CONNECTING THE UNDERSERVED

A PRACTICAL GUIDE TO DEPLOYING COMMUNITY NETWORKS IN NIGERIA

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Media Awareness and Justice Initiative
www.majinigeria.org

ACKNOWLEDGEMENT

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This research report is intended to be for community development and replications in rural and urban poor communities of Nigeria, other regions of Africa and around the world. It is important to note that key insights identified in this report wound have not been possible without the active participation and support from the community leaderships, women groups, and young people. To everyone who has contributed to the deployment and sustainability of the community network, **WE SAY "THANK YOU**.

Special thanks and gratitude go to the **Association for Progressive Communication (APC)** for their commitment to supporting rural grassroot initiatives that facilitate stakeholder capacity building, community inclusion and public awareness; To the members of the implementing project team of the **Media Awareness and Justice Initiative (MAJI), Ifunanya Ezewuzie and Ikechukwu Ahaka**, we say thank you for your passion and dedication during the implementation of this project, your proactiveness and innovation was immensely vital in the successful installation and deployment of the community network.

To everyone who has contributed to the development of this research report

WE SAY "THANK YOU"

ABSTRACT

This research work presents the infrastructural outline and implementation analysis of the MAJI's Community Network. It consists of 3 community networks hinged on 6 point -to point radios, providing broadband internet access via WIFI antennas to residents of 7 communities in Port Harcourt, Rivers State. This research work documents, within the context of the Niger Delta region, the infrastructural setup, Human resource and sustainability approach needed to successfully deploy a self-sustaining community network (CN). The findings within this work are based on practical realities and approaches adopted by the Media Awareness and Justice Initiative during the deployment of the CNs in 2023. The ultimate goal for this research document is to show communal approaches that worked and recommendations for adoption in further works of study, stakeholder engagements or policy development aimed at providing digital access to last mile communities.

INTRODUCTION

In practical terms, Community Networks (CN) are low cost, community based and owned connections, providing low-cost electronic services to underserved users in last mile communities with limited or no access to digital or electronic content.

CNs in rural poor areas across Nigeria are not a new phenomenon. In poor slum communities in the early 2000's some were known to purchase DSTV decoders and share to willing users via multiple-pin RF adapters. The Price cap to use this internal community service was very low, while providing cable TV viewing to poor families.

Over the years, community networks have been built to serve various purposes, such as audio; for awareness and information sharing, cable service; sharing for TV viewing, and open-air newspaper stands for access to news and current affairs. Ultimately this communal approach has provided access to digital content and news to poor areas where cost of individual access to these contents might be seen as relatively too high.

1. MAJI-CN INFRASTUCTURE MAPPING

The community network infrastructure was deployed using collaborations with a locally based Wireless Internet Service Provider (WISP). This WISP had the required signal strength and technical support base to provide broadband high-speed internet to our target communities. Below is CN communities and infrastructure location map, outlining where the CNs where deployed and its coverage strength.

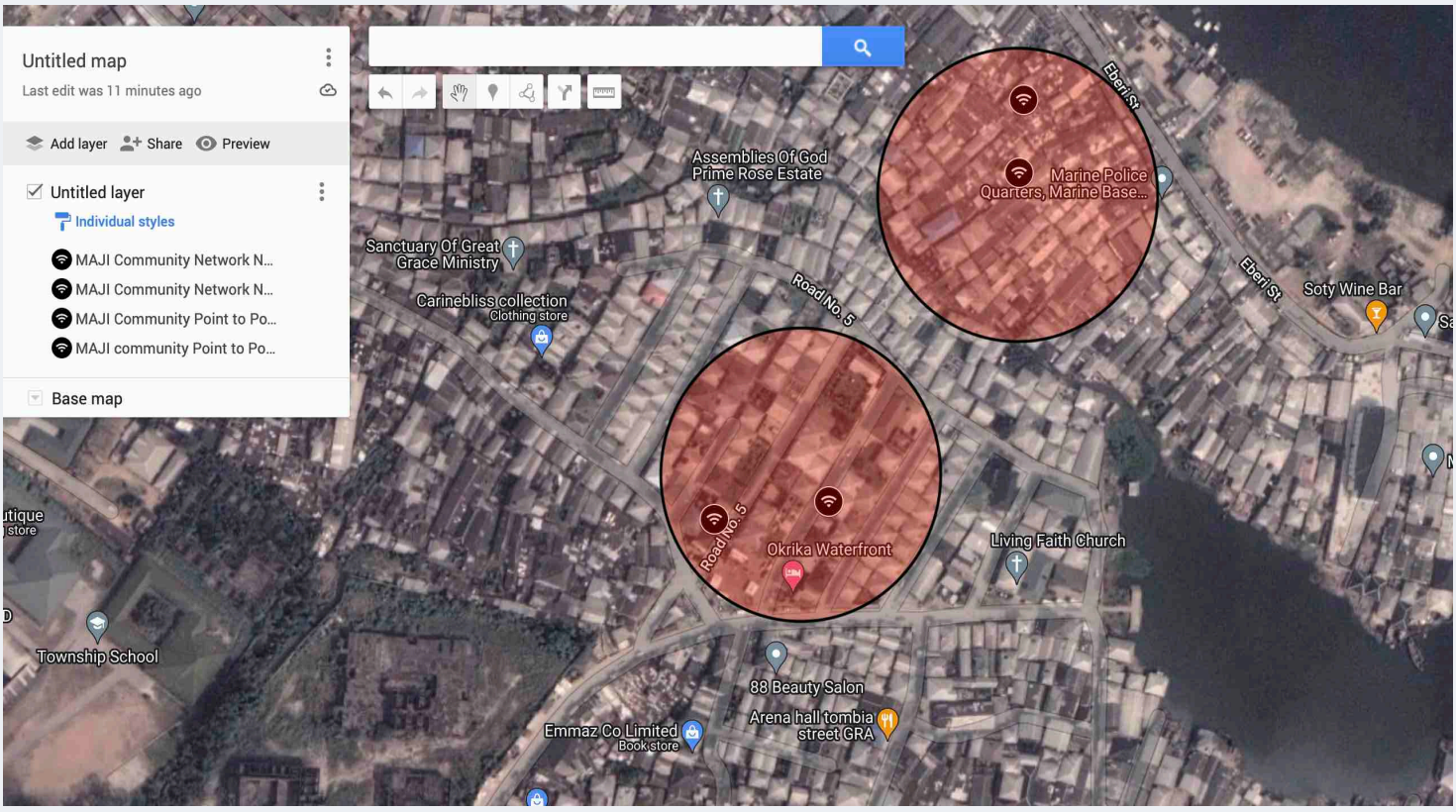
1.1 MAJI CN Infrastructure Map

Darrick Polo-Ama Community is a poor urban slum community located along the North Eastern part of the Port Harcourt township area in Rivers State. It houses over 500 households with an estimated number averaging over 5,000 people. One of the MAJI community Network infrastructure was deployed in this community.

Community Name: Darek Polo community,
Location: Port Harcourt, Rivers State.
Coordinates: 4.764033, 7.031561

Ibikiri Polo-Ama Community is another poor urban slum community located along the eastern part of the Port Harcourt creeks in Rivers state. From our initial assessment of the target community, we estimate that the community houses about 300-400 households with an estimated number of about 3,000 residents. One community network infrastructure was also deployed in this community

Community Name: Ibikiri Polo community,
Location: Marine Base, Rivers State.
Coordinates: 4.769800, 7.027059



2. CONTEXT OF DIGITAL ACCESS

Across the African Continent, a huge number of people remain unconnected. For contrast, Africa is the continent with the lowest internet penetration rate which currently stands at 39% of the population, compared to the global average of nearly 60%. As at January 2022, Nigeria's internet penetration rate stood at 51% of the total population. In Nigeria alone official statistics indicate that there are at least 27.1 million who have no access to connectivity in the country. Despite the seeming expansion of low cost mobile tools and broadband internet access in urban cities, rural underserved communities are still struggling with supposed market forces that hinders their access to the internet, thereby further expanding the digital gap within Nigeria. Commentaries from telecommunication companies indicates that the required existing market forces pull needed to push telecom infrastructure to these underserved communities is lacking.

This major challenge further widens the digital gap and hinders digital inclusion. Consequently, reducing the participation of marginalised groups in discussions around the issues of environment, social development, economic empowerment, and democratic participation. This includes those who cannot afford connectivity, either due to high costs of connectivity; lack of digital skills or equipment needed to access that connectivity. One key impact of community networks for unconnected people in remote, sparsely populated, and poor communities is the ability to empower their collective approach for them to act, to mobilize their resources, endowment and increase the human capital to achieve sustainable development through affordable connectivity. With this approach in view, Community Networks (CNs) have sprouted in a couple of African countries. It is however important to note that this development is uneven and it faces a number challenges, ranging from equipment to policy. For even development and increased digital access in unconnected communities across Nigeria and Africa, it is important that these challenges are addressed, in order to leverage and build on the huge potentials inherent in the deployment of Community Networks to bridge and address the connectivity gaps across the continent. A deep dive into poor slum communities and rural areas, show that residents here are very aware of the huge potentials presented by their access to the internet, but are powerless to use it because of the existential bottlenecks high data subscription costs needed to provide them with access to digital platforms and power requirements needed to charge their various mobile devices. Ultimately, they are forced to rely on third party correspondence, fake news and data communications that don't represent the realities on ground. This makes information sharing and bottom-up discussions between stakeholders very difficult and vice versa.

This further complicates the social and economic situation within the Niger Delta region of Nigeria, which has deep rooted social and environmental challenges stemming from the constant pollution and degradation by the crude oil industry on the region's environment and biodiversity. The United Nations Environment Project (UNEP) report on ogoniland released in 2011, showed huge levels of environmental pollution and degradation. Rural communities have continued to see and record more severe impacts of climate change. Consequently, the combination of environmental pollution, loss of livelihood and lack of affordable internet access in poor communities of the Niger Delta, continues to increase the number of Nigerian livings below the poverty line. People living under this bracket continue to have less access to key information that opens them up to new economic possibilities and alternative forms of livelihood. The digital gap also provides thriving scenarios for the spread of fake news, misinformation and disinformation, fueling ethnic divides and further increasing the tension within the region and Nigeria.

“The Community Network has provided us with cheap, yet very fast internet.”

3. APPROACH

The approach adopted during the development of this research report was participatory in nature. The report approach is aimed at deriving analysis across 3 key structures needed for the deployment of the Community Networks.

- **Analysis of CN Infrastructure:** a full user analysis for the CN infrastructure and software used was conducted by the project team of the Media Awareness and Justice Initiative (MAJI). This component documented findings on the type of user access control mechanisms used, the CN technology deployed, and the power back haul system deployed. These findings covered a period between the months of June 2022 to November 2023.

- **Analysis of CN USER Experience**: The Media Awareness and Justice Initiative project team deployed a total of 186 questionnaires, covering 7 communities whose residents are currently using the deployed CNs. Findings from these questionnaires documented the efficiency of the CN infrastructure deployed, its relevance to the resident dwellers, review of the CN service, and an acceptable subscription price line needed for the sustainability of the CN.

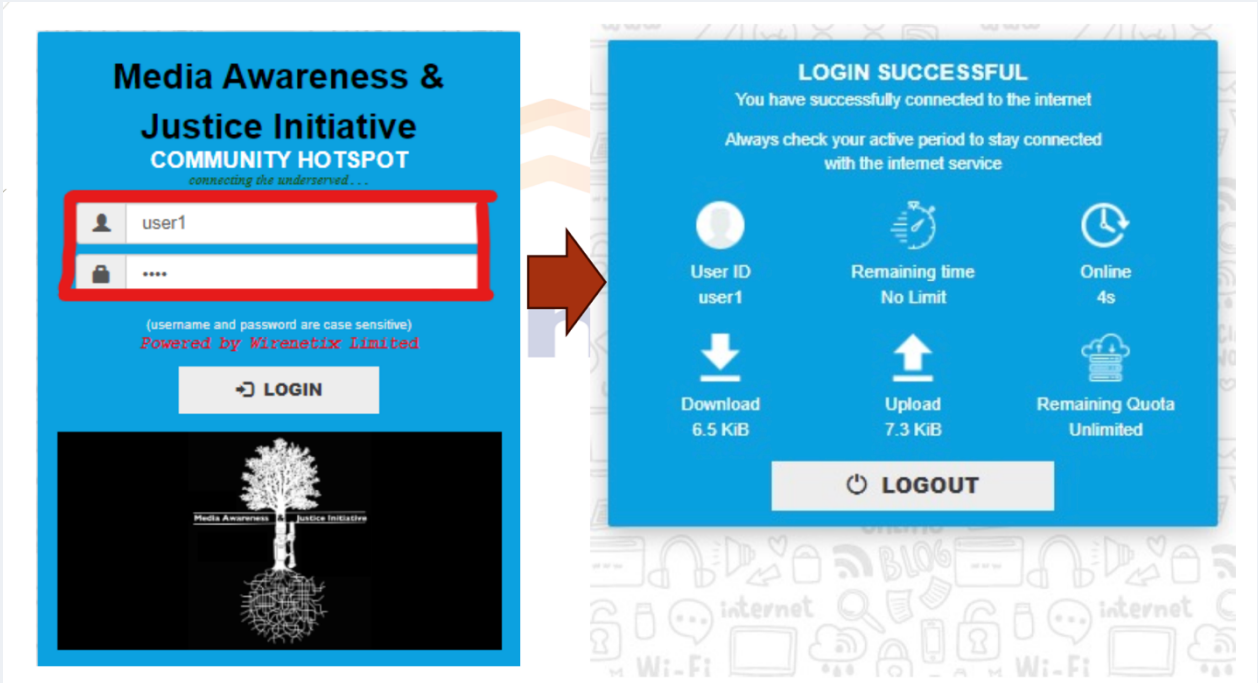
a) **Overview of CN Sustainability Plan:** The Media Awareness and Justice Initiative carried out a total of 3 community townhall sessions under this research document. This community engagements sought to determine key areas of improvement, and community-based strategies needed to ensure the sustainable expansion of the community network to other last mile communities within the region.

3.1 Analysis of Community Network Infrastructure

This research component documented the community network structure adopted by the Media Awareness and Justice Initiative (MAJI) during the deployment of the CN infrastructure. Findings provided insights into the type of CN user access control mechanism deployed, the CN technology deployed, and the power back haul system adopted during the deployment of the CN infrastructure in Darrick Polo community and Ibikiri Polo community, Port Harcourt, Rivers state, Nigeria.

3.1.1 Community Network User Access Control.

A network administrator user control platform was developed to provide controlled user access to the community network. The control platform was developed by a private company using a network administrator JAVA coding script, CN Maestro Monitoring tool, Mikrotik Router Board OS, and hosted on a Userman Software platform. This system helped in printing network access tickets with different login and time-use administration support mechanisms. This network user control platform provided updates on user access and also identify periods of high and low user traffic. It is very important to note that the successful deployment of this component was critical to the overall health and sustainability of the community network. Daily Tickets were retailed to CN users, providing them user access to 24 hours, unlimited broadband internet data use for computer and mobile handheld devices. Once the user connects to the CN WIFI network, a login page would appear (shown below), which would require a user name and pin token. These details are provided on the daily use token purchased by the CN user. Once logged in, a user dash board appears with details such as the user ID, duration of time online, download/upload speed, and user time. All this information is also logged into the backend of the CN user access control panel. These actions update the data registry of the CN usage database, providing updates on number of users, peak periods, and usage review.



3.1.2 Community Network Infrastructure Deployed.

This section outlines the key CN network hardware deployed during the installation of the community network infrastructure. Key factors such as the location of the community, power requirements needed for the CN, topography of the community were considered in the determination of the CN infrastructure to the be deployed. Below is an itemized list of hardware components and technical outlay for the installed CN set-up.

CN Infrastructure Hardware

The network infrastructure includes:

a) Point to Point CN transmission Radio.
b) A pair of Cambium F180 radio with POE.
c) One Cambium E500 router with POE.
d) Mikrotik HEX router with power adapter.
e) Cat 6 (outdoor) Ethernet cable.
f) 2" Galvanized pole.
g) Extension box.
h) RJ45 connectors

CN Infrastructure Technical Outlay

Technical findings from the proposed community show that based on its location and proximity to the network tower, the community network radio was located at a height of about 6 meters. This was possible due to the relatively low height of buildings within the area where the CN infrastructure was mounted and deployed.

This pilot radio was also located over 90 meters away from the RB750Gr Router. This is also the location where the power source provides power to the Router. An assessment of the output of the CN infrastructure showed a downlink and uplink of 50 Mbps, which is very ideal for community network usage and internet needs of the community people. The security of the CN infrastructure was also a very key component that needed to be address. To ensure safety of installed equipment, the Media Awareness and Justice Initiative carried out community townhall meetings which was aimed at building community trust and ensure that the residents of the community take ownership of the installations and protect he equipment.

3.1.3 Power Back Haul System.

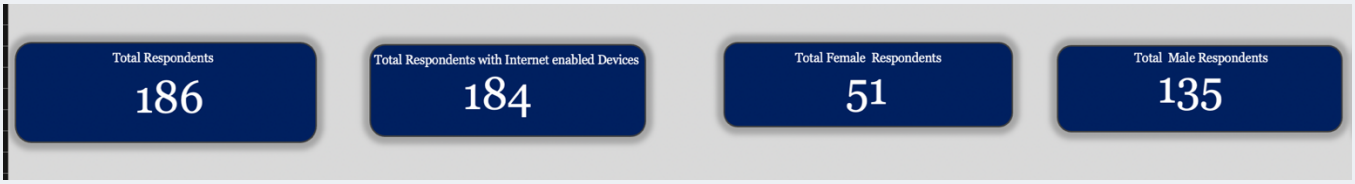
This component documents the power backhaul system adopted by the Media Awareness and Justice Initiative. Key considerations were undertaken during the determination of this approach. One primary consideration was the ability to provide adequate power to the community network infrastructure. This was to generate user confidence and contribute to the overall stability and sustainability of the CN. Another important consideration was the epileptic power supply situation in the identified last mile communities where the CN infrastructure will be deployed. In response to these combined factors, the CN implementation team, adopted a 2-way power back haul system which includes.

I. **National Grid Power Support System** – A primary connection was made to the existing National power grid provided by the Port Harcourt Electricity Distribution Company.

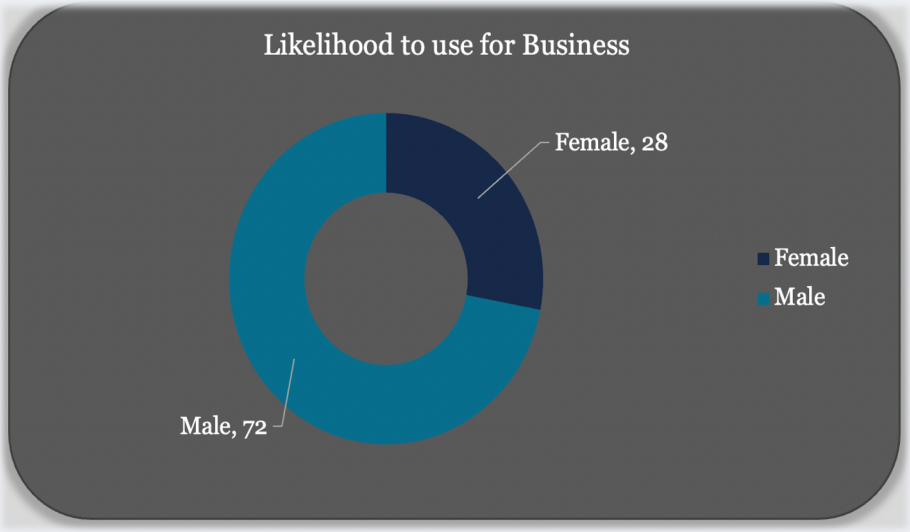
II. **Solar Power Support System** – A 12 Volt Solar power system was deployed to provide 24hr back-up power supply to the community network Infrastructure. A total to 2 solar panels, 1 inverter, 1 sola controller, and 1 battery power pack system were deployed for each of the deployed community network set-ups.

3 Analysis of Community Network User Experience

The Media awareness and Justice Initiative (MAJI) deployed a total of 186 questionnaires in 7 communities. The total framework of the deployed questionnaires looked to understand the economic and social relevance of the Community Network to the resident using the service. Under this assessment, feedback questions on CN relevance, CN use, preferred pricing, and coverage were administered. A door-to-door approach for the delivery of the questionnaire was adopted by the assessment team, with focus on women, men, young people and business owners within the communities. Using a visual representation method, the following CN user analysis data were derived from the analysis of the questionnaire responses are outlined here.

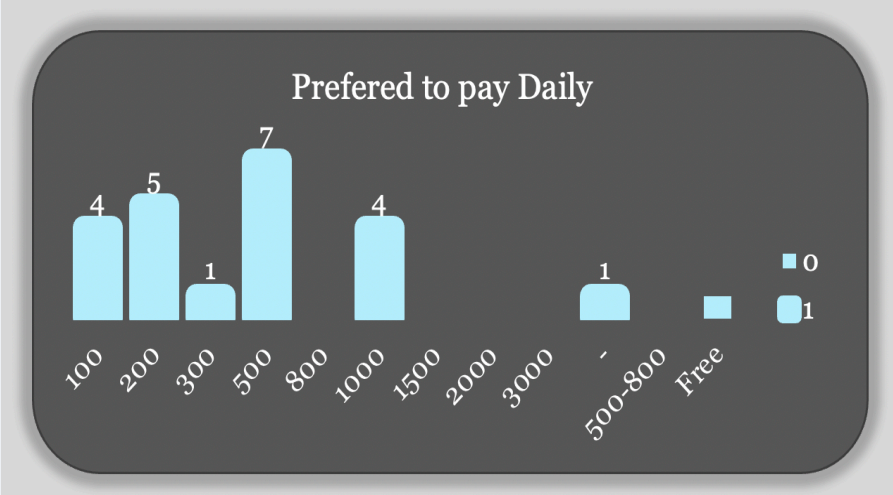


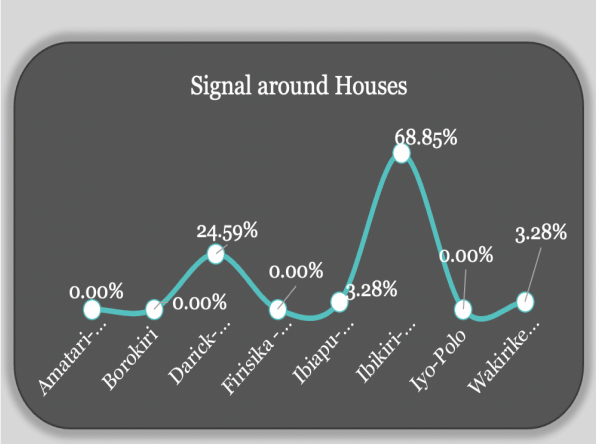
A total of 186 questionnaires were administered to residents from 7 communities who are using the installed community network. Gender aggregation shows that **51 respondents were Women** and **135 respondents were Men.** Analysis from the completed questionnaires showed that a total of **184 respondents** living across the 7 target communities owned or used internet enabled mobile devices.

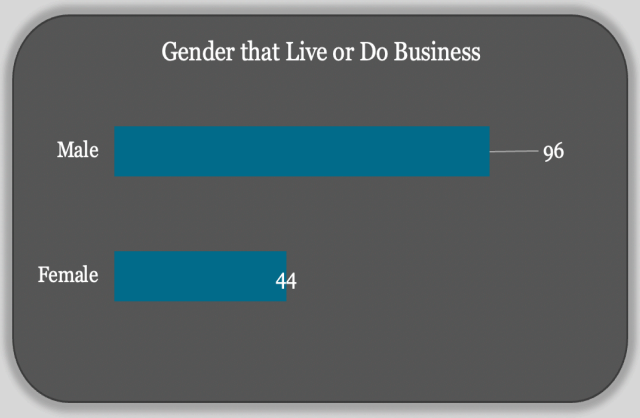


The assessment also looked to identify the number of residents who used the community network for business purposes. This is particularly important to the sustainability plan of the CN, as it can help the management committee properly forecast potential subscription sales in relation to the needed recurrent costs that are essential for the running and stability of the community network. From the analysis of the responses pulled from the questionnaires, the project team where able to identify that about **72% of the CN users were male and indicated their likelihood to use it for business, while 28% of the total number of respondents with likelihood to use it for business were women.** This assessment also gives insights into the ratio of men to women who are actively involved in business that need digital platforms and access. Using this analysis, the project team started looking at building the capacity of women to start adopting the use of digital tools and platforms for business, thereby expanding their economic potentials and opportunities.

The assessment was also very keen to understand preferred **Payment Structures.** This is a very key component as it provides insights into the **Subscription Costs** that are preferrable and attainable by the CN users. For the sustainability of the community network, it is important that groups who are willing to deploy such infrastructure, should price the user access subscription costs in such a way that local poor people living in last mile communities can purchase the CN login tokens, without placing too much pressure on them. It would provide a clear outline on the approach needed to be adopted by the CN management committee in order to attain sustainability. The assessment also thorough this component was able to identify preferred community payment plans which was divided across **Daily, Weekly, and Monthly.** The analysis shows that over **70%** of the respondents and CN users within the community proffered to purchase daily tokens. These analyses provide MAJI with the needed insights for the development of the payment plans for the CN.







The CN assessment also strategically looked at the user experience in relation to the technical accessibility by the CN users. Key data such as the signal strength around areas and communities where the CN infrastructures were deployed. This technical assessment was seen as key, as it identified key statistics in relation to the CN signal strength of the WIFI access points, connection status of mobile devices owned by CN users within the communities, and the stability of the community network WIFI connection.

3.3 Overview of CN Sustainability Approach

For project sustainability to be achieved, community groups have to be part of the development, implementation and management of that project. This further ensures that communities own the project, and ensure that it becomes sustainable, with the potential of replication in other communities. This research further documents the approach adopted by the Media Awareness and Justice Initiative (MAJI) in the setup of the CN sustainability structure. This includes community stakeholder meetings, community townhall meetings, and meetings with key target groups that will form the core of the CN sustainability structure.

3.3.1 Community Stakeholder Meetings.

At the inception phase of the project, key community stakeholder meetings were conducted across the project target communities to build community confidence and encourage them to take ownership of the project. These community stakeholder meetings targeted leadership structures such as the **community leaders, women groups, youth groups and business owners' association** within the community. These meetings also created the platform for feedback and further improvement of the community network in line with community needs and accessibility.

Key insights into the structure of the community network, its usage model, and sustainability plans were discussed with these identified target groups, with strategic inputs and comments from these meetings incorporated into the fabric of the overall project. Analysis from the CN assessment and other feedbacks from the community consequently contributed to encouraging the community leaderships to take ownership of the project with a view of creating a physical framework for the implementation, expansion and overall sustainability of the CN infrastructure beyond its proposed timeline.

3.3.2 Community Meetings

Our findings show, that to further ensure community ownership and sustainability, there has to be further ground level engagements with the residents of the target communities. They are the ultimate users and provide the core on which the CN can become sustainable. To build ownership, the CN project team conducted further community townhall meetings with the residents, business owners and young people across the target communities covered by the Community Network.

Our research documented a total of 10 implemented town hall meetings and interactive sessions with community residents, business shop users, young people, CSOs, journalists and other key stakeholders. These discussions and engagements were important as it provided the platform for the identified target groups to pin-point areas of improvement in relation to CN connectivity, usage costing, awareness and possible expansion.

To ensure self-sustenance and potential expansion of the community network, a separate CN funds Bank account was created, with the aim of carrying out an independent CN financial audit of CN ticket sales and expenses.

3.3.3 CN support for Sustainability.

The project team of the Media Awareness and Justice Initiative used inputs and comments derived from **section 3.3.1** to provide the core of the CN management committee. Existing community security heads where designated to provide security *for* the deployed CN infrastructure. The community secretary, local MAJI partners, and representatives from the women group were drafted into this committee.

Furthermore, MAJI selected and trained young people (with basic technology skills) on CN infrastructure troubleshooting. They formed the core of the CN (first response) maintenance team. The CN project also provided technical trouble shooting tools and support contact numbers for the trained young people. This will provide the base for the CN technical learning and expansion

The meetings with both the community leaderships and residents creates the platform to build community trust, increase participation and ensure the overall sustainability of the CN

4. Community Network – Challenges Facing it

Looking at the high cost needed for internet expansion ration and the lack of available market forces needed to drive the spread of digital access, it is very evident that community networks provide a cost-effective approach and a viable platform that supports the sustainable expansion of access of the internet to last mile communities and underserved communities across Africa. To create sustainable community networks, it is important to document practical challenges that are likely to affect its deployment, use, and potential expansion. Using two (2) deployed community networks in Rivers State, Nigeria, as case studies, the Media Awareness and Justice Initiative identification under this research report, highlighted key challenges and grouped them into four (4) umbrella categories for in-depth insight, review and documentation.

4.1 Social Challenges

AWARENESS: On one hand, a serious lack in the level of awareness in rural communities continues to present a key challenge for internet expansion and use. The review of responses from rural women shows a low level of awareness of the potentials inherent in access to information. Most communities, depend on the government to solve the issue of connectivity, without looking at new low-cost approaches and adopting pre-existing community level strategies to solve the issue of internet connectivity and digital access.

TRUST: In addition, most residents of last mile communities are not motivated enough to engage in the set-up of community networks as the incentives to support this aren't very clear. Decades of lack of people-oriented governance by political leaders, fractionization of local community leadership structures and the fear of lack of accountability further reduces the chances of people to actively and sustainably adopt the use of community networks. These issues provide substantial social barriers and further undermine the efforts and enthusiasm of those in the community with the time and baseline skills needed for the sustainability of community networks.

4.2 Economical Challenges and limitations

POVERTY: The poverty ratio in hard-to-reach communities across the Niger Delta region of Nigeria is very high, with families choosing between paying for substantially high internet and data costs or pay for important family needs such as food, medicine and education. For instance, it costs about NGN 7,500 ($8 to $10) to purchase an MTN telecommunication network hotspot device (MIFI) in Nigeria, while a potential user still needs to pay for an additional ($6 to $10) for data subscription needed to use the purchased hotspot device. There is also the associated power backhaul costs needed to power or charge the hotspot device, their mobile phones and computers. Looking at these high costs and the low financial capacity of residents in last mile communities, it is also impracticable and impossible for these people to buy or access high speed broadband internet, even if they know they need it. This lack of access to digital platforms due to high poverty and low purchasing power, further reduces their access to information which are relevant to them, and also hinders their ability to express their own views on key issues of development

MARKET FORCES: In order to create sustainable community networks, it is important that due consideration is given to create an equilibrium between the recurrent expenditure needed to run a community network and the amount needed to be realized from the community network sales of tokens. These considerations are severely handicapped by the increasing poverty ratio in these last-mile communities, thereby making adequate CN subscription pricing almost impossible. This lack of adequate pricing might not only affect the sustainability of the community network, but also affect its expansion to other areas and communities within the region.

Rising inflation costs, and the resultant increase in the costs needed by internet service providers to provide digital connectivity, continue to put a strain on the cost of subscriptions for users of community networks. This potential rise in costs can reduce the level of subscription and substantially affect the sustainability of the community network and while also slowing down its spread to areas and communities considered as poor and lastmile.

4.3 Technical Challenges and Barriers

CN INFRASTRUCTURE: The high cost needed to deploy adequate CN infrastructure further provides a huge barrier to the full adoption of community networks in the Niger Delta region of Nigeria. Although the size of the components needed for the deployment are not physically very bulky, the number of the components needed, and the cost of each of these components presents a challenge. Looking at installation costs incurred by the project team of the Media Awareness and Justice Initiative (MAJI) in February 2023, a total of approximately $1,500 USD was used in the deployment of one (1) community network infrastructure in Darrick Polo community, Port Harcourt, Rivers State, Nigeria. It is important to note that this cost, doesn't include the cost needed to deploy a sustainable power backhaul system for the community network. Most rural communities don't have this kind of funds to setup community networks and are solely dependent on stakeholders and donor support to deploy such initiatives

POWER: Epileptic power supply to rural and hard to reach communities pose a significant challenge to the expansion of community networks across Africa. This problem is further compounded in Nigeria by the high cost of Petroleum Motor Spirits (PMS) needed to power electrical generating units. A litre of PMS currently costs about ($1) at the pumps.

Rising inflation costs and high custom duties on alternative power options such as solar equipment, makes the adoption of clean energy option in CN installation quite expensive and in most cases out of the reach of poor rural people living in last mile communities. During the installation of the community networks in Darrick Polo and Ibikiri Polo communities, the research team noticed that the cost of providing solar based backhaul systems for the deployed community networks covered about 50-55% of the total CN installation costs.

4.4 Legal Challenges and Bottlenecks

EXISTING POLICY: Stakeholders have identified the lack of adequate legislative frameworks and policies needed for the support and sustainable expansion of community networks in Nigeria. Nigeria has three (3) broad types of operator licenses **(Individual, Class and Unified Licenses)** which is overseen by the National Communications Commission (NCC) https://www.ncc.gov.ng/, a government regulatory agency under the Federal Ministry of Communications and Digital Economy. The latest articulation of Nigeria's policy on broadband expansion tagged **The Nigerian National Broadband Plan 2020-2025** outlines government deliver data download speeds of up to 25Mbps in urban areas and 10Mbps in rural areas. There is also contained in the policy document, a plan to increase internet spread and coverage to at least 90% of the total population before the end of the year 2025, at a price not more that NGN400 per 1Gb of data.

GAPS: This existing policy document doesn't highlight the strategies by which digital expansion can sustainably reach rural communities and urban poor areas in Nigeria. The document fails to factor in the huge costs needed to deploy internet infrastructure and what sustainability plans can be adopted to ensure its longevity.

Community Networks aren't listed under any of the broad type operator licenses, making it difficult for existing community network to use existing legislature to create the foundation for their expansion under law. This gap makes it difficult for community networks to carry out expansive engagement, access government support and achieve sustainability.

Nigeria, currently doesn't have a policy that covers and provides guidance for community networks across the country. This policy is particularly important at this time, as there is an imperative need for new policies that support business models of small, flexible and nibble service providers to fill the gap that can't be covered by existing telecommunication companies and service providers.

5 Rural Importance of Community Networks.

a. **Inclusion:** The social challenges created by misinformation is further escalated by the lack of rural and urban poor community access to credible information. Community networks provides last mile communities with cost-effective access to information, while also helping them to develop their own views, and increase their participation in issues of public discussion and engagement using their own narratives.

b. **Increased Economic Opportunities:** Community networks provides a platform for rural economic development in last mile communities. In Darek Polo and Ibikiri Polo communities, the project team of the Media Awareness and Justice Initiative (MAJI), identified an increase in the number of young people using the CN for businesses that are dependent on internet access. Some of these businesses include Mobile Money business (POS operators) and Business centres located within the coverage reach of the community network WIFI.

c. **Research, Education and Awareness:** Community networks provides young people resident in poor, hard to reach communities with a cost-effective access to the internet. This provides the platform for digital learning, skill acquisition, research and increased access to digital opportunities. CN user analysis shows that young people purchase more of the CN subscription tokens than adults.

6 Recommendations for CN spread

Following key interactions with strategic stakeholders using key focus Interviews and interactive sessions, the Media Awareness and Justice Initiative documented strategic recommendations for Government, CSOs and local communities, that are aimed expand the use of community networks for sustainable digital expansion.

Recommendation for Civil Society Organizations

a. Civil society organization should increase the application of practical approaches for digital expansion in rural communities. This practical approach can serve as a pilot that can attract government support and adoption.
b. Increase the campaign for the development of policies that support the expansion of community networks in underserved communities.
c. Develop a national digital inclusion policy recommendations document, and use it for continued engagements and advocacy with key agencies of government, policy makers and other key stakeholders from the public and private sector.
d. Increase the campaign for digital literacy at the community level using local languages, platforms and tools.

Recommendation for the Nigerian Government

a. Policy makers should review and develop policies that support the establishment of community networks and the expansion of already existing CNs in a progressive and sustainable manner.
b. Reduce tax on digital equipment and services that advances the set-up and deployment of community networks in rural and last-mile communities.
c. Increase fiscal allocation for the expansion of digital education and infrastructure to hard-to-reach areas using community network strategies and methodologies.
d. Increase collaborative support for the conscious growth of community networks (start-up and existing).

Overall Recommendations

a) African Governments should develop (where not available) or implement (where available) digital inclusion and expansion policies that are realistic and people oriented.
b) There has to be more increased private/Public sector collaborations in advancing Digital investment and development in Africa.
c) MAJI believes that there is relative progress to Digital penetration in Africa. This however needs to be catalyzed through increased funding support for CSOs and groups with focuses on using community owned strategies that provide sustainable platforms for digital inclusion and expansion of last mile communities across Africa.
d) Within various African country contexts, there is also a need for CSOs and digital support groups to incorporate the use of low-cost digital tools and data into community campaigns, discussions and engagements.
e) There is a growing interest for adoption and use of digital tools. African Countries need to start the discussion around the growing challenge of E-Waste and how circular electronic economy and Reuse strategies can help to curb this growing challenge.

Acronyms / Abbreviations

MAJI
Media Awareness and Justice Initiative

CN
Community Network

APC
Association for Progressive Communication

MTN
Mobile Telephone Network Company

WIFI
Wireless Fidelity

CSO
Civil Society Organization

DSTV
Digital Satellite Television

WISP
Wireless Internet Service Provider

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