# Impact Evaluation of Rural Health Infrastructure Sub-sector of the Community and Social Development Project, Adamawa State, Nigeria

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**Abstract:** The review assesses changes in the well-being of individuals, households or communities in the health sub-sector that can be attributed to the CSDP in the State. The data for the study is mainly secondary. The secondary data were obtained from the reports of the impact evaluation conducted for the CSDP in Adamawa state. To establish causality between a program and an outcome, impact evaluation method that rules out the possibility of any factors other than the program of interest was used to explain the impact. The concept of CSDP requires that Difference-in-Differences (DD) be used for the impact evaluation. Descriptive and quantitative techniques such as frequency tables, percentages, means, standard deviations and variance were employed in the analysis of the study data. The results revealed that, the proportion of the respondents within the age bracket of 25- 60 years was 83.40%, while their mean age was 41.46 years. Gender wise, majority of the respondents were males i.e. 95.94% with 90.22% of them married, 62% have more than 6 years of formal education, and about 50.12% of the respondents has more than 7 individuals in their households. The estimation of outcome impact for health projects indicated that, availability of health centers in the communities increases their accessibility to health services. This was evidenced by the improvement of the number of people attending health centers for treatment and or counseling. It was recommended that, the World Bank should continue with the second phase of the project or expand the life span of the existing one, as it proved to be beneficial towards improving the quality of life of the rural communities in the State. This will also enable the non-benefiting communities to be incorporated into the activities of the CSDP for future intervention.
**Keywords:** Impact, Evaluation, Rural. Health, Infrastructure, Community, Social Development and Project.

## INTRODUCTION

Rural infrastructures according to Estache, [1] as cited by Madu *et al,* [2] constitute the necessary components or ingredients for motivating rural residents to be more productive and achieve relative self-reliance. This aid and enhance the realization of improved rural life. It is quite noticeable that the distribution of rural infrastructures, over time, has not been equitable and spectacular.

## Overview of CSDP Nigeria

The Community and Social Development Project (CSDP) is a Word Bank-assisted project, financed under Standard Credit with SDR of 121.5 million ($200 million equivalent) in 2008 [3]. The Federal Government of Nigeria (through the Federal Ministry of Finance) is the Borrower/ Recipient, while the Federal Project Support Unit (FPSU) and state CSDPs are the implementing agencies. Communities, especially the poor ones, are the target beneficiaries. The CSDP is one of the World Bank-assisted pro-poor projects using the community-driven development (CDD) approach to support and empower communities

to develop, implement and monitor micro social infrastructure projects and strengthen the skills and capacity of Local Government Areas (LGAs) and sectoral public agencies to support and build partnership with communities.

The design of CSDP is in line with development priorities of government and other development partners, particularly as it relates to poverty reduction, employment creation and wealth generation. The CSDP was planned to be implemented from 2009 to 2013. Currently, the Project is gradually winding up and there is a need to assess its impact in meeting the overall development objective of sustainably increasing access of the poor to social and natural resource infrastructure services. Thus, the study is aimed at providing feedback to help improve the design of subsequent CDD programs and policies. In addition to providing for improved accountability, impact evaluation is a tool for dynamic learning, allowing policymakers to improve ongoing programs and ultimately better allocate funds across programs. The overall goal of the CSDP is to improve access to

services for human development. To achieve this goal, the Project Development Objective (PDO) is to support empowerment of communities and LGAs for sustainable increased access of poor people to improved social and natural resource infrastructure services[3].

The CSDP has three (3) major components to ensure that its overall objective is achieved through proper focusing on interventions in the twenty-six (26) participating states and Federal Project Support Unit (FPSU).

**Community-Driven Investments**
This component is managed by the State Agencies. Funding is provided for Community Development Plans (CDPs) of selected communities, based on specific criteria, including broad-based community participation in plan formulation, micro-project identification and preparation, and a matching contribution from communities. Major activities in this component include:

i. Information campaigns on community selection, community development plans, agency goals and funding procedures;
ii. Support for community identification of needs and priorities and development of CDPs;
iii. Appraisal, approval, and funding of CDPs developed and implemented by community-based groups; and
iv. Monitoring and evaluating implementation of the CDPs and achievement of set objectives.

The CSDP is gradually winding up and there is a need to assess the impact of the project in meeting the overall development objective of sustainably increasing access of the poor to social and natural resource infrastructure services. In CSDP, in addition to baseline studies to ascertain Local Government averages, baseline figures were collected in each beneficiary community in the State; to establish benchmarks against eventual impact evaluation of project performance in line with the project development objectives.

The study is aimed at providing feedback to help improve the design of subsequent CDD programs and policies. In addition to providing for improved accountability, impact evaluation is a tool for dynamic learning, allowing policymakers to improve ongoing programs and ultimately better allocate funds across programs. Evaluating the impacts of the various components will give the stakeholders an insight as to how far they have gone in meeting the Project Development Objectives (PDOs).

**Objective of the Impact Evaluation**
The main objective of the Impact Evaluation is to examine the impact of CSDP on the stakeholders in Adamawa State. However, the specific objectives are to assess changes in the well-being of individuals,

households or communities in the health sub-sector that can be attributed to the CSDP in the State.

**METHODOLOGY**
**The Study Area**
The area of study is Adamawa State, located in the North-eastern part of Nigeria, between latitude 7.0°N and 11.0°N of the equator; and longitude 11.0°E and 14.0°E of the Greenwich meridian [4]. The State shares common boundary with Taraba State in the South and West, Gombe State on its Northwest border and Borno State to the North. It has an international boundary with the Republic of Cameroun along its Eastern border. The State covers a land area of about 38,741km$^2$ and is administratively divided into 21 Local Government Areas (LGAs), with a population of 3,161,374 people comprising of 1,580,333 males and 1,581,041 females [5].

Further, the State has a tropical climate marked by dry and rainy seasons. The rainy season commences in April and ends in late October. The wettest months are August and September. The mean annual rainfall pattern shows that the amounts range from 700mm in the north-west part to 1600mm in the southern part [4]. The temperature characteristic in the State is typical of the West African Savannah climate characterized by high temperature almost throughout the year due to high solar radiation which is relatively evenly distributed throughout the year. Maximum temperature in the State can reach up to $40^0$C particularly in April, while minimum temperature can be as low as $18^0$C between December and January. Mean monthly temperature in the State ranges from $26.7^0$C in the south to $27.8^0$C in the north-eastern part of the State.

The dominant soil groups in the State are Luvisols, Regosols, Cambisols, Vertisols and Lithosols derived from basement complex, while few other places are on Sandstones, Shales and Alluvium[6]. The major economic activity of the inhabitants is agriculture (farming, fishing and cattle rearing). Some of the agricultural crops of importance are cereals, roots and legumes supplemented by few planted trees. The main food crops grown are maize, sorghum, millet, rice, cowpea/beans, groundnut, sweet potato and cassava. The farming system employed is either mono cropping or mixed cropping. Non-farm economic activities include trading, blacksmithing, fishing and animal husbandry, among others.

**Sampling Techniques/Procedures**
**Methods of Data Collection and Analysis**
The data for the study is mainly secondary. The secondary data were obtained from the reports of the impact evaluation conducted for the CSDP in Adamawa state. To establish causality between a program and an outcome, impact evaluation method that rules out the possibility of any factors other than the program of interest was used to explain the impact.

The impact or causal effect (α) of a program (P) on an outcome of interest (Y) is given by

$$\propto = (Y|P = 1) - (Y|P = 0) \text{------ (1)}$$

That gives the difference between the outcome of with (P=1) and without (P=0) the program. This approach therefore necessitates the estimation of counterfactual.

At any given moment in time, a community either participated in the program or did not participate. Since the community cannot be observed simultaneously in two different areas, it is called the counterfactual problem. The counterfactual is an estimate of what the outcome (Y) would have been for a program participant in the absence of the program (P).

The concept of CSDP requires that Difference-in-Differences (DD) be used for the impact evaluation. DD estimates the counterfactual for the change in outcome for the treatment group by calculating the change in outcome for the comparison group. This method takes into account any differences between the treatment and comparison groups that are constant over time. This impact evaluation tool was used to elicit the differences in outcomes of the state CSDP interventions.

For the purpose of data collection, combination of qualitative and quantitative research methods was used. Data were collected with the aid of instruments such as interview schedule (questionnaires), Focus Group Discussion (FGD), Key Informant Interviews (KII) and in-depth interview. Others include M&E data set of the State Agency including baseline, written official records, school and clinic records, brief interview schedules and Questionnaires.

### Methods of Data Analysis

Descriptive and quantitative techniques such as frequency tables, percentages, means, standard deviations and variance were employed in the analysis of the study data.

### FINDINGS AND DISCUSSION
### Socio-Economic Characteristics of the Respondents

The socio-economic characteristics of the respondents examined include age, sex, marital status, educational attainment, house hold size, occupational experience and membership of association. The summary of these indices were presented in Table-1 and discussed below.

### Age of the respondents

The proportion of the respondents within the age bracket of 25- 60 years was 83.40%, while their mean age was 41.46 years. The Standard deviation was 12.848 with a variance of 165.073. This implies that most of the respondents were matured enough to make rational decisions affecting their socio-economic wellbeing in their various communities.

### Sex of the respondents

Gender wise, majority of the respondents were males representing 95.94%. Thus, males' domination in the activities of CSDP was widespread with only small number of female participation. This could be attributed to the fact that most women do not easily intermingle with men due to socio-cultural and religious reasons that is more common in the state.

### Marital status

Majority of the respondents were married (90.22%) as such they are responsible people who could make rational decisions to manage their affairs effectively.

### Educational attainment

The study examined the formal years of educational attainment of the respondents. About 62% of them have more than 6 years of formal education i.e. they have attained the post-primary and post-secondary schools educational level. This educational attainment facilitates interaction with CSDP officials towards micro-projects implementation in their communities.

### Household size

About 50.12% of the respondents have more than 7 individuals in their households with a mean of 9. This means that, the availability of more family members could assist in supplying cheap labour for both farm and non-farm activities thereby helping in meeting some of the household social services than spending the available funds in hiring labour which might not necessarily be available at the required time and number.

### Engagement in agricultural activities

Adamawa is an agrarian State, as such majority of the respondents (93.08%) were engaged in agricultural activities like cultivation of several crops such as maize, rice, sorghum, millet, cowpeas, cassava, etc, and raising of livestock such as cattle, sheep and goats. Health facilities are an essential aspect of life. As a result of the intervention, the communities will now have easy access to health care services that will help in maintaining their state of sound mind in carrying out the social services including agricultural related activities

### Level of income

The respondents generate an annual income mainly through their primary occupations. About 25% of them have more than N240, 000:00 as annual income. This means that they were economically empowered usually facilitated by their interaction with the micro-projects established in their respective communities, thus reducing the level of poverty among them.

**Table-1:. Summary Statistic of Respondents' Socioeconomic Characteristics**

| Variables | Mean | Standard deviation | Variance | Dominance analyses | |
|---|---|---|---|---|---|
| | | | | Definition | Value |
| Age of respondents (years) | 41.46 | 12.848 | 165.073 | % within age bracket of 25 – 60 | 86.40 |
| Sex of respondents (1 = male, 0 = female) | 0.96 | 0.198 | 0.39 | % of male respondents | 95.94 |
| Marital status (1 = married, 0 = otherwise) | 0.91 | 0.320 | 0.103 | % of married respondents | 90.22 |
| Formal Education (years) | 8.91 | 5.457 | 29.777 | % of respondents with more than 6 years of for mal education | 61.58 |
| Household size (numbers) | 8.56 | 5.714 | 144.290 | % of respondents with more than 7 individuals in the household | 50.12 |
| Experience in primary occupation (years) | 17.3144 | 12.012 | 144.290 | % of respondents with more than 10 years of experience | 62.05 |
| Membership of association (1= Yes, 0 = No) | 0.64 | 0.481 | 0.0232 | % of respondents who were members of associations | 63.72 |
| Engagement in agricultural activities (1= Yes, 0 = No) | 0.931 | 0.2541 | 0.065 | % of respondents who are engaged in agricultural activities | 93.08 |
| Total amount of income generated per year | 162,900 | 96,107.485 | 9.237E9 | % of respondents with more than that N240, 000 annual income. | 24.80 |

**COMMUNITY INVESTMENTS AND RESULTS**
**Health**

The estimation of outcome impact for health projects was presented in Table-2. Results indicated that availability of health centers in the communities increases their accessibility to health services. This was evidenced by the improvement of the number of people attending health centers for treatment and or counseling. The difference between the benefiting and non-benefiting communities indicated that about 96 males and 54 females visits the health centers for treatment/ counseling, when compared to none from the non-benefiting communities. Also, there was an improvement in the average number of women visiting the health centers for ante and post natal clinics (i.e. about 34 women).

The study further revealed that the average number of children immunized at the health centers shows an improvement from zero level among the non-benefiting communities to 29 males and 31 females.

Moreover, an average of about 4 medical staff were posted by the LGA to work in the health centers for effective delivery of health services. On average distance to health facilities within the communities, there was a significant reduction of about 4 km (or 86.58%) when compared between the benefiting communities (0.60km) and the non-benefiting communities (4.62km). Also, the average time taken to get to the health centers from the communities was reduced significantly (50.22 minutes reduction, or 72.52%) when compared with the non-benefiting communities in the State.

Generally, the CSDP intervention in the health sector has impacted positively and significantly on the benefiting communities in the State.

**Table-2: Estimation of outcome impact for health projects**

| Indicator | Definition | Unit of Measure | Treated Difference in outcomes (before and after) | | | | | Control Difference in outcomes (before and after) | | | | | Treated Outcome | Control Outcome | DD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | TC 1 | TC 2 | TC 3 | TC 4 | TC 5 | CC 1 | CC 2 | CC 3 | CC 4 | CC 5 | Average | Average | |
| People attending Health Centers for treatment/counseling | No. of people visiting the Health centre provided for treatment/counseling (disaggregated by male and female). | Number | M 14 F 6 | M 45 F 25 | M 98 F 60 | M 24 F 30 | M 300 F 150 | M 0 F 0 | M 0 F 0 | M 0 F 0 | M 0 F 0 | M 0 F 0 | M 96.2 F 54.2 | M 0 F 0 | M 96.2 F 54.2 |
| People attending ante-natal/post-natal clinic | Number of women attending Health centers for Ante-natal and post natal clinics | Number | 10 | 20 | 98 | 19 | 25 | 0 | 0 | 0 | 0 | 0 | 34.4 | 0 | 34.4 |
| Children immunized | No. of children immunized (disaggregated by Male and Female) | Number | M 50 F 40 | M 20 F 10 | M 45 F 88 | M 18 F 8 | M 12 F 8 | M 0 F 0 | M 0 F 0 | M 0 F 0 | M 0 F 0 | M 0 F 0 | M 29 F 31 | M 0 F 0 | M 29 F 31 |
| Medical Staff deployed to Centers | No. of Medical staff posted by the LGA to work in the Health centre | Number of Medical staff | 6 | 6 | 3 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 4.4 | 0 | 4.4 |
| Average distance to health centers | Average distance taken to get to the Health centre from different sections of the community. | Km | 0.64 | 0.87 | 0.5 | 0.5 | 0.5 | 7.45 | 3.31 | 6.23 | 2.96 | 2.53 | 0.60 | 4.62 | -4.02 |
| Average time to health centers | Average time taken to visit the Health centre by households from different sections of the community | Minutes | 12.13 | 16.53 | 25 | 20 | 20 | 144.67 | 73 | 46.07 | 41.85 | 39.14 | 18.73 | 68.95 | -50.22 |

## CONCLUSION

In conclusion, the Impact Assessment and Evaluation of the Adamawa State CSDP has revealed that, the overall goal of improving the beneficiaries' access to social infrastructure services for human development especially in the health sub-sector has been tremendously achieved. Communities were strongly supported, rural poor were economically empowered; and relevant stakeholders and agencies were appropriately sensitized towards micro-projects processes for meeting the Project Development Objectives. Based on the study, the following recommendations were suggested; The World Bank should continue with the second phase of the project or expand the life span of the existing one, as it proved to be beneficial towards improving the quality of life of the rural communities in the State. This will also enable the non-benefiting communities to be incorporated into the activities of the CSDP for future intervention. State and Local Governments in the State, as well as relevant MDAs should be encouraged to increase their support to projects aimed at improving the welfare of the rural communities. Sensitization campaign on the CDD approach and its benefits toward meeting the needs of the rural communities should also, be promoted especially among the relevant MDAs in the State. This is aimed at encouraging its adoption and maintenance culture should, also be promoted among the benefiting communities so as to ensure effective sustainability of the micro-projects provided by the CSDP in the State.

This could be done with the support and cooperation of the CPMCs/CDAs, and the Community members.

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