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URBAN BUILT-UP AREA EXPANSION AND ITS IMPACTS ON THE LIVELIHOODS OF FARM HOUSE HOLDS IN PERI-URBAN AREAS OF ATSBI TOWN, TIGRAY REGION, ETHIOPIA.

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Abstract

Urbanization is an increasing of population living in cities. This causes loss of agricultural farmlands and challenged for livelihood of peri-urban areas. Built-up area expansion of Atsbi is characterized by horizontal growth. This causes social, environmental and economic impacts to peri-urban communities. Similar studies relating to this topic clearly stated impacts urban expansion but they do not display the urban expansion land cover changes. Other studies, clearly displays horizontal expansions change using geospatial technologies, but they do not assess the socio-economic impacts of the expansion. Therefore, this research filled the above gaps. This study was conducted with the main objective of 'to assess the expansion and impact of built-up area on the livelihood of farm households in the peri-urban areas Atsbi town Tigray region'. In order to address the stated objective, the researcher used both qualitative and quantitative data types. The researcher was taken 113 sample sizes through purposive sampling methods for interview. Data was collected through questionnaires, interviews, observation, and satellite images and analysed using SPSS and geospatial software's. In the study area, the built-up expansions cause decreased the average annual income production and livestock holdings. But it increases the housing rooms, job opportunities and enhancing the quality of life the peri-urban communities. The magnitude of urban built-up area expansion was increased from 72.5hac (2006) to 197.4hac 2020. Therefore, the concerned bodies should review and update the amount of compensation to be paid for the displaced farmers and should co-operate in order to create alternative sources of livelihood farmers.

Keywords: Urban built-up expansion, peripheral farming communities, displacement, compensation, built-up change.

Introduction

The history of urban evolution started with the earliest human civilization. The process of urbanizations a worldwide phenomenon recorded in the history of all urban centres and has been estimated before the beginning of the 19th century (Fransen, Kassahun, and Van Dijk, 2010 and Abishet, 2018).

According to Abdissa (2005) urban expansion to the surrounding peripheral area is derived from urban development and urban population increase. This urban expansion to the periphery is stirred up by the 'economic development projects' or 'urban clearance' or 'industrialization.

Urbanization in the world is increasing rapidly. The proportion of the world's urban population is expected to increase to about 57% by 2050 from 47% in 2000. More than 90% of future population growth will be accounted for by the large cities in the developing countries. In the developing world, Africa has experienced the highest urban growth during the last two decades at 3.5% per year and this rate of growth is expected to hold into 2050. Projections also indicate that between 2010 and 2025, some African cities will account for up to 85% of the population (ADBG, 2012).

Ethiopia's urban population share is one of the lowest in the world. According to official figures from the Ethiopian Central Statistics Agency, the urban population is projected to nearly triple from 15.2 million in 2012 to 42.3 million in 2037, growing at 3.8 percent a year (World Bank, Ethiopia Economic Update II, 2013). Atsbi town like other many towns, it is one of the rapidly urbanizing in Ethiopia. The town's built-up area expansion is characterized by horizontal growth, leaving the surrounding urban environment and livelihoods of farm households in peri-urban areas of Atsbi town communities. Projection made by Ethiopian CSA in 2013 indicates that, the number of urban populations in Atsbi town increases from 15,812 in 2014 to 18,447 in 2017. In the town population increases 5.55% per year.

Generally speaking, Atsbi town's built-up area expansion is characterized by horizontal growth, leaving the surrounding urban environment and livelihoods of farm households in peri-urban areas' communities that cause social, environmental and economic problems to the society. Therefore, the purpose of study was to assess urban built-up area expansion and its impacts on the livelihood of farm households' peri-urban areas in Atsbi town Tigray region. Similar studies by Abdissa, (2005); Shishay, (2011) and Abishet, (2018) relating the impacts of urban area expansion on the livelihood of farm households, in the peri-urban areas was clearly stated the impacts urban area expansion but they do not display the urban expansion built-up area land cover change at different year interval. Another study by Seid (2007) and Abebe (2018) was clearly assesses physical horizontal urban expansions at different time interval using GIS and RS technologies. But they do not show the socio-economic impacts of the expansion.

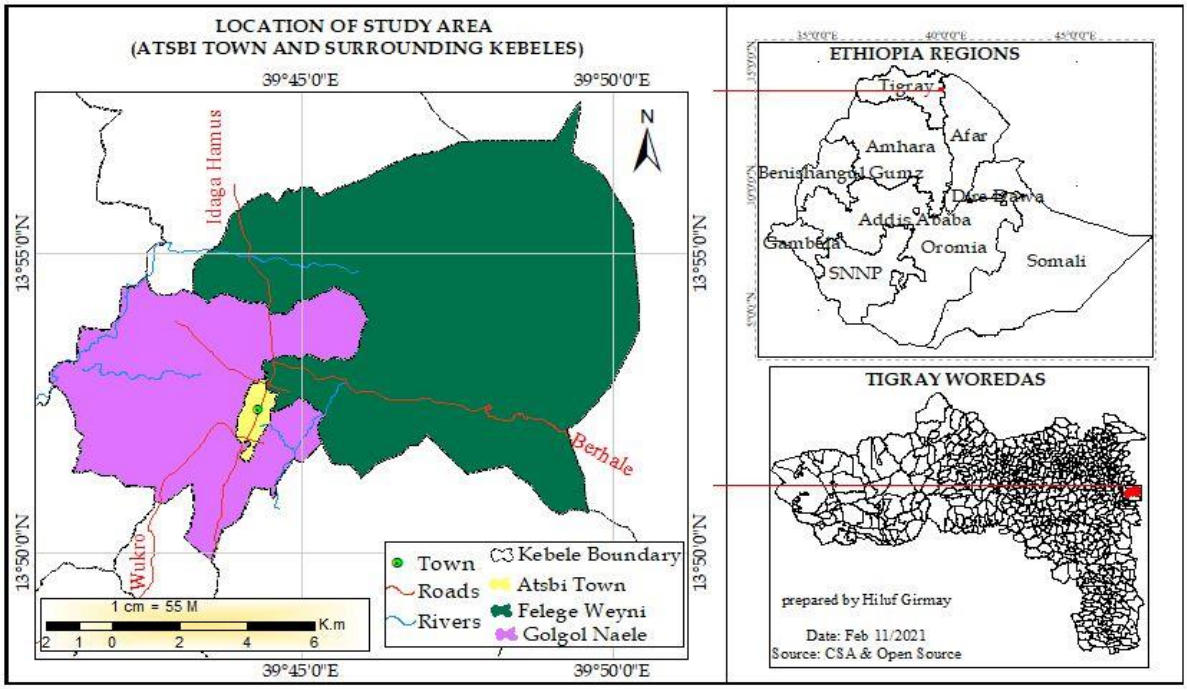
Therefore, based on the above gaps the following grand research question is established. What are the factors that contribute to urban built-up area in Atsbi Town? What are the major impacts of urban built-up expansion on the displaced farm household's livelihood in terms of financial, social, physical and economic situation? And what occurred in built-up area cover changed in the period of 2006, 2013 and 2020 in Atsbi town? The main objective of this study was to assess urban built-up area expansion and its impacts on the socio economics livelihood of the farm households in the peri-urban areas Atsbi town and to analyse the built-up area cover changes occurred in the period of 2006, 2013 and 2020 the town using geospatial techniques.

Research Methods

Description of the Study Area

Atsbi Wemberta is found in eastern zone of Tigray region located about 65 km north east of Mekelle. Atsbi (officially known as Atsbi Endasselassie) town is the administrative centre of the woreda. Geographically it located between 13°52'21.22"N, 39°44'17.74"E, the town were surrounded by Golgole Naele Kebele by South, West to North and Felegeweyni Kebele by East direction (Figure 1).

Figure 1: Location map of the study area.



Source: Prepared by the researcher

The method of research for this study was survey research design. It is because of that, it enabled to describe the intended study to urban built-up expansion impacts on the livelihood of farm households' peri-urban areas the impacts of urban built-up area expansion on the peripheral livelihood household community. In order to address the stated objectives, the researcher used both qualitative and quantitative types. Reliable data is necessary to realize the designed objectives and hence the study was based on both primary and secondary data as well as satellite images.

For realization of the study, a purposive sampling technique were employed to assure the representativeness of samples on target households that were faced with urban built-up expansion on the livelihood of farm households' peri-urban areas in Atsbi town. In this regard, the researcher was purposively selected two kebeles (Gogol Naele and Felegeweyni) from eighteen kebeles because of those kebeles were completely surrounding the town. Therefore, representative sample of these households have been calculated based on formula for sample size determination and for finite population. According to (Dirribsa and Tassew, 2015 cited in (Yimam, 2017)), the formula is given as:

$$n = \frac{Z^2.\ p.q.\ N}{e^2.\ (N-1) + Z^2.\ p.\ q}$$

Where n= required sample size=113, N= population (Affected households) =456, Z= Confidence interval at 95% which is 1.96, e=8%, P= 0.5, q= 0.5, Z=95% confidence interval under normal curve 1.95. The sample of respondent is taken from the two affected Kebele general manager's office data on the basis of the formula given above). e= acceptable error term (0.08), P and q are estimates of the proportion of population to be sampled and N= total population. The sample respondents for each Kebele which was computed as total population of each Kebele or portion/total population*total calculated sample using the above formula and summarized with the following (table 1).

Table 1: Sample size determination proportionality

Kebeles	Number of households	Evacuated households Size	Proportionality sampling
Golgole Naele	*1621*	*399*	*99*
Felegeweyni	*1265*	*57*	*14*
Total	*2886*	*456*	*113*

The collected data were analysed quantitatively using the SPSS software and the magnitude of urban built-up expansion change maps were created using different geospatial technologies like Google earth pro, satellite image downloader, ArcGIS 10.5, and ERDAS 2015 tools. The resulted built-up expansion data were presented maps, charts and reports.

Data Seta and Flow Works

The methodology to conduct this research and to process the data in this study is explained in the below flow chart (Figure 2).

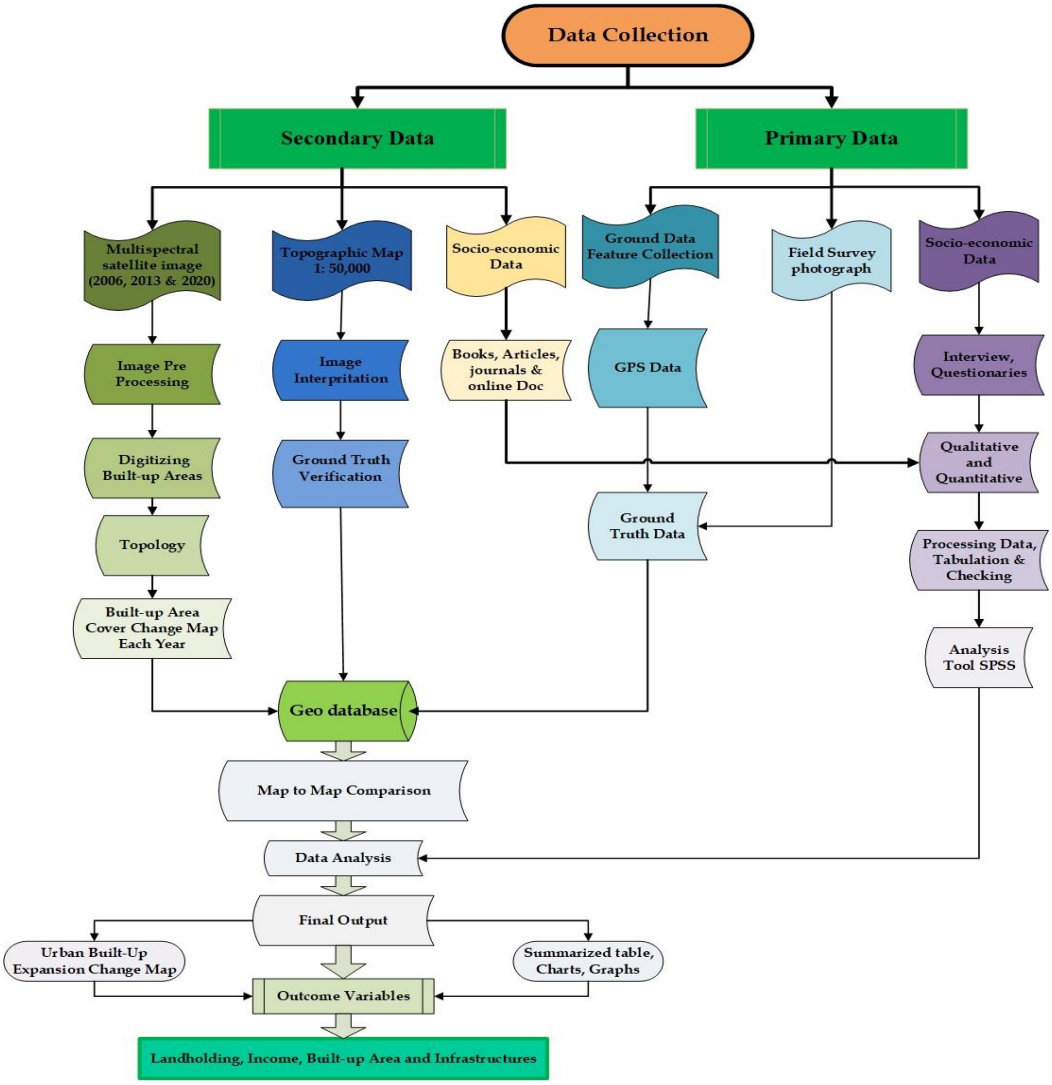


Figure 1 Methods flow chart

Result and Discussion

Respondent's Demographic Characteristics

The study was conducted on urban built-up area expansion and its impacts on the socio economics livelihood of the farm households in the peri-urban areas Atsbi town by using purposive sampling using with total of 113 respondents. Findings of the respondent's demographic variables of the respondents such as sex, age, religion, marital status, family size, education status, occupation, income level and duration on the town were presented in as follows:

Table 2: Respondent's Demographic Characteristics

Demographic Characteristics	Number	Percent (%)
1. Gender		
Male	59	52.2
Female	54	47.8
2. Age		
30 and below	15	13.3
31 to 40	18	15.9
41 to 50	26	23.0
51 to 60	21	18.6
61 and above	33	29.2
3. Religion		
Christian	111	98.2
Muslim	2	1.8
4. Marital status:		
Single	9	8.0
Married	78	69.0
Divorced	16	14.2
Widowed	10	8.8
5. Family Size:		
3 and below	40.7	40.7
4 to 6	48.7	48.7
7 and above	10.6	10.6
6. Educational Level:		
Illiterate	20	17.7
Read and write	27	23.9
Primary Education (1-8)	32	28.3
Secondary Education (9-12)	25	22.1
Tertiary Education (College Diploma and Above)	9	8.0
7. Occupation		
Daily laborer	11	9.7
Employment in factory	2	1.8
Self-employment in cottage	35	31.0
industries, such as hand crafts, etc.	14	12.
Employment in government	47	41.6
organization	4	3.5
Employment in non-government (Agrarian)		
No Job		
8. Income in birr:		
2000 and below	35	31.0
2001 to 4000	49	43.4
6001 6000	18	15.9
6001 to 8000	5	4.4
8001 and above	6	5.3

9. Duration respondents staying in the town		
less than two years	31	27.4
Two to five years	40	35.4
six to ten years	28	24.8
Above ten years	14	12.4

Assessment of Built-up Area Expansion of Atsbi Town

Atsbi is expanding since 2000 due to many teenagers migrated to gulf Arab nations then returned and starting living in the city as well as sated to living on the town. The city horizontally expanding in alarming rate in the last 10 years particularly in the last 6 years due to the government gave land freely for construction residential in group (share) for civil servants, disable groups and for all those people who have houses and the increase the lease system. In this study, an attempt has been made to compute the built-up expansion of the town from 2006 to 2020. To quantify the magnitude of urban area expansion top sheet and Satellite images of different years were used.

Figure 3: Currently high construction built-ups area of Atsbi town
Sources: Google Earth Image 2020 prepared by researcher, 2021

Figure 4. Ground truth data from field observations. **Source:** Photo by author, 2021.

Magnitude of built-up Area (2006-2020)

Only the built-up area digitized from the downloaded satellite image from Google earth of 2006 to quantify its magnitude. The digitized layer was edited to remove any errors and subjected to topology creation in order to create boundary relationships between different built-up areas followed by area calculation for each built up land (Figure 3).

The magnitude of built-up area of Atsbi town in 2006 were 72.544347 Ha which is 44.5% of the total area of the town i.e., 163 hectares. The magnitude of built-up land for 2013 was extracted from downloaded satellite image (2013) (figure 5). Built-up area of the town in 2013 was calculated as 197.381996 Ha which is 59.9% of the total area of town. To quantify the built-up area (2020) of the town from downloaded satellite image (2013) was used (figure 4.10). The built-up area of the town in 2020 was calculated as 197.381996 hectares which is 121.1% of the total area of the town.

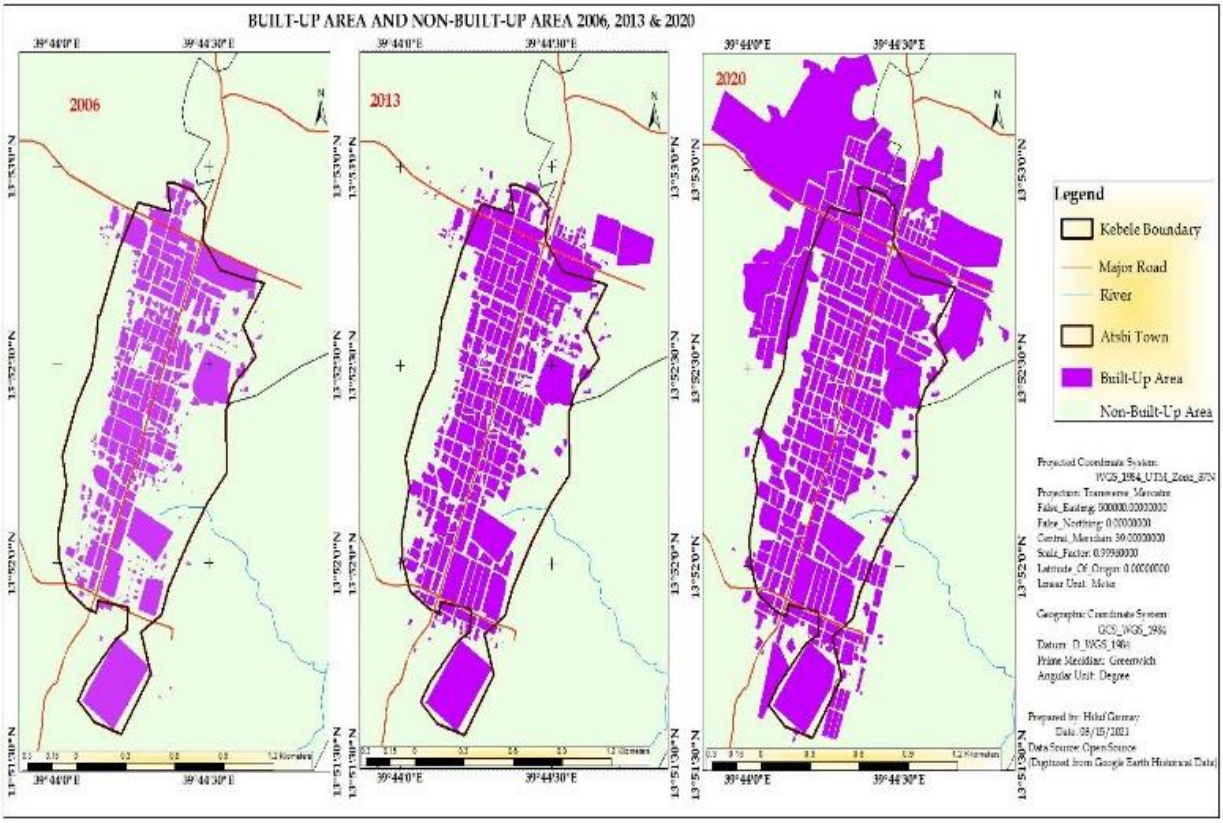


Figure 5: Built up area of Atsbi town in (2006, 2013 and 2020) **Sources:** Developed by researcher, 2021

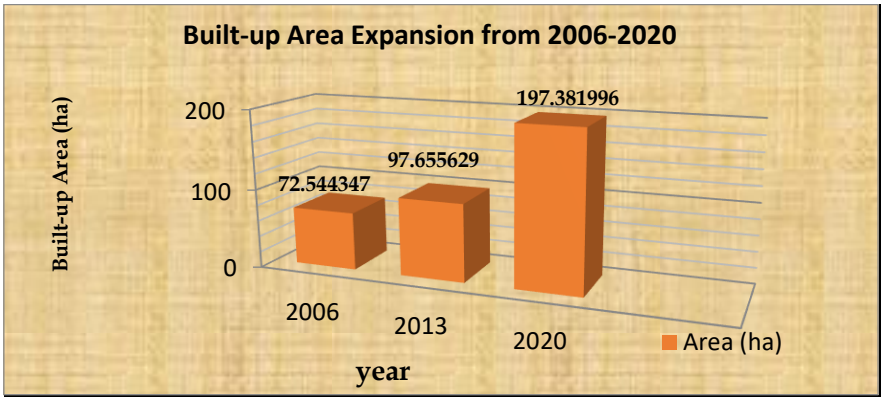


Figure 6: Built up area (2006, 2013 and 2020) **Sources:** Developed by researcher, 2021

Magnitude of built-up Area Expansion (2006-2020)

The built-up area in a span of 14 years between 2006 and 2020 were compared to find the changes (figure 4.3). The built-up area expansion of the town between 2006 and 2013 was 25.111282 hectare which is 134.62% expansion (Table 4.29). The output between 2013 and 2020 were compared to find the changes in the built-up area (figure 7). The built-up area expansion of the town between 2013 and 2020 was 99.726367 hectare which is nearly 202.128% expansion (Table 3).

Table 3: Built-up Area Expansion (2006-2020)

Year	Built-up area in (ha)	Change expansion area in (ha)	Expansion in (%)
2006	72.544347	-	-
2013	97.655629	25.111282	134.62
2020	197.381996	99.726367	202.12

Sources: Developed by researcher, 2021

In addition to the above the built-up area expansion of the town between 2006 and 2020 was 124.837649 hectare which is nearly 272.09% expansion.

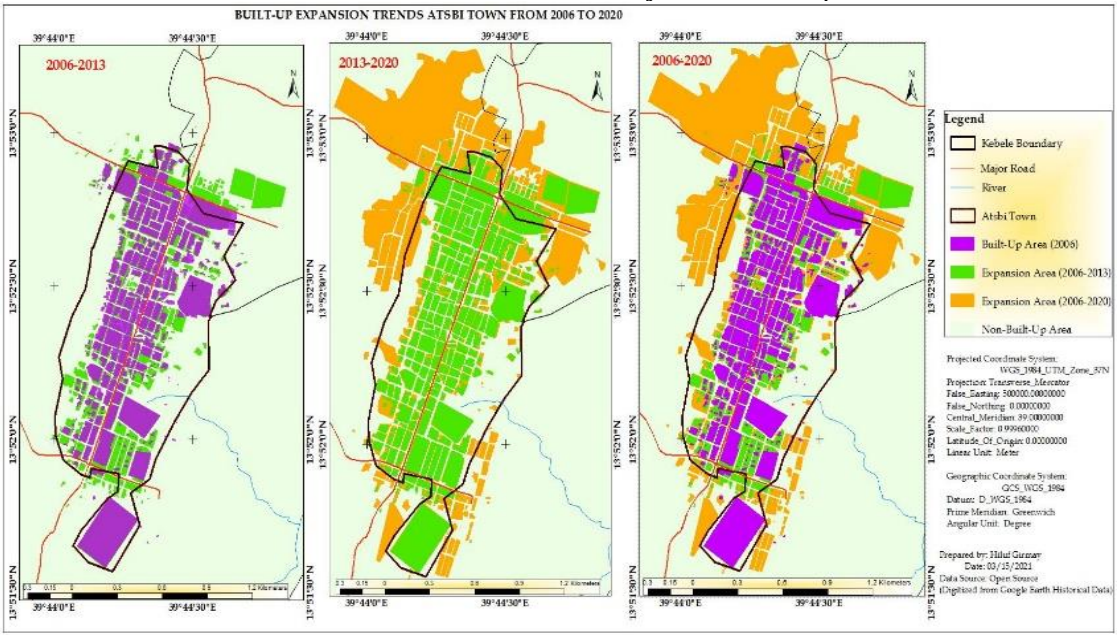


Figure 7: Built up area expansion (2006 -2020) **Sources:** Developed by researcher, 2021

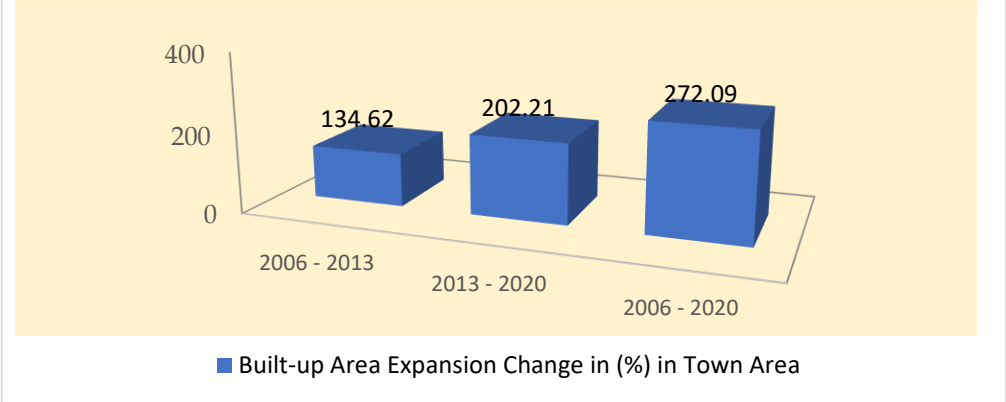


Figure 8: Built-up area expansion changes in (%) in relation to Town expansion (2006 -2020)

Estimation of Built-up Area for 2030

Based on the urban expansion of town for the last 16 years the average growth rate of the expansion has been calculated. The average growth rate of the expansion is calculated as 10.52%. According to Seid 2007, the urban expansion of the town is estimated using the below exponential formula. The urban expansion of the town is estimated for 2030 by using the exponential growth formula:

$$A_f = Ab * (1+\%/100)^{(f-b)}$$

Where: A is the Built-up area, f is the future year, b is the base year and % is the average growth rate per year.

There for, the urban expansion of the town is estimated as 536.681097 hectare in the coming 2030 it is increased by 339.299101hectare (3.392991km2) from 2020 which means 271.9% expansion. It will become 329.3% of the total area of town i.e., 163 hectares. To see the trends of the expansion from 2006- 2030 it is presented as line graph in the figure: 9 below.

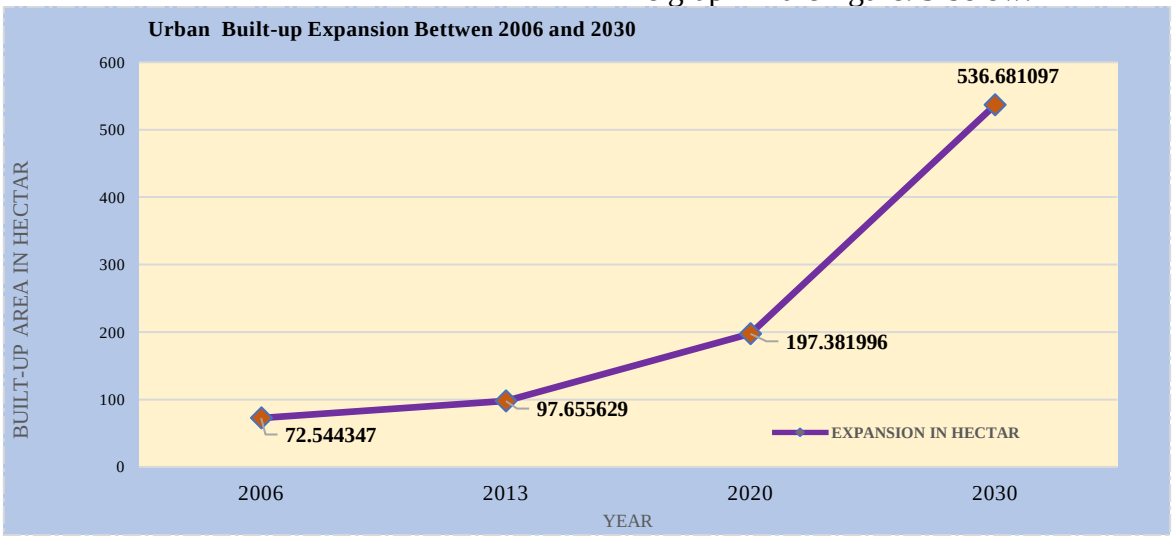


Figure 9: Urban expansion estimation for 2030 **Sources:** Developed by researcher, 2021

The above figure 4.12 shows the town were expanded and will be expanding rapidly in the coming years. As a result of raped expansion, it consumes the surrounding agricultural farm and grazing lands. This had an implication of displacing and affecting the livelihood of the peripheral households. This inference matches to the study by Dayong (2004), Abdissa (2005), Shishay (2011) and Yimam (2017) were documented negative implications of urban expansion causes led to loss of farmland, grazing lands, residential areas and displacement of the households who had been involved in farming activities.

Lived place before & after built-up expansion and Respondents Opinion about Contributing Factors for Urban Expansion

Since Atsbi town were surrounded by Golgole Naele Kebele by South, West to North and Felegeweyni Kebele, the built-up area expanded rapidly towards those kebeles. In the study area majority of the respondents 99 (87.6%) lived in Golgole Naele and the others lived in 14(12.4%) Felegeweyni before they were part of the town residents currently. In the town all most all of the respondents 112 (99.1%) had observed the urban built-up expanded towards the surrounding farm lands and 1(0.9%) were not observed whether the town built-up area expanded or not. This is because he was come from another place before one year.

Below table 4, shows the main factors for urban expansion were in-migration (rural to urban) 34.5%, demographic dynamics (high birth &low death rate) 18.6%, industrialization 1.8% and the remaining 45.1% of the respondent's opinion shows the main contributed factors were all the above listed factors like demographic dynamics (high birth &low death rate), in-migration (rural to urban), demographic dynamics (high birth &low death rate) and industrialization.

Table 4: Contributing Factors for urban Built-up Expansion

What do you think about the factors that contributed to expansion of the town?		
Contributed factors for Built-up Expansion	**Number**	**percent**
Demographic dynamics (high birth &low death rate)	21	18.6
In-migration (rural to urban)	39	34.5
Industrialization	2	1.8
All the above reasons	51	45.1
Total	113	100

Current Land Ownership of the Respondents

In the study Area majority of the respondents 101 (89.4%) have land (the average land holdings of the respondents are 0.768 hectare and with the maximum of land 3.25 hectare), while, the remaining 12 (10.6%) respondents have no land in the study area currently but they are affected positively or negatively by the urban built-up expansion.

for the households used to earn total annual income of 1 to 5quintal, 11 to 15quintal and not produced before the urban built-up area expansion due to they didn't land as well as due to thy vacated their farm land respectively after urban expansion.

This indicates that annual production/ income decreased after urban built-up expansion in the study area. The below table 4table that a number of respondents who produced above and equal to 6 quintals decreased from 44 (38.9%). But number of respondents who produce less than 5 quintals increased their number from 44(38.9%) to 71 (62.8%). This is shows that, the majority of the population produces fewer amounts of quintals after urban built-up area expansion. This shows as the farm households were ejected their farm land that cause to reduce the amount of quintal production. This corresponds to the study by (Dayong (2004), Abdissa (2005), Shishay (2011) and Yimam (2017)) as displacing farmers cause to reduce the amount of production.

The respondents who have land in the study area uses their land for different purposes. Out of their total land, uses for residential 32.7%, fruits and vegetation 15%, crop land and grazing land 12.4%, for grazing land 7.1%, for crop land 3.5 % and the remaining 18.6% is uses for all of the above purposes. Hence, the land of the farmers is serving for means of livelihood for the farmers. This implies losing the land they hold directly affect their means of living unless replaced by another means of earning. Most of respondents are claiming that their land is serving for all purposes followed by crop and fruits and vegetation.

Urban built-up Expansion Impacts on Farmer's financial Capital in 2006 to 2020

According to (table 5), from the sample households of respondents 44(38.9%), 34(30.1%), 21 (18.6%), 4 (3.5%) and 10 (8.8%) stated that these households used to earn total annual income of 1 to 5quintal, 11 to 15quintal, 6-10quintal, above 16 quintal and not produced before the urban built-up area expansion due to they didn't land respectively before urban expansion. After urban built-up area expansion, they reported that they have earned 71 (62.8%) and 12 (10.6%) and the missing 30 (26.5%)

Households Awareness and Ways of Awareness Creation on households about Built-up Expansion

Majority (87.6%) of the respondents had awareness about built-up expansion through different mechanisms. With regard that, 42(37.2%) were acquired awareness through public orientation, 24 (21.2%) through official meeting or training and the others 33(29.2%) had acquired through both the above ways. The remaining 12.4% had no awareness of urban built-up expansion. This indicated that the most respondents or about 32 (91.4%) were aware through different means of awareness.

Table 5: Annual incomes before and after built-up expansion in quintal and % in 2006-2020

Before urban expansion			After urban expansion		
Quintal	**Number**	**Percent**	**Quintal**	**Number**	**Percent**
5 and below	44	38.9	5 and below	71	62.8
6 to 10	34	30.1	6 to 10	12	10.6
11 to 15	21	18.6	11 to 15	0	0
above 16	4	3.5	above 16	0	0
Total	**103**	**91.2**	**Total**	**83**	**73.5**
Missing (have no land before)	10	8.8	Missing (did not produce)	30	26.5
Grand Total	**113**	**100.0**		**113**	**100.0**

Farmers Participation and Benefits Gaining in Decision Making and Implementation on Built-up Expansion Programs

From my respondents, 73 (64.6%) participated in urban expansion decision making process they raised different interests and opinions, i.e., 26 (23%) of the farmer respondents whose livelihood was affected agreed that they had participated in and raised their own interests, 18(15.9%) expressed own opinion, 7(6.2%) participated on creation access to benefit packages and the remaining 22(19.5) participated and got all the above benefits. The 35.4% of a farming community claimed that they had not participated in a benefit packages and compensation decision making processes.

Impacts, Amount and Type of Land use Losses due to urban Built-up Expansion

In the study area 106 (93.8%) respondents, said they lose their land due to built-up expansion, while 7(6.2%) said they did not lose their land. This indicates that majority of farmers lived surrounding the town lost their land. So, the expansion had a negative impact on livelihood of the household, because they were losing their land. Among the sample respondent farmers that lose their lands that in the study area were the average of 1.2135 hectare with minimum of 0.025 hectare and maximum of 3.5 hectare. As in table 6 indicated that most of the respondents 106(93.8%) loss of land which is the impact of urban expansion for farmers who are dependent on their land for means of earning their livelihood in one case or the other. From this, 40.7% loss their land used for agriculture, 15.9% were used to as grazing grass land, 1.8% used to for residential and the remaining 35.4% used to for all type (agricultural, residential and grass lands) purposes.

Table 6: Type of land loss due to urban expansion

Type of land use loss due to urban expansion	**Number**	**Percent**
Agricultural land	46	40.7
Residential land	2	1.8
Grazing land	18	15.9
All type of land	40	35.4
Total	**106**	**93.8**
Their land was not loss	7	6.2
Total	**113**	**100.0**

Source: Own survey, 2021

Compensation paid and households Level of Satisfaction with the Compensation Paid

Most of the respondents in the study area got compensation for the land vacated from them with 101(89.4%) of the total. Compensation paid for land ejected households was 40(35.4%) got money, 10(8.8%) got housing plots and the remaining majority 51 (45.1%) respondents were got both money and plot of

land for house built-up construction. This implies, unless required care and training given for those displaced farmers, it might be difficult to shift from the work they adopted which is farming to other income generating activity. While 12(10.6%) claims, they did not get any kind of compensation. From those 12 respondents 5 said that due to the woreda and municipality officials said the regional policy that encourages local communities to give their land for infrastructure development such as road without compensation and the other were had not land before or not lose their land.

In a relation with households' satisfaction with given compensation, these sample respondents had been asked whether they had been satisfied or not with the compensation given to them and benefits they had gained as a result of urban built-up expansion towards their vicinity. As we can read from (table 4.19) below, 54% of the households had responded as they had not satisfied with the compensation they had been given and benefits. The reason of the most of the sampled household's dissatisfaction were the compensation provided to them was not enough to sustain their livelihoods of their family. The remaining 39.8% sample respondents who took compensation were satisfied.

Training Delivered and types of Training on which the Households Practiced

The below table 7 presents that only 85(75.2%) of the respondents got required training while evicted from their land and the type of trainings they took. But 24% of the respondents claimed that no any training was given to them when government took their land for different purposes due to built-up expansion.

Table 6: Types of training on which the households participated

Type of training	**Number**	**percent**
Private business development and management	15	13.3
Financial management or saving	28	24.8
Basic entrepreneurship	2	1.8
Social adjustment skill training	2	1.8
Technical training	12	10.8
All type of training	26	23
Total	**85**	**75.2**
Training Not Taken	28	28.8
Total	**113**	**100.0**

Source: Own survey, 2021

Impacts of Urban Built-up Expansion on Livestock Production

Livestock productions that are commonly practiced by local farmers include cattle's, sheep's, goats, donkey, mule and horse etc. Farmers in the area commonly use their livestock for farming activity, for transportation, for beef production and earn income. The below table 8-10, shows the livestock production high before the urban expansion but after expansion the number was decreased. For livestock holdings, before urban expansion these households had the average cattle's 7.45, sheep's and goats 18.94 and donkey, mule and horse 2.81. But after then, currently, these households had the average cattle's 2.83, sheep's and goats 7.53 and donkey, mule and horse 1.33.

Generally, we can assume that urban built-up expansion has a negative impact on livestock holdings and the society mode of life changes to sub urbanization in the study area. Table 7, Cattle possessed, table 8 shows sheep's and goats, and table 9 depicts number of Donkey, mule and horse Possessed before and after urban expansion.

Table 8: chattels Possessed before and after urban expansion

Before Urban Built-up Expansion				**After Urban Built-up Expansion**		
Number of Cattle's		No. Respond	Percent	Number of Cattle's	No. Respond	Percent
Valid	1-5	45	39.8	1-5	73	64.8
	6-10	31	27.4	6-10	1	0.9
	11-15	8	7.1	11-15	0	0.0
	≥16	7	6.2	>16	0	0.0
	Total	**91**	**80.5**	**Total**	**74**	**65.5**
Missing	System	22	19.5	Missing System	39	34.5
	Total	**113**	**100.0**	**Total**	**113**	**100.0**

Source: Own survey, 2021

Table 9: Sheep's and Goats Possessed before and after Urban Expansion in Number

Before Urban Built-up Expansion				**After Urban Built-up Expansion**		
No. Sheep & Goats		No. Respond	%	No. Sheep & Goats	No. Respond	%
Valid	1-10	29	25.7	1-10	34	30.1
	11-20	29	25.7	11-20	12	10.6
	21-30	16	14.2	21-30	1	0.9
	31-40	5	4.4	31-40	0	0.0
	>40	10	8.8	>40	0	0.0
Missing	System	24	21.2	Missing System	66	58.4
Total		**113**	**100.0**	**Total**	**113**	**100.0**

Source: Own survey, 2021

Table 10: Donkey, mule and horse Possessed before and after Urban Expansion

Before Urban Expansion				**After Urban Expansion**		
No. Donkey, mule & horse		**N**	**%**	**No. Donkey, mule & horse**	**Numberres**	**%**
Valid	1-2	47	41.6	1-2	53	46.9
	3-4	21	18.6	3-4	1	0.9
	>4	13	11.5	>4	1	0.9
Missing System		32	28.3	Missing System	58	51.3
Total		**113**	**100**	**Total**	**113**	**100**

Source: Own survey, 2021

Urban Expansion Positive Impacts on farmers Housing Status

The researcher tries to employed number of rooms the house of these households owned before urban built-up area expansion and currently after the expansion as the measuring tool for physical capital of the peri-urban agricultural community livelihood. The majority of the community in the study area 39(34.5%), 28(24.8%) and 5(4.4%) had 1, 2, and 3 rooms respectively before urban built-up expansion over there. However, after the urban built-up expansion of the town majority of respondents 32 (28.35) owned 2 rooms of houses followed by 18(15.9%), 16(14.25%), 10 (8.8%), 10(8.8%), 9(8%), 5(4.4%) had 3 rooms, 1 room, 5 rooms, 4 rooms and 9 rooms respectively.

In Addition to this the number of sample households who hadn't houses were reduced from 34(30.1%) to 8(7.1%). From this we can

concluded that urban expansion has positive impact on livelihood of peripheral farming community in the study area in terms of physical capital which is housing in rooms. This conclusion corresponds to the study by Dayong (2004), Abdissa (2005), World Bank, Ethiopia Economic Update II (2016), Shishay (2011) and Yimam (2017) were documented positive implications of urban growth like higher economic production, opportunities for the underemployed and unemployed, better life because of better opportunities and better services, and better lifestyles.

Impact of Urban Expansion on Infrastructure of Households

The below (table 11) shows 73(64.6%) out of 113 respondents answered that they got all infrastructural services followed by electricity, market, school and road with 10 (8.8%), 10(8.8%), 6(5.3%) and 5(4.4%) respectively. Therefore, from this we can concluded that urban built-up expansion has positive impact on peripheral farming community in terms of physical capital which is measured in terms of infrastructure in the study area.

Table 12: Impact of Urban Expansion on Infrastructure of households

Types of Infrastructure	Number	percent
Road	5	4.4
Electricity	10	8.8
Water Supply	1	0.9
School	6	5.3
Clinic & other health institution	4	3.5
Credit service	2	1.8
Recreation	2	1.8
Market	10	8.8
All types of infrastructures	73	64.6
Total	**113**	**100.0**

Source: Own survey, 2021

Job and Related Condition of the affected households in Post Expansion Periods

From my respondents 93(82.3%) of households answered as they had job before urban expansion. While the rest, only 20(17.7%) did had not job. At present, 110(97.3%) of all households have the job while the rest, 3(2.7%) answered as they had no job.

After expropriation almost all of the additional livelihood's sources were loss /changed as their farmlands were taken. Thus, most of the farm livelihood was already join to semi-urban life i.e., almost all farm households were out of the rural life of farm cultivation rather they were depending more on to the capital cash flow in the market system. But farmers have not enough and intended experiences, skills and knowledge of urban work types. Some of the previous alternative livelihood sources of incomes were continued eve after the urban built-up area expansion creates job opportunities for the peripheral communities. Among those who have job currently, the majority have been employed in employment in non-government (Agrarian) accounts 47(41.6%), others were employed in self-employment in cottage industries, such as hand crafts, etc., employment in government organization, daily laborer and employment in factory that accounts 35(31%), 14(12.4%), 11(9.7%) and 2(1.8%) respectively as shown in table 12 below.

Table 12: Job types the households have currently

Job Types	Number	percent
Daily laborer	11	9.7

Employment in factory	2	1.8
Self-employment in cottage industries, such as hand crafts, etc.	35	31
Employment in government organization	14	12.4
Employment in non-government (Agrarian)	47	41.6
No Job	4	3.5
Total	**113**	**100.0**

Source: Own survey, 2021

Conclusions

Atsbi town like other many towns, it is one of the rapidly urbanizing. Its built-up area expansion is characterized by horizontal growth. The urban built-up expansion has positive impact on livelihood of peripheral farming community in terms of physical capital like owning housing in rooms, urban infrastructures and creates job opportunities. But it also causes negative impacts. The rapidly expanding its horizontal built-up area and the number of expropriated farmers is also increasing as a direct consequence of the rapid expansion of the town. The conversion of peripheral rural farmlands in to urban land use is not only expropriating fringe farmers but also depredating them of their livelihood. The compensation paid is not enough because they valuation method does not reflect current land market cost of living. In addition, companion expropriated farmers need rehabilitation support because the lack skill and experience to complete town opportunities. As a result, the overall income and livelihood of the peripheral farmers is declining as a result of the rapid expansion of the town built-up area and conversion of farm and grazing lands.

The magnitude of urban built-up area expansion was increased from 72.5hac (2006) to 197.4hac 2020. Therefore, the concerned bodies should review and update the amount of compensation to be paid for the displaced farmers and should co-operate in order to create alternative sources of livelihood farmers.

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