

# African Research Review

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An International Multidisciplinary Journal, Ethiopia

Vol. 6 (1), Serial No. 24, January, 2012

ISSN 1994-9057 (Print)

ISSN 2070--0083 (Online)

DOI: <http://dx.doi.org/10.4314/afrrrev.v6i1.13>

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## **Sanitation Indicators in the Rural Communities of the South-Eastern Nigeria: Additional Evidence of Policy Failure in Rural Development**

(Pp. 155-170)

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### **Abstract**

*The study tried to examine the conditions or rural sanitation in the South-East region of Nigeria. The objective is to investigate the prevailing situation of sanitation indicators as a way of evaluating national policy outcomes in the sector. Copies of a well-structured questionnaire containing pertinent questions on socio-economic and key sanitation variables were distributed to 1062 subjects in rural communities of the five South East states of Nigeria. After collation and analysis, results showed that the problem of rural sanitation in the region is poorly understood: policy-makers have consistently focused on the improvement of water supply and public toilets at the detriment of other sanitation variables. Consequently, the study recorded poor results on personal hygiene (25%), disposal of household refuse*

(49.9%), water treatment before drinking (4.8%), anal cleaning with leaves/grass after toilet (18.3%), non washing of hand after toilet (55.5%) etc. The high willingness expressed by subjects to improve their sanitation (88%) shows that the major problem of sanitation in the area remains that of promotion rather than administration. These poor results on sanitation indicators in the region, the vanguard of rural development in Nigeria, have come as an additional evidence to the long list of failures recorded in the implementation of rural development policies in Nigeria.

**Key Words:** development, failure, indicators, policy, rural, sanitation

### **Introduction**

Nigeria with a population of almost 150 million (2009 Estimates) has 56 percent of her citizens living in the rural areas (Omotoso, 2010). During the past four decades, more than 20 billion dollars have been expended on rural development mainly to improve agriculture, alleviate poverty, and develop infrastructure (Strenton, 2003, Obeta, 2009). Infrastructural development includes the provision of access of roads, electricity, health centers, schools and most importantly, potable water and sanitation (Nwosah, 2003). Of all these sectors, none is so poorly understood, in form and in content, as sanitation. Some examples might help to elucidate this claim. According to the National Bureau of Statistics (2009) access to safe sanitation between 2003 and 2008 in Nigeria was 57.6 percent; 77.7 percent in urban areas, 46 percent in rural areas and 21 percent for the rural poor. Also, the National Population Commission (NPC) Demographic and Health Survey in 2008 reports that 46.6 percent of the rural population have access to safe water (74.4 percent for urban areas), but only 29 percent of them have access to safe sanitation (disposal of human and domestic wastes). In addition, the WHO-UNICEF Joint Monitoring Programme (JMP) 2010 Report states that as many as 17 percent of deaths due to malaria are largely as a result of consumption of unsafe water and poor hygiene. Here, access to unsafe water was estimated at 20 percent, with no data provided on the level of hygiene. Igwe *et al* (2008) reported that access to safe water in the rural areas hovers around 43 percent while sanitation was around 18 percent. Finally, in a recent publication on rural water and sanitation in Nigeria, Nnodu (2010) holds that while water supply improved up to 45 percent, sanitation level was only 23 percent. All these results are highly suggestive: sanitation in rural Nigeria is less well known and less documented, information and data on rural sanitation are usually incomplete and inconsistent (Abrams, 2006; Esrey *et al*, 2006), because they do not focus on major sanitation variables. There is a

deliberate and surreptitious attempt in these studies to ignore pertinent sanitation indicators since they are seen as surrogates for measuring policy outcomes in rural welfare and development (Blackett, 1994; Edwards, 2008,; OECD, 2010). A study on rural sanitation in the Southern-Eastern Region of Nigeria is set to fill this lacuna. It is based on the assumption that rural sanitation in Nigeria is poorly understood; because previous studies totally ignored significant sanitation variables. Results obtained from this region, that has always served as a model in rural development in Nigeria, will help not only to understand the state of rural sanitation at its best, but also will help to appreciate the results of efforts made so far in improving rural welfare and development.

## **Materials and methods**

### **Study area**

The study was carried out in the South-Eastern Region of Nigeria comprising Abia, Anambra, Ebonyi, Enugu and Imo States located within Latitude 4°45N and 7°43N and Longitude 5°11E and 8°32E, and with a total landmass of 29,095km<sup>2</sup> or 3.18percent of the total national landmass (923,768km<sup>2</sup>), it has a population of nearly 15 million in which about 53 percent still live in the rural areas. The region forms a link between the North Central and South-Southern Nigeria and is located in the tropical geo-climatic zone, with vegetation that is typically thick deciduous and evergreen forest. The seasons in the area is well defined, namely, dry season (from October to March) and wet season (April to early October) with annual rainfall ranging between 1500mm and 1800mm as well as night and day temperatures that fluctuate between 30<sup>0</sup>C and 40<sup>0</sup>C all year round. In each of these states, three rural communities were carefully selected for the study. A total of 15 rural communities were surveyed as shown in Table 1a. Two major criteria were used for their selection, namely: they are all located far away from major urban centres (>25km) and are typically rural settlements where the main occupations are farming and trading.

### **Study design and data collection**

The study was carried out during the month of November 2010, a period of dry season which guaranteed easy access to these remote and poorly accessible communities, especially during rainy season when the rural roads are flooded for lack of drainage facilities. The survey focused on two major areas. The first part was the collection of socio-economic data on the target population, collected through the use of a well-structured questionnaire that contained multiple answers, in which copies were directly administered to

respondents. As the population of the area is ethnically homogenous, made up of the Igbo speaking tribe, it was relatively easy to conduct the interview either in English or in local vernacular (Igbo) within a period of four weeks. Our subjects were mainly farmers (45.5%), traders (21.8%), tradesmen (14.3%) teachers (9.5%) and students (6.9%), cutting across different age groups, with 50.4 percent of them as males and 49.6 percent as females (Table 1b). The second part focused on pertinent questions on rural sanitation variables as defined by Elekwa (2003) and Kapoor (2001): water supply, disposal of human excreta, refuse disposal, home sanitation, housing quality, personal hygiene and community sanitation. The questionnaire which was earlier test-run and later modified, contained other sanitation surrogates including types of buildings, cost of building toilets, willingness to apply for loans and amount to apply for, common diseases suffered, etc. A systematic random sampling method was adopted in which each respondent was interviewed in one out of every three families in each of the communities. This method was facilitated by the characteristic linear and nucleated dispositions of rural settlement patterns in Igboland. A total of 1062 subjects were interviewed.

In the primary analysis, univariate statistics were used to present data on the variables studied (mean, range, etc). The means obtained on the variables studied were calculated based on the total quality requirements of respondents divided by the sample size. Categorical variables and percentages were presented as summary statistics for sanitation variables.

## **Results**

### **(i) Household characteristics and housing quality**

The age distribution of subjects shows representation of different age groups including youths, adults and the aged, with predominance of people between the ages of 29 and 45 years (39.8%) and 46 and 60 years (38.8%) respectively (Table 1c). The poor representation of the youths (13.0 %) indicates that most of them migrated to urban areas either to pursue their education or in pursuit of greener pastures. A total of 875 respondents representing 82.4 percent of the sample were identified as household heads, while the other 187 or 17.6 percent of subjects were mere household members. The average household size is 7 persons. The large size of the family partly resulted from absence of conventional family planning methods such as birth control and regulated child spacing which appeared alien to most respondents. It was observed that the most dominant form of home construction is the sandcrete block with corrugated iron roofs (51.0%), mud

walls and zinc roofs (27.5%) and only a few houses made up of mud walls and thatched roofs. Majority of the rooms have large windows and doors and are properly ventilated. About 85 percent of them depended on natural ventilation in which vitiated air from household practices is allowed to escape through either windows or opening near or above the floor level. Only about 15 percent owned electric fans used to improve air quality in poorly ventilated rooms. All these show that members of these communities had taken positive steps to enhance their housing conditions.

However, the income profile of respondents is generally low as 86 percent earned between N5000 and N10,000 per month (USD 32 to USD 63) and the other 14 percent earn even less than N5000 (USD 32); a reflection of widespread socio-economic disempowerment in these rural communities.

#### **(ii) Toilet facilities and their use**

The way a community handles its waste is an important indicator of the level of cleanliness and sanitation. In the region, respondents dispose of their human waste by means of covered pit latrine making it the most fashionable method of human waste disposal. Results show that 62.5 percent use pit latrines (national rural average of 59.3percent), 19.4 percent use water closet, while 16.1 percent still dispose of their human waste in the bush, rivers and streams (Table 2a). Most toilets in the area are between 6 to 10 years old (52.1%) and a considerable number below 5 years (36.4%) with general dimension of 3.5m deep (Table 2b) and an effective average volume of 3.05m<sup>3</sup> lasting up to 15 years for an average family of six (Morgan, 1990). While 61.7 percent of these toilets are detached from the main buildings located at an average distance of between 10 to 20m; 38.3 percent form part of the buildings. Also, 73.9 percent of respondents preferred water closet to other toilets types because of difficulties encountered in the use of pit toilets (Table 2c). Identified nuisance associated with pit latrines include fly breeding, offensive odors, fouling of toilets, etc which resulted from lack of hole covers, poor ventilation, poor toilet design, and use of rough concrete in construction. Consequently, about 80 percent of subjects are ready to take affordable loans ranging between N5000 and N7000 to upgrade these facilities. If about 75 percent of subjects complained that the cost of erecting the superstructure of the toilets was prohibitive, and beyond their reach, as they have great difficulty in procuring materials to improve their toilets, 68 percent of them expressed their willingness to provide desirable structures covering their toilets to prevent occasional collapse which endangers members of their families especially children. It is also surprising that 98

percent of respondents preferred private toilets to sharing with other family members even if the cost of its provision is beyond their means.

### **(iii) Personal hygiene among respondents**

Data on personal hygiene were generally difficult to obtain as these have much to do with private life, culture and behavior (Kochar, 1981), but with the use of local vernacular, it became much easier. For example, it was observed that majority of our subjects (55.5 percent) do not wash their hands after toilets, a habit which they likely formed from childhood. Also, 57 percent of them indicated washing their hands less than twice a day, while 24.2 percent regularly wash their hands (Table 3a). However, when asked how they clean themselves after toilet, 70.3 percent used paper, 8.3 percent used rags and a whopping 18.3 percent used grass/leaves while 3.1 percent used water (Table 3b). About 56 percent of respondents indicated taking their bath at least three times a week in the closest stream to their community, a habit they formed since childhood. This habit cuts across all ages. This practice exposes them to many water-related diseases (bilhazia, filariasis,) even though only 1.4 percent of them (15 persons) indicated to have suffered from these diseases. All the respondents indicated to have suffered from malaria 77.3 percent suffered from typhoid, 32.7 percent suffered from arthritis. These results indicated the poor level of personal hygiene among rural population in the region.

### **(iv) Waste generation and disposal**

At household level, respondents generated solid wastes, mainly, biodegradables (food wastes, sweepings, ash, food processing waste, etc.) but also a growing percentage on non biodegradables (paper, cans, bottles, and plastics). About 73 percent of them sweep their houses and their compounds on daily basis. While the common methods of waste disposal are open dumping (49.9%) and burning (34.9%), some quantities are disposed of at the gardens especially the biodegradables that help in soil conditioning (Table 4). The idea of dumping waste in rivers and streams is common place which indicate poor sensitization among subjects on dangers of such practices and on modern waste disposal methods.

### **(v) Water supply, accessibility and safety**

The rural population in the region gets their water from various sources including rain (12.9%), well-hand pump (17.7%) stream/rivers (20.1%) and water vendors (6.6%). The dominant source of water supply is the mechanized boreholes which contribute 42.7 percent to these various sources

(Table 5). A total of 163 water boreholes were enumerated in the 15 communities surveyed with an average of 10 boreholes per community. Many respondents depend on water from these boreholes due to its high quality and accessibility. Results show that access to water in these communities in the past 5 years increased by 53.3 percent, although below the supposedly national rural average of 63.6 percent (based on 2004 baseline data).

The safe water source in the area was estimated at 42.7 percent far higher than the national rural average of 19.2 percent. Also, the year round water source was estimated at 51.2 percent, also higher than the national rural average of 30.9 percent. However, it was observed that only 4.8 percent of respondents treated their water before drinking, result that is far below the national rural average of 6.6 percent, also a good indicator of their level of personal hygiene. Respondents indicated of having suffered from different water-borne diseases such as typhoid (65.2%), dysentery (42.7%) and hepatitis (16.4%). It has been recognized that debility and mortality from these diseases is partly accountable for the slow pace of development in the rural areas (Kochar, 1981).

#### (vi) **Community sanitation**

Community sanitation is a practice that is highly developed in Igboland. Aside the efforts to keep individual rooms and compounds clean, most respondents indicated participating actively in community sanitation. Most of the track roads are kept clean. Other public places including markets, churches, civic centres, schools and play grounds are regularly cleaned by local population. The disposal of non-degradable materials (plastics, broken bottles, disused cans) on farmlands is of serious concern to local farmers. All respondents rejected the use of public toilets in their community as there is no recognized owner, everybody uses it without much concern for its cleanliness.

#### **Discussion**

The proceedings ensuing from two successive national seminars organized by Imo State University Owerri, on rural development in Nigeria have already presented facts and figures on policy failures on key aspects of rural development. At the end of the first, organized on the 19<sup>th</sup> to 20<sup>th</sup> March 2008 on the theme “**Poverty Issues in Rural Development**”, participants generally concluded that despite the specifically targeted measures put in place by government to tackle poverty such as the Continent-wide

Partnership for Africa's Development (NEPAD), Local Economic and Environmental Management Programme (LEEMP), National Poverty Eradication Programme (NAPEP), and State Economic Empowerment and Development Strategies,

all these measures seem not to be working,(.....), their impact is not (widely) felt, and worse still, their existence is unknown in the vast proportion of the countrywide; that the overall level of rural poverty has increased rather than decreased during the last decade; that gender distortions in the poverty profile has become even more pronounced with rural women and girls being specially disadvantaged; and that the rationale for rural poverty reduction is as clear as are the many manifestations of rural poverty, poverty being strongly implicated in illiteracy, criminality, environmental degradation, political powerlessness, and family/ community backwardness.

The second seminar organized from the 8th to 9th April 2009 with the theme “**Rural Water Supply in Nigeria**” at the same venue, during which approximately 60 papers were presented with participation from nearly all the states of the federation plus Abuja, focusing on sources, distribution, quality, management and utilization, participants also concluded that

government's attitude to rural water provision is poor; water development finance is poor, leading to stagnation of water works; the poor level of water delivery to homes does not match their high level water requirements; and that rural water provision is therefore grossly inadequate both in quantity, quality as well as regularity.

This study on rural sanitation in the South Eastern Nigeria has led to two major findings on the sector: one is conceptual, the other is strategic. Conceptually, the problem of rural sanitation is poorly understood. Most policy- makers and actors in the sector believe that rural sanitation ends with water supply and disposal of human waste (excreta) which is totally false. Their assessment of level of sanitation is usually based on *the ratio of the number of people with access to improved excreta disposal facilities to the total population expressed a percentage* (WHO/UNICEF 2000). Although



these two components are important in the study of rural sanitation, other variables such as personal hygiene, housing quality (ventilation, lighting, etc), refuse disposal, and community sanitation are equally important and must be considered (Duggal, 2008). Studies on rural sanitation in the country have consistently ignored these other vital variables which made the holistic understanding of improvements in the sector very difficult. For example, it may not be surprising to learn from the studied region that 55.5 percent of subjects do not wash their hands after toilets indicating their poor education on personal hygiene, an issue that has been totally ignored by policy makers over the years.

Strategically, it is also believed that improvement in rural water supply will automatically lead to improvement in rural sanitation. This assumption may be valid to an extent but not totally true. Despite the increase in access to water supply in the rural communities of the studied region up to 53.3 percent, improvement in sanitation was estimated to hover around 27.7 percent. This corroborates the results obtained after the execution of the 88 micro-projects on water and sanitation in rural communities of Imo State between 2003 and 2008 in which water supply increased by 68 percent and sanitation by only 25 percent (Nkwocha and Egejuru, 2010).

Aside these conceptual and strategic problems, other factors accounting for poor policy outcomes in the sector have also been identified. For example, if these communities recorded quantum improvements in water supply in the recent past, it is simply because water projects serve many people at the same time and the capital cost may easily be recovered from consumers over the years. Our study revealed that of all the water sources, borehole water received the highest ranking in terms of availability, quality and proximity to sources of supply, even though subjects pay five naira (N5.00) per 20 liter jerry can. Average distance to the nearest water source was reduced to 300 meters with an average time of 30 minutes. For the fact that popular demand for water supply is strong, politicians preferred to invest and be associated with such projects than with those on sanitation (Akeredolu, 1985). The difficulties of implementing sanitation programme arise therefore from the fact that such improvements are an intervention in the domestic domain, carried out at the owner's risk and expense, and frequently at the owner's labour (Caincross, 1992). But as our results indicate, the high willingness expressed by subjects to improve their sanitation simply shows that the problem remains that of promotion rather than administration. In fact, most of these communities have existing strong institutions (town unions, age

grades, women associations etc) and user groups that could serve as powerful vehicles for implementing sanitation programmes to achieve specific objectives in the area. The problem remains that of providing soft loans and connecting with the people. Conflicting data and information on rural sanitation is another dimension of the problem. As some are collected under spurious conditions, results are often manipulated to produce targeted answers to satisfy specific political interests and sometimes for the mere satisfaction of accumulation (Ogunleye, 2006). Different data are published on rural sanitation by national (Bureau for Statistics, Population Commission etc) and international agencies (WHO, UNICEF, DFID, etc), and some conflicts with one another, all focusing only on water supply and provision of public latrines. The situation has not helped policies on rural sanitation to be effective and partly accounted for poor policy outcomes in the sector. Also, the current strategy that posits that increase in agricultural productivity will permit the rural sector to make its essential contributions to overall development, particularly the net transfer to the non-agricultural sector such as sanitation, has in fact failed as this has not helped the sector to evolve positively. This is simply because rural development has not been totally integrated as it is being trumpeted (Bankole, 2010). For example, about 85 percent of subjects who use water closet attained to that status, not because of increase in their personal income from rural employment, but mainly from occasional remittances from family members living within and outside Nigeria and few retired civil servants who opted to finally settle in their villages. In fact, the policy on rural sanitation generally lacks clarity and focus; and today, lack of funds and expertise has become an excuse for poor results. Although these rural communities occasionally mobilize themselves by organizing various activities (launching, levies, donations etc) to raise funds in order to improve their living conditions (electricity, markets, schools, grading of roads etc) a phenomenon that is lacking in other regions in Nigeria, these resources still remain inadequate to address developmental issues given the enormous challenges facing each of them. They certainly need external resources to help in their development process in general, and in the improvement of their general sanitation in particular. With the somber picture on sanitation indicators in the South-East region which has always served as a reference region in rural development in Nigeria, is it sensible and proper to claim that rural development is taking place, considering the volume of resources “expended” each year on rural development? The above results are not really suggestive. The evidence of such a claim is so incomplete that one could question whether the rural economy is even

experiencing any qualitative growth at all! Igbozuruike (1989) questioned whether the rural-urban development hiatus is not expanding rather than contracting, and why with so many agencies at the service of rural development in Nigeria, rural areas still remain underdeveloped.

### **Conclusion**

This study has tried to investigate the state of sanitation in the rural communities of the South Eastern region of Nigeria. The results obtained show that twelve years after the promulgation of a national policy on sanitation, interventions especially in the rural areas have not yielded satisfactory results. As efforts have been focused only on water supply and provision of public toilets, at the detriment of other important sanitation variables, improvements at individual rural households have been totally ignored. The situation is likely to worsen because of the prevailing endemic corruption among government officials who continue to adhere narrowly to intellectual paradigm ill-suited to the challenges confronting the sector. The paper therefore argues that if the general results obtained on rural sanitation in the South East region is so poor, when the region is at the vanguard of rural development in Nigeria, one imagines the situation that prevails in other parts of the country, especially the North where performance is very low. Poor results recorded in rural sanitation are additional evidence of poor policy failure in rural development in Nigeria. An overriding objective is the formulation and implementation of an integrated policy on rural development with much emphasis on the development of the rural economy. If the economy improves people can save money and invest in other sectors to improve their living conditions including sanitation. Other serious interventions include the promotion of health and hygiene education especially among children and women, formation of sanitation committees with functional mandate, training of sanitary inspectors to monitor rural sanitation practices and ensure compliance to basic standards; providing soft loans to families to improve their sanitation, and fostering partnership among local institutions with government, non-governmental organizations and donor agencies to identify and assess community sanitation needs and preferences in order to attain specific objectives.

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**Table 1a: Socio-economic Profile of Respondents**

States / Rural Communities	Number	%	
Anambra (Nteje, Alor, Achina)	209	19.7	
Imo (Amala, Ikem, Alulu)		229	21.6
Ebonyi (Ezza, Ikwo, Akazu)	205	19.3	
Enugu (Akpugo, Ngene, Edda)	221	20.8	
Abia (Okpala, Eruru, Abaka)	198	18.6	
<b>Total</b>	<b>1062</b>	<b>100.0</b>	

**Ib: Occupation of Respondents**

Activity	M(%)	F(%)	Total No (%)
Farming	223(20.9)	281(26.5)	504(47.5)
Trading	101(9.5)	130(12.2)	231(21.8)
Teaching	38(3.6)	63(5.9)	101(9.5)
Craftsmen	146(13.9)	8(0.8)	152(14.3)
Others	27(2.5)	45(4.2)	74(6.9)
<b>Total</b>	<b>535(50.4)</b>	<b>527(49.6)</b>	<b>1064(100.0)</b>

**Ic: Age of Respondents**

	M (%)	F (%)	Total (%)
<18	27(2.5)	14(1.4)	41(3.9)
19-28	48(4.5)	49(4.6)	97(9.1)
29-45	203(19.1)	220(20.7)	423(39.8)
46-60	201(18.9)	211(19.9)	412(38.8)
>61	38(3.6)	51(4.8)	89(8.4)
<b>Total</b>	<b>517((48.7)</b>	<b>545(51.3)</b>	<b>1062(100.0)</b>

**Table 2: Data on Toilet Facilities**

**2a: Types of Toilets**

Types	No	(%)	National Average
Covered Pit	685	62.5	59.3
Water Closet (WC)	206	19.4	17.7
Bucket Sytem	-	-	0.2
Others (Bush, River)	171	16.1	22.8
<b>Total</b>	<b>1062</b>	<b>100.0</b>	<b>100.0</b>

**2b: Age of Toilets (years)**

Age	No	%
≤5	387	36.4
6 – 10	553	52.1
11-14	67	6.3
>15	55	5.2
<b>Total</b>	<b>1062</b>	<b>100.0</b>

**2c: Toilet Types Preferred by Subjects**

Types	No	%
VIP Latrines	187	17.6
Water Closet (WC)	785	73.9
Pit Latrines	90	8.5
<b>Total</b>	<b>1062</b>	<b>100.0</b>

**Table 3: Personal Hygiene of Respondents**

**3a : Personal Hygiene**

Washing of Hand After Toilet	Yes (%)	No (%)
Regularly (>3xdaily)	473(44.5)	589 (55.5)
Sometimes (<3 x daily)	257 (24.2)	605 (57.0)
Often (<3 x daily)	200 (18.8)	

**3b: Self Clearing After Toilet**

Material	No	%
Paper	747	70.3
Rags	88	8.3
Grass/Leaves	194	18.3
Water	33	3.1
<b>Total</b>	<b>1062</b>	<b>100.0</b>

**Table 4: Waste Generation and Disposal**

Sweeping of Homes	No	(%)
Daily	774	72.9
Twice a week	178	16.8
Thrice a week	95	8.9
Weekly	15	1.4
<b>Total</b>	<b>1062</b>	<b>100.0</b>

**Household Waste Disposal Methods**

Method	No	%
Garden	174	14.5
Bush	563	46.9
Burning	419	34.9
Rivers	29	2.4
Others	16	1.3
<b>Total</b>	<b>1064</b>	<b>100.0</b>

**Table 5: Sources of Water Supply**

Sources	No	%
Rain	137	12.9
Well/Hand Pump	188	17.7
Borehole	454	42.7
Stream/River	213	20.1
Water Vendors	70	6.6
<b>Total</b>	<b>1062</b>	<b>100.0</b>

**Rural Household Water Infrastructure**

Infrastructure	Urban (2008) (1)	Rural 2008(2)	South East (rural) 2010(3)
Access to water	81.2	63.6	53.8
Safe water source	53.4	19.2	42.7
Year round water source	36.5	30.9	51.2
Water treatment before drinking	6.9	6.6	4.8

Sources: (1) and (2) National Bureau of Statistics, 2009; (3) Field survey, 2010