

An Analysis of the Performance of North East Arid Zone Development Programme (NEAZDP) in Rural Water Supply in Northern Yobe State, Nigeria

Halima Yakubu Mukhtar¹, Fatima Bukar Bababe², Yakaka Abba³

¹Department of Sociology and Anthropology Maiduguri, Borno State, University of Maiduguri Nigeria.

²Department of Sociology and Anthropology Maiduguri, Borno State, University of Maiduguri Nigeria.

³Department of Social Studies Maiduguri, Kashim Ibrahim College of Education, Maiduguri, Nigeria.

*Corresponding Author:

Halima Yakubu Mukhtar

Email: sanimkura1973@gmail.com

Abstract: Yobe states is located on the fringes of the desert that is associated with water scarcity that is more acute than elsewhere nationally. This had revealed that access to clean water still remains a major challenge to almost half of the populace. This research attempted to address these problems and proffer solutions to it. The general objectives of the study was; the performance Evaluation of the North East Arid Zone Development Programme (NEAZDP) in Rural Community Water Supply in Northern Yobe State, Nigeria. The specific objectives were to: examine the socio-economic characteristics of the beneficiaries of NEAZDP, assess the constraints of the people in terms of water supply and identify the sources of water supply to the community before and after NEAZDP intervention. The research utilized both primary and secondary sources of data. Combinations of quantitative and qualitative methods were used as the research methodology. Purposive sampling was used in the sample selection. A total sample of 400 respondents were selected and interviewed. Regression analysis was used to examine the impact of NEAZDP on the rural community development. The major findings of the study showed that, the people in the rural areas lack basic necessity of life, and the provision of good drinking water supply. Based on the findings, there were low living standard and quality of life, a fragile production base and increased pressure on land from growing population.

Keywords: NEAZDP, Regression analysis, fragile production.

INTRODUCTION

NEAZDP has been implemented with the objective of improving the socio-economic conditions of the people of northern Yobe State. A cursory observation of the status of the people in the northern Yobe State revealed that the socio-economic status of the people of the area is still low. It is commonly observed that poverty still persists in the rural communities of northern Yobe State. Provision of basic infrastructure (water, health, education and roads) is inadequate, making lives very difficult for the people. The living standards and the social and economic situation for a large proportion of the population are at a very critical level. Many communities still have no easy access to sufficient drinking water of good quality. The availability and standard of even basic health services are inadequate.

Lack of access to water lead to a high prevalence of waterborne diseases. All over the world approximately three million children of less than five years old die yearly from diarrhea and other water related illnesses mostly acquired from contaminated water. This raises the question as to whether NEAZDP has significantly impacted on the people in the study

area regarding water supply. There is need to investigate and understand the impact of NEAZDP on the people of the area. The extent to which the performance of NEAZDP regarding water supply on the community development of Yobe North is therefore investigated in this study. Since there was no performance evaluation of NEAZDP's intervention in water supply in northern Yobe State, this necessitated the undertaking of this research.

Objectives of the Research

The main objective of the study was to assess the performance of NEAZDP in rural community water supply in northern Yobe State, Nigeria.

The specific objectives of the research were to:

- i. examine the socio-economic characteristics of the beneficiaries of NEAZDP;
- ii. assess the constraints of the people in terms of water supply before and after NEAZDP intervention;
- iii. identify the sources of water supply before and after NEAZDP intervention

Research Questions

In order to achieve the objectives of the research, the following questions are articulated;

- i. Has NEAZDP improved on the socio-economic conditions of the rural people?
- ii. What are the constraints faced by the people in terms of water supply before and after NEAZDP intervention?
- iii. What are the different sources of water supply to the community before and after NEAZDP intervention?

Significance of the Research

The research is useful immensely to NEAZDP management to evaluate how the programme has affected the development of the rural community. It is also be useful to researchers, scholars and policy makers, in policy planning and implementation in the field of rural community development. In addition, this research will contribute to the existing literature on rural community water development. This study will be useful for better understanding of NEAZDP's activities and its future responsiveness to the needs of the rural populace.

Scope and Limitation of the Study

The research is interested in the performance evaluation of NEAZDP in rural community development. The study is restricted to northern Yobe State.

This research focused on the areas that NEAZDP gives more priority, that is, water supply. NEAZDP has executed a lot of projects on rural community development however, the research was limited to rural water supply in the two selected Local Government Areas of Karasuwa and Nguru.

Concept of development

Over the years, considerable interest has been shown by people from all walks of life in the development of the rural areas, both in the developed and the less developed countries (LCDs). These concerns were **expressed** in such fields as scientific, technological, socio – cultural, psychological, political and economic aspects of rural development [1].

Many schools of thought have prescribed various panaceas for addressing the ills of rural life and living. For example, protagonists of industrialization tend to emphasize industrial possibilities of rural development, while advocates of "back-to-the-land" see modernized agriculture with efficient utilization of natural resources such as land, labour, fisheries, forestry, livestock, and minerals as well as allied processing operation as a process of a faster rate of development of the rural economy [1].

The term development does not refer to one single phenomenon or activity nor does it mean a general process of social change. All societies, rural and urban, are changing all the time. This change affects, for example, the society's norms and values, its institutions, its methods of production, the attitudes of its people and the way in which it distributes its resources. A rural society's people, customs and practices are never static but are continually evolving into new and different forms [2].

Development is more closely associated with some form of action or intervention to influence the entire process of social change. It is a dynamic concept which suggests a change in, or a movement away from, a previous situation. All societies are changing, and rural extension attempts to develop certain aspects of society in order to influence the nature and speed of the change. In the past few decades, different nations have been studied and their level of development has been determined; this has given rise to the use of terms such as developed as opposed to *developing* nations. In other words, it is assumed that some nations have advanced or changed more than others, and indeed these nations are often used as the model for other, developing, nations to follow [2].

Development involves the introduction of new ideas into a social system in order to produce higher per capital incomes and levels of living through modern production methods and improved social organization, i.e. rural development requires the injection of technological inputs into the rural social system in order to achieve development.

Development implies a total transformation of a traditional or pre-modern society into types of technology and associated social organization that characterize the advanced stable nations of the Western world; i.e. rural community needs the supply of modern technology in every sector, such as, agriculture, health, education, road, transportation etc. for them to be fully developed.

Development is building up the people so that they can build a future for themselves. Development is an experience of freedom in deciding what people choose to do. To decide people's potential and proceed to their enhancement and growth [3]. According to Flora *et.al* [4], much has been written about the process of development, and the approaches which developing nations should adopt in order to develop. Reviewing this literature it can be concluded that a process of development should contain three main elements.

Economic: The development of the economic or productive base of any society, which will produce the goods and materials required for life.

Social: The provision of a range of social amenities and services (i.e., health, education, water, road, welfare) which care for the non-productive needs of a society.

Human: The development of the people themselves, both individually and communally, to realize their full potential, to use their skills and talents, and to play a constructive part in shaping their own society.

Development has to do with the above three elements. It should not concentrate upon one to the exclusion of the others. The economic base of any society is critical, for it must produce the resources required for livelihood. But we must also think of people and ensure their active participation in the process of development [5]. Rural development strategies usually take the form of programme which implements projects in a specific rural area. Such programmes form the basis of most government and non-governmental efforts to assist rural areas, and they include both agricultural and non-agricultural projects, e.g., maternal and child health programme. Specialized staff supply the expertise required, and ministerial or other institutional budgets provide the necessary financial resources. External aid is also usually channelled into such programmes in the rural areas [6].

Several agricultural and rural programs were introduced by the federal government in this era. These include the National Accelerated Food Production program [59], the Integrated Agricultural Production program [62], the River Basins and Rural Development Authorities [58], the Local Government Reform [57]. Operation Feed the Nation [60] and the Green Revolution [61]. There were also many macroeconomic policies (trade regimes and exchange rate policies) which impacted rural people [56].

The Federal government invested in different agricultural schemes. River Basin Authorities (RBA) were initially started in the northern part of the country on the basis of the claim that the area is prone to drought. Hence major dams were constructed to help with irrigation. The initial big three were those of South Chad, Kano-Jama'are and Bakolori. Funding mainly came from the federal government and European private capital- Local staple foods like sorghum and millet were not allowed to be grown under the schemes. The major Crops grown were wheat, rice and vegetables. These commodities were not part of the regular diet of the local people [63, 64]. People lost control of their culture of farming and in some cases their land. The environmental and economic consequences of the projects have been disastrous [63, 34].

The Integrated Agricultural Development Programs (ADP) was mainly funded by the World Bank

in conjunction with the state governments. These programs were meant to improve the Lives of smallholders through the provision of inputs (pesticides, fertilizers, ox ploughs, and improved seed varieties) and construction of rural infrastructure (feeder roads). Some selected large- scale agricultural farmers benefitted from the projects, but they were not the main focus. Agricultural farm service centres was set up to stock inputs in various parts of the country; and extension agents were appointed in communities to provide "expert" knowledge.

The ADPs, unlike the irrigation schemes focused on rain fed agriculture such as maize, groundnut and cotton. The growth of maize was meant to provide raw materials for feed mills. The ADPs were first started in Gombe, Gusau and Funtua and later expanded to all states of the federation [65]. In terms of the economic returns of the ADPS, the picture is not very clear. While the World Bank and the Nigerian government have declared the projects successful, while many studies have raised doubts on the validity of those claims [66]. At the same time many other studies of the ADPs have concentrated on the process of peasant differentiation engendered by the projects. It has been argued that the ADPS have set in motion a gradual process of depriving lower class peasants of their lands. This has been as a result of the targeting of upper-class farmers or progressive farmers by project officials and by the invasion of rural areas by rich and powerful bureaucrats, project officials and traditional rulers who have the connection and the resources to engage in large-scale agriculture [65, 12]. In relation to funding and institutional structure, as indicated above, most of the funds for the projects came from the World Bank and the institutional arrangement is organized in such a way that for the first five years of the projects, they are controlled by officials from the Bank. In subsequent years, the Bank staffs are gradually replaced by local staff. Their *modus operandi* is very different from that of the ministries of agriculture: more autonomous, less politicized and better funded. They tend therefore to hire the best qualified local staff and to provide them with more favourable conditions of service [67, 12]. Another problem which the Kaduna state government raised, was that of political accountability. The government was concerned that the Bank was more accountable to the federal government than to the state government. In addition, the government accused the Program of recruiting its local staff mainly from very well-known political circles [67,12].

The Local Government Reform of 1976 is an important departure both in terms of rural development and rural democratization. Local governments were given the mandate to provide a wide range of social amenities and infrastructure within their jurisdiction. The activities of the local governments which are

specified in the reform document and in the 1979 constitution include water, electricity, motor parks, primary education, roads and health facilities. Some of these activities were previously performed by the state governments and since the local governments hitherto had no power specified in the constitution [68]. In terms of rural democratization, there are very important changes as well. A national local government reform has the impact of establishing similar institutions in all parts of the country.

Operation Feed the Nation (OFN) and the Green Revolution were attempts by the Obasanjo [74] and the Shagari [75] regimes respectively to give more institutional support to agriculture and the rural areas. OFN was headed by a National Council with the Chief of Army Staff as chair, and at each state level there was a similar council chaired by the state governor. The OFN was involved in mobilization of various segments of the population including students, members of the armed forces, civil servants and the rural dwellers to participate in agriculture. Inputs supply and direct execution of agricultural projects were part of its mandate- After the banding over of power to an elected civilian regime in 1979, the Green Revolution was launched in 1980 by the Shagari regime.

The national council was assisted by a Green Revolution Committee composed of technocrats. The states were advised to form similar structures at their levels. The emphasis under the Green Revolution was on coordination of activities rather than supply of inputs or direct execution of projects (Federal Government of Nigeria nd, 6). The politicization of the green revolution was very well pronounced during the civilian regime. The revolution became a revolution of the party in control of the federal government, similarly, the instruments of the green revolution were used to recruit and reward political cronies and punish opponents at the local level [70- 72].

“Development” is a process that increases choices. It means new options, diversification, thinking about apparent issues differently and anticipating change [73]. Development involves change, improvement and vitality – a directed attempt to improve participation, flexibility, equity, attitudes, the function of institutions and the quality of life. It is the creation of wealth – wealth meaning the things people value, not just dollars [7]. It leads to a net addition to community assets, avoiding the “zero sum” situation where a job created “here”, is a job lost “there”.

Development can also sometimes mean “less”, fewer people in a community, or the loss of a manufacturing plant for example could improve the circumstances of what people value in the community.

Development can occur without growth and growth can occur without development [5].

Concept, Approaches and History of Community Development

Sanders [8] hold the idea that, the term community development derives its surname from economic development as the paternal parent, and its first name from community organization as the maternal parent. Thus, community development can be regarded as a method or process of tackling the problem of community organization in order to bring about economic development. Sanders, identifies four major approaches to community development which also account for variations in definition. Thus, according to him, some social scientists think of community development as a process and focus upon the sequences through which communities (or their segments) go as they move from a pre-industrial to an industrial type or a similar kind of overall change; others who are action rather than research-oriented, think of community development as a method to be used in moving toward their objectives. They focus upon accomplishments rather than upon sequences. With the third grouping, community development means a programme that has been carefully thought and in term of content as well as procedures. A fourth view is that community development is a movement. It is more than a mere programme, but is rather a special kind of programme that holds unusual promise and worthy of unabashed commitment by those who want to see rural revolutions take place in underdeveloped countries or who want to see poverty and illness alleviated among the great masses of under-privileged humanity.

However, earlier conception of the community development was first conceived by the Colonial Office in Britain in the 1920s as a special 'development model' for the rural areas of its dependent territories. Its aim, according to Hodge [76], was to compensate for the short-comings of the Conventional School system in the former British dependent territories, and to serve as a vehicle for progressive evolution of the people to self-government in the context of social and economic change. Thus the colonial administration's original conception of community development was in terms of mass education. Community development centers were set up in some of the colonies where skills in house building, carpentry, shoe-repairing and various handicrafts were taught. The training was aimed at developing skill in these areas and having the trainees return to their rural communities to impart these skills to others. However, most of those who acquire such skills did not stay within their rural communities but went to establish some in the burgeoning city centers.

Nevertheless, the notion of community development as mass education was pursued

particularly in Ghana (then Gold Coast) and it was there that a national organization for community development and social welfare was first fully developed. According to Mason [9], Ghana launched a five year programme for mass literacy and mass education comprising literacy campaigns, home economics, and extension work for women, a programme of aided self-help, and provision for setting up a common service organization for extension campaign.

According to Sautoy [10], the programme was so successful in Ghana that the neighboring French Colonies were influenced and joint training programmes for Ghanaian and Togolese community development workers were eventually arranged. From this point of view, community development was seen by the British Colonial Officials as having "to do with getting backward people in the right frame of mind for doing things". Politically, community development sets out to achieve a hopeful 'climate' in which government and people may cooperate and human capacity be developed.

The study by Sautoy [10] reported that, in Cyprus, Fiji, Aden, East and Central Africa, the West Indies and Malaya, community development was concerned with hastening the process of unifying the various communities within a plural society. It became clear as time went on that the concept of "mass education" while it served a particular phase, could not be the sole orientation of community development. In 1945, the Ashridge Conference on social development therefore, redefined community development as a movement designed to promote better living for the whole community with the active participation and on the initiative of the community.

In 1948, the Cambridge Summer Conference on African Administration sponsored by the Colonial Office, further defined community development as a 'movement to promote better living for the whole community, with active participation and if possible on the initiative of the community, but if this initiative is not forthcoming spontaneously, by the use of techniques for arousing and stimulating it in order to secure its active and enthusiastic response to the movement'.

As the term community development' gained international recognition, the United Nations in 1956, adopted the following definition: "Community development is the process by which the efforts of the people themselves are united with those of governmental authorities to improve the economic, social and cultural conditions of communities, to integrate these communities into the life of the nation, and to enable them to contribute fully to national

progress. This complex process is, therefore, made up of two essential elements:

- (i) The participation by the people themselves in efforts to improve their level of living, with as much reliance as possible on their own initiatives; and
- (ii) The provision of technical and other services in ways which encourage initiative, self-help and mutual help and make these more effective.

The approaches to community development in Nigeria were divided in to two levels, the governmental level and the local people's levels. At the governmental level, community development in Nigeria is handled through a 'multi-purpose approach'. This involves an attempt at developing the rural areas "by coordinating the extension services of the various executive ministries and integrating the people, organized self-help and cooperative actions with the specialized services of the government and other voluntary agencies". In other words, community development has been seen as an umbrella organization within which a variety of local level programme could be housed [11].

The studies continue to analyze and classified the government's approach into three (3) sub-heads, (i) Extension; (ii) Project; and (iii) Services

The extension approach, according to him, concentrates on the direct teaching of local people the improved methods and techniques of farming, health care or how to read and write. The project approach is more often linked with rural development. It entails the establishment of an economic project such as a farm settlement or rural based industry. Neither of these two approaches is however, based on the initiatives of the people, but that of the government or its agencies [11].

The service approach is the only one that is often based on the initiative of the local people. It involves the provision of social amenities like postal agencies, dispensaries, pipe borne water, community halls, etc. Generally the local communities or their voluntary associations or elected officials have to express and justify to the government, the need for a particular social service. Then the community is encouraged to initiate or be ready to contribute to the provision of such service [12].

At the people level, community development in Nigeria is tackled through the "inner resources or self-help approach". This is a case where the people themselves through discussions, stimulation through demonstration, and internal enlightened leadership, identify their needs and mobilize their own resources to meet such needs, (e.g a school building, community centre, new road, market stall, etc), while the

philosophy itself is an extension of the traditional communal way of life of the people [12].

Although the governmental 'multi-purpose' approach aims at stimulating action in the various aspects of the community life, the fact of and strategy for marrying this approach with the 'self-help' approach have remained enigmatic in Nigeria [11]. The key elements of community development are expressed to varying degrees in many definitions. Some key descriptions are as follows:

1. For community development to occur, people in a community must believe working together can make a difference and organize to address their shared needs collectively [4]
2. Community development is a group of people in a community reaching a decision to initiate a social action process to change their economic, social, cultural and environmental situation [77].
3. Community development is a process that increases choices. It creates an environment where people can exercise their full potential to lead productive, creative lives. (Shaffer pers. com.)
4. Community development is a process where people are united with those of governmental authorities to improve the economic, social and cultural conditions of communities and communities are integrated into the life of the nation enabling them to contribute fully to national progress [13].
5. Community capacity is the combined influence of a community's commitment, resources and skills that can be deployed to build on community strengths and address community problems and opportunities [78].
6. Community vitality is the capacity of the local socio-economic system to survive and persist in generating employment, income, and wealth and to maintain if not improve its relative economic position [7].
7. Community economic development is about identifying and harnessing local community resources and opportunities and stimulating sustainable economic and employment activity [14].
8. Sanders [8] saw community development as a process moving from stage to stage; a method of working towards a goal; a program of procedures and as a movement sweeping people up in emotion and belief.

Rural community development as observed in Cavaye [15] is a process conducted by community members. It is a process where local people cannot only create more jobs, income and infrastructure, but also help community become fundamentally better able to manage. Rural community development involves a process and a series of actions and decisions that

improves the situation of a community, not just economically, but also as a strong functioning community. It is through action, participation and contact that the community becomes more vital, more able to manage change with stronger networks, organizational ability, skills, leadership and passion.

Community development assumes that community is a unit of solution, but as the social characteristics of community members change, community itself can become a contested concept. That challenges those who care about its future [16-19].

Community development can have outcomes at the personal, organizational, and community level. For example, it can promote personal development such as sense of direction, social connectedness, and psychosocial well-being, organizational capacity, such as leadership, management, and resources allocation, and community changes, such as education, environment, housing, urban development, and civil society [20, 21].

However, rural community development is a process conducted by community members. It is a process where local people can not only create more jobs; income and infrastructure, but also help their community become fundamentally better able to manage change.

The "concrete" benefits of community development, such as employment and infrastructure, come through local people changing attitudes, mobilizing existing skills, improving networks, thinking differently about problems, and using community assets in new ways. Community development improves the situation of a community, not just economically, but also as a strong functioning community in itself [19, 17].

Rural community development builds the five capitals of a community – physical, financial, human, social and environmental. It is through participation in their community that people rethink problems and expand contacts and networks; building social capital. They learn new skills, building human capital. They develop new economic options, building physical and financial capital. They can also improve their environment. Community development combines the idea of "community" with "development" [15].

Community development is often associated with terms such as community capacity building, community vitality, empowerment, rural development or self-reliance. The basic elements of collective action, ownership and improved circumstances are common to all these ideas.

The National Institute for Health and Clinical Excellence states that “community development is about building active and sustainable communities based on social justice, mutual respect, participation, equality, learning and cooperation. "It involves changing power, structures to remove the barriers that prevent people from participating in issues that affect their lives” [22].

There are five essential strategies that build on a community's existing capacity to improve its health:

- a. Community involvement – moving individuals to become empowered participants and leaders;
- b. Intersectoral partnerships;
- c. Political commitment- fostering community engagement and capacity building;
- d. Healthy public policy – where government action in non-health sectors is designed to have a benefit in improving the population's health;
- e. Asset-based community development – is empowering rather than disempowering and treats individuals and communities as having ability [22].

Community development is about change within communities and it initiates and supports community action and outcomes. Building on strengths and assets, supporting local catalytic leaders, increasing connections, enhancing participation across sectors, building capacities (i.e. individual, organizational and community) and relationships, learning and adapting, celebrating results and changes, encouraging sustainable and focusing on systems change and letting community's problem solve and address their priorities is community development. It is the process of helping community strengthen itself and develops towards its fullest potential [15, 23, 24].

The Nature and Prospects of Community Development in Nigeria

In Nigeria, community development is conceptualized as any action in a locality taken by any agency or the local residents themselves, with the primary intention of bringing some benefit to such a locality, therefore community development is not new to Nigeria. Rather, it has been carried out by villagers, voluntary associations, and various government functionaries long before the idea become formalized and institutionalized. For instance, communities have constructed and maintained market squares and roads, cleared their farmlands and cooperated in the cultivation and harvesting of crops. As far back as 1830, the people of Abeokuta in Western Nigeria built a civic centre, the centenary hall through self-help effort. Similarly, the Ibibio communities of South-Eastern Nigeria banded themselves for social development as far back as 1928. By 1938, they were offering scholarships for overseas

education to their promising sons, and in 1939, established the Ibibio State College which was entirely supported by their own resources. Sanctions for failure to participate may range from the payment of a nominal fine to court action [25].

The formalization of community development in Nigeria as a special government concern dates back to 1948. Following the Cambridge Conference that year, the British Colonial Administration in African countries was directed by the Colonial Office in London, to intensify efforts in promoting community development. Mass Education Officers were appointed and were required to organize adult literacy classes and encourage people to undertake community projects. Thus community development was officially promoted by District Officers, Development Officers, and Adult Education Officers in different parts of the country. With the establishment of Regional Parliamentary Government in 1951, community development became a Regional Government responsibility. The Region, in turn, pushed the responsibility down to the Local Councils which existed then but remained as the 'coordination' and 'chief sponsor'. Each region had some Ministry within which the responsibility for community development rested. The Western Region, for example, created a Ministry of development in 1954, with sections for community self help and Youth Clubs Organization. By 1966, it became a more comprehensive unit including health and social welfare [25].

Community development in Nigeria has never been considered as a direct Federal Government's responsibility and so no separate Ministry of community development exists at that level. Interest in community development has however, been expressed within the Federal Ministry of Health and Social Welfare, who in addition to other things, has arranged regular seminars on community development issues. With the reforms brought into being in the Local Government system in Nigeria since 1976, the functions formerly carried out by the state ministries of community development have now being assigned to the Local Government. This action has meant that either the state ministries of community development should be merged with the Local Government, or that such a ministry should be totally discarded. This has remained an unresolved issue so far [26].

The 1979 Ibadan Seminar on the 'Principles and Practice of Community Development' sponsored by the Social Development Directorate of the Federal Ministry of Health and Social Welfare, recommended that the state Community Development Divisions should continue to exist even where its functions are concurrent responsibilities of Local Government. However, it emphasized that the state's community

development division should be concerned with education and training of staff, coordination of programmes, formulation of policies and maintenance of standards [26].

At the organizational level, it would therefore appear that the future of the state ministry of community development in Nigeria will continue to hand on the performances of the new Local Government system. If the Local Governments perform their duties effectively, the community development ministry will have to concede and recognize its redundancy and vice versa. At the operational level, the growing recognition of the fact that local community problems are not only social welfare problems but also includes economic and structural problems. Rural community development in Nigeria should therefore combine the ideals of community development with those of rural development.

Community development is one of the several strategies to create change. For example people can mobilize around issues, organize for social action, and plan local programmes. They can participate in government proceedings, advocate issues that concern them, raise critical consciousness, and provide community based services. There is no single strategy to create change, there are many [27- 31].

Water Resources Development in the Yobe Basin

The Yobe river system is watered by the Hadejia and Jama'are river systems and their tributaries. This two main rivers join at the eastern edge of the Hadejia-Nguru wetlands to form the Yobe River which drains into Lake Chad covering an area of 84, 134km². The Hadejia river rises from the Kano highlands while the head waters of the Jama'are river are in the Jos Plateau [32]. Within Hadejia river system, the natural pattern of run-off has been modified by the construction of dams and the associated large-scale irrigation schemes, most notably Tiga and Challawa dams and the Kano irrigation scheme in the upper basin, and the Hadejia valley irrigation project in the middle of the basin [32].

The Yobe river system, and in fact the entire Hadejia-Jama'are-Komadugu Yobe basin plays a vital role in the Nigerian economy and also in the part of Niger Republic, by enabling the production of crops, livestock, fish and other wild resources, thus providing a means of livelihood to people in the basin who live directly or indirectly on these resources. Crops production system includes rice, vegetable and maize under irrigation; cassava and vegetables under residual moisture and fruit trees. Animals are mainly reared by trans-human pastoralists, while others are kept at home. Fish is also a major resource in the basin thousands of tons of fish are harvested every year from the basin.

Many settlements in the area depend almost entirely on ground water for domestic use, animal consumption and small scale vegetable irrigation, as surface water in the valley has been adversely affected by the construction of dams upstream in Kano and Jigawa states [32].

The Concept and Overview of Global Water Resources

Water is used all day by all people. Water is vital to agriculture, industry, and household affairs. Increase in population brings about the consumption of water in agriculture significantly. In 1990, about 70% of total consumption of water was for agriculture; while 21% of that was consumed in the industry, and the rest of it was consumed in urban water and other usages. The percentage of water consumption is variable from country to country in each section. In Egypt, 98% annual consumption of water has to do with agriculture on average; on the other hand, in Malta 100% of annual consumption of water has to do with the general consumption, and no water is used in agriculture. Finland has the most water consumption in industry; it uses 85% of its water sources in industry [33].

In the perspective of MDGs, the main target is to extend coverage of safe drinking water and basic sanitation to 80% of the rural populations by 2015 from the base level of about 47% coverage for water supply and 44% for sanitation in 2000. The total resources requirements for achieving 80% access to water and sanitation by 2015 is estimated to be US\$ 14.2 billion as committed during the Paris Conference in 2005 [34].

The experiences of African stakeholders as well as the discussions held at the regional level in Water Sanitation and Sustainable Development (WSSD) in 2002, shows a slow progress in achieving water and sanitation commitments and despite that most of sub-Saharan Africa is continuing to fall behind its targets. Roughly one-third of Africa's population does not have access to clean water, while nearly 60%, or 589 million people, lack access to safe, improved sanitation. One million Africans, mostly children, die every year from sanitation, hygiene and drinking water-related diseases [35].

The Human Development Report [36] outlines the key reasons why governments should act, and how they should act to achieve the water and sanitation related targets under each MDG. First, for sub-Saharan Africa to get on track, connection rates for water will have to rise from 10 million a year in the past decade to 23 million a year in the next decade. Second, in the area of sanitation, the World Health Organization estimates that the continent needs to increase coverage to more than 221 million untouched people to meet the MDG target date, the year 2015.

African water ministers meeting in Tunis in March, 2008, noted that despite achieving the longest sustained period of economic growth in the recent past, sustainable poverty reduction is still a dream for most countries. Given the central role that water plays in combating poverty, that a second African conference on Sanitation and Hygiene, was held in Durban, South Africa, February 18-21, 2008). Issued at the second African Sanitation meeting (African+5) they reiterated the need for African governments and their international partners to commit a fixed percentage of their budgets to water and sanitation and to encourage matching private sector investments.

Despite the remaining challenges, there are positive signs that governments and other stakeholders in Africa are determined to muster political will and sustained, coordinated action to keep on track. The outcome of the Durban and Tunis meetings is endorsed by African Heads of State Summit in July 2008, whose focus will be on water and sanitation, generating the needed high level political impetus to accelerate implementation.

A number of countries have made major strides towards better coordination of their water and sanitation programme. The benefits of a well-targeted approach can be seen in Senegal, which raised urban water access from 58% to 98% within a decade. Uganda, Ethiopia, Zambia, Malawi and Mozambique have been successful in sector-wide plans linked to Poverty Reduction Strategy Papers (PRSPs). Despite having one of the lowest water and sanitation access rates in Africa, Ethiopia in particular has shown impressive leadership in aligning the efforts of all key players, relevant line ministries, major development organizations and donors, to contribute to its Universal Access Plan for 2012.

Across the continent, many multilateral and bilateral donors as well as NGOs are channeling more resources to the water and sanitation sector, and are increasingly partnering to coordinate and scale up their interventions; trans-boundary cooperation along shared river and lake basins is on the rise; integrated water resource management policies are increasingly being adopted at national and sub-national levels [37].

Water Sources of the continents

Water sources of every continent is different from each other and depend on the atmospheric falls, the evaporation, running water, the flow of the streams, and underground water reservoir. The Asia is the continent which has the most total raining (except its European part). But the continent which has the most depth of raining water is the southern America. The average annual raining of the America is 1,658 ml, while the Asia only receives 726 ml per year. North

America receives the least average of the raining depth per sq km which is just 670 ml per year. Another important factor in water sources of the continent is the evaporation. Southern America has the most evaporation rate 1,065 ml per year, and also the most river running water of 583ml per year, with the raining depth per sq km. North America has the least evaporation rate 383 ml per year. The least river running water of 139ml per year arises in Africa. The underground water reservoir is another significant source of water for the continent. Asia has the most total estimated reservoir 7.8 million sq km, North America has the largest underground water reservoir per sq km. the underground water reservoir of Asia is only 17 million sq per km. Australia is a continent which has the least total reservoir and also the least underground water reservoir 14 million sq. per km [33].

Key Challenges and Constraints on Water Resources

The World Bank estimates that 60% of Ethiopia's overall disease burden is related to poor sanitation and hygiene, and that water insecurity reduces the country's GDP growth by 38%. The Africa Water Vision 2025 launched by a number of UN agencies and African regional bodies at the Second World Water Forum in 2000, identifies a number of natural and human threats to water security in Africa. It notes that the natural threats are primarily associated with Africa's extreme climate and rainfall variability, and are worsening as a result of climate change. Some of the impacts includes, growing water scarcity, shrinking of some water bodies, and desertification. The human related threats include;

- (i) inappropriate governance and institutional arrangements in managing national and transactional water basins;
- (ii) depletion of water resources through pollution, environmental degradation, and deforestation;
- (iii) failure to invest adequately in resource assessment, protection and development; and,
- (iv) unsustainable financing of investments in water supply and sanitation [35].

While Africa's difficult hydrology and vulnerability to natural disasters contributes to water scarcity, it is human action, or inaction, that presents the greatest challenge in harnessing the existing water resources to improve livelihoods of the majority of Africans. As the Human Development Report [34], puts it "the availability of water is a concern for some countries. But the scarcity at the heart of the global water crisis is rooted in power, poverty and inequality, not in physical availability."

In line with this analytical framework, the African stakeholders report on what can be done to achieve water security and safe sanitation for all, highlights some priority points for Commission on Sustainable Development (CSD, 16).

Building a Sound Knowledge Base for Integrated Water Resource Management

In terms of its hydrology, nature has dealt Africa a difficult hand, making it deeply water insecure. Large sections of the continent experience extreme variability of rainfall compared to temperate zones, and are prone to serious drought due to low levels of internal renewable water resources (less than 1000m³ per capita / year). The extensive dry lands of the Sahel, East Africa and the Horn, and Southern Africa have experienced extensive loss of vegetation cover and a greater frequency of drought over the past few decades, resulting in significant social, economic and environmental costs that are borne mostly by poor. At the other end of the scale, Africa has an abundance of rivers with catchment areas greater than 100,000 km², but most of these resources cross international boundaries, necessitating agreements on water use and sharing. Africa has only harnessed about 4% of its annual renewable water resources for irrigation, water supply and hydropower use, compared to the rates between 70 - 90% in developed countries, which also exacerbates its vulnerability to natural disasters, alternating between extreme drought and heavy flooding [35, 38].

Commission on Sustainable Development (CSD) called for the development and transfer of low cost technologies for safe water supply and treatment through North-South and South-South cooperation and partnerships; and developing capacities in the area of water desalination, treatment of contaminants, rainwater harvesting and water efficiency, sanitation, waste-water treatment, reuse and residual management. CSD also focused on engagement of stakeholders and major groups, particularly women and youth, in the planning and management of land, water and sanitation resources, services and awareness campaigns [35].

Integrated water resource management (IWRM) approach plays an important role in harnessing sufficient water resources for economic development, whilst protecting the natural resource base. The current focus on climate adaptation strategies provides new opportunities for increased investment in sound IWRM practice which include:

- (i) efficient water use and water recycling;
- (ii) early warning and drought monitoring;
- (iii) rainwater harvesting;
- (iv) groundwater development;
- (v) construction of water storage and inter-basin water transfer facilities, and

- (vi) renewable energy sources [39].

Governance and Institutional Capacity Constraints;

While Africa is faced with formidable natural challenges, there is a growing consensus that the inability to address these challenges is primarily one of governance and institutional capacity to ensure that basic services are accessible to all. A clear challenge therefore is to address water scarcity and access to sanitation within a broader sustainable development strategy. Yet this requires strong and accountable public institutions that can mediate between conflicting interests and ensure in particular that the needs of the poor are addressed in a sustainable way [39].

It is no coincidence that countries that are off-track for the MDGs are characterized by a donor driven rather than government led water and sanitation agenda. NGO activities are off-budget and weakly coordinated, there is insufficient understanding of the wider linkages of water locally and the capacity to implement policies is weak. Even when there is political will and leadership, and adequate funding, achievement of water security and safe sanitation goals can only happen if there is institutional capacity at national, sub-national and regional level. At the national level, clear definition of institutional roles and responsibilities and consensus on which organisation takes the lead in water and sanitation programme is needed to ensure harmonization of efforts and efficient use of resources. And identification of priority areas, similarly, most governments in sub-Saharan Africa do not have the capacity to manage this process. A critical component of this is achieving devolution of responsibility to local level where capacity is weakest [40], and the following key points were noted:

- (i) Commission on Sustainable Development (CSD) called for strengthening of human and institutional capacities for effective water management and service delivery through, among other actions;
- (ii) building local capacity to operate and maintain water systems, training educators, managers and technicians in water management;
- (iii) tapping local knowledge, facilitating information exchange and knowledge sharing;
- (iv) training farmers and water user associations in efficient water use and sustainable agricultural land management;
- (v) providing technical back-stopping to public utilities, community-based organisations and small scale providers in the development, operation and maintenance of sanitation systems;
- (vi) supporting sanitation marketing campaigns, research and dissemination of information and

- guidelines, on surface and groundwater quality;
- (vii) efficient waste water treatment technologies and reuse; and,
 - (viii) low-cost sanitation options, including applications of indigenous technologies and ecological sanitation [41].

Water Challenges in Africa

Africa faces huge challenges with multiple issues that adversely affect public health. One major challenge is the ability for both rural and urban Africans to access a clean water supply. According to the WHO [43], only 59% of the world's population had access to adequate sanitation systems, and efforts to achieve the Millennium Development Goals, which is aiming for 75% by the year 2015, will fall short by nearly half a billion people. The situation of access to clean water and sanitation in rural Africa is even more dismal than the previous statistics imply. The WHO [43] stated that, in 2004, only 16% of people in sub-Saharan Africa had access to drinking water through a household connection (an indoor tap or a tap in the yard). Not only is there poor access to readily accessible drinking water, even when water is available in these small towns, there are risks of contamination due to several factors. When wells are built and water sanitation facilities are developed, they are improperly maintained due to limited financial resources. Water quality testing is not performed as often as is necessary, and lack of education among the people utilizing the water source leads them to believe that as long as they are getting water from a well, it is safe. Once a source of water has been provided, quantity of water is often given more attention than quality of water [13].

There are limited sources of water available to provide clean drinking water to the entire population of Africa. Surface water sources are often highly polluted, and infrastructure to pipe water from fresh, clean sources to arid areas is too costly of an endeavor. Groundwater is the best resource to tap to provide clean water to the majority of areas in Africa, especially rural Africa, and groundwater has the benefit of being naturally protected from bacterial contamination and is a reliable source during droughts [13].

However, the high costs associated with quest for water, and the technical challenges in finding sources that are large enough to serve the population in need, present challenges that limit tapping the resource. Groundwater is not a fail-safe resource, either, when it comes to providing clean water. There may be contamination of the water with heavy metals, and bacteria may be introduced by leaking septic systems or contaminated wells. For these reasons, it is important that groundwater be monitored frequently, which is costly and requires technical abilities that may not be

present in rural areas [13]. The implications of lack of clean water and access to adequate sanitation are widespread. Young children die from dehydration and malnutrition, results of suffering from diarrheal illnesses that could be prevented by clean water and good hygiene [44]. Diseases such as cholera are spread rampantly during the wet season. Women and young girls, who are the major role-players in accessing and carrying water, are prevented from doing income-generating work or attending school, as the majority of their day is often spent walking miles for their daily water needs. Metwally *et al.* [44] further said, they are also at an increased risk for violence since they travel such great distances from their villages on a daily basis, and are even at risk when they must go to the edge of the village to find a private place to relieve themselves.

Urban areas face a whole different host of challenges to providing clean water and sanitation. Rapid growth of urban areas, especially in sub-Saharan Africa, has led to large volumes of water being extracted from existing sources. The influx of water, in addition to the influx in human waste, has outpaced the development of wastewater management systems, which has led to pollution of natural water bodies, unintentional use of wastewater in irrigated agriculture, irregular water supply, and environmental concerns for aquatic life due to the high concentration of pollutants flowing into water bodies [45]. Overcrowding in urban slums makes it even more difficult to control sanitation issues and disease outbreaks associated with exposure to raw sewage. It has been reported that underprivileged urban populations pay exorbitant amounts of money for water, which is often not even suitable for consumption, while resources allocated to those living in the wealthy urban areas are heavily subsidized, meaning the wealthy pay less for cleaner water and better sanitation systems [46].

Sources of Water

There are two broad categories of water sources; surface and underground sources.

a. Surface Water: This is water that is abstracted directly from streams, rivers and lakes. These sources generally contain larger quantities of turbidity and bacteria than groundwater and often the surface waters of rivers and lakes are polluted by the influx of sewage or industrial wastes. Jim [47] in an article of Encyclopaedia of Earth identified four principal surface water basins in Nigeria thus;

- i. The Niger Basin (covers an area of 584,193 km²)
- ii. The Lake Chad Basin (covers an area of 179,282 km²)
- iii. The south-western littoral basins (covers an area of 101,802 km²).
- iv. The south-eastern littoral basins, (covers an area of 58,493 km²)

b. Groundwater: Groundwater is water obtained from wells and springs that feed streams, rivers, and lakes. In its course, groundwater dissolves soluble mineral matter. The ultimate source of all natural potable water on the earth is rain. Groundwater contains high concentrations of dissolved chemicals.

According to Jim [47] Nigeria has extensive groundwater resources, located in eight recognized hydrogeological areas together with local groundwater in shallow alluvial (Fadama) aquifers adjacent to major rivers thus; The Sokoto Basin Zone (yield range from below 1.0 to 5.0 liters per second L/s)

- i. The Chad Basin Zone (yields are about 1.2 to 1.6 L/s from the Upper unconfined aquifer and 1.5 to 2.1 L/s from the Middle aquifer).
- ii. The Middle Niger Basin Zone (yields between 0.7 and 5.0 L/s and in the Niger valley is between 7.5 and 37.0 L/s).
- iii. The Benue Basin Zone (yields between 1.0 and 8.0 L/s).
- iv. The South-western Zone comprises sedimentary rocks bounded in the south by the coastal Alluvium and in the north by the Basement Complex.
- v. The South-Central Zone (yields are from 3.0 to 7.0 L/s).
- vi. The South-eastern Zone comprises Cretaceous sediments in the Anambra and Cross 11 River basins.
- vii. The Basement Complex (yields between 1.0 and 2.0 L/s).

Overview of Urban Water Management Policy in Nigeria

The Federal Ministry of Water Resources (FMWR) is the main national coordinating body in the water sector in Nigeria. Water resource management is a complex function which includes regulatory, support and operational activities. The responsibilities for water resources development in Nigeria are vested on government agencies including the Federal Ministry of Water Resources, State Water Agencies and non-governmental or donor agencies such as CBO, NGO, Water AID, EU, World Bank and UNICEF etc. [48]. Other government agencies not directly concerned with water resource development but carry out water resource developments include the Federal and State Ministries of Agriculture and Environment. The policies include the following:

Water Policy Reform in Nigeria

The World Bank has been providing assistance to Nigeria in the water supply sector since 1979. The first generation of assistance was directed at investments and strengthening institutions at the state level, especially since urban water supply is

constitutionally a responsibility under Nigeria's constitution. Amengo-Etego and Grusky (2005) (in Emoabino and Alayande 2007) pointed out that the States that benefited from the World Bank Water projects are Kaduna (in 1979), Anambra (in 1980), and Borno (in 1985) and Lagos (in 1989). The second generation of assistance was in the form of a loan of US\$256 million for the National Water Rehabilitation Project (1991-2001), which targeted the entire country. Concurrently also, the World Bank supported the First Multi-State Water Supply Project (1992-2000) with a loan of US\$101 million, which was targeted at Kaduna and Katsina States. The third generation of assistance (2000-2004) was the provision of US\$5 Million under the Small Towns Water and Sanitation Pilot Project aimed at satisfying the needs of 16 towns. However it is sad to note that the Independent Evaluation Group (IEG) of the World Bank considers its intervention between 1979-2005 to have failed because the seven selected case studies were 'rated as unsatisfactory' with unlikely sustainability and with negligible or modest institutional development impact' [51].

National Water Supply and Sanitation Policy of 2000

This policy spelt out the Institutional Framework for Water Supply and Development thus;

The Federal Ministry of Water Resources: It is charged with the responsibilities of policy advice and formulation, data collection, monitoring and co-ordination of water resources development (of which water supply is a component) at the National level [52].

The River Basin Development Authorities (RBDAs): These came into existence following the promulgation of Decree 25 of 1976. The current law on RBDAs is the RBDA Act; Cap 396 Laws of the Federation of Nigeria, 1990. The authorities are charged with the development, operation and management of reservoirs for the supply of bulk water, for water supply amongst other uses in their areas of jurisdiction [52].

The National Water Resources Institute: This body is responsible for manpower training, research development and studies under the National Water Supply Training Network in the water supply sector [52].

The State Water Agencies: These agencies are responsible mainly for urban, semi-urban, and rural water supplies. In some states separate agencies exist for rural water supplies and urban and semi-urban water supplies [52].

The Local Government Authorities: Are responsible for the provision of potable water supply to rural communities [52].

The National Water Policy (NWP) Document 2004

Water abstraction for public water supply is guided by the National Water Policy, in order to meet Nigeria's water supply demand. The following objectives had been drawn and the guiding principles for implementation. The formulation of the water resources policy was guided by; the Millennium Development Goals (MDGs), NEPAD Objectives and the resolutions of various Conferences, Conventions and meetings based on the international trends and agreements in water policy. The international trends and agreements in water policy highlighted the fact that water management and development should be conducted on a participatory basis with decision making occurring at the lowest appropriate level [52].

The Challenges of Urban Water Management in Nigeria:

The challenges in urban water management are ample and are threatening the sustainability of the urban water system as a significant fraction of the urban population has no access to proper (good) water supply. Some of the challenges include the following:

- i. **Lack of Effective Compliance to Water Management Policies:** the inability for the stakeholders in water management to comply with the existing policies on water management and development constitute a great challenge in the system hence retards its efficiency.
- ii. **Weak Data Base:** Irokalibe [53] observed that water management cannot be done with poor data management. In the past ten years, no single pan Nigerian hydrological yearbook has been published. Without water assessment there cannot be decision support system (DSS) models necessary for understanding the impact of abstraction and groundwater aquifers. Therefore, Nigeria does not only need to set up nationwide networks for these data collection but also an institute to use the data and make models.
- iii. **Fragmented Responsibility:** Fragmented sectoral practices according to Gold Face & Irokalibe [53], have also led to disjointed development and have critically led to a situation where there is presently nothing in place to significantly ensure the quality of water. There are no clear responsibilities, no mandated water quality standards, no effective water monitoring, no enforcement, no sanctions for polluters, and no remediation.

iv. **Climate Change Mitigation:** In circle of blue.org news [54], it was reported that climate change and water scarcity go hand-in-hand to cause some of the biggest contemporary challenges to the human race. These issues have a reciprocal relationship, identified by the intergovernmental panel on climate change (IPCC), in which, "water management policies, and measures can have an influence on greenhouse gas (GHG) emissions." As renewable energy options are pursued, the water consumption of these mitigation tactics must be considered in producing alternatives ranging from bio-energy crops to hydropower and solar power plants.

v. **Poor State of Infrastructure (Inadequate supply of energy for water works and service stations):** The poor state of power supply from the Power Holding Company of Nigeria, plc. (PHCN), limited distribution system that was put at 40%, ageing plants, vehicles, machineries and limited service coverage due to limited reticulation pose a serious problem to many water supply projects in the country.

vi. **Cost Intensive (High Production and maintenance cost):** Producing potable water for the public involves finance in the purchase of materials/equipment and paying of bills (chemicals, power, maintenance and overhead costs).

vii. **Corruption:** The situation where projects are not adequately monitored by coordinating agencies is detrimental to economic progress and against social benefits for the government to carry out such projects. Huge capital investment without corresponding finance discipline and accountability for performance, along with political interference in decisions about allocations and pricing are reflected in the inefficient operations, inadequate maintenance, financial losses and unreliable service delivery as witnessed.

viii. **Challenges of cost recovery:** The sustainability of a project is tied to continuous maintenance which involves continuous flow of funds. Cost recovery measures are not adequately put in place in our water management approach

because water supply has always been considered as a social good. There is no appropriate metering system, and where they do exist utility officer do not make use of them for proper pricing system.

- ix. **Urbanization Challenge:** The accelerating growth in urban population could see a supply-demand gap in water resources. Due to urbanization process more than one billion people don't have access to clean water on the global scale, [55]. This is a great challenge to the water management sector of the economy. More strategic and proactive approach need to be adopted to handle this situation.

RESULTS AND DISCUSSIONS

This section focuses on presentation and analysis of data collected from the two Local Governments Areas. Of the four hundred (400) questionnaires that were administered, three hundred and eighty-three (383) were retrieved. The analysis was therefore based on the three hundred and eighty-three (383) returned questionnaires. The chapter is divided into three (3) sections. Section 1 present and discuss the socio-economic characteristics of the respondents. In section II it discuss the constraints of people to water supply and section III discuss the types of sources of water supply by NEAZDP.

Socio-Economic Characteristics of the Respondents

The socio-economic variables examined in this study are sex, age, marital status, educational status, occupation, number of children, and farm size.

The data on Table 1 revealed that 187 respondents were male (70.6%), while 78 were female respondents (29.4%) for Nguru L.G.A. Similarly, in Karasuwa L.G.A. the male population constituted the majority where 95 were male, representing 80.5%, while 23 respondents were female, representing 19.5%. This implied that majority of the respondents were male, making up to 282 (74.0%) respondents from the two Local Government Areas, while 101 (26.0%) were

the female respondents. These figures gave us the total of 383 respondents for both Local Government Areas.

Age: As showed that in Nguru L.G.A., Majority of the respondents were found to be within the age range of 35-45 years, representing 44.2%. 15.5% were between the ages of 45 and 55 years, the lowest among the age group of the respondents were 1.9% representing the ages between 55 and 65; In Karasuwa L.G.A., the majority of the respondents also fell within the same age group of 35-45 years, representing 24.6%. The lowest age group among the respondents was the same as above, falling between the age group of 55 and 65 years, with 3.4%. This could be as a result that the able-bodied men were within this age group, larger at the top but thin at the bottom.

When the two Local Government Areas are compared, the highest result of respondents fell within the age range of 35-45 years (38.0%). The lowest among the age group were between 55 and 65 years (2.0%).

Educational level of the respondents

In Nguru L.G.A., it was found that, the lowest among the respondents were those with junior certificates constitutes 0.4%. While in Karasuwa L.G.A. those with the highest among this community also were those with qur'anic/tsangaya education with 50.0%, followed by those who had no formal education with 17.8%. The lowest among this community also were those with junior certificates 0.0%. Comparing the two Local Government Areas a large number among the respondents were those with qur'anic/tsangaya education with 41.0%, followed by the lowest were those with junior certificates constituting 0.4%.

Marital status of the respondents

In Nguru L.G.A. most of the respondents were married representing 198 (74.7%). While in Karasuwa L.G.A., the results showed the same with 87 (73.7%) were married. Comparatively, the results of the two Local Government Areas, the lowest percentage were those divorced representing 4.0%; followed by the widows with 7.0%.

Table-4.1 Socio-economic characteristics of the respondent

Socio-economic characteristics	Nguru(n=265)		Karasuwa(n=118)		Total(N=383)	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Sex						
Male	187	70.6	95	80.5	282	74
Female	78	29.4	23	19.5	101	26
TOTAL	265	100.0	118	100.0	383	100
Age						
15-25	39	14.7	27	22.9	66	17
25-35	43	16.2	18	15.3	61	16
35-45	117	44.2	29	24.6	146	38
45-55	41	15.5	25	21.2	66	17
55-65	5	1.9	4	3.4	9	2
65-75	20	7.5	15	12.7	35	9
TOTAL	265	100.0	118	100.0	383	100
Education						
None	35	13.2	21	17.8	56	15
Primary school	48	18.1	3	2.5	51	13
Junior secondary school	1	0.4	0	0.0	1	0
Senior secondary school	14	5.3	15	12.7	29	8
Tertiary institution	69	26.0	20	16.9	89	23
Qur'anic/Tsangaya school	98	37.0	59	50.0	157	41
TOTAL	265	100.0	118	100.0	383	100
Marital status						
Married	198	74.7	87	73.7	257	67
Divorced	11	4.2	5	4.2	17	4
Widowed	20	7.5	6	5.1	28	7
Single	36	13.6	20	16.9	81	21
TOTAL	265	100.0	118	100.0	383	100
Occupation						
House wife	53	20.0	23	19.5	88	23
Civil servant	72	27.2	38	32.2	117	31
Trader	35	13.2	6	5.1	41	11
Farmer	99	37.4	46	39.0	126	33
Water vendor	6	2.3	5	4.2	11	3
TOTAL	265	100.0	118	100.0	383	100
Household size						
Less than 3	37	14.7	19	17.0	56	15
4-6	66	26.2	32	28.6	98	27
7-10	63	25.0	18	16.1	81	22
Above 10	86	34.1	43	38.4	129	35
TOTAL	252	100.0	112	100.0	364	
Farm size						
less than 1ha	50	20.9	15	18.5	64	20
2-4ha	117	49.0	42	51.9	126	39
4-6ha	55	23.0	12	14.8	77	24
Above 6ha	17	7.1	12	14.8	53	17

Source: Field Survey, 2015

Occupational level of the respondents

Looking at the two Local Government Areas comparatively, the farming constituted the most significant activity for the rural people, indicating the highest percentage with 33.0%; followed by the civil service with 31.0%. And the lowest among them were the water vendors with 3.0%, because majority of the

respondents said that the distances to the boreholes, hand-pumps, or wells were not far away and that it would take them not more than 5-10 minutes' walk only. Furthermore, children of the respondents were the ones who do the fetching of water, and only on rare occasions they would require the services of the water vendors. It is the issue of the low income of the

respondents or rural dwellers contributed to the low patronage of water vendors in comparison to the urban dwellers.

Household size

The data revealed that in Nguru L.G.A. those with less than 3 persons/per household was 14.7%; While in Karasuwa L.G.A. those with less than 3 families per household were 17.0%. When the two Local Government Areas are compared, the largest percentage among the household size were those above 10 with 129.0%; followed by those with 98.0% were 4-6 per household. This is not surprising because the rural populace hardly practice nuclear family system.

Farm Size

The data showed that farmers with less than 1ha represented 20.9% farm size in Nguru Local Government Area; In Karasuwa L.G.A., less than 1ha were those with 18.5%, looking at the two L.G.A. those with 2-4 ha were the one with the highest percentage of 39.0%.

Constraints of People to Water Supply

The variables discussed in this section are the sources of water, number of time to fetch water, sources of transportation, problems faced with fetching water, source of water, responsible for fetching the water, any government representatives in your area, and major problem facing community in term of water supply (see table 2)

Table-4.2: Constraints of People to Water Supply

Constrain of the people in terms of water supply	Nguru(n=265)		Karasuwa(n=118)		Total(N=383)	
	Frequency	Percentage	Frequency	percent age	Freque ncy	Percentag e
Distance to fetch water(Km)						
Less than 1	253	66.1	112	29.2	365	95.3
1-2	12	3.1	0	0.0	12	3.1
2-3	0	0.0	1	0.3	1	0.3
3-4	0	0.0	5	1.3	5	1.3
No. time fetching water						
Once a day	87	22.7	102	26.6	189	49.3
Twice a day	105	27.4	15	3.9	120	31.3
More than twice	73	19.1	1	0.3	74	19.3
Sources of transport						
Walking	239	62.4	107	27.9	346	90.3
Donkey	22	5.7	10	2.6	32	8.4
Bicycle	4	1.0	1	0.3	5	1.3
Face problems on the way						
Yes	55	14.4	9	2.3	64	16.7
No	210	54.8	109	28.5	319	83.3
Sources of water						
Well	83	21.7	10	2.6	93	24.3
Dam	0	0.0	12	3.1	12	3.1
Streams	4	1.0	1	0.3	5	1.3
River	0	0.0	9	2.3	9	2.3
Pipe water	82	21.4	60	15.7	142	37.1
Hand pump	96	25.1	26	6.8	122	31.9
Responsibility for fetching water						
Man	99	25.8	33	8.6	132	34.5
Women	25	6.5	34	8.9	59	15.4
Boys	86	22.5	26	6.8	112	29.2
Girls	37	9.7	11	2.9	48	12.5
All	18	4.7	14	3.7	32	8.4
Do you have any Government representative in your areas						
Yes	220	57.4	97	25.3	317	82.8
No	45	11.7	21	5.5	66	17.2
Major problems facing community terms of water						

supply						
Lack of adequate hand pump	37	14.0	51	43.0	88	22.9
inadequate supply of fuel	241	91.0	90	76.0	331	86.4
Lack of support from government	98	37.0	28	24.0	126	33.0
high population	11	4.0	38	32.0	48	12.6
hand pump and borehole problem	85	32.0	27	23.0	112	29.2
Lack of enough time for water supply	72	27.0	66	56.0	138	35.9
lack of timely rehabilitation	223	84.0	111	94.0	334	87.1
shortage of well and pump	48	18.0	18	15.0	65	17.1
shortage supply of rainfall	56	21.0	25	21.0	80	21.0
Testless water	45	17.0	51	43.0	96	25.0

Source: Field survey, 2015

Almost all the respondents in Nguru L.G.A. believed that they walk in less than 1km to get water, 66.1%, because the water pump or borehole is situated near their houses. Only 3.1% said they walk 1-2km to fetch water. But in Karasuwa L.G.A. also most of the respondents had same opinion with 29.2% fetch their water in less than 1km, while 0.3% had to walk 2-3km to get water, and only 1.3% belief to have walk 3-4km to fetch water. Comparatively, the two Local Government Areas the data showed that majority of the respondents with the highest percentage of 95.3% were just walking a short distance to get water, only very small percentage of villages 1.3% that walk a long distance of 3-4km to get water. But this is not surprising since some villages were in very remote areas that they had to walk to the nearest village to get water. Others it is the problem of repairing the borehole or the water pump when they get damaged, since the system of maintenance was very poor in most of the rural areas.

Number of times fetching water daily.

The data indicated that respondents (22.7%) in Nguru L.G.A. used to fetch water only once in a day, but 27.4% used to fetch water twice in a day. This could be as a result of the closeness to the water system or mass consumption of water based on the large number of individual per household. While in Karasuwa L.G.A. those (26.6%) with the highest percentage use to fetch water only once in a day, 3.9% said they fetch water twice in a day. Even the two Local Government Areas based on the analysis those with the highest percentage are 49.3% they fetch water only once in a day, followed by those who fetch water twice in a day with the percentage of 31.3%; and the least among them are 19.3%.

Sources of transportation

Most of the respondents said that walking is their source of transport, as mentioned above in table 9 due to the closeness to the water system, there is no need for any use of transportation. In Nguru L.G.A.

5.7% used donkey and 1.0% used bicycle. In Karasuwa L.G.A. only 2.6 used donkey and 0.3% used bicycle. When the two Local Government Areas are compared, the percentage with the highest number of 90.3% was those using walk as their source of transport.

Problems faced with Fetching Water

It was found that majority of the respondents do not have any problem on the way to get water for their daily activities, as indicated above the water system are closer to their houses just a few minute away. In Nguru L.G.A. 54.8% said NO, they don't experience any problem at all and only few 14.4% belief to have problem on the way due to long queue on the water point or long distance walk to the water point due to the breaking down of their own water system. While in Karasuwa L.G.A. the same as the above majority said NO they don't have any problem, with 28.5%, only few say YES with 2.3%. The two Local Government Areas indicate that majority had no problem on the way with the percentage of 83.3%, only 16.7% said they experience problem.

Sources of water

The table 2 above contains imprecation on sources of water to the respondents, In Nguru L.G.A about 21.7% use well water, 21.4% use pipe water and the highest percentage were those using hand pump with 25.1%. While in Karasuwa L.G.A. those using pipe water were with the highest percentage with 15.7%; followed by hand pump with 6.8% and those using dam were 3.1%. Comparing the two Local Government Areas, pipe water had the percentage of 37.1%, the hand pump was 31.9% and the well had about 24.3%. The data showed that most of these villages prepared the pipe water and hand pump water; they are clean and hygienic in terms of purification. This is the kind of water source NEAZDP use to supply to most villages.

Person responsible for fetching the water

A total of 25.8% of the respondents in Nguru L.G.A. said the men in the house are responsible for fetching the water, while 22.5% said the boys are responsible, only 4.7% said all of the above. According to them anyone in the house are responsible to fetch water as the need arise. In Karasuwa L.G.A. both men and women were responsible for fetching water with 8.6% for men and 8.9% for women. The boys and the girls are the one with least percentage of 6.8% for boys and 2.9% for girls. The data indicated, in the two Local Government Areas the men were with the highest percentage of 34.5%, and all of the above with 8.4% as those responsible for fetching water.

Presence of government representative

The above table indicated that 57.4% said yes; while 11.7% said no, in Karasuwa L.G.A. 25.3% said yes and only 5.5% said no. The data of the two Local Government Areas showed that 82.8% believe to have government representatives in their areas and 17.2% said no.

Major problems facing community in terms of water supply

The above table showed that there are many problems facing the communities in the study areas in term of water supply. The major problems in Nguru L.G.A. were inadequate supply of diesel with 241 (91.0%) and lack of timely rehabilitation of the water system with 233 (84.0%). In Karasuwa L.G.A. the problem with the highest percentage were lack of enough time for water supply with 111 (94.0%) and also shorted of diesel supply with 90 (76.0%). Both the two Local Government Areas were having almost same problems with 334 (87.1%) complaining about lack of rehabilitation of the water points, the second major problem related to lack of adequate supply of fuel/diesel with 331 (86.4%). They also said that lack of support from government with 126 (33.0%).

Types of Sources of Water Supply by NEAZDP

In this section, type of water supply before and after NEAZDP started operates in the study area was discussed. Such as, area in community NEAZDP gives more concern, situation of water supply before NEAZDP started operating, improvement of water supply by NEAZDP, and sources of water before NEAZDP, sources of water after NEAZDP, area NEAZDP performed well (see Table 3)

Table-3: Sources of Water Supply by NEAZDP

Types of sources of water supply by NEAZDP		Nguru(n=265)		Karasuwa(n=118)		Total(N=383)	
		Frequency	Percentage%	Frequency	Percentage%	Frequency	Percentage %
Priority areas of NEAZDP intervention	Water supply sector	132	49.8	102	86.4	234	61.1
	Agricultura sector	131	49.4	16	13.6	147	38.4
	Health sector	1	0.4	0	0.0	1	0.3
	Education sector	1	0.4	0	0.0	1	0.3
before NEAZDP started operating situation of water supply	Not bad	120	45.3	41	34.7	161	42.0
	Bad	140	52.8	76	64.4	216	56.4
	Very bad	5	1.9	1	0.8	6	1.6
NEAZDP improve water supply	Yes	245	92.5	117	99.2	362	94.5
	No	20	7.5	1	0.8	21	5.5
sources of water before NEAZDP intervention	Borehole	60	22.6	17	14.4	77	20.1
	Traditional well	156	58.9	3	2.5	159	41.5
	Cement well	19	7.2	87	73.7	106	27.7
	Hand pump	30	11.3	11	9.3	41	10.7
sources of water after	Borehole	132	49.8	97	82.2	229	59.8
	Traditional	0	0.0	9	7.6	9	2.3

NEAZDP intervention	well						
	Cement well	91	34.3	1	0.8	92	24.0
	River/streams	6	2.3	0	0.0	6	1.6
	Hand pump	36	13.6	11	9.3	47	12.3
areas NEAZDP performed well	Installation of water sources e.g water pump	228	86.0	63	53.4	291	76.0
	Building of water dams	1	0.4	0	0.0	1	0.3
	Provision of cement wells	13	4.9	9	7.6	22	5.7
	Availability of clean water	17	6.4	46	39.0	63	16.4
	Improved agricultural production	6	2.3	0	0.0	6	1.6
water_born incidence before NEAZDP	High	70	26.4	43	36.4	113	29.5
	Very high	95	35.8	24	20.3	119	31.1
	Low	100	37.7	51	43.2	151	39.4
waterborne incidence after NEAZDP	Low	122	46.0	11	9.3	133	34.7
	Very low	101	38.1	32	27.1	133	34.7
	None	42	15.8	75	63.6	117	30.5
level of agricultural production before NEAZDP	High production	61	23.0	20	16.9	81	21.1
	Low production	163	61.5	85	72.0	248	64.8
	Very low production	41	15.5	13	11.0	54	14.1
level of agricultural production after NEAZDP	Very high production	112	42.3	22	18.6	134	35.0
	High production	146	55.1	95	80.5	241	62.9
	Low production	7	2.6	1	0.8	8	2.1

Source: Field survey, 2015

As shown by the above table, NEAZDP gives more priority to water supply with the frequency of 132 representing 48.8% and agricultural sector with frequency of 131 representing 49.4% in both Nguru and Karasuwa L.G.As. While health sector and educational sector were also having same frequency and percentage 1 representing 0.4%. In both the two Local Government Areas the data indicate that the two sectors are their most priority. Water sector have 234 (61.1%) and agricultural sector with 147 (38.4%)

Situation of water supply before NEAZDP started operating

The situation of water supply before NEAZDP started operating in the study areas were bad according

to the data collected in both Local Government Areas. 140 representing 52.8% said the situation was bad and those who said the situation was not bad, amounting to 120, representing 45.3%, but 5 representing 1.9% said that the situation was very bad. In both the two Local Government Areas, majority of respondents agreed that the situation of water supply was bad before NEAZDP started operating in the communities with 216 representing 56.4%, and those who said it was not bad amounted to 161 representing 42.0%.

Improve water supply by NEAZDP

Majority of the respondents in Nguru Local Government Area, representing 245 (or 92.5%), agreed that NEAZDP has improved the water supply sector;

while a minority or 20 (or 7.5%) disagreed with the statement. The same pattern is repeated in Karasuwa L.G.A. 117 respondents, representing 99.2%, believe that NEAZDP has improved the water supply sector; while only 1 respondent (representing 0.8%) said no. Comparatively, majority of respondents in both Local Government Areas agreed that NEAZDP has significantly improved the water supply sector with the highest percentage of 362 representing 94.5%.

Sources of water before NEAZDP

The above table demonstrated that most respondents in Nguru Local Government Area 156 representing 58.9% indicated that traditional wells constituted the major source of water before NEAZDP; While in Karasuwa L.G.A., the major source of water supply were cement well with 87 representing 73.7%, looking at the two Local Government Areas their major

sources of water were traditional well with the highest frequency of 159 representing 41.5%, then cement well with the frequency of 106 representing 27.7% .

Sources of water after NEAZDP

The above Table 3 showed that after NEAZDP started operation in these communities there are significant improvements in terms of water supply. Before it was the traditional well with the highest percentage, but now in Nguru L.G.A it was the borehole with 132, representing 49.8%/. The least are river/streams water with 6 representing 2.3%, in Karasuwa L.G.A also borehole represent the highest percentage with 97 representing 82.2%. Looking at the two Local Government Areas, still the boreholes represented the highest percentage with 229 (59.8%), followed by cement wells with 92 (24.0%).

Table-4.4: Areas of NEAZDP performance.

area NEAZDP performed	Nguru(n-265)		Karasuwa(n-118)		Total(n-383)	
	Frequency	Percentage %	Frequency	Percentage %	Frequency	Percentage %
Installation of water sources e.g water pump	228	86	63	53.4	291	76
Building of water dams	1	0.4	--	--	1	0.3
Provision of cement wells	13	4.9	9	7.6	22	5.7
Availability of clean water	17	6.4	46	39	63	16.4
Improved agricultural production	6	2.3	--	--	6	1.6
Total	265	100	118	100	383	100

Source: Field survey, 2015

The data indicated that in Nguru L.G.A., 228 representing 86.0% believed that NEAZDP has made a significant improvement in the area of water supply, then availability of clean water with 17 representing 6.4%. While in Karasuwa L.G.A., 63 representing 53.4% said in area of water supply, followed by

availability of clean water with 46 representing 39.0%. Comparing the two Local Government Areas, 291, representing 79.0% has agreed that NEAZDP has performed very well in the water supply and the availability of clean water with 63 representing 16.4%.

Table-5: Available infrastructure before and after NEAZDP

No of Infrastructure	Number	Nguru(n=265)				Karasuwa(n=118)				Total(n=383)			
		Before		After		Before		After		Before		After	
		Freq uency	Perce ntage	Freq uency	Perce ntage	Freq uency	Perce ntage	Freq uency	Perce ntage	Freq uency	Perce ntage	Freq uency	Perce ntage
Borehole	1	75	28.3	80	30.2	44	37.3	8	6.8	119	31.1	88	23.0
	2	22	8.3	54	20.4	10	8.5	47	39.8	32	8.4	101	26.4
	3 and above	18	6.8	27	10.2	23	19.5	45	38.1	41	10.7	72	18.8
Cement	1	15	5.7	67	25.3	8	6.8	11	9.3	23	6.0	78	20.4

well	2	51	19.2	57	21.5	24	20.3	12	10.2	75	19.6	69	18.0
	3 and above	0	0.0	57	21.5	59	50.0	48	40.7	59	15.4	105	27.4
Traditional well	1	32	12.1	1	0.4	0	0.0	20	16.9	32	8.4	21	5.5
	2	77	29.1	9	3.4	5	4.2	8	6.8	82	21.4	17	4.4
	3 and above	28	10.6	26	9.8	31	26.3	9	7.6	59	15.4	35	9.1
Hand pump	1	37	14.0	65	24.5	2	1.7	10	8.5	39	10.2	75	19.6
	2	39	14.7	62	23.4	21	17.8	27	22.9	60	15.7	89	23.2
	3 and above	14	5.3	100	37.7	35	29.7	47	39.8	49	12.8	147	38.4

Source: Field survey, 2015

The data above, both Nguru and Karasuwa LGA, showed that the number of infrastructure in the study area before and after NEAZDP started operating, before NEAZDP those with 1 borehole, where with the highest percentage of 31.1% and after NEAZDP they drop to 23.0%. Those with 2 boreholes before NEAZDP started operating in both two communities were with the lowest percentage of 8.4%, after NEAZDP started

operating its raise to 26.4%. And those with 3 boreholes and above, before NEAZDP were with the lowest percentage of 10.7% and after NEAZDP its raise to 18.8%. The same goes with cement well and hand pump after NEAZDP the percentage is high. Only with the traditional well the data showed the opposite, before NEAZDP it has the highest percentage, after NEAZDP its percentage is very low.

Table-6: Level of incidence of water borne disease before and after NEAZDP started operating

Water_borne incidence before NEAZDP	Nguru(n=265)				Karasuwa(n=118)				Total(n=383)			
	Before		After		Before		After		Before		After	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Very high	70	26.4	00	0.0	43	36.4	00	0.0	113	29.5	00	0.0
High	95	35.8	00	0.0	24	20.3	00	0.0	119	31.1	00	0.0
Low	100	37.7	122	46.0	51	43.2	11	9.3	151	39.4	133	34.7
Very low	00	0.0	101	38.1	00	0.0	32	27.1	00	0.0	133	34.7
None	00	0.0	42	15.8	00	0.0	75	63.6	00	0.0	117	30.5
Total	265	100.0	265	100.0	118	100.0	118	100.0	383	100.0	383	100.0

Source: Field survey, 2015

The data above showed that before NEAZDP started operating the incidence of water borne diseases was very high with 29.5% in both L.G.A. But after

NEAZDP started operating the incidence of water borne disease was none with 0.00%.

Table-7: Level of agricultural production before and after NEAZDP

level of agricultural production before NEAZDP	Nguru(n=265)				Karasuwa(n=118)				Total			
	Before		After		Before		After		Before		After	
	Freq uenc y	Perc entag e	Freq uenc y	Perc entag e	Freq uenc y	Perc entag e	Freq uenc y	Perc entag e	Freq uenc y	Perc entag e	Freq uenc y	Perc entag e
Very high production	0	0.0	112	42.3	0	0.0	22	18.6	0	0.0	134	35.0
High production	61	23.0	146	55.1	20	16.9	95	80.5	81	21.1	241	62.9
Low production	163	61.5	7	2.6	85	72.0	1	0.8	248	64.8	8	2.1
Very low production	41	15.5	0	0.0	13	11.0	0	0.0	54	14.1	0	0.0
Total	265	100.0	265	100.0	118	100.0	118	100.0	383	100.0	383	100.0

Source: Field survey, 2015

From the above table, showed that the level of agricultural production in both L.G.A before NEAZDP started operating was very low with the percentage of

14.1% but after NEAZDP started operating the level of agricultural production was very high with the percentage of 35.0%.

Table-8: Provision of infrastructure in the community

		Nguru(n=265)		Karasuwa(n=118)		Total(n=383)	
		Frequency	Percentage %	Frequency	Percentage %	Frequency	Percentage %
Traditional well	Individual	161	60.8	59	50.0	220	57.4
	Community organization	89	33.6	52	44.1	141	36.8
	NEAZDP	14	5.3	3	2.5	17	4.4
	Local/state government	1	0.4	4	3.4	5	1.3
	Total	265	100.0	118	100.0	383	100.0
Cementwell	Individual	20	7.5	0	0.0	20	5.2
	Community organization	89	33.6	35	29.7	124	32.4
	NEAZDP	47	17.7	1	0.8	48	12.5
	Local/state government	109	41.1	82	69.5	191	49.9
	Total	265	100.0	118	100.0	383	100.0
Borehole	Individual	39	14.7	12	10.2	51	13.3
	Community organization	40	15.1	17	14.4	57	14.9
	NEAZDP	86	32.5	81	68.6	167	43.6
	Local/state government	77	29.1	6	5.1	83	21.7
	NGO	23	8.7	2	1.7	25	6.5
	Total	265	100.0	118	100.0	383	100.0

Source: Field survey, 2015

The data showed that majority of respondents in Nguru L.G.A. indicated that individuals were responsible for constructing their traditional wells, with the percentage of 60.8%, the community organization with 33.6%, then NEAZDP with 5.3%, and the local and the state governments were the ones responsible with only 0.4%. In Karasuwa L.G.A, traditional wells, the individual has 50.0%, the community organization

has 44.1%, and NEAZDP has 2.5%, while the local/state government has 3.4%. In the case of borehole NEAZDP has 68.6% and the local/state government has only 5.1%. Comparing the two Local Government Areas, NEAZDP and the local/state government were the one with the highest percentage in terms of borehole and cement wells.

DISCUSSION OF RESULTS

Given the enormous natural and manpower resources that the country is blessed with, one at least would expect that Nigeria would have attained a relatively high level of socio-economic development and complete transformation of the living standard of its teeming populace. However, the reverse is the case, most parts of the country and particularly the rural areas are neglected; they lack basic necessity of life such as provision of good drinking water, access roads, lack of educational institutions, and have inadequate health care delivery services among others.

The study reveals that, besides illuminating another aspect of life in these two communities, in the two local government areas, females are the ones with the population of 74.0% engaging in the bulk of the household work, while the male are 26.0% out of the total number of 383. In terms of age, the majority are those between the ages of 35 and 45 with the highest number of 146 (38.0%), while the able-bodied men are within this age bracket. This age group is very important in the rural community development, since we know farming constituted the matrix of the economy or activity of the rural populace. The type of their educational level indicated that those with *qur'anic/tsangaya* school education were the ones with the highest percentage of 23.0% in the two Local Government Areas; this shows that rural people lack formal education; it could be due to the poor educational system in the rural areas. The study has found that formal education was a great missing link in the lives of the rural communities, in that only 13.0% of the population of the two communities Nguru and Karasuwa has formal education (primary level). 15.0% has non-formal education at all, 0.0% has none junior secondary education, only 8.0% have senior secondary education. Majority of the respondents were married with the percentage of 67.0% and their occupational activities were farming with the percentage of 33.0% of the two L.G.A. The farmers usually own their farms through inheritance from their parents the allocation of land to the family has gender implications. It is often assumed that a family is headed by a male, it is therefore, and difficult for women who are not under a male head to approach community authorities for land allocation (rural people) 39.0% were male who have 2-4 hectare (ha). A family retains the right to transfer the land to other persons, while in principle women can inherit land from their parents; there is a significant difference in the inheritance pattern between male and female farmers. Majority of the farmers claimed that they inherited the land they farm, and they control it. Land can be inherited from both male and female parents. In the two communities a considerable proportion of all wives owned their own farms.

The immediate opportunities for the majority of the population to improve their situation through

income earning from employment are very few in the study area. The capacity of the governments to improve the situation is low compared to the magnitude of the problems. Another problem observed in the study area is that there is low living standard and quality of life, a fragile production base and increasing pressure on land from growing population.

Better water supply by construction on cement wells, borehole and hand pump, has contribute to the improvement of living standards in the study areas. Delivery of health facility and education projects has been more problematic. When asking if they walk a long distance to fetch water, majority of the responses were no, they said they walk only a few distance from their houses to the water points, some said a few minutes (less than 5minutes), some said it's behind their home etc. but the major problem the two communities are facing in term of water supply were:

1. Lack of adequate or enough fuel/diesel supply
2. Lack of timely rehabilitation or maintenance of the water system

When asking the people in the community who are responsible for the supply of fuel/diesel to the communities, they said the Local government through the chairman of that village, then through the committee on water supply. Because in each of these villages there are different committees on different sector, such as agricultural committee, water committee, market committee etc whose take care of the problem of that sector. Their responses are that the fuel/diesel is not usually come, sometime it reached the hand of the chairman but it will not reach the hands of the committees, it's disappeared along the line. And even if its reach the hands of the committees the fuel/diesel will not be enough to take them to the end of the month. So what they usually did is that collecting weekly dues from the villages and those who came for the market day to the village. They said even the weekly dues are not enough to take care of the fuel/diesel supply to the end of the month. And this partly accounts for the problem of long queues in the water points, because of inability to fuel all the boreholes in the village, the little they manage to fuel; the queues will be very long and time consuming. And the second problem is lack of maintenance of the water points (borehole, hand pump, cement wells) when the water points breakdown, but this is not surprising at all it is the Nigerian culture when it's come to maintenance system.

The results further reveals that before NEAZDP started operating in the study area, the situation of water supply was bad with the percentage of (56.4%). The respondents complaints about walking a long distance to get water, not enough cement wells, but they have enough traditional well, only the water is not

good and clean enough. After NEAZDP started operating in the area of study the data showed that there was significant improvement in the area of water supply. For instance, the availability of clean water showed remarkable impact on the quality of life of the rural populace in the study area. Similarly, more water points were created, thereby shortening the distance to the water points. From the two L.G.As, an emphatic "Yes" was the responses on the improvement of water supply following the advent of NEAZDP, representing as high as (94.5%). Because more boreholes, cement wells, and hand pumps were provided, the highest percentage among them was borehole with (59.8%). The level of incidence of water borne disease before

NEAZDP started operating in the two L.G.A was high with the percentage of (31.1%) and after NEAZDP started operating in the study area, the level of water borne disease were very low/none with (30.5%), while some respondents (30.5%) said none, it is eradicated from their community. Also agricultural production was improved to some certain level, after NEAZDP the agricultural production were very high with the percentage of (35.0%). There are significant improvement and changes the pre- and during NEAZDP's operations in these communities.

RESULTS OF REGRESSION ANALYSIS

Table-9: Relationship between Socio-Economic Characteristics of the Respondents and NEAZDP Performance

Socio-Economic	Coefficient	Standard error	T – value
Area of concern	0.2051	0.1581	1.30
Age	0.2178	0.0278	7.84***
Education	0.09761	0.0297	3.28***
Marital status	0.0660	0.0699	0.94
Occupation	0.4043	0.1080	3.74***
Household size	0.2950	0.0920	3.21***
Farm size	0.1672	0.0287	5.82***

Distance to fetch water	0.7395	0.1899	3.69***
Sources of transport	0.8150	0.1806	4.51***
Source of water	0.1478	0.0501	2.95***
Number of facilities	0.6882	0.1246	5.52***
Cases of water borne diseases	0.4013	0.0734	5.46***
Constraint	2.9867	0.377	7.92***
R ²	0.52		

Source: Field survey, 2015

Note: **, *** are significant at 5% and 1% respectively.

Multiple regressions were used to determine the relationship between the socio-economic characteristics of the respondents and performance of NEAZDP in water supply. The results showed that R² of 0.52 which indicate the model explained by the independent variables, the results are presented in table above.

Age: the age of the respondent has co-efficient of 0.217 which showed positive and significant at 1% level, which implied that age is a factor in determined the performance of NEAZDP in water supply that is as age increased, the performance and utilization of water supply increased.

Educational level: the level of education of the respondent exhibit positive and significant co-efficient at 1% level. Which implied that at the level of education of the respondent increases the performance of NEAZDP in water supply increase.

Occupational level: the occupational level of the respondent was good determine the performance of NEAZDP in water supply because its co-efficient are positive and significant at 1%.

Household size: the household size of the respondent determines significance performance of NEAZDP in water supply which showed the co-efficient of 0.297 and significance at 1%. Meaning that as the household of the respondents increases the utilization of water supply increases.

Farm size: the farm size is one of the factors that influence the performance of NEAZDP in water supply, that the larger the farm size, the higher the performance of NEAZDP in water supply.

Distance to fetch water supply: the proximity of water supply influence significantly at 1% added to the performance NEAZDP to water supply in the study area. The shorter the distance to water points the higher the consumption of the water in the area.

Sources of transportation: the source of transportation is statistically significant at 1% which implied that sources of water transportation are significantly determining the performance of NEAZDP in water supply. Although the sources of the transportation is varies from one person to another.

Sources of water: the sources water is another determinants performance of NEAZDP in water supply, when it showed positive and significant co-efficient of 0.147 implied that the sources of water also varies from traditional wells, cement wells, hand pump, borehole, they contributed significantly to NEAZDP performance in water supply.

Number of facilities: the number of facilities has increase significantly from traditional wells to boreholes, hand pump, and cement wells after the project has been implemented. Which show significant performance of NEAZDP in term of water supply.

Water borne disease: the level of incidence of water borne disease has reduce significantly from a very high level of incidence to low or none level of incidence in the study areas. Which exhibit co-efficient of 0.401, implied that it is a good indication of NEAZDP performance of water supply after the project has been implemented.

CONCLUSION

Local governments, state and federal government are involved in water projects, notably cement well construction in the rural areas within the zone. State involvement is usually channeled through local government. Boreholes have been constructed by the state also through local government and the programme interrelates with the NEAZDP programme in a number of locations. There is need for teaching and learning materials. The local government and NEAZDP should also continue their joined efforts in close cooperation with the communities to rehabilitate and construct class rooms and others offices. Women are severely disadvantaged in terms of basic needs and opportunities, their access to non-formal education, health care and finance is limited. Another problem is that low degree of involvement of women in programme activities is the cultural barrier. Another is the workload which the rural women have to cope with and the lack of appropriate technology to reduce it. Rural people are always willing to improve their economy and standard of living, but they are usually not prepared to gamble with their livelihood.

RECOMMENDATIONS

1. Governments need to study the factors that is leading to the poor maintenance of equipment such

as boreholes/water-pumps in the rural communities bordering on the water supply sector

2. Local Governments should find ways of making sure that fuel/diesel reach the rural communities, with adequate supply to take them to the month end. Alternatively, solar and other sources of energy should be exploited to enable regular supply of water to the rural populace
3. Additional hand pumps should be provided to reduce the problem of water shortage and the long queues at the water fetching points

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