

Evaluating Beneficiary Perceptions of the Impact of WASH Infrastructure Under the Multi-Sectoral Crisis Recovery Project (MCRP) in Adamawa State, North-East Nigeria

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Abstract - This study assesses the impact of Water, Sanitation, and Hygiene (WASH) infrastructure projects implemented under the Multi-Sectoral Crisis Recovery Project (MCRP) in Adamawa State, North-East Nigeria. In response to the protracted crisis caused by the Boko Haram insurgency and environmental challenges, the MCRP was launched by the Government of Nigeria in collaboration with the World Bank to restore essential services, improve livelihoods, and rebuild social cohesion. Specifically, the WASH infrastructure of the MCRP aimed to rehabilitate damaged infrastructure, improve access to clean water and sanitation facilities, and promote hygiene awareness in affected communities. Using a mixed-methods approach, the study evaluates the state of WASH services before and after the intervention, measuring changes in infrastructure access, health outcomes, and community behavior. Findings indicate a significant improvement in access to safe water sources (from 18% to 73%) and a sharp decline in open defecation (from 34.4% to 3.9%). Additionally, increased community participation and the perceived inclusiveness of the intervention contributed to enhanced social cohesion. However, the study also identifies lingering gaps in stakeholder engagement, sustainability structures, and community awareness of maintenance mechanisms. The study concludes that the MCRP WASH intervention has contributed meaningfully to public health, social stability, and resilience in Adamawa State. It recommends strengthening community engagement, institutionalizing maintenance structures, and aligning future interventions with local development policies to ensure the long-term sustainability of WASH services. The research provides critical insights for policymakers, development agencies, and practitioners aiming to implement recovery-focused infrastructure interventions in fragile and crisis-affected settings.

Keywords: Multi-Sectoral Crisis Recovery Project (MCRP), Water Sanitation and Hygiene (WASH), Infrastructure project.

I. INTRODUCTION

The North East Multi-Sectoral Crisis Recovery Project (MCRP) is a community-driven intervention Programme focusing on recovery and stability being implemented by the Federal Government, in partnership with the World Bank, within the framework of the post Recovery and Peace Building Assessment (RPBA): The North East Recovery and Stabilization Program (NERSP) and the Buhari Plan. The MCRP's Project Development Objective (PDO) is to (a) support the Government of Nigeria towards rehabilitating and improving critical service delivery infrastructure, improve the livelihood opportunities of conflict and displacement-affected communities, and strengthen social cohesion in the North East Participating States of Borno, Yobe and Adamawa; and (b) in the event of an Eligible Crisis or Emergency, to provide immediate and effective response to said Eligible Crisis or Emergency, through the proposed Contingent Emergency Response Component (World Bank 2017).

Since 2009, the Northeast (NE) has been affected by the Boko Haram (BH) conflict and the resulting military operations, impacting the lives of over 15 million people. The conflict has caused the loss of at least 20,000 lives and the displacement of around 2.5 million people internally and across international borders. The BH conflict has triggered an acute humanitarian and forced displacement crisis, with devastating social and economic impacts on the population, further deepening poverty and fragility in the NE region. Across the six states of the NE – Borno, Yobe, Adamawa, Bauchi, Gombe, and Taraba, there has been estimated infrastructure damage of US\$ 9.2 billion and accumulated output losses of US\$ 8.3 billion. In the most directly and heavily affected states of Borno, Adamawa, and Yobe (BAY States), hundreds of thousands of households are living without access to basic infrastructure and social services. (Federal Ministry of Finance, Budget and National Planning, 2021).

A Recovery and Peace Building Assessment (RPBA), was conducted from January to April 2016, which identified and measured crisis recovery needs in the NE. The

Government of Nigeria (GoN) has demonstrated strong commitment towards taking on the recovery and development challenges in the NE. In July 2015, after a series of successful military efforts that led to the recovery and stabilization of part of the territory once controlled by BH, the GoN requested support from the World Bank (WB) in the recovery efforts in the NE. In response to this request, the WB partnered with the European Union (EU) and United Nations (UN) to support the GoN in conducting the RPBA. Following the RPBA, the GoN then requested support from donors for the post-RPBA process in April 2016. The post-RPBA process provides an implementation and institutional framework and action plan for recovery and peace building in the NE. The coordination of such program as well as other initiatives in the North East is planned to be done by a coordination agency, currently the North East Development Commission (NEDC) officially established and mandated in September 2019 by President Buhari with the mandate of “oversight coordination and monitoring of all interventions in the North East region.

Now that significant portions of the territory formerly controlled by BH are under government control, it is of critical importance to immediately secure, consolidate and translate these gains into recovery and developmental progress. As agreed between the GoN and development partners (DPs) under the RPBA, and subsequently reaffirmed by the Buhari Plan, this will require taking a gradual, phased and two-pronged approach, which includes: (i) a surge of high-impact, early recovery interventions in the period of stabilization for rebuilding lives and livelihoods while humanitarian operations continue in tandem and; (ii) a gradual transition towards medium term recovery and resilience building through investments in social cohesion, productive, capital and social infrastructure. The key elements of the proposed approach are to: (i) respond to the immediate needs of forcibly displaced populations and host communities to address the humanitarian crisis; (ii) rapidly rebuild the social fabric and the social contract between the Government and its citizens, and; (iii) sustainably restore and improve service delivery and economic livelihoods across all critical sectors. (World Bank 2017).

The primary objectives of the MCRP are:

1. **Rehabilitation of Essential Infrastructure:** MCRP seeks to restore and improve critical infrastructure that has been damaged or degraded due to conflict and environmental challenges. This includes constructing and rehabilitating roads, bridges, schools, healthcare facilities, water supply systems, and electricity infrastructure. By enhancing accessibility and mobility, the project aims to support local economies and improve service delivery.

2. **Restoration of Livelihoods:** The project aims to revive economic activities by providing support for agriculture, small businesses, and market access. This includes creating job opportunities, facilitating skills development, and offering financial assistance to families and communities, which ultimately helps in reducing dependency and poverty.
3. **Strengthening Social Cohesion and Resilience:** MCRP emphasizes social inclusion and community engagement in project activities, fostering collaboration and cohesion among community members. This aspect is crucial in crisis-affected areas where trust and social bonds may have weakened due to displacement and violence.
4. **Institutional Capacity Building:** By enhancing the capacities of local government institutions and implementing agencies, MCRP aims to ensure effective project management and sustainable development outcomes. Training and support are provided to local staff and stakeholders to improve service delivery and resilience planning (Adamawa State Government, 022).

Adamawa State Government (2022). Adamawa State, which has been significantly impacted by both insurgent activities and environmental challenges, faces numerous infrastructure deficits. The damage to infrastructure has limited access to critical services, including healthcare, education, and market facilities, thereby impacting the overall quality of life and economic prospects of residents. The MCRP infrastructure projects in Adamawa are thus focused on:

- **Transport Infrastructure:** Improving road connectivity and repairing damaged bridges to enhance access to remote areas and facilitate the movement of people and goods.
- **Healthcare and Education Facilities:** Reconstructing and rehabilitating schools and healthcare centers to ensure that essential services are available to all communities, including internally displaced persons (IDPs).
- **Water and Sanitation Systems:** Restoring water supply systems and improving sanitation facilities to prevent disease and improve hygiene conditions in affected areas.
- **Public Utilities:** Enhancing access to electricity and clean energy solutions to support economic activities and improve living standards.

In Adamawa State, these projects help communities transition from crisis recovery to sustainable development by rebuilding social and economic infrastructure that is vital for long-term resilience and growth.

1.1 Statement of the Problem

The recurring crises in Adamawa State have caused severe damage to critical infrastructure, including transportation, water and sanitation, healthcare, education, energy, and housing. This infrastructure deficit has adversely impacted the social and economic well-being of residents, slowed down recovery, and deepened vulnerabilities in an already fragile environment. The Multi-Sectoral Crisis Recovery Project (MCRP) aims to address these challenges by rehabilitating damaged infrastructure, enhancing service delivery, and supporting resilience among crisis-affected communities. This paper seeks to explore the effectiveness of MCRP's efforts in restoring WASH essential infrastructure, improving access to services, and supporting economic and social recovery in Adamawa State. By examining the outcomes of the project on local communities, the study aims to determine if the WASH infrastructural improvements have addressed the specific needs of the crisis-affected population and contributed to long-term resilience and sustainable development.

1.2 Objectives of the Study

To analyze the impact of the MCRP WASH intervention on the people of Adamawa State before and after its implementation.

Specific Objectives:

- i. To assess the level of access to water, sanitation, and hygiene services before the intervention.
- ii. To evaluate improvements in WASH infrastructure and services after the intervention.
- iii. To examine changes in community hygiene behavior and health outcomes.
- iv. To identify challenges and gaps in the implementation of the WASH intervention.

1.3 Research Questions

- i. What was the state of WASH services in Adamawa before the MCRP intervention?
- ii. What improvements have occurred as a result of the intervention?
- iii. How has the intervention affected health and hygiene behavior?
- iv. What are the remaining challenges and gaps?

1.4 Significance of the Study

This study assesses the impact WASH projects of the Multi-Sectoral Crisis Recovery Project (MCRP) on beneficiaries in Adamawa State, offering insights into infrastructure restoration, policy support, economic and social

impacts, implementation challenges, and contributing to crisis recovery research for improved development strategies. This study is highly relevant to policymakers, development agencies, and the general public as it underscores the essential role of infrastructure in crisis recovery. For policymakers and development agencies, it provides actionable insights into how WASH infrastructure improvements can drive community stability, economic growth, and resilience. The findings offer guidance for refining recovery strategies, ensuring resources are effectively allocated, and implementing best practices. For the general public, the study highlights how restored WASH infrastructure directly enhances quality of life and strengthens social cohesion, illustrating the long-term benefits of sustained recovery efforts in crisis-affected regions. Adamawa State Government on its part has created enabling environment through the development of the State's WATER-WASH Policy in 2022 and Adamawa State Water and Sanitation Services Law 2024. Overall, this research supports better-informed recovery strategies, aiding sustainable development in Adamawa and similar regions.

1.5 Scope of the Study

The study focuses on WASH infrastructural intervention of MCRP and limited to 21 local government areas in Adamawa State.

II. METHODOLOGY

2.1 Research Design

This study adopts a mixed-method research design, combining both quantitative and qualitative data collection approaches to comprehensively assess the impact WASH project of the Multi-Sectoral Crisis Recovery Project (MCRP) on beneficiaries in Adamawa State. This approach enables a nuanced understanding of the project's effectiveness, capturing both measurable outcomes and in-depth perspectives from the community.

The quantitative aspect involves structured surveys and statistical analysis to gather data on specific indicators such as: Accessibility to Services, Economic Outcomes and Service Utilization. The data was analyzed to identify patterns and relationships, providing an evidence-based assessment of MCRP's impact on economic opportunities, service accessibility, and overall quality of life.

The qualitative component includes semi-structured interviews and focus group discussions with key stakeholders, including community leaders, beneficiaries, government officials, and MCRP implementers. This approach aims to capture individual and community-level perspectives on the changes brought by the MCRP, exploring beneficiaries'

perceptions of improved infrastructure and social cohesion. Understand challenges and successes experienced during the project’s implementation, which may not be evident from quantitative data alone.

2.2 Population and Sample Size

This study selected 384 beneficiaries of the Multi-Sectoral Crisis Recovery Project (MCRP) to represent the population of the study in Adamawa State, which includes individuals and households from communities affected by the project, as well as local stakeholders like community leaders, government officials, healthcare workers, educators, and business owners. To achieve a comprehensive and representative sample, the study employs stratified random sampling, dividing the population into distinct subgroups based on specific characteristics and then randomly selecting participants from each stratum. This method aims to minimize sampling bias and ensure balanced representation of experiences and outcomes. Calculating an appropriate sample size is crucial for the study's statistical significance and representation of the broader population, using standard formulas that consider population size, confidence level, and margin of error.

Using the **Cochran’s formula** for sample size calculation, we can estimate the required sample size with a desired confidence level and margin of error:

Cochran's sample size formula

$$n_0 = \frac{z^2 \cdot p \cdot (1 - p)}{e^2}$$

Where:

n_0 = Sample Size

Z = Value (for 95% confidence level, Z= 1.96)

P = Estimated proportion of the population (Assuming P=0.5 for maximum variability)

e = Margin of error

$$n_0 = \frac{(1.96^2) \cdot (0.5) \cdot (1-0.5)}{e^2}$$

$$n_0 = 384$$

A sample size of 384 household heads using a marginal error of 5% adopted from Saunders (1997) was employed to represent the population of Adamawa State (Table 1.1).

Table 1.1 Sample sizes for different sizes of population at a 95% level of certainty

Population	Marginal error			
	5%	3%	2%	1%
50	44	48	49	50
100	79	91	96	99
150	108	132	141	148
200	132	168	185	196
250	151	203	226	244
300	168	234	267	291
400	196	291	434	384
500	217	340	414	475
750	254	440	571	696
1,000	278	516	706	906
2,000	322	696	1091	1655
5,000	357	879	1622	3288
10,000	370	964	1936	4899
100,000	383	1056	2345	8762
1,000,000	384	1066	2395	9513
10,000,000	384	1067	2400	9595

Source: Saunders (1997)

Proportionality factor was used to select 384 household respondents from the 21 LGAs of Adamawa State based on their population size.

The proportionality factors adopted is;

$$Q_i = (F_i / P) \times N$$

Where:

Q_i = The Number of respondents selected from each Local Government Area.

F = Population of each Local Government Area.

P = The Total population of the three Local Government Areas.

N = Required total sample size.

By substituting the sample size for each Local Government Area.

Random sampling technique was used to select the household heads from each local government area for the distribution of the questionnaire. Each member of the population was numbered 1 to N, from the 384 population sample size adopted from Saunders (1997). A starting point on the random table was selected, up to down read direction was choosing for selecting the sample population of 384. Samples were selected in such a way that all the members of the population have equal chances of being selected by the used of table of random numbers to selected the heads of house for the distribution of questionnaires (Udofia 2016).

2.3 Instruments and Procedure for Data collection

The instrument for data collection in this study were structured questionnaires, focus group discussions, and interviews, used to gather primary data, which were structured to elicit both open and close ended responses from the beneficiaries' respondents. Data on the socio-economic characteristics of the respondents and knowledge about MCRP project were used for the analysis. Structured questionnaires were developed and it was pre-tested in the study area so as to evaluate the understandability of the questions for modifications were necessary.

2.4 Method of data Analysis

The study employed host of analytical tools based on the objectives. Descriptive and inferential statistics were the analytical tools for the study. The descriptive tools include the used of average and percentage. The inferential statistics include Likert Scale analysis. Structured questionnaires were administered to 384 sampled heads of household.

2.5 Ethical Considerations

The evaluation of the Multi-Sectoral Crisis Recovery Project (MCRP) for North Eastern Nigeria adhered to strict ethical protocols to ensure the rights, privacy, and well-being of all respondents, such as obtaining informed consent, protecting participant privacy, and ensuring data confidentiality.

III. DATA PRESENTATION AND ANALYSIS

3.1 Age-Based Insights on WASH Impact

Table 3.1 revealed that 15- 17years with (8.9%) 34 Respondents, this group represents adolescents, who are highly vulnerable to waterborne diseases and poor sanitation. Still, the inclusion of this group is crucial any improvements in WASH services (like clean water in schools or household latrines) directly influence child health, school attendance, and hygiene behavior formation.

18–30 (27.6%) 106 Respondents, this group consists mostly of youth and young adults, many of whom are students, new parents, or early career professionals. They are likely to be primary users and advocates of WASH facilities in both homes and public spaces. Positive impacts here might include greater awareness of hygiene practices, reduced disease burden, and youth engagement in community sanitation initiatives.

31–45 (34.9%) 178 Respondents, as the largest age group, these respondents are likely to be heads of households or community leaders, responsible for managing WASH access for families. Their perceptions are particularly important in evaluating sustainability and household-level impact of WASH interventions (e.g., water point functionality, latrine maintenance, waste disposal systems).

46–60 (16.9%) 79 Respondents, representing older adults, often with deep-rooted knowledge of past and present infrastructure conditions. Their responses might highlight long-term changes, resilience improvements, and compare pre- and post-project conditions more critically.

Above 60 (11.7%) 45 Respondents, as elderly residents, they often face mobility and health challenges, making them highly dependent on accessible and well-maintained WASH facilities. Improvements in WASH under MCRP may have had significant impacts in reducing health risks and improving dignity for this group.

Table 3.1: Age of the Respondents

Age	Respondents	Percentage (%)
15-17	34	8.9
18-30	106	27.6
31-45	178	34.9
46-60	79	16.9
Above 60	45	11.7
Total	384	100

Source: Field Survey 2025

Table 3.2 Analysis of Gender-Based Impact

Gender of the respondents	Respondents	Percentage (%)
Male	52	51.6
Female	48	48.4
Other	0	0
Total	384	100

Source: Field Survey 2025

Male Respondents – 198 (51.6%) Slightly more males participated in the survey, suggesting balanced male involvement in evaluating WASH services. As primary heads of households in many communities, men may provide feedback on infrastructure quality, water accessibility, and economic benefits. However, men may not fully capture the day-to-day challenges of water collection, sanitation, and hygiene typically experienced by women and children.

Female Respondents – 186 (48.4%), strong female representation shows high engagement of women in WASH-related issues. Since women and girls are more directly affected by water, sanitation, and hygiene (e.g., fetching water, menstrual hygiene, caring for sick children).

3.2 Pre-Intervention Situation

Table 3.3: Primary source of water before the MCRP WASH intervention

Primary Source of water	Respondents	Percentage (%)
Open well	168	43.8
River/stream	113	29.4
Rainwater	34	8.9
Hand Pump Borehole	45	11.7
Solar Power Borehole	24	6.3
Others	0	0.0
Total	384	100

Source: Field Survey 2025

A significant observation from the data is that unsafe water sources were predominant before the MCRP WASH intervention. A combined 73.2% of respondents relied on open wells (43.8%) and rivers or streams (29.4%) as their primary sources of drinking water. These sources are typically unprotected and highly susceptible to contamination, particularly during the rainy season when runoff can carry fecal matter, debris, and other pollutants into the water supply. This situation posed a high baseline risk of waterborne diseases such as cholera, typhoid, and diarrhea within the affected communities.

There was also limited access to improved water sources at the time. Only 11.7% of respondents used hand pump boreholes, and 6.3% relied on solar-powered boreholes, totaling just 18% with access to relatively safe and reliable water. This means that

less than one in five individuals had access to improved sources of drinking water before the intervention, highlighting serious gaps in water infrastructure and energy access, especially in remote or underserved areas.

Additionally, rainwater was used by 8.9% of respondents as a secondary source of water. While rainwater can be safe if properly collected and stored, it is often seasonal and unreliable. Households that depended on rainwater likely faced periods of water scarcity, particularly during dry seasons, which may have forced them to resort to less safe alternatives.

Table 3.4: Water source within a 30-minute round trip from your household before MCRP Intervention?

Item	SA	A	U	D	SD	Total	X	Decision
Was the water source within a 30-minute round trip from your household?	112	134	8	64	66	384	3.4	Accepted
	29.2	34.9	2.1	16.7	17.2	100.0		

Source: Field Survey 2025

The mean response score of 3.4, which is above the neutral midpoint on a 5-point Likert scale, indicates a general agreement with the statement that water sources were within a 30-minute round trip before the MCRP WASH intervention. This suggests that, overall, respondents perceived their water sources to be relatively accessible in terms of distance.

A closer look at the responses shows that 246 respondents, representing 64.1%, either agreed or strongly agreed that their primary water source was within a 30-minute round trip. This indicates that distance was not the main challenge for the majority of households. However, it is important to note that proximity does not necessarily equate to quality, safety, or reliability of water issues which, as earlier data indicated, were significant prior to the intervention.

On the other hand, 130 respondents (33.9%) disagreed or strongly disagreed with the statement, revealing that nearly one in three households faced notable challenges in accessing water within a reasonable distance. This points to the inequitable distribution of water points, which likely affected certain communities or households more severely particularly those in remote or underserved areas and during dry seasons.

Only 8 respondents (2.1%) were undecided, indicating that the vast majority of participants had a clear understanding of their household’s water access situation prior to the MCRP WASH intervention.

Table 3.5: How often did you experience water scarcity?

Items	Respondents	Percentage (%)
Daily	243	63.3
Weekly	84	21.9
Monthly	34	8.9
Rarely	23	6.0
Total	384	100

Source: Field Survey 2025

The data reveals that water scarcity was a frequent and severe issue for the majority of households before the MCRP WASH intervention.

A significant 63.3% of respondents (243 individuals) reported experiencing water scarcity on a daily basis. This figure underscores the critical and chronic nature of the water access problem prior to the intervention. Daily scarcity likely disrupted basic household functions such as cooking, cleaning, hygiene, and even affected school attendance and economic activities, particularly for women and children who typically bear the responsibility of fetching water.

An additional 21.9% experienced scarcity weekly, and 8.9% reported monthly scarcity. While these groups were not as severely affected as those facing daily shortages, they still encountered consistent and recurring limitations in water availability, reflecting the unreliability and insufficiency of the water sources that existed before the intervention.

Only 6.0% of respondents (23 individuals) said they rarely experienced water scarcity. This very small fraction suggests that very few households had reliable water access, likely due to proximity to improved infrastructure or better socioeconomic status.

The findings show that water scarcity was a widespread and deeply rooted challenge before the MCRP WASH intervention, with the vast majority of respondents suffering frequent shortages. These insights provide a strong foundation for understanding the impact and importance of the intervention in improving water access, reliability, and quality in the affected communities.

Table 3.6: What types of sanitation facilities were available to your household before the intervention?

Items	Respondents	Percentage (%)
Open defecation	132	34.4
Pit latrine	104	27.1
Flush toilet	56	14.6
None	47	12.2
Shared facilities	45	11.7
Total	384	100

Source: Field Survey 2025

The data clearly reveals a significant gap in access to adequate sanitation facilities before the MCRP WASH intervention. A large proportion of households relied on unsafe or unimproved sanitation options, highlighting the urgency for targeted interventions.

High Rate of Open Defecation (34.4%); Over one-third of the respondents, totaling 132 individuals, reported practicing open defecation. This reflects a critical public health concern, as open defecation is associated with increased risks of disease transmission such as cholera, diarrhea, and typhoid. It also leads to environmental contamination and contributes to a loss of dignity, particularly affecting women and girls. The prevalence of this practice suggests that basic sanitation infrastructure was either inaccessible or unaffordable for a significant portion of the population.

Use of Pit Latrines (27.1%); Pit latrines were the most common form of basic sanitation, used by over a quarter of the respondents. Although they represent a step up from open defecation, many pit latrines are unimproved or poorly constructed. These conditions pose hygiene and safety risks, especially in areas prone to flooding or with high water tables, where contamination of groundwater is a concern.

Limited Access to Flush Toilets (14.6%); Only 56 respondents had access to flush toilets, which are classified as improved sanitation facilities. This low percentage indicates a significant infrastructure gap, likely due to limited access to piped water, inadequate sewage systems, or economic challenges that restrict the installation and maintenance of such systems.

No Facility at All (12.2%); An additional 47 respondents reported having no sanitation facility at all. This figure may overlap with those practicing open defecation, depending on individual household contexts. The presence of households with no facilities further illustrates the widespread lack of basic sanitation, with nearly half of the population either lacking facilities entirely or relying on unsafe methods.

Shared Facilities (11.7%); A small but notable portion of respondents used shared sanitation facilities. While some of these may be structurally improved, shared facilities are generally considered unimproved by global standards due to concerns over privacy, cleanliness, and maintenance. Shared use can increase the risk of disease transmission and may compromise the safety and dignity of users, particularly in overcrowded or underserved areas.

Table 3.7: Were you or your household members ever trained or sensitized on hygiene practices before the intervention?

Item	SA	A	U	D	SD	Total	X	Decision
Were you or your household members ever trained or sensitized on hygiene practices before the intervention?	53	23	56	129	123	384	2.7	Not Accepted
	13.8	6.0	14.6	33.6	32.0	100.0		

Source: Field Survey 2025

The mean score of 2.7 falls below the neutral midpoint of 3.0 on the 5-point Likert scale, indicating a general lack of agreement with the statement. This suggests that most respondents had not been trained or sensitized on hygiene practices prior to the MCRP WASH intervention.

Only 76 respondents (19.8%) either *strongly agreed* (53) or *agreed* (23) that they had received hygiene training or sensitization. This small proportion shows that before the intervention, very few individuals or households had access to structured hygiene education, which is critical for preventing waterborne diseases and promoting public health.

A significant 252 respondents (65.6%) either *disagreed* (129) or *strongly disagreed* (123), indicating that nearly two-thirds of households lacked exposure to hygiene promotion activities before the intervention. This reflects a major gap in public health education, likely contributing to unsafe practices such as open defecation, improper handwashing, and poor water handling.

A total of 56 respondents (14.6%) were undecided, which could suggest uncertainty or lack of awareness about whether their past experiences constituted formal hygiene training. This also points to a need for clearer and more consistent messaging around hygiene practices in future programs.

The overall low level of prior hygiene education underscores the importance of the MCRP WASH intervention not only in infrastructure development but also in behavioral change communication (BCC). Effective hygiene promotion is essential to maximizing the health benefits of improved water and sanitation facilities.

The analysis shows that prior to the MCRP intervention, there was a significant deficiency in hygiene training and awareness among the population. With a mean score of 2.7 and majority disagreement, it is clear that hygiene sensitization efforts were minimal or absent, reinforcing the need for strong hygiene education components in WASH programs to ensure sustainable health outcomes.

3.3 Post-Intervention Situation

WASH Infrastructure Projects Rehabilitated, Constructed, and Upgraded by MCRP in Adamawa State

As part of its mandate to restore essential services and promote public health in crisis-affected communities, the Multi-Sectoral Crisis Recovery Project (MCRP) in Adamawa State prioritized the rehabilitation, construction, and upgrading of critical Water, Sanitation, and Hygiene (WASH) infrastructure. These interventions aimed to address the long-standing gaps in access to safe water and sanitation caused by conflict and displacement. A total of **728 WASH infrastructure projects** were implemented across various local government areas in the state. The breakdown of completed projects is as follows:

S/N	WASH Infrastructure Project	Number
1	VIP Latrine	96
2	Hand Pump Borehole	424
3	Solar Power Borehole	187
4	Small Town water Scheme	19
5	Urban water Scheme	2
	Total	728

Source (M&E Unit MCRP)

These interventions significantly improved access to clean water and sanitation for thousands of residents, contributing to better health outcomes, reduced disease transmission, and enhanced dignity and quality of life particularly for women, children, and other vulnerable groups. The solar-powered boreholes, in particular, offer a sustainable and energy-efficient solution, ensuring continuous access to water even in remote or off-grid communities. The establishment of small town and urban water schemes further demonstrates MCRP’s commitment to long-term service delivery and resilience building in both rural and urban settings of Adamawa State.



Figure 3.1 Constructed of VIP Latrine at Gulak motor park Madagali LGA



Figure 3.2 Urban water Scheme Numan LGA



Figure 3.3 Small Town water scheme



Figure 3.4 Solar Power Borehole Bachure



Figure 3.5 Hand Pump Borehole in Mubi North LGA



Figure 3.6 Hand pump Borehole Shuwa Madagali LGA

Table 3.8: Current source of drinking water after the intervention

Gender	Respondents	Percentage (%)
Open well	67	17.4
River/stream	28	7.3
Rainwater	10	2.6
Hand Pump Borehole	168	43.8
Solar Power Borehole	112	29.2
Others	0	0
Total	384	100

Source: Field Survey 2025

The data reveals a positive shift in access to improved drinking water sources following the MCRP WASH intervention, marking a significant improvement in water security and public health. Currently, a combined 73% of respondents rely on hand pump boreholes (43.8%) and solar-powered boreholes (29.2%) as their primary sources of drinking water. These are classified as improved and safer sources, representing a major improvement from the pre-intervention situation, where only 18% of respondents had access to similar facilities. This remarkable increase reflects the success and impact of the MCRP intervention in expanding access to more reliable, safe, and hygienic water supply options within the communities.

There has been a substantial reduction in the use of unsafe water sources. The percentage of respondents relying on open wells dropped from 43.8% before the intervention to 17.4%, indicating a reduction of over 60%. Similarly, reliance on rivers and streams fell from 29.4% to 7.3%, and the use of rainwater declined from 8.9% to 2.6%. These reductions are significant, considering that such sources are often unprotected and highly susceptible to contamination, especially during rainy seasons. The decline suggests a lowered risk of exposure to waterborne diseases, such as cholera, typhoid, and diarrhea.

The widespread access to improved water sources, particularly boreholes, is likely to result in lower rates of waterborne illnesses, better hygiene practices, and overall enhanced health outcomes. Moreover, the reduced need to travel long distances to fetch water may significantly lessen the burden on women and children, who are typically responsible for water collection. This change could translate into greater time for education, economic activity, and personal wellbeing, thereby contributing to long-term community development and resilience.

The data reflects a transformational change in drinking water access following the MCRP WASH intervention. There has been a marked decline in the use of unsafe sources and a substantial uptake of improved water systems. These changes not only underscore the effectiveness of the intervention but also lay a strong foundation for sustainable improvements in health, hygiene, and overall quality of life for the affected communities.

Table 3.9: Was the water source less than a 30-minute round trip from your household after MCRP intervention?

Item	SA	A	U	D	SD	Total	X	Decision
Was the water source less than a 30-minute round trip from your household after MCRP intervention?	189	146	2	33	14	384	4.2	Accepted
	49.2	38.0	0.5	8.6	3.6	100.0		

Source: Field Survey 2025

The mean score is 4.2, which is significantly above the neutral point on the 5-point Likert scale, indicating strong agreement among respondents that water sources were less than a 30-minute round trip after the MCRP WASH intervention.

A total of 335 respondents (87.2%) either *strongly agreed* (49.2%) or *agreed* (38.0%) with the statement. This overwhelming consensus highlights the positive impact of the MCRP WASH intervention in bringing water sources closer to households, reducing travel time and effort significantly. This improvement is particularly beneficial for women and children, who typically bear the burden of water collection in many communities. It also increases the likelihood of consistent water use and hygiene practices due to improved accessibility.

Only 47 respondents (12.2%) disagreed (33 disagreed and 14 strongly disagreed) with the statement, indicating that just a small fraction of the population may still be facing challenges related to water proximity. These could be individuals in more remote or underserved areas, or where terrain and infrastructure limitations persist.

0.5% of the respondents were undecided, which suggests that the experience of improved water accessibility was clear and tangible for nearly everyone surveyed. The minimal indecision also reinforces the consistency and effectiveness of the intervention’s implementation.

The reduction in time spent fetching water not only improves household productivity but also positively impacts health, education, and safety, especially for girls who often miss school due to water-fetching duties. Shorter distances may also reduce the risk of physical strain, gender-based violence, or other dangers encountered during long treks.

The post-intervention data reflects a significant improvement in access to water less than 30-minute round trip, with a high mean score of 4.2 and majority agreement (87.2%). This confirms that one of the core objectives of the MCRP WASH project, improving physical access to clean water was effectively achieved, laying the groundwork for broader improvements in public health, safety, and socioeconomic resilience.

Table 3.10: What types of sanitation facilities were available to your household after MCRP intervention?

Items	Respondents	Percentage (%)
Open defecation	15	3.9
Pit latrine	201	52.3
Flush toilet	153	39.8
None	3	0.8
Shared facilities	12	3.1
Total	384	100

Source: Field Survey 2025

The data reveals a substantial improvement in household access to sanitation following the MCRP WASH intervention, marked by a clear shift from unsafe practices to more structured and hygienic solutions.

52.3% of the respondents (201 out of 384) reported using pit latrines, making it the most common sanitation option post-intervention. This reflects a notable move toward structured sanitation, especially in low-income or rural areas where such facilities are often the most viable. Although pit latrines are not always classified as “improved,” their widespread adoption indicates progress away from open defecation and unregulated practices.

Flush toilets are now used by 153 households (39.8%), representing a strong upgrade in sanitation infrastructure. This improvement suggests better water availability, household-level investments, and increased awareness of hygiene and cleanliness. The shift also highlights positive behavior change and a more enabling environment for improved sanitation.

Only 15 households (3.9%) continue to practice open defecation after the MCRP Intervention, a dramatic decrease from the 34.4% recorded before the intervention. This outcome underscores the success of hygiene promotion efforts and the physical provision of sanitation facilities. It also signals better public health conditions, reduced environmental risks, and enhanced dignity for community members.

0.8% respondents reported having no sanitation facility at all, down from 12.2% before the intervention, **near elimination of households without any facility to use**. This indicates a near-universal coverage and highlights the program’s reach in addressing sanitation inequality and ensuring that even the most vulnerable have access to some form of sanitation.

Overall, the data demonstrates a transformational change in sanitation access and quality after the MCRP WASH intervention. The sharp reduction in open defecation and the increase in access to pit latrines and flush toilets reflect both infrastructure development and positive community-level behavior change. These outcomes contribute significantly to public health, social equity, and sustainable development in the intervention areas.

3.4 Beneficiaries’ perception on the functionality of the WASH Intervention by MCRP

Table 3.11: Is the WASH Facilities functional and reliable?

Beneficiaries’ perception on the functionality of the WASH Intervention by MCRP	SA	A	U	D	SD	Total	X	Decision
Always functional	199	115	10	26	34	384	4.1	Accepted
	51.8%	29.9%	2.6%	6.8%	8.9%	100.0		
Sometimes functional	34	29	10	168	143	384	2.1	Not Accepted
	8.9	7.6	2.6	43.8	37.2	100.0		
Not functional	13	11	10	224	126	384	1.9	Not Accepted
	3.4	2.9	2.6	58.3	32.8	100.0		

Source: Field Survey 2025

The perception of beneficiaries regarding the reliability and consistency of WASH facilities provided through the MCRP intervention offers valuable insight into the performance and effectiveness of the infrastructure. The data indicates a high level of functionality, with minimal concerns about unreliability or failure.

A significant majority of respondents 199 individuals (51.8%) strongly agreed and 115 (29.9%) agreed that the WASH facilities are always functional. In total, over 81% of respondents expressed confidence in the consistent functionality of the facilities, resulting in a high mean score of 4.1. This strong positive response reflects high levels of satisfaction and trust in the infrastructure delivered under the MCRP WASH intervention. It suggests that the systems are not only operational but also well-maintained and effectively serving the needs of the community.

In response to whether the WASH facilities are "sometimes functional," only a small percentage of beneficiaries 8.9% strongly agreed and 7.6% agreed, totaling just 16.5% supported the statement. In contrast, a majority of respondents disagreed (43.8%) or strongly disagreed (37.2%), resulting in a low mean score of 2.1. This indicates that most users do not experience the facilities as intermittently functional. It suggests that the systems are generally reliable, and that any interruptions are likely minimal and infrequent. The feedback may also point to strong maintenance practices and local management such as the *Water, Sanitation & Hygiene Committee* (WASHCOMs) and the *Water Consumer Association* (WCAs) established in all project locations that help sustain uninterrupted service. Additionally, the strengthening of *Local Government WASH Units* with a functional *Village Level Operation & Maintenance* (VLOM) departments in collaboration with *National Water Resources Institute* through a sustainability strategy contract has helped a great deal.

Only a small fraction of respondents 3.4% strongly agreed and 2.9% agreed believed that the WASH facilities sometimes are not functional. A much larger proportion 58.3% disagreed and 32.8% strongly disagreed rejected this statement, leading to a low mean score of 1.9. This strong rejection of the idea that facilities are non-functional underscores the effectiveness and sustainability of the infrastructure provided through the MCRP. It reflects a high level of operational success and aligns with the goals of long-term service delivery and community resilience.

The data clearly shows that WASH facilities introduced under the MCRP are widely perceived by beneficiaries as functional and reliable. The overwhelming rejection of non-functionality and intermittent service highlights the success of the intervention not just in delivering access, but in ensuring consistent and sustainable operation. These findings point to the quality of infrastructure, strong maintenance mechanisms, and the positive impact of the intervention on public health, dignity, and overall community well-being.

Table 3.12: Comparative Analysis: Water Sources Before and After the MCRP Intervention

Water Sources	Before (%)	After (%)	Change (%)
Open well	43.8	17.4	-26.4
River/stream	29.4	7.3	-22.1
Rainwater	8.9	2.6	-6.3
Hand Pump Borehole	11.7	43.8	+32.1
Solar Power Borehole	6.3	29.2	+22.9
Others	0.0	0	0

Source: Field Survey 2025

The data reflects a significant transformation in household drinking water sources following the MCRP WASH intervention. The shift from unsafe to improved sources underscores the intervention's effectiveness in tackling issues related to water access, quality, and infrastructure.

Major Increase in Access to Improved Water Sources

Before the intervention, only 18% of respondents relied on improved sources with 11.7% using hand pump boreholes and 6.3% accessing solar-powered boreholes. After the intervention, this figure rose dramatically to a combined 73%, comprising 43.8% using hand pump boreholes and 29.2% using solar-powered boreholes. This remarkable 55% increase illustrates the MCRP project's success in expanding access to safer, more reliable water infrastructure in the target communities.

Sharp Decrease in Use of Unsafe Water Sources

There was a substantial drop in the use of unsafe water sources post-intervention. The proportion of households using open wells declined from 43.8% to 17.4%, representing a 60% reduction. Similarly, reliance on rivers and streams fell from 29.4% to 7.3%, while use of rainwater declined from 8.9% to 2.6%. These reductions reflect improved water safety, with a likely corresponding decline in the risk of waterborne diseases such as cholera, typhoid, and diarrhea.

Elimination of Marginal and Unregulated Sources

After the MCRP intervention, no respondents reported using "other" or unspecified water sources. This suggests improved regulation, classification, and awareness regarding water access, as well as stronger community-level organization around safe water usage.

Implications for Health and Daily Life

The increased use of protected water sources like boreholes is expected to lead to better health outcomes by reducing exposure to contaminated water. Additionally, improved proximity and reliability of water sources can significantly reduce the time and physical burden of water collection particularly for women and children. This may contribute to improved school attendance, increased productivity, and enhanced overall wellbeing.

The MCRP WASH intervention has led to a transformative improvement in drinking water access and quality. The community has seen a clear transition from reliance on unsafe and unregulated sources to structured, modern, and hygienic water systems. This shift not only enhances public health but also promotes equity, resilience, and long-term sustainable development across the beneficiary areas.

Table 3.13: Comparative Analysis: Types of sanitation facilities were available before and After the MCRP Intervention

Sanitation Type	Before (%)	After (%)	Change (%)
Open defecation	34.4	3.9	-30.5
Pit latrine	27.1	52.3	+25.2
Flush toilet	14.6	39.8	+25.2
None	12.2	0.8	-11.4
Shared facilities	11.7	3.1	-8.6

Source: Field Survey 2025

The data indicates a transformational improvement in sanitation access and quality following the MCRP WASH intervention.

Firstly, there was a drastic reduction in open defecation, which fell sharply from 34.4% to just 3.9%, a decline of 30.5% points. This marks a major success in expanding access to basic sanitation and significantly reduces the risk of public health hazards such as cholera, diarrhea, and environmental contamination. It also improves the safety and dignity of community members, particularly women and children.

Secondly, the use of pit latrines increased significantly, rising from 27.1% to 52.3%. As the most common sanitation facility post-intervention, this increase reflects the project's focus on providing affordable, community-level sanitation infrastructure and encouraging behavior change toward safer defecation practices.

Thirdly, access to flush toilets grew substantially, moving from 14.6% before the intervention to 39.8% afterward. This remarkable improvement suggests progress in household level investments, better water supply systems, and improved living conditions in targeted areas.

Additionally, there was a near-elimination of households with no sanitation facilities, with the percentage dropping from 12.2% to just 0.8%. This demonstrates near-universal access to some form of sanitation post-intervention and is a major step toward equity and inclusion, ensuring that even the most underserved groups are reached.

The MCRP WASH intervention has led to significant progress in sanitation infrastructure, hygiene behavior, and public health. The reduction in unsafe practices and the rise in improved sanitation options show not only the success of the intervention's infrastructure investments but also positive strides in awareness, community participation, and long-term sustainability.

3.5 Community Participation and Feedback

The analysis of community involvement in the planning, implementation, and monitoring phases of the MCRP WASH project provides important insight into how inclusive and participatory the intervention was. The data indicates a moderate but meaningful level of community engagement.

Table 3.14: Were you involved in any way in the planning, implementation, or monitoring of the WASH project?

	SA	A	U	D	SD	Total	X	Decision
Were you involved in any way in the planning, implementation, or monitoring of the WASH project?	145	89	23	60	67	384	3.5	Accepted
	37.8	23.2	6.0	15.6	17.4	100.0		

Source: Field Survey 2025

Out of 384 respondents, 145 (37.8%) strongly agreed and 89 (23.2%) agreed that they were involved in some aspect of the project whether in planning, implementation, or monitoring. This means that over 61% of the respondents felt they had a role in the process, resulting in a mean score of 3.5, which meets the threshold for acceptance. This suggests that the MCRP project made intentional efforts to include community voices and promote a sense of ownership and responsibility over the WASH facilities.

However, a notable portion of the community 60 respondents (15.6%) disagreed and 67 (17.4%) strongly disagreed reported not being involved at any level, while 6% were undecided. These points to a gap in inclusivity, indicating that some segments of the population may have been left out of key decision-making and implementation processes. It underscores the importance of improving outreach and ensuring more comprehensive stakeholder engagement in future projects. The data shows that while a majority of community members acknowledged participation in the WASH project under MCRP, a significant number did not. The intervention demonstrated a reasonably inclusive approach, which is essential for project sustainability, local ownership, and alignment with community priorities. Nonetheless, the findings highlight the need for future projects to strengthen mechanisms for ensuring that no group or voice is excluded in the development process.

Table 3.15: Were the needs of women, children, and people with disabilities considered in the WASH intervention?

	SA	A	U	D	SD	Total	X	Decision
Were the needs of women, children, and people with disabilities considered in the WASH intervention?	210	124	5	23	22	384	4.2	Accepted
	54.7	32.3	1.3	6.0	5.7	100.0		

Source: Field Survey 2025

3.6 Analysis: Consideration of Vulnerable Groups in the MCRP WASH Intervention

Understanding whether the needs of women, children, and people with disabilities were adequately addressed during the MCRP WASH intervention offers valuable insight into the project’s inclusivity and equity orientation. The data strongly suggests that these groups were thoughtfully considered throughout the intervention process.

A significant majority of respondents 210 (54.7%) strongly agreed and 124 (32.3%) agreed confirmed that the needs of women, children, and persons with disabilities were taken into account in the WASH intervention. This high level of agreement, reflected in a strong mean score of 4.2, indicates widespread satisfaction with how the project addressed the specific needs of these vulnerable populations. Such feedback suggests the intervention included features like gender-sensitive sanitation facilities, child-friendly infrastructure, and accessible water points for people with mobility challenges contributing to safety, dignity, and equity. Only a small proportion of respondents expressed neutrality (1.3%) or disagreement (11.7% combined for D and SD), which further reinforces the overall perception of inclusivity.

The data clearly shows that the MCRP WASH intervention was perceived as inclusive and responsive to the needs of vulnerable groups, particularly women, children, and people with disabilities. This not only demonstrates good practice in equitable development but also highlights the project’s alignment with principles of social inclusion and human rights. Continued attention to the needs of these groups will be essential in sustaining the impact and accessibility of WASH services in the long term.

Table 3.16: Are there established structures or committees to maintain the WASH facilities?

	SA	A	U	D	SD	Total	X	Decision
Are there established structures or committees to maintain the WASH facilities?	122	67	125	26	44	384	3.5	Accepted
	31.8	17.4	32.6	6.8	11.5	100.0		

Source: Field Survey 2025

The existence of established structures or committees responsible for maintaining WASH facilities is essential for ensuring the sustainability and long-term functionality of the intervention. The beneficiaries' responses provide a moderately positive outlook on this aspect.

Out of 384 respondents, 122 (31.8%) strongly agreed and 67 (17.4%) agreed that there are established structures or committees in place to maintain the WASH facilities. Combined, this indicates that nearly 49.2% of respondents believe such mechanisms exist. This level of agreement results in a mean score of 3.5, which meets the threshold for acceptance and suggests that the MCRP intervention made efforts to institutionalize sustainability through community-based structures or formal maintenance arrangements.

However, a significant number of respondents 125 (32.6%) were undecided, which may point to limited awareness or visibility of these committees within the community. Additionally, 26 (6.8%) disagreed and 44 (11.5%) strongly disagreed, raising concerns about the consistency or functionality of these maintenance structures. These findings highlight a potential gap in communication, engagement, or the operational capacity of the committees tasked with maintenance responsibilities.

The data reflects a moderately positive perception of the existence of maintenance structures for WASH facilities,

indicating that efforts were made under the MCRP project to promote sustainability. However, the high percentage of undecided respondents signals a need for greater community awareness, transparency, and possibly reinforcement of these structures to ensure they are fully functional and trusted. Strengthening these committees and involving community members more actively could enhance ownership and prolong the lifespan of the facilities.

3.7 Summary

The MCRP WASH intervention brought measurable improvements across water access, sanitation, hygiene, and community participation in the target communities.

Pre-Intervention Findings showed widespread reliance on unsafe water sources, high rates of open defecation, inadequate sanitation coverage, frequent water scarcity, and low levels of hygiene awareness and education.

Post-Intervention Outcomes reflected significant transformation: Access to improved water sources rose from 18% to 73%, with reduced dependence on contaminated sources. Open defecation declined drastically from 34.4% to 3.9%, while usage of structured sanitation facilities (pit latrines and flush toilets) increased. Over 81% of respondents confirmed the consistent functionality of WASH facilities, demonstrating strong infrastructure performance and

maintenance. Community involvement reached over 61%, and 87% of respondents felt that the intervention adequately addressed the needs of vulnerable groups. While nearly 49.2% acknowledged the presence of maintenance structures, many remained unaware or skeptical about their functionality—highlighting the need for improved visibility and engagement.

IV. CONCLUSION

The MCRP WASH intervention led to transformational improvements in public health, hygiene, and dignity for the targeted communities. Access to clean water and improved sanitation facilities increased significantly, reducing disease risks and time spent on water collection—especially for women and children. The project also demonstrated a reasonable level of community participation and inclusivity, especially toward vulnerable groups.

However, despite these successes, gaps remain in stakeholder engagement, visibility of maintenance structures, and sustainability mechanisms. The high rate of undecided or uninformed respondents regarding long-term structures underscores the need for stronger community mobilization, awareness, and institutional support to consolidate the gains achieved.

4.1 Recommendations

Strengthen Community Engagement: Increase efforts to involve all segments of the population, especially marginalized and underserved groups, in future planning, implementation, and monitoring phases. Use participatory methods like town hall meetings, focus group discussions, and local leadership forums to enhance inclusivity.

- i. **Enhance Sustainability Structures:** Support and formalize the transformation of LGA WASH UNITS into department in line with Adamawa WASH Policy 2016. Strengthen the unit with working tools such as computers, data storage devices for effective monitoring and evaluation activities.
- ii. **Mentor local WASH committees** with clear roles, training, and visibility in the community and establish monitoring and accountability mechanisms to ensure ongoing maintenance and rapid response to breakdowns.
- iii. **Boost Hygiene Awareness and Training:** Implement continuous community hygiene education programs, especially targeting schools, women, and youth. Integrate behavioral change communication strategies to reinforce proper hygiene and sanitation practices.
- iv. **Monitor and Evaluate Long-Term Impact:** Conduct periodic assessments to measure long-term effectiveness, infrastructure sustainability, and user satisfaction. Collect

disaggregated data to track equity in access and service quality across age, gender, and ability groups.

- v. **Leverage Youth and Women as WASH Champions:** Empower young people and women as peer educators and committee leaders to promote community-driven maintenance and hygiene promotion.
- vi. **Strengthen Policy Integration:** Align future interventions with local and national WASH policies, ensuring that gains are institutionalized and scalable.

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Citation of this Article:

Maurice Vunobolki, Eli Joel, Sadiq Bariki, Suleiman Shuaib, Hassan Misari, & Daniel Tizhe. (2025). Evaluating Beneficiary Perceptions of the Impact of WASH Infrastructure Under the Multi-Sectoral Crisis Recovery Project (MCRP) in Adamawa State, North-East Nigeria. *International Research Journal of Innovations in Engineering and Technology - IRJIET*, 9(4), 237-255. Article DOI <https://doi.org/10.47001/IRJIET/2025.904034>
