

# Comparison Between Economic Changes and Satisfaction on Social Services of Resettlers under Resettlement Program in Amhara Region, Ethiopia

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## ABSTRACT

The objectives of this research were to: 1) study the demographic characteristics of resettlers, 2) compare the economic changes of resettlers before and after the resettlement program, and 3) compare the level of satisfaction of resettlers on the accessibility of social services before and after the resettlement program. The study was conducted in six resettlement kebeles (villages) of Metema and Quara woredas (Districts) of Amhara region, Ethiopia. Totally 337 resettlers were sampled from a population of 2,696 people. Data were collected by using interview schedule and were analyzed by using frequency, percentages and arithmetic mean. Paired sample t-test was employed to test hypotheses at the .05 significant level. The findings revealed that total annual household income of the resettlers in both of the woredas were doubled after the resettlement. Above 50 percent of resettlers in both of the woredas had earned an annual total income of above 7,000 Birr after resettlement, whereas before resettlement this figure was below 16 percent in Metema and 8 in Quara. The study also indicated that the total level of satisfaction of sampled resettlers towards the accessibility of twelve social services after resettlement were at moderate level in Metema and low level in Quara. Hypotheses testing using paired sample t-test revealed that average annual on-farm and total income of resettlers after resettlement were significantly different from before resettlement. Similarly, total level of satisfaction of resettlers towards accessibility of social services after resettlement was significantly different than before. Despite several positive outcomes, there were also problems that need to be addressed. Absence of sufficient and clean water, all weather road and communication facilities were among others to be mentioned. Hence, government intervention is indispensable to solve these problems.

**Keywords:** resettlement, income, social service, Metema, Quara

## บทคัดย่อ

วัตถุประสงค์ของงานวิจัยนี้เพื่อ 1) ศึกษาปัจจัยพื้นฐานของผู้ตั้งถิ่นฐานใหม่ 2) เปรียบเทียบการ

เปลี่ยนแปลงทางเศรษฐกิจก่อนและหลังโครงการนิคมของผู้ตั้งถิ่นฐานใหม่ (โครงการ) และ 3) เปรียบเทียบระดับความพึงพอใจในการเข้าถึงบริการทางสังคมก่อนและหลังโครงการ ดำเนินการวิจัยในหมู่บ้าน

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6 แห่งที่อำเภอเมตตามา (Metema) และกัวอรา (Quara) เขตการปกครองอัม哈รา (Amhara) ประเทศเอธิโอเปีย ประชากรคือ ผู้ตั้งถิ่นฐานใหม่จำนวน 2,696 ราย ขนาดตัวอย่างจำนวน 337 ราย ใช้แบบสัมภาษณ์เพื่อเก็บรวบรวมข้อมูล การวิเคราะห์ข้อมูลใช้ความถี่ ร้อยละ ค่าเฉลี่ย และใช้ paired-samples t-test ทดสอบสมมติฐานที่ระดับความมั่นยำสำคัญ .05

ผลการศึกษาพบว่ารายได้ครัวเรือนต่อปีของผู้ตั้งถิ่นฐานใหม่ทั้งสองอำเภอสูงเป็น 2 เท่ากายหลังเข้าร่วมโครงการ มากกว่าร้อยละ 50 ของผู้ตั้งถิ่นฐานใหม่ทั้ง 2 อำเภอรายได้ต่อปีสูงกว่า 7,000 เบอร์ (Birr) กายหลังเข้าร่วมโครงการ ในขณะที่ก่อนโครงการตัวเลขนี้ต่ำกว่าร้อยละ 16 ที่เมตตามาและต่ำกว่าร้อยละ 8 ที่กัวอรา ผลการศึกษาระบุว่าระดับความพึงพอใจรวมของผู้ตั้งถิ่นฐานใหม่ต่อการเข้าถึงบริการสังคม 12 ด้านหลังเข้าร่วมโครงการอยู่ในระดับปานกลางที่เมตตามา และอยู่ในระดับต่ำที่กัวอรา การทดสอบสมมติฐานใช้ paired-samples t-test พบว่ารายได้ภาคเกษตรเฉลี่ยต่อปี และรายได้ทั้งหมดของผู้ตั้งถิ่นฐานใหม่หลังโครงการแตกต่างจากก่อนโครงการซึ่งคล้ายคลึงกับระดับความพึงพอใจรวมของผู้ตั้งถิ่นฐานใหม่ต่อการเข้าถึงบริการสังคมหลังโครงการแตกต่างจากก่อนโครงการอย่างมีนัยสำคัญ แม้จะพบผลลัพธ์ทางด้านบวก แต่พบปัญหาความขาดแคลนน้ำคืนที่สะอาด ถนนที่สามารถใช้ได้ทุกสภาพอากาศ และความสะอาดในการติดต่อสื่อสาร ดังนั้น จึงเสนอแนะให้รัฐบาลเข้ามายกแก้ไขปัญหาเหล่านี้

**คำสำคัญ:** การตั้งถิ่นฐานใหม่ รายได้ บริการสังคม เมตตามา กัวอรา

## INTRODUCTION

Ethiopia is the second most populous country in Africa with a population of 77.1 million (CSA, 2008) and its economy depends heavily on agriculture which is often affected by drought. While agriculture employs more than 85 percent of the total population,

its' lower contribution to GDP (less than 50%) reflects the low productivity of the sector. Over the past few decades agricultural productivity growth in Ethiopia covered around 2 percent per annum. The major factors behind the low performance of agriculture sector in Ethiopia, among other things, are poor and backward technology, limited use of modern inputs, lack of transportation, and storage facilities, inadequate credit facilities, drought, environmental degradation and biased agricultural policies (Assefa, 1995).

The Federal government of Ethiopia (GOE) currently follows Plan for Accelerated and Sustainable Development to End Poverty (PASDEP) which is a broad outline for reducing poverty that is grounded in the development strategy laid out in the National Development program. The government and the Ministry of Agriculture and Rural Development are currently implementing a resettlement program aimed at addressing the problem of drought and famine through improved access to land and availing institutional support. The program is one of the various planned resettlement programs practiced by the previous successive regimes of the Imperial and the military government which turned out to be disastrous failures. Taking into consideration of the past failure stories of resettlement, the present government has implemented a voluntary resettlement program since 2003.

However, the economic effects of the ongoing resettlement program on the resettlers have been little examined and were not well studied. Moreover, resettlers' level satisfaction on the accessibility of the social services after the program was not fully addressed, even though the social services have significant contribution in the process of improving the general well-being and food security status of the resettlers. A number of social services/infrastructures have been established in the resettlement areas to improve resettler's access to various basic requirements. In most parts of resettlement areas basic infrastructures were established before resettlement process began, but in some areas the social services were established after resettlers

reached the area and/or not yet established. It was also common to see that the already established social services were ill-equipped with skilled manpower and other facilities. Thus, the acute lack of these social services in the resettlement areas and the governments' failure to follow-through on its assurance of an adequate level of social services may result in dire living conditions, and even loss of human life. Therefore, this study addresses three major research questions. First, what economic changes are there in the households as a result of the resettlement program in Amhara region? Second, what is the level of satisfaction of the resettlers on the accessibility of the social services? From these questions follows a third one related to the intervention strategies/recommendations to ameliorate the implications of resettlement on the resettlers. The outcome of this study will provide a clue to the local government to envisage appropriate policy measures on the improvement of the resettlement scheme, and finally meet the goal of the program, avoiding impoverishment and restoring livelihoods in the rural areas of Amhara region. The objectives of the research were, therefore, to: 1) study the demographic characteristics of resettlers, 2) compare the economic changes of the resettlers before and after the resettlement program, and 3) compare the level of satisfaction of the resettlers on the accessibility of the social services before and after the resettlement program.

## LITERATURE REVIEW

People have moved into and out of resettlement sites either by their own free will or because of exogenous factors. The physical and social distances were short or long depending mainly on the availability of local resources, including fertile soils, water supply points, crop and grazing land, fire wood, marketing, fishing places, building materials and employment opportunities (Mengistu, 2005).

Moran (1989) argues that a number of governments in developing countries are still introducing resettlement schemes. One reason for

this is that resettlement schemes are relatively easier to launch than, for example, agricultural reform program, introduction of new agricultural technologies, and the development of rural towns with conservation of natural resources. On the other hand, most countries consider resettlement schemes as a strategy for alleviating poverty and environmental degradation, diffusion of technology, and minimizing regional conflicts.

Worldwide experiences show that, however difficult resettlement problems are, these problems are not intractable if identified and responsibly addressed. Treating resettlement as a mechanism only to get people out of the way of a project, and at low cost, has proved to be the cause of untold human misery (Cernea, 1997). Frederic (2006), on his study "Assessment of past resettlement activities and action plan" in Uganda indicates that agricultural land, land titles, access to water supply, electricity, road, health, and education and household incomes are the main issues to be considered in resettlement programs.

In the Ethiopian context, to cope with the problems of land degradation, governments have carried out resettlement programs with different objectives to resettle people from the agriculturally poor highlands to more fertile lowlands. During the country's third five year plan (1968-72) of the Imperial regime, state sponsored resettlement program was initiated with the objective of balancing the carrying capacity of the land in the northern part of the country with the population, and generally modernizing agriculture. But due to the unwillingness of influential people around the government it was not possible to conduct a planned settlement with financial assistance of development banks (Cliffe, 2004). Since sufficient budget was not allocated in the majority of resettlement programs, endemic animal and human diseases could not be controlled, proper attention was not given to selecting settlers nor to the provision of extension services. Hence, the resettlement programs were not successful (Cliffe, 2004).

In the period 1984-86, the Derge (military regime) resettled some 600,000 people mostly in the lowlands of western Ethiopia. In this same period, some 33,000 settlers lost their lives due to disease, hunger and exhaustion and thousands of the families were broken up. It is estimated that close to half a Billion birr was spent on emergency resettlement, but the cost of damage caused to the environment, of the loss of livestock and other property, or of the distress and suffering caused to numerous people and communities will never be known (Rahmato, 2003).

The large scale resettlement programs under this regime were not in general voluntary. The program was driven from the top as a political imperative with implicit compulsion. In some of the resettlement areas particularly in southwest Ethiopia, indigenous communities were instructed to abandon all their claims to use of natural forest resource as these changed hands to the resettlers. As a whole, the military regime's resettlement program was a tragedy for the vulnerable poor Ethiopian farmers.

The present government has launched a planned resettlement program to tackle the chronic food insecurity problem in the country. The main objective of the resettlement program is to enable up to 440,000 chronically food insecure households (it is nearly 2.2 million people) attain food security through improved access to land (MOARD, 2003).

The resettlement will alleviate the problem of shortage of land for the remaining people and thereby improve the prospect for ensuring food security. Since, after few years, the resettlers may help their relatives in their former villages, this will additionally contribute to the possibility of achieving food security in the drought areas. Therefore, the resettlement program is a key solution to rapidly alleviate the problem of food insecurity. If it is done in coordination with the integrated development of settlement areas, it may help to create growth center which will have substantial impact on overall development of our country. Therefore, it is a fundamental development work that requires due attention (MOI, 2001).

## RESEARCH METHODOLOGY

### Data collection and analysis

Quantitative data collection method had been utilized to gather necessary information, whereby structured household survey questionnaire was the main source of primary information for this study. The household survey was focused on the basic demographic characteristics, social and economic factors of the resettlers. In this study, Amhara region was selected because of its remarkable number of resettlers in the country, while two woredas and six kebeles (three from each woreda) were selected purposively for their potential number of resettlers with three harvests for comparison purpose. At the same time, they have enough land for future resettlement whereby the output of this study could be used as an input for future interventions. Out of the total population of the six kebeles, 2,696 only 337 (168 from Metema and 169 from Quara) were determined as sample resettlers on the basis of Jaegers' (1997) formula, allowing 5 percent error margin. Each sample respondent was selected using simple random sampling techniques.

The interview questionnaire was pre-tested with 40 farmers before the study and minor changes were made in interview schedules. Totally 20 enumerators were hired to collect the data and they were provided a two days intensive training by the first author. Data were collected during October and December 2009 by going to each sample households' homestead. Data were analyzed by using frequency, percentages and arithmetic means. Paired sample t-test was employed to test the hypotheses at the .05 significant level.

In this study, economic changes of resettlers referred to the size of farmland holding, number of oxen, total livestock owned by the household, income from on-farm and off-farm activities before and after the resettlement program. Similarly, levels of satisfaction towards the accessibility of the social services were referred to the availability, proximity and service giving capacity of twelve social institutions/

infrastructures, namely education, health, electricity, grinding mills, clean water, all weather road, market center, credit facility, veterinary service, telephone service, postal service and permanent toilet before and after the resettlement program.

## RESULTS AND DISCUSSION

### General background of the sampled resettlers

The overall size of the respondents in Metema woreda was 168 of which 83.3 and 16.7 percent constituted male and female, respectively. Out of the 169 respondents in Quara woreda, 79.3 percent were male and 20.7 percent female household heads. The mean age of the household was about 36.6 years in Metema and 36.8 years in Quara woredas (Table 1). It seems that farmers in both of the woredas were younger. Similarly, in both of the woredas about 50 percent of the resettlers were illiterate and 22 percent of them were able to read and write. Only 27.4 and 24.8 percent of the resettlers in Metema and Quara woredas, respectively were under primary level (1-8), whereas 0.6 percent of Metema and 2.4 percent of Quara resettlers were secondary level (Table 1).

According to the survey result the mean number of children per household was about 2.9 in metema and 3.2 in Quara. The maximum numbers of children in Metema and Quara woredas were 11 and 9, respectively. At the same time 12.5 percent of the repondents in Metema and 5.9 percent in Quara did not have child (Table 1). On the other hand, the family size of the sample resettlers ranged from 1-13 with an average family size of 4.9 in Metema and from 1-11 with an average size of 5.0 in Quara woreda, which are relatively higher than the regional average family size of 4.8 persons per household (BOARD, 2003).

The average year of farming experience was 16 years in Metema and 19 years in Quara. This showed that most of the resettlers had more experience in the agricultural sector. Furthermore, the survey results showed that 69.0 percent of the

sampled resettlers in Metema and 63.3 percent in Quara came from highland and mid-highland agro-ecological zones, while the rest came from lowland area (Table 1).

### Land and livestock holding of the sampled resettlers

According to the survey result, 21.4 and 31.4 percent of the respondents in Metema and Quara, respectively did not have farmland before the resettlement program, while all of the resettlers had owned land after the program. Out of the total respondents 92.3 percent in metema and 87 percent in Quara had a farmland ranging from 1.01-2.00 ha after the resettlement program, whereas these figures before the resettlement program were 20.2 and 26.0 percent in Metema and Quara, respectively (Table 2). The average land holding of the respondents were 1.05 ha and 2.07 ha in Metema and 0.96 ha and 1.87 ha in Quara before and after the resettlement program, respectively (Table 2). Accordingly, the size of farmland owned by the resettlers after the resettlement program is significantly higher than before the program at  $p<.001$  (Table 3). This finding was supported by the findings of FSDPO (2008) which indicated that 96.4 percent of the resettlers had greater than one hectare of farmland after the resettlement program. This data also indicated that sampled resettlers have a greater size of farmland when compared to the rest of farmers in the region who owned an average size of only 1.1 ha (BOARD, 2003).

Nevertheless, sampled resettlers complained that the size and fertility of their farmland was not as they expected before arrival. Depending on chances some of them had found productive land while others forced to cultivate poor and unproductive land, especially in Quara woreda water lodging was a serious threat for resettlers.

Livestock in the study area are used for different purposes such as draught power, manure, source of cash income and consumption. According to the study, 38.1 percent of sampled resettlers in

**Table 1** Demographic characteristics of respondents

Characteristics	Metema (n=168)		Quara (n=169)	
	Number	%	Number	%
<b>Gender</b>				
Male	140	83.3	134	79.3
Female	28	16.7	35	20.7
<b>Age</b>				
Below 21	3	1.8	1	0.6
21-30	63	37.5	63	37.3
31-40	50	29.8	50	29.6
41-50	38	22.6	42	24.8
51-60	10	5.9	12	7.1
Above 60	4	2.4	1	0.6
Mean		36.6		36.8
<b>Level of education</b>				
Illiterate	84	50.0	85	50.3
Literate, Read and Write only	37	22.0	38	22.5
Primary level (1-8)	46	27.4	42	24.8
Secondary level (9-12)	1	0.6	4	2.4
<b>Number of children</b>				
No child	21	12.5	10	5.9
1-2	66	39.3	63	37.3
3-4	40	23.8	54	32.0
5-6	28	16.7	34	20.1
Above 6	13	7.7	8	4.7
Mean		2.9		3.2
Maximum		11		9
<b>Family size</b>				
1	6	3.6	3	1.8
2-3	45	26.8	41	24.3
4-5	54	32.1	55	32.5
Above 5	63	37.5	70	41.4
Mean		4.9		5.0
Maximum		13		11
<b>Farming experience, years</b>				
Below 5	12	7.2	3	1.8
5-7	13	7.7	7	4.1
8-10	37	22.0	17	10.1
Above 10	106	63.1	142	84.0
Mean		16.3		19.2
<b>Agro-ecological zone of resettlers origin</b>				
Highland (2,301-3,300m)	31	18.4	26	15.4
Mid-highland (1,501-2,300m)	85	50.6	81	47.9
Lowland (500- 1,500m)	52	31.0	62	36.7

Metema and 41.4 percent in Quara did not own ox before the resettlement program, while only 10.1 and 24.3 percent in Metema and Quara, respectively did not have access to ox after the resettlement program (Table 2). The average oxen holding of sampled resettlers before the program was 0.88 in Metema and 0.75 in Quara. However, the average oxen holding after the program was 1.60 in Metema and 1.08 in Quara (Table 2). In general the difference was significant at  $p<.001$  (Table 3). Even though, there was an increase in the oxen holding of sampled resettlers still they lacked a pair of oxen to prepare their farm plot on time. This finding was in line with the findings of Tranquilli (2004) who indicated that a resettler has access to oxen only once every four

days to plough his land. To tackle the problem of oxen shortage the resettlers used different mechanisms in the study area. According to the respondents, 76.6 percent in Metema and 70.9 percent in Quara renting-in oxen to fill the gap, while 14.0 and 17.7 percent in Metema and Quara, respectively ask support from neighbors. Generally, the oxen holding of sampled resettlers were by far better than the regional average wherein 28.8 percent of households were not endowed with ox (BOARD, 2003).

The total livestock holding of sampled resettlers increased after the resettlement program. As indicated in Table 2, the average livestock holding in tropical livestock unit (TLU) before the resettlement program was 2.52 in Metema and 2.13

**Table 2** Farmland and livestock holdings of sampled households in Metema and Quara Woredas before and after the resettlement program

Land and livestock holdings	Metema (n=168)		Quara (n=169)	
	Before, n (%)*	After, n (%)	Before, n (%)	After, n (%)
Area of farmland, ha				
0	36 (21.4)	0 (0.0)	53 (31.4)	0 (0.0)
0.01-1.00	83 (49.4)	5 (3.0)	61 (36.1)	22 (13.0)
1.01-2.00	34 (20.2)	155 (92.3)	44 (26.0)	147 (87.0)
2.01-3.00	10 (6.0)	0 (0.0)	11 (6.5)	0 (0.0)
Above 3.00	5 (3.0)	8 (4.7)	0 (0.0)	0 (0.0)
Mean	1.05	2.07	0.96	1.87
Oxen holding, no				
No oxen	64 (38.1)	17 (10.1)	70 (41.4)	41 (24.3)
1	61 (36.3)	48 (28.6)	72 (42.6)	75 (44.4)
2-3	43 (25.6)	103 (61.3)	27 (16.0)	53 (31.3)
Mean	0.88	1.60	0.75	1.08
Livestock holding, TLU**				
No livestock	21 (12.5)	2 (1.2)	24 (14.2)	0 (0.0)
0.01-1.00	25 (14.9)	31 (18.4)	37 (21.9)	20 (11.8)
1.01-2.00	33 (19.6)	32 (19.1)	42 (24.8)	34 (20.1)
2.01-3.00	33 (19.6)	34 (20.2)	17 (10.1)	27 (16.0)
3.01-4.00	19 (11.3)	22 (13.1)	21 (12.4)	23 (13.7)
4.01-5.00	12 (7.2)	18 (10.7)	16 (9.5)	20 (11.8)
Above 5	25 (14.9)	29 (17.3)	12 (7.1)	45 (26.6)
Mean	2.52	2.99	2.13	3.66

\* Numbers in parentheses refer to percentage values; \*\*The conversion factors to TLU: ox and cow (1.0), heifer (0.75), calf (0.25), donkey (0.70), sheep and goat (0.13) and chicken (0.013), were adopted from Storck *et al.* (1991).

in Quara, while after the program this figure increased to 2.99 and 3.66 in Metema and Quara, respectively. Table 3 showed that the differences in both of the woredas were significant at  $p<.05$  for Metema and at  $p<.001$  for Quara. Sampled resettlers in Quara had own more livestock resources than Metema because of the availability of large and vast common grazing areas suitable for animal rearing.

### Household income of the sampled resettlers

Crops, livestock and their products and off-farm activities are the sources of income in the study areas. As indicated in Table 4, the average annual on-farm income of sampled resettlers after resettlement was 10,328.6 and 7,884.1 Birr whereas before resettlement it was found to be 3,562.9 and 3,432.3 Birr in Metema and Quara, respectively. Similarly, the average total annual income of sampled resettlers after the program was 11,154.8 Birr in Metema and 8,326.4 Birr in Quara, while these figures before the resettlement were 4,077.5 and 4,004.8 Birr in Metema and Quara woredas, respectively (Table 4). It was also observed that 56 percent of respondents in Metema and 50.9 percent in Quara have obtained a highest total annual income of greater than 7,000 Birr, whereas before resettlement only 15.5 percent in Metema and 7.2 percent in Quara were generating total annual income of greater than 7,000 Birr (Table

4). Only 23.8 percent of sampled resettlers in Metema and 30.2 percent in Quara received an off-farm income of 5,000 birr and below after the resettlement. The majority of the sampled resettlers (76.2 percent in Metema and 69.8 percent in Quara) did not have access to off-farm activities after the resettlement program (Table 4). According to sampled resettlers and focus group discussion participants, limited outside jobs, inaccessibility of distant places and limited skill learning opportunities were the reasons for not having an opportunity to off-farm employment in the area.

The analysis using mean comparisons between pair of income categories (on-farm, off-farm and total income) with reference to time period before and after the resettlement program showed that there had been a significant change (except off-farm income) in the income of sampled households (Table 5).

As indicated in Table 5, on-farm income after the resettlement were significantly different from before resettlement in both of the woredas at  $p<.001$ . On the contrary, off-farm income after the resettlement did have no difference from before resettlement in metema and Quara woredas at  $p<.05$ , but total income of the resettlers' after the resettlement were significantly different from before resettlement at  $p<.001$  in both of the woredas. Hence, the major

**Table 3** Comparison of resettlers' farmland and livestock holdings before and after the resettlement program in Metema and Quara Woredas

Type of resource	Metema (n=168)			Quara (n=169)		
	Mean	S.D	t	Mean	S.D	t
Farmland, ha	-12.25***			-12.77***		
Before	1.05	0.97		0.96	0.92	
After	2.07	0.47		1.87	0.34	
Oxen, no	-8.41***			-4.60***		
Before	0.88	0.79		0.75	0.72	
After	1.60	0.78		1.08	0.76	
Total livestock, TLU	-2.44*			-7.66***		
Before	2.52	2.11		2.13	1.94	
After	2.99	2.27		3.66	2.45	

\*significant at  $p<.05$ ; \*\*\*significant at  $p<.001$ .

**Table 4** Average annual household income of the sampled resettlers before and after the resettlement program in Metema and Quara Woredas

Income category	Metema (n=168)		Quara (n=169)	
	Before, n (%)*	After, n (%)	Before, n (%)	After, n (%)
On-farm income, Birr				
Below 1,000	24 (14.3)	0 (0.0)	17 (10.1)	4 (2.4)
1,000-3,000	69 (41.1)	31 (18.4)	74 (43.7)	11 (6.5)
3,001-5,000	34 (20.2)	22 (13.1)	48 (28.4)	35 (20.7)
5,001-7,000	17 (10.2)	30 (17.9)	20 (11.8)	41 (24.3)
7,001-9,000	12 (7.1)	27 (16.1)	5 (3.0)	26 (15.4)
Above 9,000	12 (7.1)	58 (34.5)	5 (3.0)	52 (30.7)
Mean	3,562.9	10,328.6	3,432.3	7,884.1
Off-farm income, Birr				
No income	130 (77.4)	128 (76.2)	131 (77.5)	118 (69.8)
Below 1,000	12 (7.1)	9 (5.4)	19 (11.2)	21 (12.4)
1,000-3,000	20 (11.9)	24 (14.3)	16 (9.5)	29 (17.2)
3,001-5,000	6 (3.6)	7 (4.1)	3 (1.8)	1 (0.6)
Mean	1,727.5	1,942.4	1,303.0	1,262.5
Total income, Birr**				
Below 1,000	18 (10.7)	0 (0.0)	10 (5.9)	1 (0.6)
1,000-3,000	58 (34.5)	26 (15.5)	67 (39.6)	6 (3.6)
3,001-5,000	49 (29.2)	19 (11.3)	56 (33.1)	28 (16.5)
5,001-7,000	17 (10.1)	29 (17.2)	24 (14.2)	48 (28.4)
7,001-9,000	10 (6.0)	26 (15.5)	5 (3.0)	32 (18.9)
Above 9,000	16 (9.5)	68 (40.5)	7 (4.2)	54 (32.0)
Mean	4,077.5	11,154.8	4,004.8	8,362.4

\*Numbers in parentheses refer to percentage values; \*\* 1USD equivalent to 13.45 Birr.

**Table 5** Comparison of resettlers' average household income in Birr before and after the resettlement in Metema and Quara woredas

Income category	Metema (n=168)			Quara (n=169)		
	Mean	S.D	t	Mean	S.D	t
On-farm			-15.08***			
Before	3,562.9	3,118.1		3,432.3	2,456.5	
After	10,328.6	6,733.4		7,884.1	4,858.1	
Off-farm			-1.80 (ns)			
Before	1,777.1	1,213.4		1,334.8	1,025.0	
After	2,320.6	1,140.9		1,417.4	1,032.1	
Total income			-15.68***			
Before	4,077.5	3,481.9		4,004.8	3,605.4	
After	11,154.8	6,890.9		8,362.4	4,730.2	

ns=not significant ; \*\*\*significant at  $p<0.001$ .

source of income in the study area was found to be on-farm activities and the farm production system has changed, so that production is more commercial than before. Almost all sampled resettlers were growing sesame and cotton, crops that have a great market value at national and international level. In general, this significant income difference is evident that resettlers in Metema and Quara were getting better and wealthier than before. This finding was supported by Abraham and Piguet (2004) which showed that organized resettlement can indeed be a lasting solution to Ethiopia's rural problem.

### Social services

The total level of satisfaction of resettlers towards the accessibility of social services after the resettlement in Metema and Quara woredas were at moderate and low level, respectively. Of the twelve social services rated by level of satisfaction in Metema woreda, six (education, health, grinding mills, clean water, market center, and permanent toilet) showed a very high and high, three (veterinary, credit facility, and telephone services) moderate and the rest three (postal service, all weather road, and electricity) low and very low levels of satisfaction (Table 6). By contrast in Quara woreda, only one (education) showed high, five (health, grinding mills, credit facility, market center and permanent toilet) moderate and the remaining six (clean water, all weather road, veterinary service, telephone, electricity and postal services) low and very low levels of satisfaction (Table 6).

Tranquilli (2004) also supported these findings. He revealed that transport and communication infrastructures required for the settlers have not been constructed. Communication between the settlers and their families or communities left behind was not possible for Amhara and very complicated for Welayeta. Abraham and Piguet (2004) also confirmed that there is significant infrastructure that needs to be in place at the resettlement sites, but understandably the government unilaterally will not be able to fulfill all the necessities.

Despite the shortfalls in availing the social services, there was a significant change in the level of satisfaction of the sampled resettlers' after the resettlement. The mean of total satisfaction before and after the resettlement were 2.38 and 3.21 for Metema and 2.31 and 2.50 for Quara, respectively. Both showed significant difference at  $p<.001$  (Table 6). In Metema woreda all social services except electricity and postal services showed a significant different after resettlement at  $p<.001$ , in the contrary all weather road showed a significant different before the resettlement at  $p<.01$ . In Quara woreda education, electricity, grinding mills and permanent toilet showed a significant difference at  $p<.001$ , while market center and credit facility at  $p<.01$  and clean water at  $p<.05$ . The rest like health, all weather road, veterinary, telephone and postal services did show no difference at  $p<.05$  (Table 6).

### Overall management, coordination and cost of the resettlement program

Food security and disaster prevention offices (FSDPO) at regional, zonal and woreda levels are responsible for the overall management and coordination of the resettlement. Sector offices like bureau of agriculture and rural development, health, education, water resource, rural road, environmental protection and land administration and cooperative promotion are members of the rehabilitation and development sub-committee and responsible for all activities related to their organization. In turn, the sub-committee is accountable to the main steering committee which is chaired by the regional administration office.

According to FSDPO (2009), the total budget utilized for the resettlement program in the past seven years was 607,706,002 Birr (equivalent to 45,182,602.38 USD). From this figure it could be assumed that the average expenditure per family was 7,393 Birr. Hence, the budget utilized for the resettlement program in Amhara region seems to be reasonable for state sponsored program. However, in adequate awareness creation and consultation of the

**Table 6** Comparisons of sampled resettlers' level of satisfaction towards accessibility of social services before and after the resettlement program in Metema and Quara Woredas

Type of social services	Metema (n=168)			Quara (n=169)		
	Mean	S.D.	t	Mean	S.D.	t
Education			-18.48***			-4.02***
Before	3.20	0.79		3.11	0.74	
After	4.50	0.60		3.42	0.78	
Health			-15.05***			.000 (ns)
Before	2.75	0.58		2.87	0.90	
After	3.84	0.83		2.87	0.84	
Electricity			-1.55 (ns)			3.67***
Before	1.49	0.67		1.49	0.91	
After	1.57	0.72		1.27	0.55	
Grinding mills			-14.37***			-5.47***
Before	2.80	0.72		2.85	0.85	
After	4.01	0.78		3.27	0.65	
Clean water			-15.94***			-2.07*
Before	2.47	0.99		2.24	1.13	
After	4.09	0.84		2.49	1.08	
All weather road			2.84**			-.23 (ns)
Before	2.35	1.03		2.25	1.06	
After	2.07	0.75		2.28	1.09	
Market center			-4.32***			-2.72**
Before	3.04	1.04		2.88	0.81	
After	3.45	0.99		3.08	0.68	
Credit facility			-6.52***			-3.43**
Before	2.68	0.99		2.36	0.95	
After	3.27	1.07		2.65	0.76	
Veterinary service			-6.01***			.000 (ns)
Before	2.02	0.87		2.42	0.99	
After	2.67	1.04		2.42	0.90	
Telephone service			-7.83***			1.14 (ns)
Before	2.19	0.96		1.79	1.01	
After	3.09	1.17		1.69	0.80	
Postal service			1.67 (ns)			1.28 (ns)
Before	1.73	0.77		1.65	0.81	
After	1.64	0.57		1.56	0.69	
Permanent toilet			-34.42***			-10.84***
Before	1.85	0.60		1.75	1.04	
After	4.35	0.73		2.96	1.30	
Total satisfaction			-22.08***			-3.87***
Before	2.38	0.43		2.31	0.61	
After	3.21	0.38		2.50	0.39	

ns=not significant; \*significant at  $p<.05$ ; \*\*significant at  $p<.01$ ; \*\*\*significant at  $p<.001$ .

Interpretation of mean score: 4.21-5.00=very high, 3.41-4.20=high, 2.61-3.40=moderate, 1.81-2.60=low and 1.00-1.80=very low level of satisfaction.

communities, improper settler selection in some of sending woredas and inaccessibility of some of the social services could be taken as a coordination and management gaps of the resettlement program.

## CONCLUSION AND RECOMMENDATIONS

### Conclusion

This study showed that average annual total household income of the resettlers in both of the woredas was doubled after the resettlement. Above fifty percent of the sampled resettlers in both of the woredas had earned a total income of above seven thousand Birr, while before resettlement this figure was below sixteen percent in Metema and eight in Quara.

The study also indicated that the level of satisfaction of sampled resettlers towards the accessibility of twelve social services after the resettlement was found at moderate level in Metema and low level in Quara. Hypotheses testing using paired sample t-test revealed that on-farm and total income of sampled resettlers after the resettlement were significantly higher than before resettlement, while off-farm income did not show any difference. On the other hand, total level of satisfaction of sampled resettlers towards the accessibility of social services after the resettlement was significantly higher than before resettlement.

Despite several positive outcomes, there were also problems that need to be addressed. Absence of sufficient and clean water, all weather road, veterinary service, electricity and communication facilities are among others to be mentioned.

### Recommendations

The recommendations based on the study may be summarized as follows:

1. Although annual income of resettlers had been improved, income from off-farm activities is found at a very low level and most of the family

members did not have access to it. Accordingly, it needs to upgrade the skill of resettlers by giving training in the area of petty trading, pottery, handcrafts, weaving etc. so that they can be engaged in different income generating activities.

2. The average annual income gained from on-farm activities is still found at lower level. Therefore, it is necessary to increase the production and productivity of crop and livestock through the provision of modern technologies.

3. The number of oxen owned by resettlers was below one pair. This had worsened the timely preparation of farmland at the beginning of the rainy season. Hence, it is advisable to arrange oxen and/or tractor renting system through farmers' cooperatives or provide resettlers credit to buy oxen according to their preference.

4. Access to clean water, all weather road, veterinary service, electricity and communication facilities at the resettlement areas was very difficult. So, the regional government should give due attention and priority to strengthen these infrastructures.

5. The family size of resettlers was slightly above the regional average. As a result, the creation of big families in the new settlements will bring another natural resource degradation and as a result drought and famine. So, it needs to strengthen the already started health extension service at the settlement areas and give special attention to these places to raise awareness of farmers towards family planning.

6. The vast majority of respondents (above 63%) have a traditional farming experience of more than ten years, however, in both of the woredas about 50% of them were illiterate which makes dissemination of agricultural technologies difficult. Moreover, it is a big barrier for natural resource conservation as the knowledge and level of awareness towards environmental degradation is very limited. Therefore, it needs a special formal and informal educational program to upgrade the level of resettlers in a distinctive period of time.

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