

EBONYI STATE NIGERIA

BOREHOLE PROJECT IMPACT ASSESSMENT

REPORT FOR January 2015-February 2019

Produced for
Samuel Omogo Foundation

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Executive summary

The provision of safe and accessible water supply to the rural/underserved communities in Ebonyi State is undoubtedly one of the most important socio-economic and developmental necessity required for improvement of life. Ebonyi State is mostly composed of rural communities and a greater proportion of the communities are underserved and suffer from lack of safe and easily accessible sources of water. The State government has made some efforts to provide bore holes in a number of these communities, but this is hardly enough. Therefore, the efforts by public spirited individuals or groups eg., **Samuel Omogo Foundation**, to augment what the government is doing to provide water to rural dwellers in Ebonyi state is not only highly commendable but deserve to be properly documented.

The essence of this report is to present the outcome of impact assessment study of borehole water provided to some rural communities of Ebonyi State especially in Ohaukwu LGA by **Samuel Omogo Foundation**. This report captures the 62 boreholes drilled and commissioned in 2018, and is designed to provide information on how the boreholes have impacted on the lives of the target communities with the view to initiating the process that will lead to sustainable water availability to the rural dwellers. Over 95% of the rural communities assessed are located in Ohaukwu LGA. The following water availability impact assessment methodology/procedure was employed. The following were undertaken: (i). Obtaining list of selected communities where boreholes were drilled from the **Samuel Omogo Foundation**, (ii). Contacting the proposed well managers, (iii). Visitation of the different site, (iv). Obtaining pictures of boreholes drilled in target communities, (v) Interviewing the well managers and other community members, (vi). Presentation of the findings.

The summary of key findings are as follows:

1. Water scarcity is clearly a very serious problem in all the communities listed.
2. The communities all have sizable population with average household comprising up to 10 persons.
3. The main sources of water supply are pond, rivers and streams and these are about 1hr to as much as three hours of walking distance away from the villages.
4. Majority of the water sources are being contaminated by sewage (faeces and urine), animal dung, refuse and plat debris and leaves. The possibility of chemical contaminants cannot be ruled out as some people wash clothes and other items capable of polluting the water sources right inside the water.
5. The major risks reported include snake bites, attack by hoodlums and thieves, rape of women and girls, molestation by wild animals including monkeys, children going to school late and with dirty uniforms and fighting at the water source.
6. Majority of the members of the communities access the water sources on foot.
7. The water obtained from all the sources were described as unacceptable.
8. The women and the children are mainly responsible for fetching of the water in all the communities.
9. All the water sources dry up towards the beginning of the dry season especially around November-April each year.
10. The major water-borne diseases suffered by the people as a result of water scarcity include: Typhoid, Cholera and dysentery. Before the provision of the boreholes, the prevalence of these diseases were very high and there were regular outbreaks of these diseases in the target communities.
11. All the community members and well managers interviewed acknowledged that the boreholes have greatly alleviate the suffering of their people, reduced exposure to disease causing water-borne infectious agents and enhanced personal hygiene.
12. All the managers noted that adequate arrangements have been made to manage and maintain the boreholes since they were drilled. Some of the maintenance activities initiated by the managers and the communities included: constituting a borehole management committee, providing security to monitor and regulate the usage of the boreholes.
13. The beneficiaries express gratitude to the philanthropists who provided the boreholes to them through the Samuel Omogo Foundation.

Key Impacts

Information obtained on cases reported at the four hospitals diagnosed as water borne disease presenting as typhoid or cholera with symptoms of diarrhea, dysentery, vomiting. i.e., comprehensive assessment from January 2015 to February 2019, showed **92%** reduction in cases of water borne diseases reported in the communities from January 2015- February 2019.

Year	Cases of water borne diseases
January 2015-December 2015	199
January 2016-December 2016	61

January 2017-December 2017	54
January 2018-September 2018	45
October 2018-February 2019	16

Other impact as indicated by the community members are as follows:

S/No	Health and developmental problems as a result of water scarcity	% Reported cases before drilling of boreholes	% Reported cases after drilling of boreholes
1.	Child molestation and rape at sources of waters supply (ponds, streams, rivers)	More than 50%	0%
2.	Children going to school late due to water seeking	More than 60%	Less than 1%
3.	Child accidents, injuries due to water seeking	More than 50%	Less than 1%
4.	Children going to school with dirty clothes/uniform	More than 80%	Less than 1%
5.	Fighting & quarrelling and cases of violence at water sources	More than 70%	0%
6.	Lateness to work and church due to water scarcity	More than 60%	Less than 1%
7.	Cases of snake bites and attack by wild animals	More than 40%	0%
8.	Frequency of hospital/health centre visitation as a result of water borne diseases	More than 75%	Less than 3%

Summary of comments on impact of the boreholes as indicated by the community members:

1. Reduction of time wasted to source for water
2. Reduction of stress of trekking long distance to source of water
3. Reduction of child molestation due to water scarcity
4. Reduction of water borne diseases and illness associated with lack of personal hygiene caused by water scarcity
5. Helped those who do business with water
6. Helped in domestic uses
7. School children no longer suffer from going far to fetch water & School children now attend school on time
8. Reduction of blisters and risks children undergo walking long distance to fetch water including accidents & kidnapping
9. Bathing was hardly done once a day but now up to thrice daily
10. Availability of water reduced high level of dirty cloths
11. Availability of good drinking water has improved the health of people
12. Alleviation of suffering going long distances to fetch water especially among older women.
13. Availability of water for house construction
14. No more violence (eg fighting and quarrelling) usually experienced at water source

15. No more risk of snake bites and attack of wild animals experienced at the sources of water supply (eg, ponds & streams)

Background information on Ebonyi State

Ebonyi State is one of the states in the South-eastern Nigeria. It is the youngest state in the South-eastern Nigeria and is made up of 13 Local Government Areas (LGAs). Known as the “Salt of the Nation” because of its large salt deposits, Ebonyi State is one of the 36 states in Nigeria. It was created in 1996, making it one of the youngest states in Nigeria. The State shares a border with Benue State to the North, Enugu State to the west, Imo and Abia States to the south and Cross River State to the east.

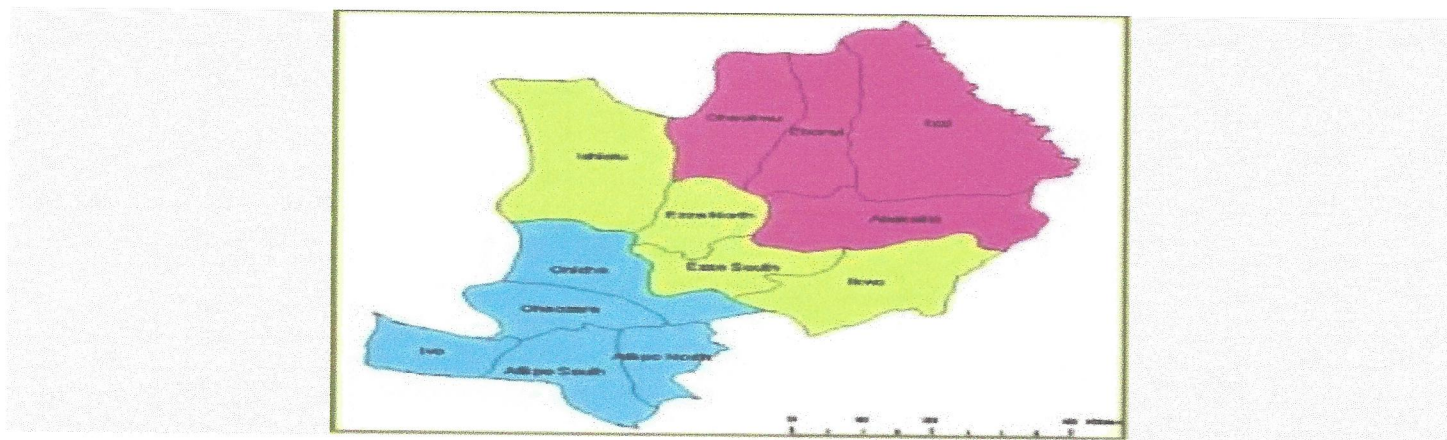


Map of Nigeria with Ebonyi State highlighted in orange

The State capital and largest town is Abakaliki. The second largest town is Afikpo. Other towns are Ikwo, Izzi, Onicha, Edda, Onueke, Ezzamgbo, Nkalagu, Uburu, Ishiagu, Amasiri and Okposi. For administrative purposes, Ebonyi State is divided into three Senatorial Zones, each represented by a Senator at the National Assembly, and six Federal Constituencies, each represented by a Member of the House of Representatives also at the National Assembly.

The three Senatorial Zones are:

- Ebonyi North – comprising Abakaliki, Ebonyi, Ishielu, Ohaukwu and Izzi LGAs
- Ebonyi Central – comprising Ikwo, Ezza North and Ezza South LGAs
- Ebonyi South – comprising Afikpo North, Afikpo South, Ivo, Ohaozara and Onicha LGAs



Map showing Ebonyi Local Government Areas and Senatorial Zones

The state is also divided into thirteen local government areas (LGAs), namely: (1) Abakaliki, (2) Afikpo North, (3) Afikpo South, (4) Ebonyi, (5) Ezza North, (6) Ezza South, (7) Ikwo, (8) Ishielu, (9) Ivo, (10) Izzi, (11) Ohaozara, (12) Ohaukwu and (13) Onicha.

Ebonyi State is situated between latitudes $5^{\circ}40'$ and $6^{\circ} 54'N$ and longitudes $7^{\circ}30'$ and $8^{\circ}30'E$, it is bounded to the north by Benue State, to the east by Cross River State, to the south by Abia State and to the west by Enugu State. Geopolitically, it belongs to the South East Zone of Nigeria but lies entirely in the Cross River Plains. Its elevation is between 125 and 245 meters above sea level, mainly of broad clay and shady basins fringed by narrow outcrops of sandstone, limestone and other rock formations. Towards the southeast border, the landscape abuts onto the hilly country of the Okigwe-Arochuku axis.

The population of the State was put at 2,176,947 by the 2006 census. With a growth rate of 3.5% per annum, the State has a projected population of 2,565,184 by the end of 2012. Males constitute 48.9% while females constitute 51.1% of the population. The average population density is 286 persons per square km but is higher in the urban areas. A further breakdown of the population shows that Infants (under one year) old make up 4%, the U5 children 20% and women of child bearing (WCBA) (15-49 years) make up 22% of the population. Ebonyi is mainly rural and so, about 75% of the population lives in the rural areas.

The people of Ebonyi State are predominantly farmers and traders. The main crops produced in the State are rice, yam, palm produce, cocoa, maize, groundnut, plantain, banana, cassava, melon, sugar cane, beans, fruits and vegetables. Fishing is also carried out in Afikpo. The state is blessed with mineral resources such as lead, limestone, zinc and marble. Ebonyi is called “the salt of the nation” for its huge salt deposit at the towns of Okposi and Uburu.

In the industrial sector, the State has several food processing factories including dozens of rice mills, many quarry factories, a fertilizer blending plant, one of Nigeria’s largest poultries (Nkali Poultry) and one of Nigeria’s foremost cement factories (the Nigerian Cement Company at Nkalagu). Educationally, the State boasts of a university in Abakaliki (Ebonyi State University, popularly known as EBSU), a federal polytechnic (Akanulbiam Federal Polytechnic in Unwana near Afikpo), one college of education in Ikwo, a college of agriculture in Ishiagu and several secondary and primary schools spread across the various towns and villages. Ebonyi students consistently rank high in educational tests and other achievement scores.

In the health sector, Ebonyi has The Federal Teaching Hospital, and the National Obstetrics Fistula Centre – both in Abakaliki. The State also has general hospitals located in various parts of the State. These are complemented by several private hospitals and clinics in various towns and villages. Tourist attractions in the State include Ndibe Beach in Afikpo, the salt lakes in the towns of Okposi and Uburu, and Ishiagu Pottery Works in Ishiagu. Ebonyi State has a rich cultural heritage. This is expressed in the many colorful cultural dances, folklore and artwork, some of which have attracted national and international attention. The popular NkwaUmuagbogho Dance Group of Afikpo has won several national and international merit awards. Other popular dance groups include the official State Government cultural dance group, NkwaNwite of Afikpo, Ojanyalere of Amasiri and many more.

Status of water availability in rural communities of Ebonyi State

The provision of safe and accessible water supply to the rural/underserved communities in Ebonyi State is undoubtedly one of the most important socio-economic and developmental necessity required for improvement of life. Ebonyi State is mostly composed of rural communities and a greater proportion of the communities are underserved and suffer from lack of safe and easily accessible sources of water. Most of the communities' inhabitants trek long distances to obtain water and many of the sources of water are surface water and hardly safe for human consumption. This is why many rural communities constantly experience outbreaks of water borne preventable diseases like cholera, dysentery, typhoid fever, amoebiasis, urinary schistosomiasis, giardiasis, hepatitis A &E, cryptosporidiosis etc.

Water is also essential for house needs and access to safe drinking water and sanitation is critical to maintaining health particularly for children. It is estimated that about 3900 children die every day from water borne diseases (World Health Organization, 2004). In Ebonyi State, the situation is disturbing where in 2003 and 2004, a total of 11,685 diarrhea cases with 36 deaths were reported, a total of 126 guinea worm cases were equally reported, while a total of 207 cholera cases with 16 deaths and a total of 194 typhoid related diseases with 11 death were further reported, and those mostly affected were children (Ministry of Health Ebonyi State, 2005).

Apart from these microbiological agents, there is also increasing report of contamination of surface water by dangerous chemical agents and pesticides. Because of the increasing use of agricultural pesticides and herbicides in many rural areas of Ebonyi State, the probability of contamination of surface water becomes dangerously high as a result of run-offs. Therefore, Ebonyi rural dwellers are constantly at the risk of severe health problems resulting from drinking or using microbial and chemical contaminated surface water. There is also the problem of severe suffering and burden on the women as they not only trek long distances to obtain water but also have to wait a very long time for their turn at the only source of relatively safe water.

In addition to this school children often stay away from school because their parents send them in search of water and the lack of water has also contributed to them coming to school with dirty school uniforms. And in their schools the lack of water is also a major problem towards promoting personal cleanliness including hand hygiene.

The State government has made some efforts to provide bore holes in a number of these communities, but this is hardly enough. Therefore, the efforts by public spirited group eg. Global Rotary Foundation, to augment what the government is doing to provide water to rural dwellers in Ebonyi state is not only highly commendable but deserve to be properly documented.

The essence of this report is to present the outcome of a needs assessment study of water availability in some rural communities of Ebonyi State especially in Ohaukwu LGA. The report is designed to provide the needed insight into the understanding of the water situation in the target communities with the view to initiating the process that will lead to the provision of water to the rural folks.

Majority of the rural communities assessed are located in Ohaukwu LGA, it is important to provide information about the Ohaukwu LGA. The information is derived from the Martins Library and available at <http://martinslibrary.blogspot.com.ng/2014/11/ohaukwu-local-government-area.html>

Overview of Ohaukwu Local Government Area

Historical information

Ohaukwu is one of the thirteen local government area in Ebonyi state south East-Nigeria. It was created in 1989 out of the former Ishielu local government council. The local government is made up 19 major communities. The three major extractions that make up Ohaukwu are Izhia, Ngbo, and Effium. Some of the autonomous communities that make up the entire Ohaukwu from the above three groups are Umuagara, Amaechi, Amike, IshieluNsulakpa, all from Izhia, while Ngbo is make up of Ekwasi, UmuoguduAkpu, UmuoguduOshia, OkposhiEheku, OkposhiEshi, AmofiaEnwezaka and Ukwagba while Effium is made up of Umuezeokoha and Effium indigenes. Ohaukwu is popularly known as the seat of the permanent site of the Ebonyi state University found in the year 1999 by the first executive governor of Ebonyi state Dr. Sam OminyiEgwu when he was the commissioner for Education under the former military Governor of Ebonyi state-Rear Admiral Walter Feghabor.

The headquarters is located at the ancient land-Izhia. The headquarters has been the seat of government since the pre- independence years when the local government was known and addressed ad Ishielu county council. The common language is Igbo language. The local government is delineated politically into fifteen wards and each ward is represented by an elected councilor for three years' tenure.

Major Economic Activities of the People

The majority of the people of Ohaukwu are farmers. They produce the following crops in commercial quantities – yam, cassava, maize, palm oil and palm kernel. The local government has potential for Agro based industries but, has not been fully utilized. A good percentage of the rural populace are grossly engaged in livestock farming as they rear cattle, goat, pig, sheep and poultry. Furthermore, good percentage of the population engages in trading at various degrees both at medium high scale and petty trading. Few of the population are civil servants. Most of the civil servants are police; teachers and low ranking office messengers majority of the youths are engaged as farm labourers using their hoe and cutlasses to work for people and earn their living. Economically; Ohaukwu Local Government has viable market.

Notable among them are OkwoMgbo market where one of the best garri in South East is sold. Lorries of garri and yam are loaded every five days at the market at commercial quantities. Others are Eke Izhia, Idokpo, Effium market. All these markets are patronized by buyers across the nation who come to buy various commodities at commercial quantities. Ohaukwu also has animals market close to the local government headquarters where trades both Igbo and Hausa buy all kinds of animal such as horse, donkey, sheep and goat from northern Nigeria and deposit at the market at commercial quantity and people come from far and near across the nation to buy on

daily basis. Though, the people of Ohaukwu local government are not generally rich, the local government is rich in mineral deposit many chipping wells are deposited across the local government. These laterite wells are located at Umuagara-Izhia, Amaechi, Ukwagba and Amofia and there is also large deposits of kaolin clays, gypsum, limestone not yet tapped. The laterite wells are controlled by foreign companies who pay royalties to the government.

Generally, the standard of living is very poor especially in the rural areas of Ohaukwu Local Government Area where water scarcity is a major socio-developmental issue.

Borehole water impact assessment methodology

Over 80 communities were assessed in the survey, of these 17 communities were in Ohaukwu LGA while two each were from Ezza North and Ohaozara LGAs. The following were undertaken:

- 1. Obtaining list of selected communities for borehole drilling:** The list of the communities where the boreholes were drilled were obtained from Samuel Omogo Foundation. The list contained the selected communities as well as the names, and phone numbers of the proposed well managers.
- 2. Contacting the proposed well managers:** All the well managers listed were contacted via phone call over a period of five days. Some challenges were encountered in linking up with many of them due to limited network services in the rural communities where many of them reside. However, all of them were reached.
- 3. Visitation of the site and interview:** All the sites for the boreholes were visited in order to interact with the community members. The well managers were also interviewed.
- 4. Obtaining pictures of boreholes drilled in target communities during the commissioning:** Pictures were taken at each location of the borehole with members of the community during the commissioning by Rev. Fr. Peter Omogo.
- 5. Key informant interview of the well managers and other community members:** All the well managers were met by the Assessment Team led by Prof Jesse Uneke, the Project Consultant. All the Managers and a few of their companions were interviewed using a data collection instrument which contained the following information:
 - (i). Name/occupation/phone no. of proposed borehole manager/respondent (ii)..
 - How long has the respondent lived in community.
 - (iii). Water borne diseases prevalent in the village before sinking of borehole
 - (iv). Are these water borne diseases still prevalent now? YesNo
 - (v). Distance children and women walk to get water before the sinking of the borehole
 - (vi). How long it takes people to wait at the nearest borehole, well, streams/ponds
 - (vii). Has the sinking of the borehole improved the lives of members of this community? YesNo
 - (viii). 12. Briefly describe how the borehole has (or has not) improved the lives of members of the community?
 - (ix). What do you think can be done by the community to maintain this borehole to keep it functional?
 - (x). What are your comments to the providers of the borehole to this community?
- 6. Presentation of the findings:** Each community profile was presented separately on the assessment form with the pictures of the site for each community. The profile is presented below.

Summary of key findings

The summary of key findings are as follows:

1. Water scarcity is clearly a very serious problem in all the communities listed.
2. The communities all have sizable population with average household comprising up to 10 persons.
3. The main sources of water supply are pond, rivers and streams and these are about 1hr to as much as three hours of walking distance away from the villages.
4. Majority of the water sources are being contaminated by sewage (faeces and urine), animal dung, refuse and plat debris and leaves. The possibility of chemical contaminants cannot be ruled out as some people wash clothes and other items capable of polluting the water sources right inside the water.
5. The major risks reported include snake bites, attack by hoodlums and thieves, rape of women and girls, molestation by wild animals including monkeys, children going to school late and with dirty uniforms and fighting at the water source.
6. Majority of the members of the communities access the water sources on foot.
7. The water obtained from all the sources were described as unacceptable.
8. The women and the children are mainly responsible for fetching of the water in all the communities.
9. All the water sources dry up towards the beginning of the dry season especially around November-April each year.
10. The major water-borne diseases suffered by the people as a result of water scarcity include: Typhoid, Cholera and dysentery. Before the provision of the boreholes, the prevalence of these diseases were very high and there were regular outbreaks of these diseases in the target communities.
11. All the community members and well managers interviewed acknowledged that the boreholes have greatly alleviate the suffering of their people, reduced exposure to disease causing water-borne infectious agents and enhanced personal hygiene.
12. All the managers noted that adequate arrangements have been made to manage and maintain the boreholes since they were drilled. Some of the maintenance activities initiated by the managers and the communities included: constituting a borehole management committee, providing security to monitor and regulate the usage of the boreholes.
13. The beneficiaries express gratitude to the philanthropists who provided the boreholes to them through the Samuel Omogo Foundation.

Key Impacts

Information obtained on cases reported at the four hospitals diagnosed as water borne disease presenting as typhoid or cholera with symptoms of diarrhea, dysentery, vomiting. i.e., comprehensive assessment from January 2015 to February 2019, showed **92%** reduction in cases of water borne diseases reported in the communities from January 2015- February 2019.

Year	Cases of water borne diseases
January 2015-December 2015	199
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Other impact as indicated by the community members are as follows:

S/No	Health and developmental problems as a result of water scarcity	% Reported cases before drilling of boreholes	% Reported cases after drilling of boreholes
1.	Child molestation and rape at sources of waters supply (ponds, streams, rivers)	More than 50%	0%
2.	Children going to school late due to water seeking	More than 60%	Less than 1%
3.	Child accidents, injuries due to water seeking	More than 50%	Less than 1%
4.	Children going to school with dirty clothes/uniform	More than 80%	Less than 1%
5.	Fighting & quarrelling and cases of violence at water sources	More than 70%	0%
6.	Lateness to work and church due to water scarcity	More than 60%	Less than 1%
7.	Cases of snake bites and attack by wild animals	More than 40%	0%
8.	Frequency of hospital/health centre visitation as a result of water borne diseases	More than 75%	Less than 3%

Summary of comments on impact of the boreholes as indicated by the community members:

1. Reduction of time wasted to source for water
2. Reduction of stress of trekking long distance to source of water
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10. Availability of water reduced high level of dirty cloths
11. Availability of good drinking water has improved the health of people
12. Alleviation of suffering going long distances to fetch water especially among older women.
13. Availability of water for house construction
14. No more violence (eg fighting and quarrelling) usually experienced at water source
15. No more risk of snake bites and attack of wild animals experienced at the sources of water supply (eg, ponds & streams)

Hospital record assessment of impact of boreholes in the communities.

Hospital records were evaluated at the following health facilities in Ohaukwu LGA:

1. Primary Health Care Centre Ngbo Court
2. Primary Health Care Centre Inyimagu
3. Primary Health Care Centre Abogodo
4. MDG Primary Health Care Centre Ejiniike

Information were sought on case reported at the hospital diagnosed as water borne disease presenting as typhoid or cholera with symptoms of diarrhea, dysentery, vomiting. **Comprehensive assessment from January 2015 to February 2019, showed 92% reduction in cases of water borne diseases reported in the communities from January 2015- February 2019.** The result of the assessment is presented in the Table below

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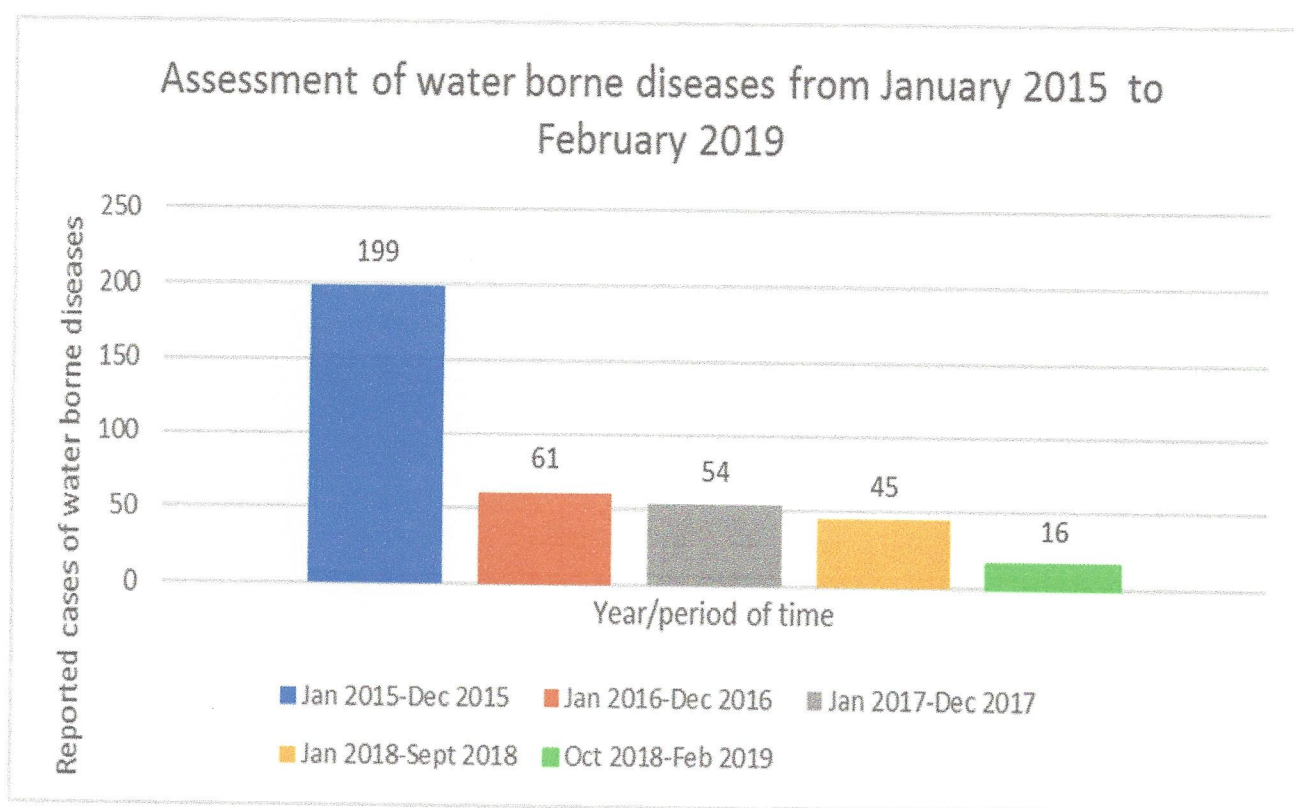


Fig 1. Bar chart representation of reduction in cases of water borne diseases reported in the target communities in Ohaukwu LGA of Ebonyi State from January 2015- February 2019.

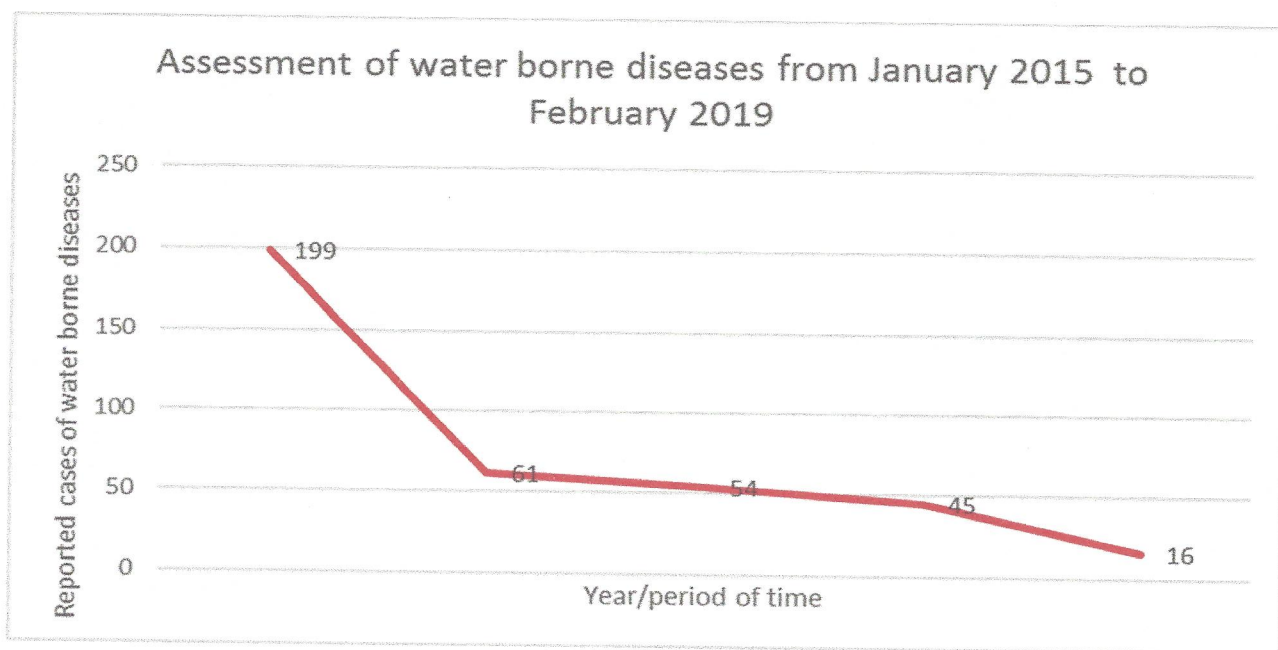


Fig 2. Line representation of reduction in cases of water borne diseases reported in the target communities in Ohaukwu LGA of Ebonyi State from January 2015- February 2019.