other cleansing agent for hand washing	3	1	4	2
Fuel saving stove	2	4	3	1
shelf to store utensils	1	4	2	3
narrow-necked water container	3	4	1	2
Dry west disposal place	4	3	2	1
Liquid west disposal place	2	1	3	4
HCT	4	2	3	1
ITN	1	3	4	2
Summary performance score (sum of ranks)	**23**	**28**	**31**	**28**

Focus Group Discussion (FGD)

The FGDs was the main sources of information for this study; it mainly benefit from group interaction in the process of producing information. To benefit the most from FGDs we conducted separate sessions for the following groups:

- Adult Women (from Model families who graduated before June 2001 Eth. cal)
- Adult Women (from Model families who graduated between July 2001 and Dec. 2002)
- Adult Men (from Model families irrespective of the time of graduation)

In each group, 4 FGDs were conducted, totalling 12 FGDs in the 3 groups. The number of FGDs was equally divided between Woreda 1 and 2 areas. List of model families including the

year of graduation was obtained from the HEWs in the Kebeles. The research team selected FGD participants randomly from the list. FGD discussion guides were prepared, and translated to Amharic for ease administration (See Annex 1 for the FGD guide).

In-depth Interview (IDI)

In-depth interviews were conducted with various actors including the HEWs, vCHWs, Kebele chairpersons, religious leaders, elders, women's associations, youths' associations, teachers, agricultural workers, health centres in the Woreda, Woreda health offices, zone health offices, among others. A total of 21 informants at different levels were interviewed. In-depth interview guide was used to guide the interview (Annex 2).

Data management and analysis

The FGDs were tape recorded. Facilitators also took notes of each discussion. FGD/IDI facilitators were responsible for the verbatim transcription of all audio-taped interviews and discussions to Amharic, which was then translated to English. Information was organized along thematic lines through word processing. Transcriptions was then coded according to some pre-determined themes and other themes to emerge as data analysis progressed. The process required us summarizing, categorizing, and constantly comparing individual FGD, in-depth interview transcripts so as to derive patterns of response by various characteristics of respondents. The research objectives guided the analysis.

Fieldwork and research teams

Mela Research PLC deployed three experts (an anthropologists, a public health expert and assistant FGD facilitator). The lead researcher from Mela Research PLC (Epidemiologist/Demographer) was responsible for developing the FGD/IDI guides, analyzing the qualitative information and producing the report in consultation with the field team. Information transcription, translation, analysis including report preparation took us about 7 weeks.

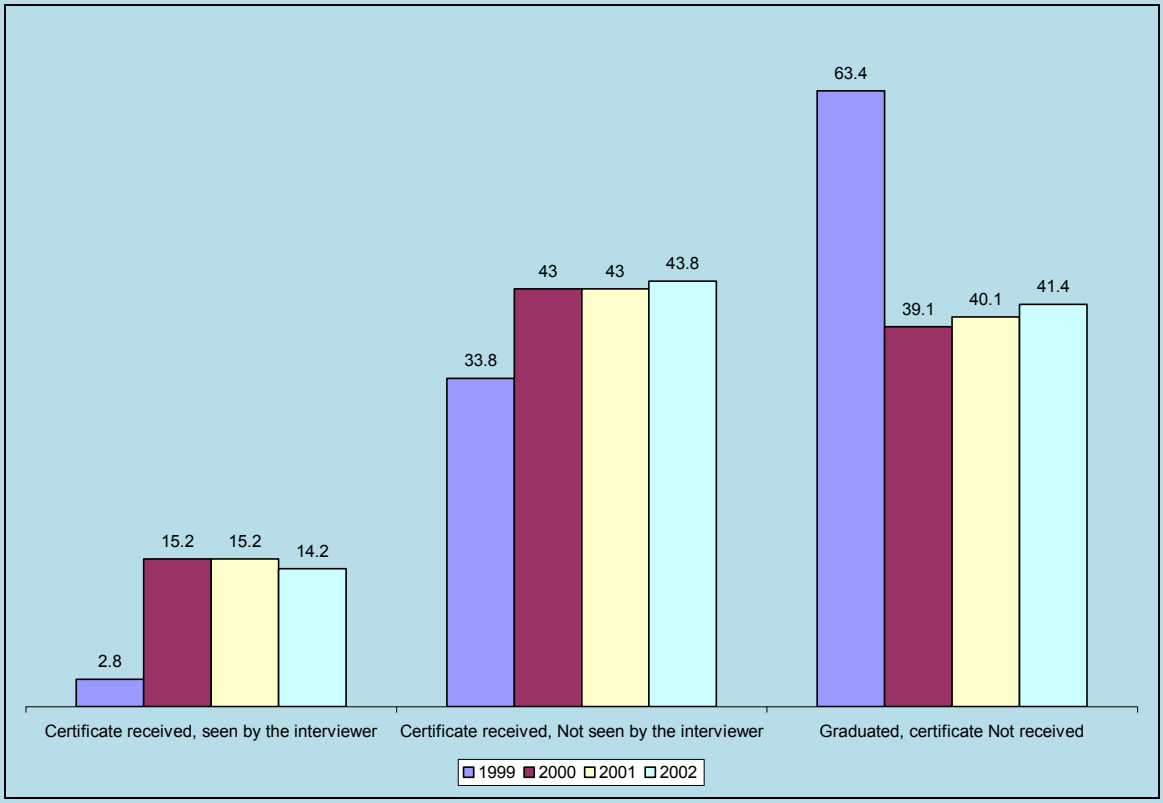
Annex 3. Selected tables and figures

Annex 3. Age and sex distribution of de-jure household members by type of family, SNNPR, December 2010

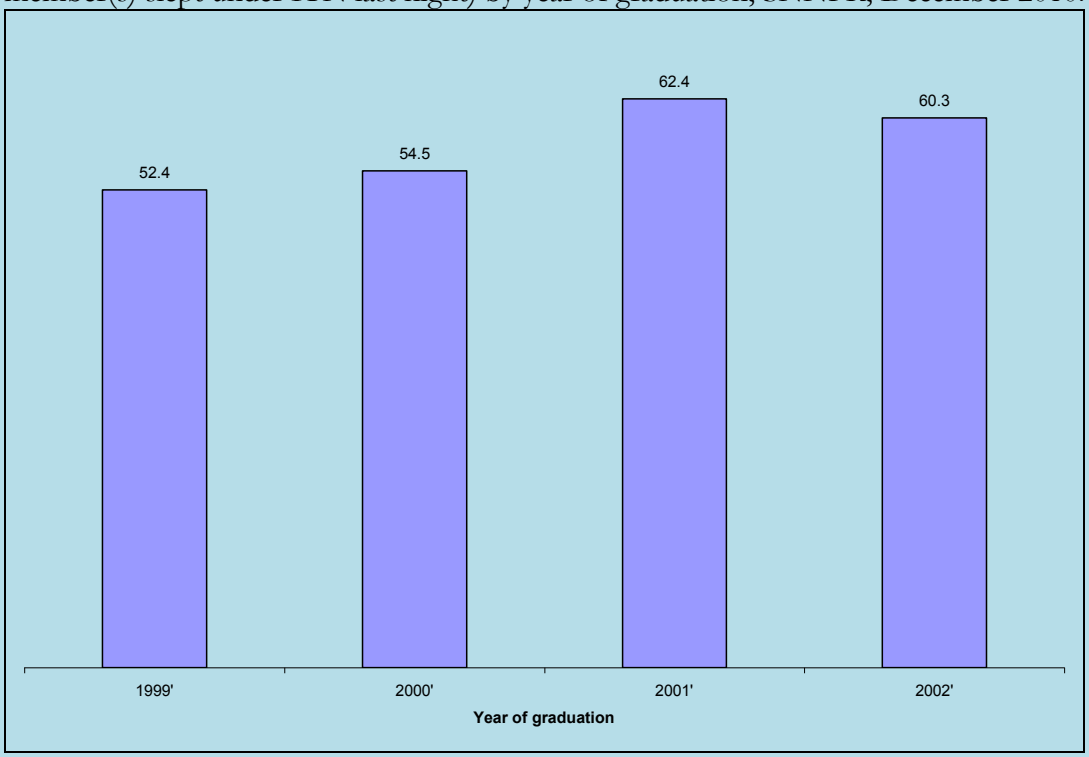
	Model family N=4212	Non-model family N=3531
Family size : mean (95 % CI)	6.7 (6.7-6.8)**	5.8 (5.7-5.9)
Families with women 15-49 years	23.2	22.6
Families with under 5 children	10.9	12.9
Sex composition of family members		
Male	49.5	47.4
Female	50.5	52.6
Age-sex composition of family members		
Male		
0-1	3.8	3.9
2-4	7.1	9.0
5-9	17.6	14.4
10-14	14.7	13.6
15-19	11.6	10.7
20-24	9.1	9.0
25-34	12.4	16.3
35-49	13.3	12.1
50-64	7.7	5.8
65+	2.7	5.3
Female		
0-1	3.9	4.3
2-4	7.2	8.5
5-9	17.7	12.0
10-14	14.0	11.5
15-19	12.2	7.8
20-24	8.3	11.9
25-34	16.1	20.7
35-49	10.4	6.8
50-64	7.8	8.6
65+	2.2	7.9

***p<0.001*

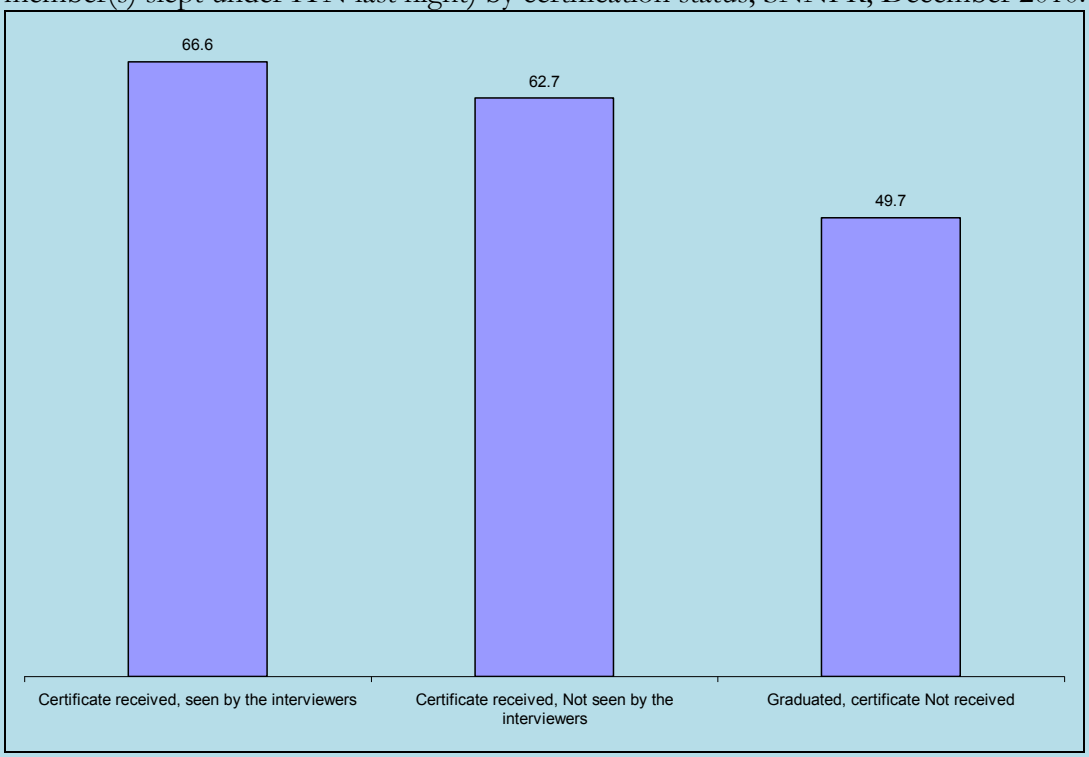
Annex 4 Percent distribution of model families (n=700) by certification status and year of graduation, SNNPR, December 2010.



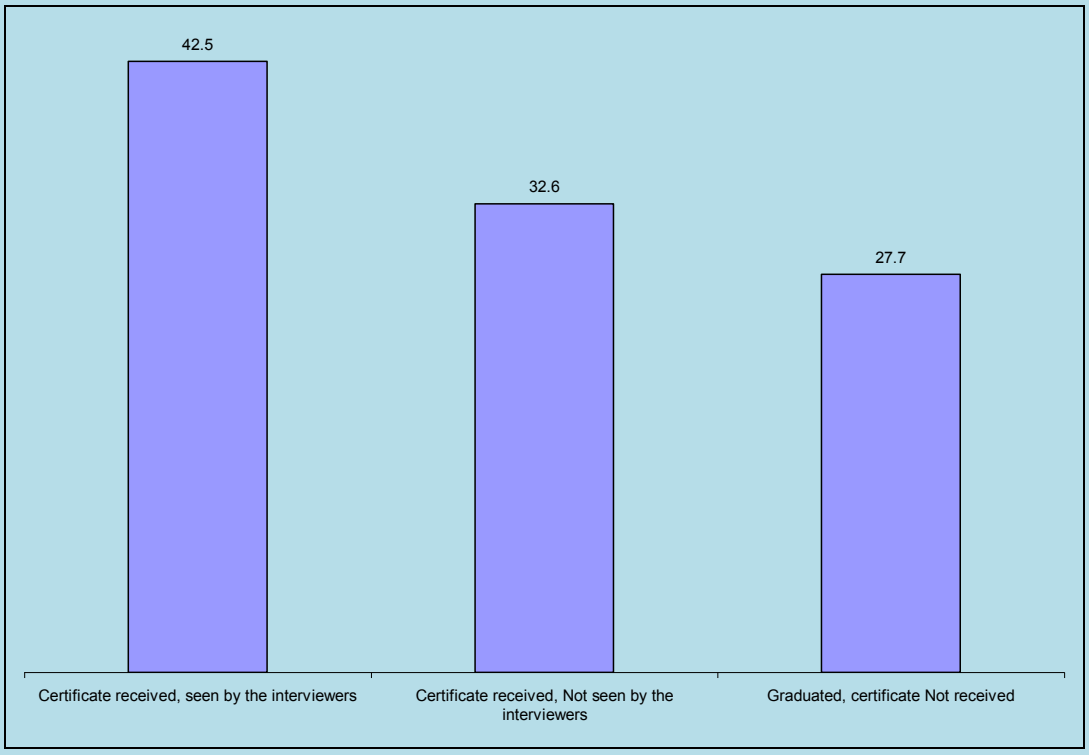
Annex 5. Percent distribution of model families (n=700) according to ITN use (family member(s) slept under ITN last night) by year of graduation, SNNPR, December 2010.



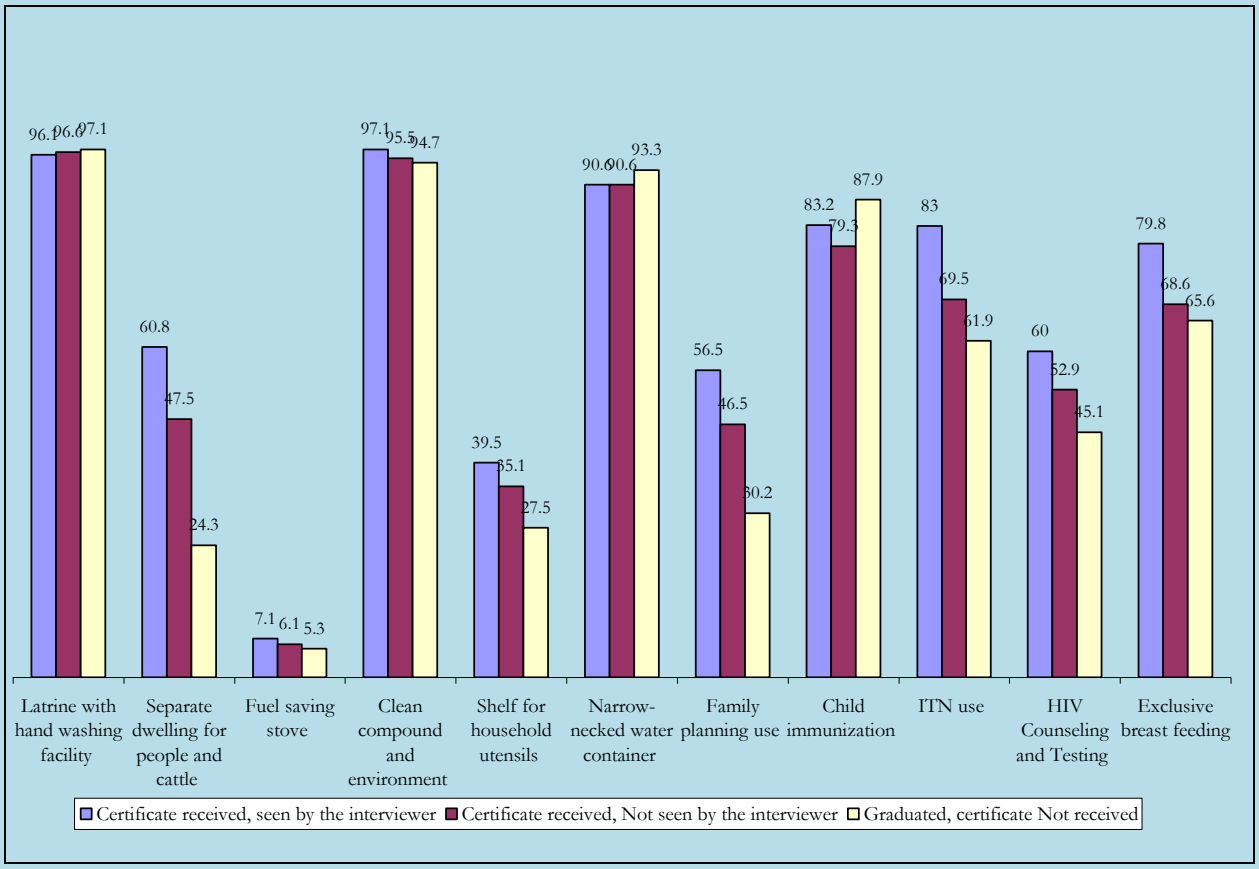
Annex 6. Percent distribution of model families (n=700) according to ITN use (family member(s) slept under ITN last night) by certification status, SNNPR, December 2010.



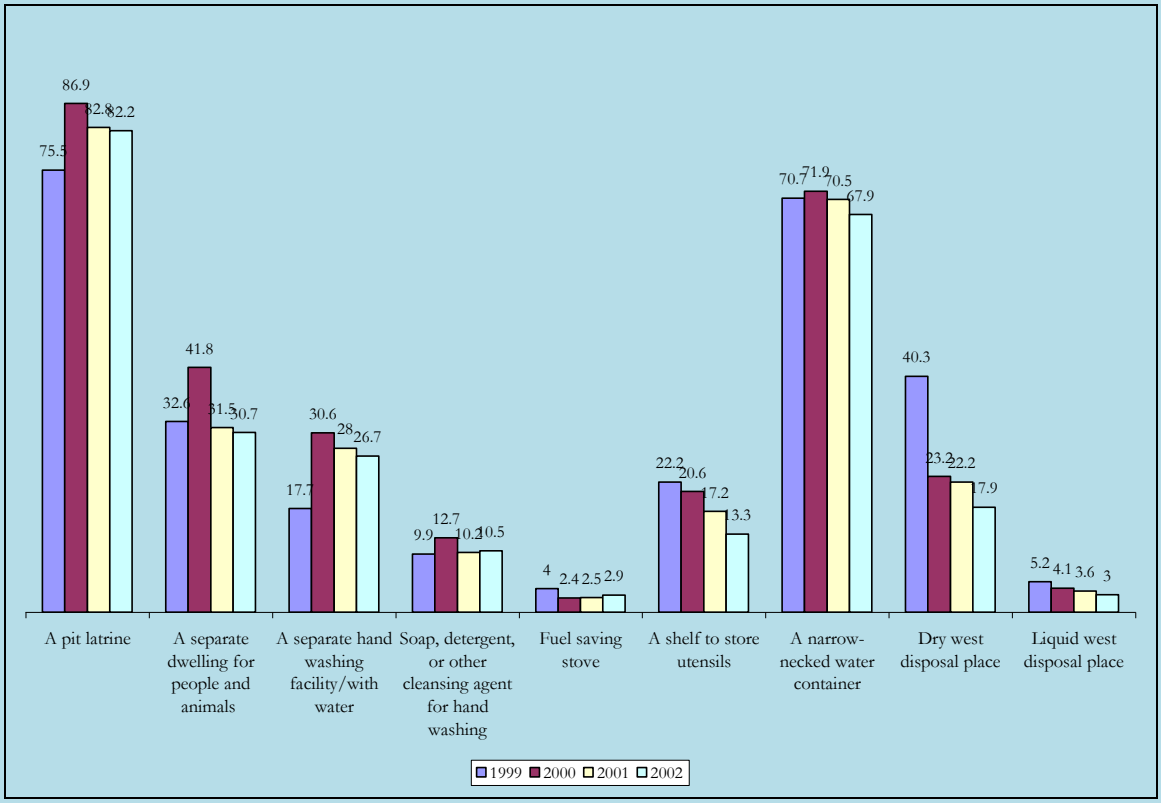
Annex 7 Among married women age 15-49 years in model families (n=459), the proportion that were using family planning according to certification status, SNNPR, December 2010.



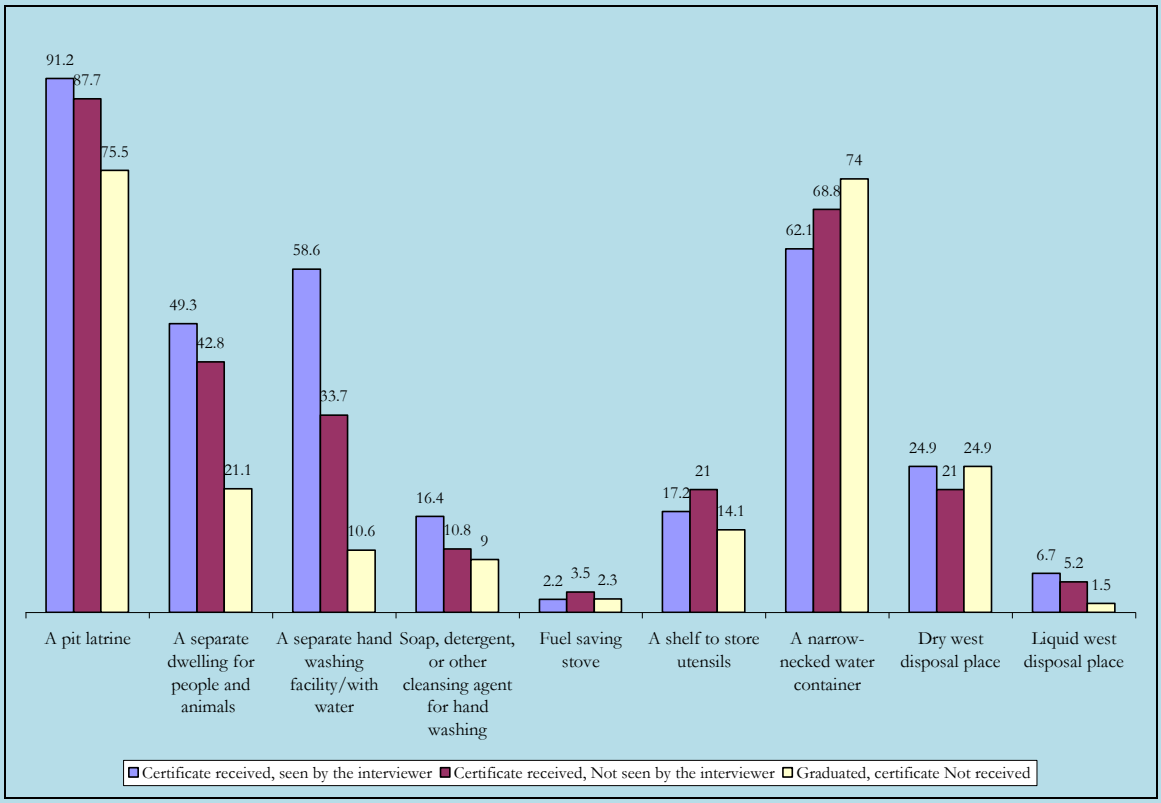
Annex 8. Percent distribution of model families (n=700) by types of activities accomplished at the time of graduation (as reported by families); according to certification status, SNNPR, December 2010.



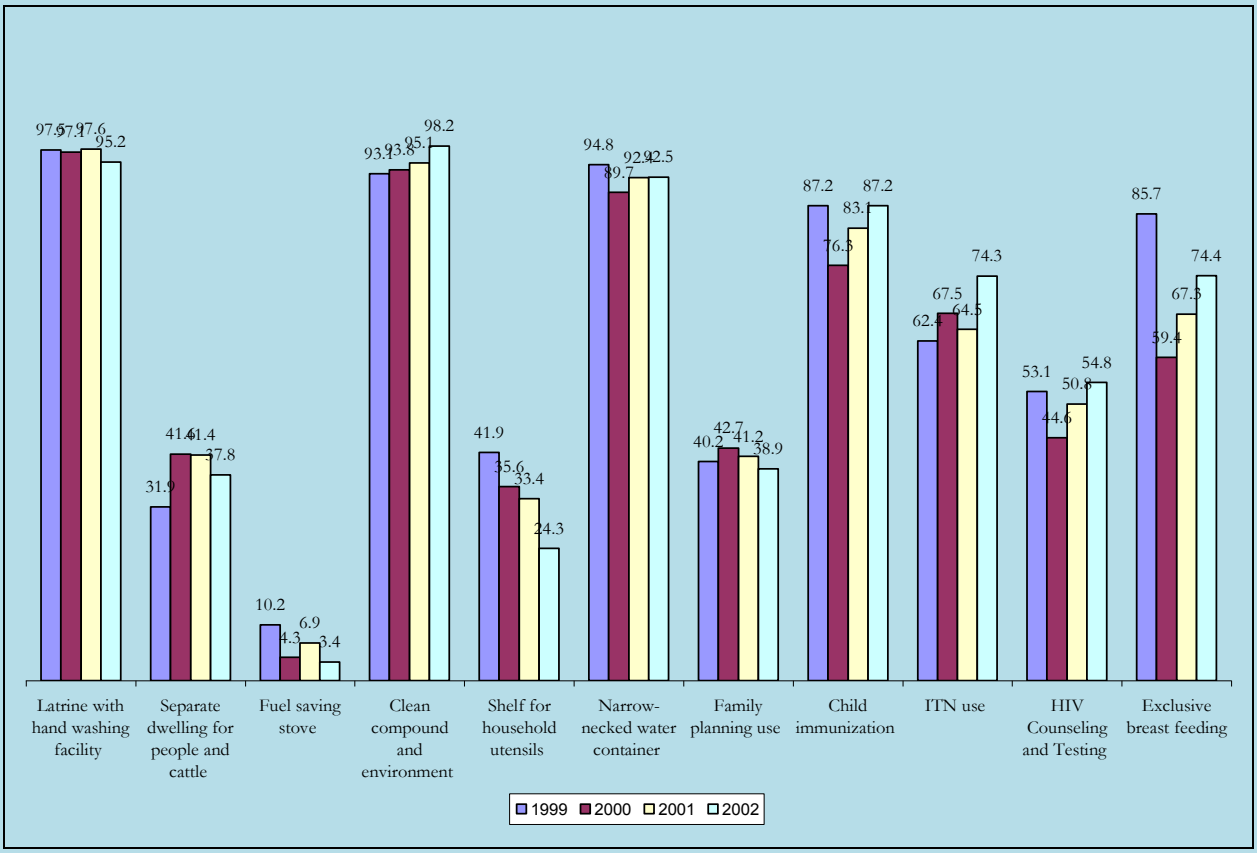
Annex 9. Percent distribution of model families (n=700) by types of activities accomplished at the time of interview (as observed by the interviewers) by year of graduation, SNNPR, December 2010.



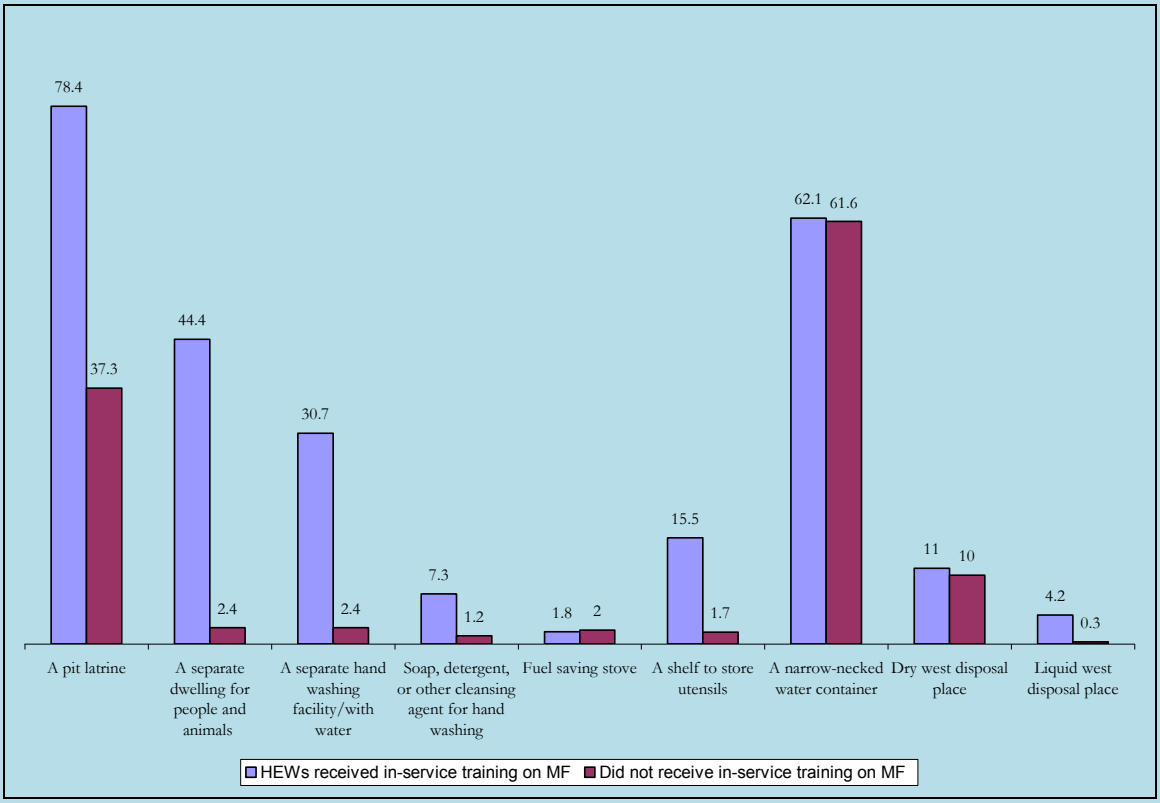
Annex 10. Percent distribution of model families (n=700) by types of activities accomplished at the time of interview (observation) by certification status, SNNPR, December 2010.



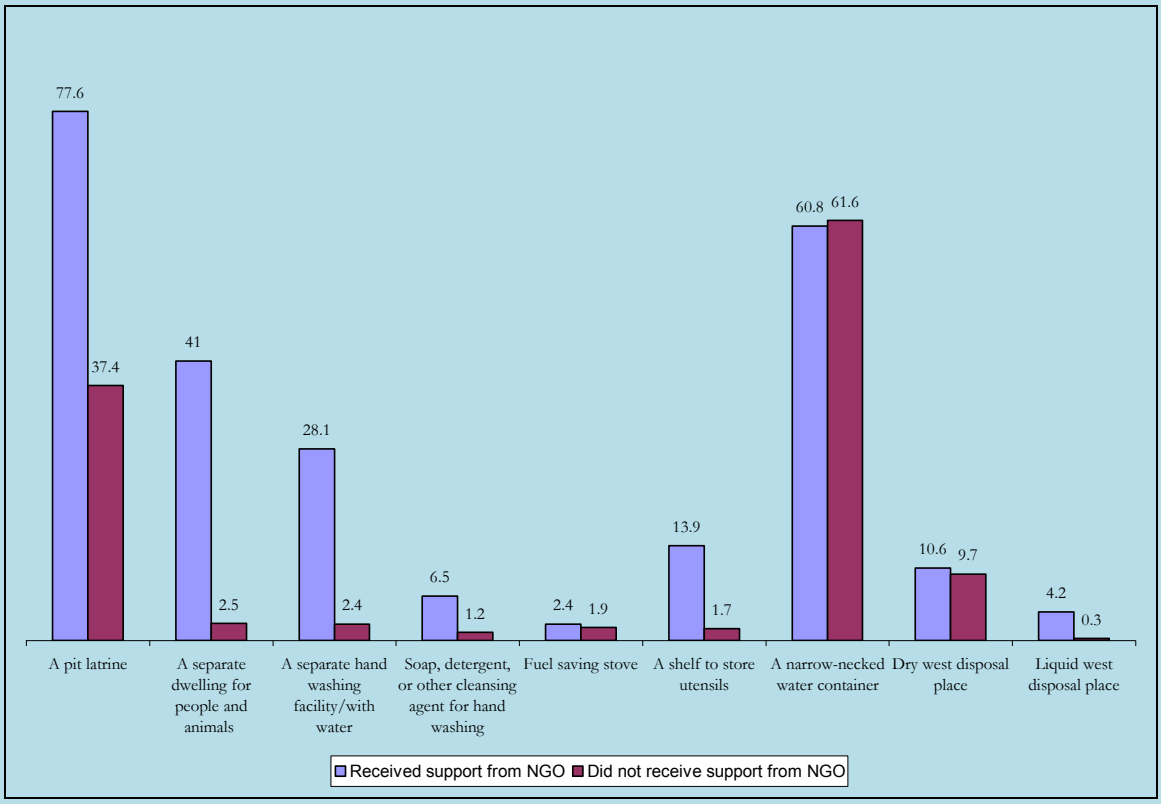
Annex 11. Percent distribution of model families (n=700) by types of activities accomplished at the time of graduation (as reported by families); according to year of graduation, SNNPR, December 2010.


97.6
95.2
31.9
41.4
41.4
37.8
10.2
4.3
6.9
3.4
93.8
95.1
98.2
41.9
35.6
33.4
24.3
94.8
89.7
92.4
92.5
40.2
42.7
41.2
38.9
87.2
76.8
83.1
87.2
62.4
67.5
64.5
74.3
53.1
44.6
50.8
54.8
85.7
59.4
67.5
74.4
Latrine with hand washing facility
Separate dwelling for people and cattle
Fuel saving stove
Clean compound and environment
Shelf for household utensils
Narrow-necked water container
Family planning use
Child immunization
ITN use
HIV Counseling and Testing
Exclusive breast feeding
1999
2000
2001
2002

Annex 12. Selected activities accomplished by model families (at the time of interview) according to whether the HEWs received in-service training on model families, SNNPR, December 2010



Annex 13. Selected activities accomplished by model families (at the time of interview) according to whether the HEWs received support on model families related activities from NGOs, SNNPR, December 2010


77.6
37.4
41
2.5
28.1
2.4
6.5
1.2
2.4
1.9
13.9
1.7
60.8
61.6
10.6
9.7
4.2
0.3
A pit latrine
A separate dwelling for people and animals
A separate hand washing facility/with water
Soap, detergent, or other cleansing agent for hand washing
Fuel saving stove
A shelf to store utensils
A narrow-necked water container
Dry west disposal place
Liquid west disposal place
Received support from NGO
Did not receive support from NGO