

Stakeholder Mapping Report

for the Technical Assistance on:

**Empowering Communities with Sustainable Agricultural Systems;
Piloting a Small-Scale Hydroponics System (EMSAS-Hydroponics)
in Kubau LGA of Kaduna State, Nigeria.**

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List of Acronyms

ARCN: Agricultural Research Council of Nigeria

DAC: Division of Agric College

EMSAS: Empowering Communities with Sustainable Agricultural Systems

ERA/FoEN: Environmental Rights Action/Friends of the Earth Nigeria

EU-CTCN: European Union - Climate Technology Centre and Network

GHI: Green Habitat Initiative

GTI: Green Thumb initiative

IAR: Institute for Agricultural Research

IFAD: International Fund for Agricultural Development

IITA: International Institute for Tropical Agriculture

KADA: Kaduna State Agricultural Development Agency

KSFCSC: Kaduna State Farmers' Cooperative Society Limited

KSFCSC: Kaduna State Farmers' Cooperative Society Limited

NAAEA: National Association of Agricultural Extension Agents

NAAJ: National Association of Agricultural Journalists

NAERLS: National Agricultural Extension and Research Liaison Services

NASSF: National Association of Small-scale Farmers

NCCC: National Council on Climate Change

NIE: National Implementing Entity

NIHSA: Nigerian Hydrological Services Agency

NSSF: National Association of Small-scale Farmers

NWRI: National Water Resource Institute Kaduna

TA: Technical Assistance

WBG: World Bank Group

YIA: Youth in Agriculture

Executive Summary:

The Stakeholder Mapping Report for the Technical Assistance on Empowering Communities with Sustainable Agricultural Systems (EMSAS-Hydroponics) in Kubau LGA, Kaduna State, Nigeria, provides a comprehensive overview of the project's stakeholders, their roles, and the strategies for effective engagement.

The stakeholders were identified through desk research, and interviews. Information was gathered using a combination of literature reviews and stakeholder consultations, it meticulously

analyzes each stakeholder group's contributions, interests, and potential conflicts or alliances that may affect project implementation.

The report identifies several key stakeholders involved in the EMSAS-Hydroponics project, categorized into various groups based on their roles and influence such as National and State Government Agencies responsible for developing the agriculture sector in Nigeria, focusing on food security and economic growth, developing and implementing of policies for climate change mitigation and adaptation and, promoting sustainable development. Various NGOs are involved in promoting sustainable agricultural practices and climate resilience, contributing to capacity building and advocacy efforts, Farmers' Associations and Community Leadership, these groups represent the interests and needs of local farmers, providing insights into community priorities regarding hydroponic farming. Private Sector Entities which are Businesses that may provide resources, technology, or expertise to support the implementation of hydroponics systems. Research Institutions that conduct research on agricultural practices and climate resilience, offering valuable data and insights to inform project strategies. International organizations and agencies that provide funding, technical assistance, and support for agricultural development initiatives.

The report concludes with recommendations for stakeholder engagement strategies, communication approaches, and collaborative opportunities to foster positive relationships, establish partnerships, and address potential risks associated with stakeholder management. Overall, the Stakeholder Mapping Report provides valuable insights into the diverse range of stakeholders involved in the EMSAS project and offers a roadmap for effective stakeholder engagement and collaboration to achieve the project's objectives of empowering communities with sustainable agricultural systems.

1.0 OVERVIEW

1.1. Introduction to the Technical Assistance

The technology concept support is a technical assistance to a sub-national agency in Nigeria and implemented at a community, Kubau Local Government Authority (LGA) with the aim of addressing climate change, insecurity and food security. It is implemented through the joint European Union - Climate Technology Centre and Network (EU-CTCN) programme - part of the EU Multi-Annual Indicative Programme for the Thematic Programme on Peace, Stability, and Conflict Prevention (2021-2027). The EU-CTCN programme aims to strengthen the resilience of conflict-affected societies by encouraging and facilitating conflict-sensitive, community-based technological solutions to climate change.

The Technical Assistance (TA) is titled Empowering Communities with Sustainable Agricultural Systems - Piloting a Small-Scale Hydroponics System (EMSAS). The main objective is to pilot a small-scale hydroponics system in Kubau LGA. Through innovative technology and community engagement, the TA seeks to enhance agricultural resilience, reduce reliance on erratic weather patterns, and mitigate conflict-driven disruptions to traditional farming practices, ultimately contributing to sustainable development in conflict-affected regions.

Green Habitat Initiative (GHI), a nonprofit Organisation in Nigeria, emerged as the National Implementing Entity (NIE) to provide TA and entered into an agreement to pilot and implement the hydroponics system in rural communities of Kubau LGA in Kaduna State, Nigeria. The TA will be implemented in 12 months between the period of May 2024 to April 2025.

Kaduna State like any other state in the northwestern part of Nigeria faces several challenges related to traditional agriculture, including water scarcity, soil degradation, and unpredictable weather conditions. Hydroponics offers a promising solution by allowing crops to thrive in controlled environments, independent of soil quality. Through this pilot initiative, we aim to demonstrate the feasibility and benefits of hydroponics for local farmers, policymakers, and other stakeholders.

I.2 Stakeholder Mapping

The stakeholder mapping exercise was conducted to identify and engage all relevant stakeholders crucial for facilitating the implementation of the TA. The outcomes are detailed in this stakeholder mapping report, offering a comprehensive overview of key stakeholders in the project, and outlining their roles, interests, and levels of influence. Stakeholder mapping is an essential process for identifying and prioritizing stakeholders to effectively manage relationships throughout the TA's lifecycle and beyond.

This report serves as a foundational document guiding stakeholder engagement strategies, communication plans, and decision-making processes. By comprehending the interests, needs, and expectations of various stakeholders, project implementers can tailor interventions to maximize impact while ensuring buy-in and support from relevant parties. It will remain a dynamic document continuously updated with newly identified stakeholders during the TA's execution.

Commencing with an overview of project objectives, scope, and context, the report provides crucial background information for understanding stakeholder dynamics. It then details the methodology employed for stakeholder mapping, encompassing data collection methods, analysis frameworks, and criteria for stakeholder categorisation.

Subsequently, the report reveals the outcomes of the stakeholder mapping exercise, segmenting stakeholders into distinct groups based on their influence levels and project interests. Key stakeholders encompass government agencies, non-governmental organizations, community leaders, farmers' associations, private sector entities, research institutions, and development partners.

Each stakeholder group's roles, responsibilities, interests, and potential contributions to the project are meticulously analyzed in the report. Additionally, any existing relationships, alliances, or conflicts among stakeholders that could impact project implementation are highlighted.

Concluding the stakeholder analysis, the report puts forth recommendations for stakeholder engagement strategies, communication approaches, and collaborative opportunities. These suggestions aim to cultivate positive relationships, establish partnerships, and address potential risks or challenges associated with stakeholder management.

2.0 METHODOLOGY

The following methodology was adopted to systematically identify, analyze, and engage with stakeholders to enhance their involvement and support for the TA:

2.1 Stakeholder Identification:

A thorough desk review, an internet survey, and a series of interviews (both virtual and in-person) were undertaken to pinpoint all pertinent stakeholders who could influence or be impacted by the TA. This comprehensive process was carried out during May and June 2024. Search criteria revolved around terms such as agricultural agencies in Nigeria, farmer groups participating in donor-funded projects within the agricultural sector in Nigeria, and programs related to environment and climate change in agriculture.

Stakeholders identified from the search results span across various levels, encompassing government agencies, non-governmental organizations, community groups, farmers' associations, private sector entities, research institutions, and development partners.

At the national level, the National Council on Climate Change (NCCC), facilitated the identification of key stakeholders for the EMSAS Technical Assistance (TA), including the Federal Ministry of Environment and other stakeholders to be detailed in subsequent sections of this report. Within Kaduna State, GHI engaged with the Kaduna State Ministry of Planning and Budget Commission, serving as the central coordinating body for donor-related endeavours. Consequently, GHI was introduced to the Kaduna State Ministry of Agriculture, Environment, and Local Government as a pivotal stakeholder for the EMSAS-hydroponic project in Kaduna State. Through this collaboration, all other stakeholders relevant to the TA were subsequently identified and engaged.

2.2 Stakeholder Categorization:

Stakeholders were then categorized into different groups based on their affiliations and interests. Thus, stakeholders were categorized into different interest groups, including National government agencies, sub-national government agencies, non-governmental organizations, farmers' associations, international development partners, research institutes/ academia, private sector entities and local government agencies.

2.3 Data Collection:

Information about each stakeholder group was collected through a combination of desk research, literature review, and stakeholder consultations to collect data on stakeholder roles, responsibilities, interests, concerns, goals, and expectations related to the TA project. A specified survey instrument was deployed to the Kobo toolbox and used to collect the outlined information.

2.4 Identified Stakeholders:

Some of the stakeholders identified are outlined in Table I.

Table I: Identified stakeholders

S/N	STAKEHOLDER	DESCRIPTION OF STAKEHOLDER
National Government Agencies		
1	Federal Ministry of Agriculture and Food Security	A Ministry of the Nigerian Government responsible for developing the agriculture sector of the Nigerian economy, with a view to growing the sector, driving income growth, accelerating food and nutrition security, generating employment and transforming Nigeria into a leading global food market through the commodity value chain concept of the Agricultural Transformation Agenda (ATA).
2	National Council on Climate Change (NCCC)	The NCCC is responsible for developing and implementing policies and strategies to mitigate and adapt to the impacts of climate change. Its primary goals include enhancing national resilience to climate-related challenges, promoting sustainable development, reducing greenhouse gas emissions, and fostering the transition to a low-carbon economy. The Council works in collaboration with various stakeholders, including government agencies, private sector entities, and civil society organizations, to ensure a coordinated and comprehensive approach to climate action across Nigeria.
3	Nigerian Hydrological Services Agency (NIHSA)	The Nigeria Hydrological Services Agency (NIHSA) is a governmental Agency established under the Federal Ministry of Water Resources to provide services required for the assessment of the nation's surface and groundwater resources in terms of quantity, quality, distribution and

		availability in time and space; for efficient and sustainable management of the resources.
4	Federal Ministry of Environment	The Federal Ministry of Environment works to ensure environmental protection, natural resources conservation and sustainable development.
Sub-national Government Agencies		
5	Kaduna State Agricultural Development Agency (KADA)	The Kaduna State Agricultural Development Agency (KADA) is a government body dedicated to enhancing agricultural productivity in Kaduna State, Nigeria. It provides extension services, research, infrastructure development, financial support, and market access to farmers and agribusinesses. KADA aims to improve food security, boost economic growth, and foster sustainable agricultural practices in Kaduna State.
6	Kaduna State Ministry of Environment	The Kaduna State Ministry of Environment is a government body responsible for environmental management and protection in Kaduna State. It develops and implements policies, programs, and regulations to ensure sustainable environmental practices, address pollution, conserve natural resources, and promote environmental awareness among residents.
7	Kaduna State Ministry of Local Government	The Kaduna State Ministry of Local Government oversees the administration and development of local governments within Kaduna State. It provides guidance, support, and supervision to local councils, ensuring effective governance, resource management, and delivery of public services at the grassroots level.
8	Kaduna State Planning and Budget Commission	The Kaduna State Budget and Planning Commission is a governmental organization responsible for formulating and overseeing the state's budget and development plans. It ensures efficient allocation and utilization of resources, coordinates economic planning, and monitors the

		implementation of projects and policies. The commission aims to promote sustainable development, enhance fiscal responsibility, and improve the overall economic welfare of Kaduna State.
9	Kaduna State Ministry of Agriculture	Kaduna State Ministry of Agriculture is responsible for providing policy and direction for agriculture in the state. It contributes to the growth and development of agriculture in the state, improving the lives of farmers, rural communities and the general population. The ministry also engages in collaborations with NGOs and private sector organizations to leverage resources, expertise and funding for agricultural development.
Non-Governmental Organizations.		
12	Environmental Rights Action/Friends of the Earth Nigeria (ERA/FoEN)	Environmental Rights Action/Friends of the Earth Nigeria (ERA/FoEN) is an advocacy organization dedicated to environmental protection and sustainable development in Nigeria. It focuses on promoting environmental justice, defending human rights, and advocating for policies that safeguard the environment. ERA/FoEN addresses issues such as pollution, deforestation, and climate change, working with local communities to resist harmful industrial practices and ensure equitable resource management.
13	Small-scale Women Farmers Organisation of Nigeria	SWOFON is a coalition of 500, 000 women farmers associations and groups across the 36 states in Nigeria. Its primary goal is supporting women farmers, especially those in rural areas to demand for their right to privileges from duty bearers while serving as vocal and visible pressure groups on behalf of small-scale women farmers in Nigeria.
14	Youth in Agriculture (YIA)	Youth in Agriculture (YIA) is an organization aimed at encouraging and supporting young people to participate in the agricultural sector. It provides resources, training, and opportunities to help youth develop skills and careers in agriculture, fostering innovation and sustainable practices.

15	Green Thumb Initiative (GTI)	The Green Thumb Initiative (GTI) is an organization focused on promoting sustainable agriculture and environmental conservation. It engages in activities such as community education, tree planting, and sustainable farming practices to enhance environmental stewardship and food security.
Farmer groups		
16	All farmers' Association of Nigeria, Kaduna Chapter	The All-Farmers Association of Nigeria, Kaduna Chapter, is a regional branch of the national farmers' organization dedicated to representing the interests of farmers in Kaduna State.
17	National Association of Small-scale Farmers (NASSF) Kaduna State Chapter	The National Association of Small-Scale Farmers (NASSF), Kaduna State Chapter, is an organization representing small-scale farmers in Kaduna State. It aims to support and advocate for farmers by providing access to resources, training, and market opportunities to enhance their productivity and livelihoods.
18	Kaduna State farmers' Cooperative Society Limited (KSFCSC)	The Kaduna State Farmers' Cooperative Society Limited (KSFCSC) is a cooperative organization formed by farmers in Kaduna State, Nigeria. It serves as a platform for farmers to collaborate, share resources, and collectively address challenges in agriculture. KSFCSC facilitates access to inputs, markets, and financial services, empowering its members to improve their farming practices and economic well-being.
19	Kaduna State Chapter of Women in Agriculture (NAWA)	The Kaduna State chapter of Women in Agriculture (NAWA) is a local branch of the national organisation dedicated to empowering women in agriculture. It provides support, training, and advocacy to women farmers in Kaduna State, enabling them to enhance their skills, access resources, and contribute to agricultural development and food security in the region.
20	Kaduna State Chapter of National Association of	The Kaduna State Chapter of the National Association of Agricultural Journalists (NAAJ) is a local branch of the national organization that brings

	Agricultural Journalist (NAAJ)	together journalists specializing in agriculture. It focuses on promoting accurate and impactful reporting on agricultural issues, supporting professional development, and enhancing public awareness of agricultural practices and policies in Kaduna State.
21	National Association of Agricultural Extension Agents (Kaduna Chapter)(NAAEA)	The Kaduna State Chapter of the National Association of Agricultural Extension Agents (NAAEA) is a local branch of the national organization that supports agricultural extension professionals. It aims to enhance the skills and effectiveness of extension agents through training, advocacy, and resource sharing, ultimately improving agricultural practices and productivity in Kaduna State.
22	Nigerian Agricultural Business Group (NABG)	The Nigerian Agricultural Business Group (NABG) is an umbrella organization that represents and advocates for the interests of agribusiness stakeholders in Nigeria. It aims to promote agricultural development, improve business environments, and drive investment in the agricultural sector through policy advocacy, partnerships, and networking.
International Development Partners		
23	Climate Technology Centre and Network (CTCN)	The CTCN is the implementation arm of the Technology Mechanism of the United Nations Framework Convention on Climate Change and is hosted by the UN Environment Programme.
24	International Fund for Agricultural Development (IFAD)	IFAD is an international institution of the UN. It invests in rural people, empowering them to increase their food security, improve the nutrition of their families and increase their incomes.
25	International Institute for Tropical Agriculture (IITA)	The International Institute of Tropical Agriculture (IITA) is a nonprofit institution that generates agricultural innovations to meet Africa's most pressing challenges of hunger, malnutrition, poverty, and natural resource degradation

26	The World Bank Group (WBG)	<p>The World Bank Group (WBG)</p> <p>The World Bank Group is a unique global partnership: five institutions working for sustainable solutions that reduce poverty and build shared prosperity in developing countries.</p>
27	United States Agency for International Development (USAID)	<p>USAID is the US Government's international development agency. It is currently funding the Feed-the-Future initiative to stimulate growth in key markets by encouraging private-sector partnerships, fostering agricultural innovation, and expanding economic opportunities for smallholder farmers. Through investments in agriculture, resilience, and nutrition, Feed the Future is helping Nigeria promote sustainable, diverse, and inclusive economic growth.</p>
28	International Institute for Tropical Agriculture (IITA)	<p>The International Institute of Tropical Agriculture (IITA) is a non-profit institution that generates agricultural innovations to meet Africa's most pressing challenges of hunger, malnutrition, poverty, and natural resource degradation.</p>
Research Institutions/Academia		
29	National Water Resource Institute Kaduna (NWRI)	<p>The National Water Resources Institute (NWRI) in Kaduna is a premier institution in Nigeria dedicated to the advancement of water resources management and development. The NWRI is responsible for conducting research, providing training, and offering advisory services in the field of water resources. Its mission is to enhance the sustainable management and utilisation of Nigeria's water resources through innovative research, capacity building, and the dissemination of knowledge. The institute collaborates with national and international organisations to address water-related challenges, promote best practices, and support the formulation of effective water policies and strategies.</p>

30	National Agricultural Extension and Research Liaison Services (NAERLS)	The Institute is responsible for the development, collation, evaluation and dissemination of proven agricultural innovations and for research on extension methodologies and policy. The extension and research activities of the Institute take into account the long-term ecological, economic and social consequences of changes in rural life and linkages
31	Institute for Agricultural Research (IAR)	The Institute is poised to serve as a centre of excellence for sustainable, affordable, efficient and easily adoptable technologies to enhance farm productivity and product utilization in Nigeria.
32	Agricultural Research Council of Nigeria (ARCN) Kaduna station	The Agricultural Research Council of Nigeria (ARCN) Kaduna Station is a regional branch of ARCN focused on agricultural research and development. It conducts research to improve agricultural practices, develop new technologies, and enhance crop and livestock productivity in Kaduna State, supporting the overall goal of advancing Nigeria's agricultural sector.
33	Ahmadu Bello University Zaria, Faculty of Agriculture	The Faculty of Agriculture at Ahmadu Bello University, Zaria, is an academic division dedicated to agricultural education and research. It offers programs in various agricultural disciplines, training students to become skilled professionals and researchers. The faculty focuses on advancing agricultural knowledge, innovation, and practices to contribute to sustainable agricultural development.
34	Kaduna State University (KASU) Faculty of Agriculture	The Faculty of Agriculture at Kaduna State University (KASU) offers academic programs and research opportunities in agricultural sciences. It is dedicated to educating students in modern agricultural practices, conducting research to improve agricultural productivity, and contributing to the sustainable development of agriculture in Kaduna State and beyond.
35	Division of Agric College Mando Kaduna (DAC)	The Division of Agricultural Colleges (DAC) Mando, Kaduna, is an educational institution focused on agricultural training and education. It offers programs designed to equip students with practical skills and

		knowledge in various agricultural fields, aiming to enhance agricultural productivity and support sustainable development in the region.
Private Sector		
36	Olam Nigeria Limited	Olam Nigeria Limited Kaduna is a branch of Olam Nigeria Limited, focusing on agricultural processing and distribution in the Kaduna region. It works with local farmers to source, process, and market agricultural products, aiming to improve livelihoods, enhance value chains, and contribute to regional economic development.
37	Flour Mills Nigeria PLC	A leading food and agribusiness company in Nigeria. It specializes in milling wheat and maize, producing a wide range of flour and food products. The Kaduna branch plays a crucial role in supplying quality food products to consumers in the region and beyond.
38	Seedco Seeds Limited	Specializes in the provision of improved seeds to farmers
Local Level Government Agencies		
38	Kubau Local Government Council	Kubau Local Government Council is a local administrative body responsible for governance and development at the grassroots level in Kubau Local Government Area of Kaduna State, Nigeria. It provides essential services, infrastructure, and governance functions to residents within its jurisdiction, aiming to improve their quality of life and promote community development.
40	Traditional community heads	Traditional community heads are local leaders who hold traditional authority within their communities. They play a significant role in maintaining peace, resolving disputes, and preserving cultural heritage. These leaders often serve as intermediaries between the community and governmental authorities, representing the interests and concerns of their people.

2.4.1. Summary of Identified Stakeholders

A total of 40 stakeholders were mapped across seven (8) structured categories, including National government agencies, sub-national government agencies, research institutions/academia, private sector, farmer groups/associations, NGOs and development partners. Figure I highlights the ratio of mapped stakeholders by category.

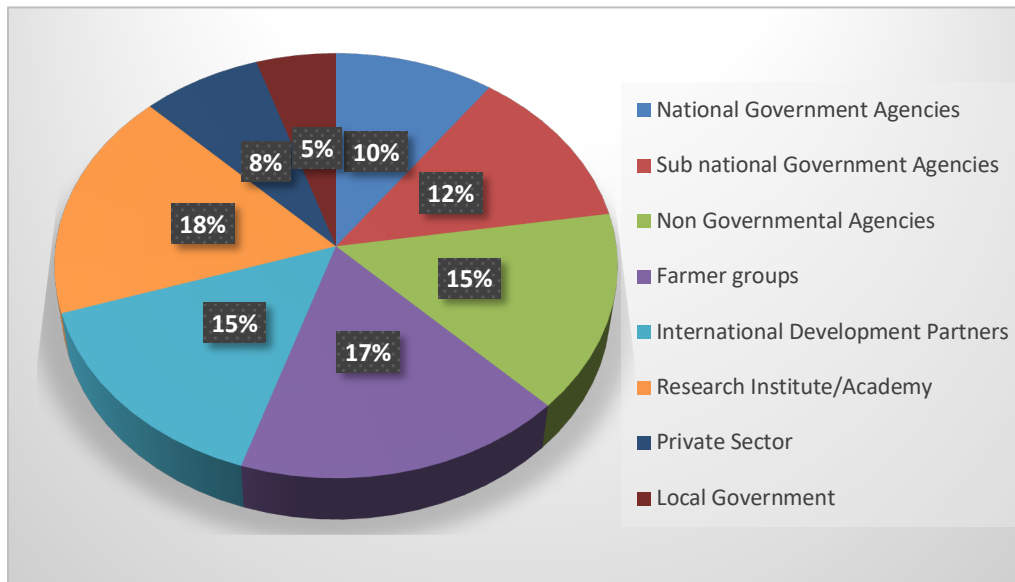
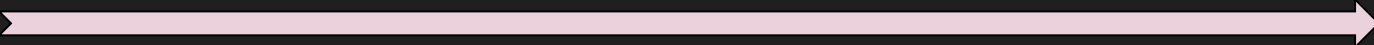


Figure I: Mapped Stakeholders by category

Table 2: Stakeholder Matrix

<p>Keep Satisfied</p> <ol style="list-style-type: none"> 1. Kaduna State Planning and Budget Commission 2. Kaduna State Ministry of Agriculture. 3. Kaduna State Ministry of Environment 4. Kaduna State Ministry of Local Government 5. Kubau Local Government Area 6. Kaduna Agric Development Agency 	<p>Manage Closely</p> <ol style="list-style-type: none"> 1. Kaduna State Planning and Budget Commission 2. National Council on Climate Change (NCCC) 3. Federal Ministry of Agriculture and Food Security. 4. Small Scale Farmers Association of Nigeria 5. All Farmers Association of Nigeria 6. Kaduna State Agric Development Agency 		
<p>Monitor</p> <ol style="list-style-type: none"> 1. International Institute for Tropical Agriculture (IITA). 2. Kaduna State Coalition of CSOs. 3. Kaduna State Chapter of the National Association of Agricultural Journalists (NAAJ) 4. Institute for Agricultural Research (IAR). 5. Private Sector 	<p>Keep Informed</p> <ol style="list-style-type: none"> 1. Kaduna State Planning and Budget Commission 2. Kaduna Agric Development Agency 3. Kubau Local Government Area Council 4. All Farmers’ Association of Nigeria (Kaduna Chapter). 5. National Agricultural Extension Research and Liaison Services (NAERLS). 6. National Water Resource Institute (NWRI) Kaduna 7. USAID - Feed the Future 8. International Fund for Agricultural Development (IFAD). 9. Agricultural Research Council of Nigeria (ARCN) Kaduna station 		
<p>Interest </p>			
<p>Keep satisfied</p>	<p>These stakeholders need to be kept satisfied even though they may not be interested but they have an impact on the success of the project.</p>	<p>Manage closely</p>	<p>These stakeholders are decision-makers and have the biggest impact on the project’s success; hence, their expectations must be closely managed.</p>
<p>Monitor</p>	<p>These stakeholders should be monitored but not bored with excessive communication.</p>	<p>Keep informed</p>	<p>These stakeholders need to be adequately informed on the progress of the project to ensure smooth implementation and within the laws of the state.</p>

3.0 STAKEHOLDER WORKING GROUP (SWG)

As per the agreement of the TA, a stakeholder working group (SWG) comprising eight representatives of key stakeholder organizations will be set up to support the implementation of the TA. The SWG will provide a technical overview and high-level guidance at every stage of the TA. The following sections are suggestions on the selection criteria. The final list will be decided between the key stakeholders of the TA.

3.1 Selection Criteria

The selection of the members that will constitute the SWG was strategically executed to include at least one stakeholder from each stakeholder category outlined in Table I. A stakeholder representative of each category will be selected based on its influence and capacity to represent the category, especially as it relates to the TA's key objectives. Furthermore, deliberate steps were taken to ensure gender inclusivity representation across the selected stakeholders that will constitute the SWG.

3.2 Proposed Composition of the SWG

S/N	Stakeholder	Justification for Inclusion	Category
I	National Agricultural Extension and Research Liaison Services (NAERLS)	NAERLS possesses extensive knowledge and experience in agricultural research and extension services. Their involvement will ensure that the latest scientific findings and best practices in hydroponics are integrated into the project. NAERLS can provide training and technical support to local farmers, enhancing their skills and knowledge in hydroponic farming.	Research institute (Extension)

2	National Water Resource Institute (NWRI) Kaduna	<p>Expertise in water management: the institution is a renowned institution in water resources institute which is crucial for hydroponic systems. Their involvement will ensure efficient water use and management.</p> <p>Research and development capacity: the institute has research and development capabilities that can support the project's technical aspects such as hydroponics system design, water quality monitoring and crop management</p> <p>Inclusion of the institute in the stakeholders' working group will leverage their expertise, local knowledge and resources to the project's chances of success and sustainability</p>	Research institute (water management)
3	Federal Ministry of Agriculture and Food Security	The ministry has the mandate to promote and support sustainable agricultural practices, food security and rural development. Their expertise in agricultural policy, planning and implementation will enrich the project. Hence, including the ministry in the SWG, the project will leverage their expertise, resources and influence to ensure the successful implementation and scaling up of the hydroponics system in Kaduna state.	National agency (Agriculture)
4	Kaduna State Planning and Budget Commission	The commission plays a crucial role in coordinating developmental activities in the state, they serve as the focal point of engagement with the Kaduna state government. Their participation will ensure that the project receives adequate support and aligns with state development plans. Their involvement will ensure smooth and hitch engagement with other government agencies in Kaduna state.	Sub-national (Benefiting state)

5	National Council on Climate Change (NCCC)	<p>Hydroponics is a climate-smart agricultural practice. The council's involvement will ensure that the project contributes to climate resilience and sustainability goals.</p> <p>Their participation will support policy advocacy for sustainable agricultural practices at the national level.</p>	National agency (Climate change)
6	Kaduna Agricultural Development Agency (KADA)	<p>KADA has the mandate to support agricultural development in Kaduna State. Their involvement will provide logistical and operational support, ensuring successful project implementation. KADA can deliver extension services tailored to the unique requirements of hydroponic farming.</p>	Sub-national agency (Benefiting state)
7	Kubau Local Government Council	<p>The council has extensive knowledge of the local context, including agricultural practices, water resources and community dynamics. The council has control over land use and resource allocation which is critical for the project implementation and scaling.</p> <p>The council's involvement will enhance the project's sustainability and potential scaling up as they can provide support for the replication and dissemination of the project outcomes and lessons learned. The council can also offer support in terms of community mobilization, monitoring and evaluation, infrastructure support, regulatory framework etc.</p>	LGA (Project proponent)

8	Small-scale Women Farmers Organization of Nigeria (SWOFON)	<p>SWOFON can play a pivotal role in the project through community mobilization of small-scale women farmers and stakeholders in Kaduna state to participate in the project. They can also facilitate training and capacity-building programs for women farmers on hydroponics systems, sustainable agricultural practices and business management, they can also assist in organizing and managing women farmer groups to ensure the project's sustainability.</p> <p>By leveraging SWOFON's expertise and network, the project can effectively empower small-scale women farmers in Kaduna state and promote sustainable agricultural systems.</p>	Non-governmental organizations (NGO)
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4.0 ENGAGEMENT OF STAKEHOLDERS

Building upon the outcomes of the stakeholder mapping exercise, a comprehensive stakeholder engagement strategy was formulated to establish precise objectives, communication channels, and mechanisms for interacting with each stakeholder group. Table 2 outlines the Technology Needs Assessment (TNA) strategy, drawing inspiration from UNEP's DTU partnership document within the stakeholder engagement guide. This engagement strategy will serve as a roadmap for the forthcoming technology needs assessment planned for the later stages of the project.

Table 3: Approach to Stakeholder Engagement

Step of the TNA	Relevant Questions	Stakeholders identified
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<p>Technology identification and prioritization</p>	<p>Who could provide information about environmentally sound technologies (EST)? Who could benefit from the results of the technology identification and prioritization? Who is already using these (or similar) technologies? What government entities are involved in technology development or promotion? What government entities coordinate the sectors that will be analyzed? Who are the leading institutions conducting research on climate change? What other organizations participate in the implementation of new technologies?</p>	<p>National Water Resource Institute (NWRI) Kaduna National Agricultural Extension Research and Liaison Services (NAERLS) National Council on Climate Change (NCCC) Kaduna State Agric Development Agency (KADA) Federal Ministry of Agriculture and Food Security Federal Ministry of Environment</p>
<p>Barrier Analysis and Enabling Environment</p>	<p>What stakeholders could be affected by the technology? What stakeholders could actively support or oppose the technology? Who may have influence or is needed to reduce or eliminate barriers? What organisations have experience in implementing environmentally sound technologies (EST)?</p>	<p>Federal Ministry of Agriculture and Food Security. National Council on Climate Change (NCCC) Farmer groups/ associations Kubau Local Government Area National Water Resource Institute (NWRI) Kaduna National Agricultural Extension Research and Liaison Services (NAERLS)</p>

Technology action plans	<p>What government entities have influence in the generation of policies and goals for the priority sectors or technologies?</p> <p>What institutions have experience in technology investments?</p> <p>What organisations may provide funding for the implementation of technologies?</p> <p>Who are the current providers of the technologies?</p> <p>Which groups are the main beneficiaries of the technologies?</p>	<p>Federal Ministry of Agriculture and Food Security.</p> <p>National Agricultural Extension Research and Liaison Services (NAERLS)</p> <p>European Union- Climate Technology Centre and Network (EU-CTCN0 through the National Council on Climate Change (NCCC)</p> <p>Climate Technology Centre and Network (CTCN)</p> <p>Federal Ministry of Agriculture and Food Security.</p>
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Table 4: Outline of stakeholders' roles

S/ N	Stakeholder	Role
1.	National Council on Climate Change (NCCC)	The NCCC will provide support in the alignment of the TA's activities with the national climate change policies. They shall play a leading role in facilitating relationships with other government stakeholders working on climate change.
2.	Farmer groups	The groups will serve as key stakeholders for consultations regarding rural farmer expectations and the need for EMSAS. They would be engaged throughout the TA, and their feedback would be collated and used in accordance with the TA's objectives.
3.	Green Habitat Initiative	GHI will facilitate the Implementation and coordination of all TA activities, as well as stakeholder engagements with the National Climate Change Committee, key ministries' personnel in the State and other relevant stakeholders. GHI will also seek to establish MoUs with all relevant stakeholders for the maintenance and operation of the EMSAS project.

4.	Kaduna State Agric Development Agency (KADA)	The agency plays a leading role in coordinating agricultural activities in Kaduna state and has a deep understanding of farmer needs and coordination. It will facilitate the exchange of information between the TA and the various farmer groups.
5.	Kaduna Planning and Budget Commission	The ministry will act as the primary point of contact to ensure the facilitation of activities of the TA within the state.
6.	NAERLS	Represent the interest of research institutions and academia in fostering innovation and development of the Hydroponic system system. NAERLS will also coordinate the Identification and assessment of innovative approaches, practices, and technologies for improving agricultural re through radio-internet systems.
7.	CTCN	Representing itself as the donor, it provides technical support to the TA.
8.	National Water Resource Institute (NWRI) Kaduna	NWRI will conduct applied research related to water resources and will provide insights into water availability, quality and efficient utilization for the hydroponic system, they will assess surface water and groundwater sources and their expertise can guide sustainable water use in the hydroponic project
9.	Federal Ministry of Agriculture and Food Security	The ministry is the focal point for the formulation of policies related ti the development of Agriculture in Nigeria, the ministry can create policies that promote sustainable agriculture including hydroponics, and they will provide guidance on best practices, regulations and standards. The ministry can facilitate access to resources such as land, water and energy for the hydroponic system

5.0 CONCLUSIONS AND RECOMMENDATIONS

This report unveils the outcomes of the stakeholder mapping initiative conducted between May and June 2024. Executed within the EMSAS framework, the primary objective was to pinpoint key stakeholders for engagement purposes across Kaduna State and Nigeria as a whole.

The stakeholder analysis conducted has provided profound insights into the wide array of stakeholders involved, delineating their roles, interests, and levels of influence. Through targeted engagement endeavours, crucial stakeholders have been identified, representing government agencies, sub-national entities, non-governmental organizations, community leaders, farmers' associations, private sector entities, research institutions, and development partners.

Initial interactions with these stakeholders have spotlighted a unanimous agreement on the urgent necessity to bolster agricultural resilience in light of climate change adversities. Stakeholders acknowledge the significance of harnessing hydroponic farming systems to enhance food production and bolster food security amidst climate-induced challenges and rural crises in Nigeria. A shared dedication to collaborative initiatives aimed at empowering farmers, fostering innovation, and cultivating sustainable agricultural practices has emerged from these engagements.

Following the stakeholder engagement activities, several recommendations have surfaced:

1. Sustain the stakeholder mapping report as a dynamic document to incorporate newly identified stakeholders seamlessly.
2. Establish a clear set of terms of reference for the proposed SWG.
3. Formulate an extensive stakeholder engagement strategy delineating precise objectives, communication channels, and collaborative mechanisms to enhance coordination.
4. Continuously update the stakeholder mapping report as new stakeholders emerge in order to sustain and improve on the gains of the project.

ANNEXE I: STAKEHOLDER ENGAGEMENT TOOL

This tool was developed and deployed to engage with all identified stakeholders in a structured format to aid in the stakeholder analysis process.

I.1. State:	I.2. LGA:	I.3. Date of Engagement:
I.4. Name of stakeholder:		
I.5. Management: Government Agency <input type="checkbox"/> Research and Academia <input type="checkbox"/> Farmers Association/community leadership <input type="checkbox"/> NGO/Development Partners <input type="checkbox"/> Private Organisation <input type="checkbox"/>		
Section 2 - GENERAL INFORMATION ON EMSAS		
<p>Government Agencies:</p> <ul style="list-style-type: none"> ● What is your department/ministry's role in agricultural development and climate resilience as it relates to hydroponic farming? ● What are your priorities and objectives related to hydroponic farming? ● How can the EMSAS project align with existing government policies, programs, and initiatives? ● What resources or support can your department/ministry provide to EMSAS? 		
<p>Non-Governmental Organisations (NGOs):</p> <ul style="list-style-type: none"> ● What is your organisation's mission and focus areas related to hydroponic farming and climate resilience farming? ● How have you been involved in similar projects or initiatives in the past? ● What are the needs and priorities of the communities you work with regarding hydroponic farming and climate resilience farming? ● How can your Organisation contribute to EMSAS implementation, capacity building, or advocacy efforts? 		
<p>Community Leaders and Farmers' Associations:</p> <ul style="list-style-type: none"> ● What are the main challenges and opportunities facing farmers in your community related to climate change and agriculture? ● How can the project support farmers' climate resilience farming information, technology and practices? ● What are your expectations from EMSAS, and how do you envision community participation and engagement? ● What local resources or expertise can the community contribute to project activities? 		

Private Sector Entities:

- What are the potential business opportunities or incentives for private sector involvement in hydroponic farming?
- How can the project support private sector interests in climate-smart agriculture, innovation, or technology adoption?
- Are there existing partnerships or collaborations with local businesses or agribusinesses that could be leveraged for project implementation?
- What are the key challenges or barriers to private sector engagement in hydroponic farming?

Research Institutions and Academia:

- What research or expertise does your institution have related to hydroponic farming?
- How can research findings or data contribute to project planning, monitoring, and evaluation?
- Are there opportunities for collaboration on research, knowledge exchange, or capacity-building activities?
- What are the priority research areas or knowledge gaps that the project should address?

ANNEXE 2: LIST OF IDENTIFIED STAKEHOLDERS

S/N	STAKEHOLDER NAME	POINT OF CONTACT
1.	National Council on Climate Change (NCCC)	Mr Chukwuemeka Okebugwu (National Designated Entity) Email: chuksokebugwu@yahoo.com Phone no: 08064426144
2.	Climate Technology and Centre Network (CTCN)	Nadege Trocellier (Climate Technology Specialist) Email: nadege.trocellier@un.org

4.	Green Habitat Initiative (GHI)	Engr Sadiq Abubakar Gulma (Executive Director/ CEO) Email: sadiq@greenhabitat.ng P. No.: 08032913535
5.	National Agricultural Extension and Research Liaison Services (NAERLS)	Tijjani Abubakar Kudingi Email: kudingitijjania@gmail.com Phone: 08034174141
6.	Kaduna State Budget and Planning Commission	Alfred Bognet Email: Alfred.cyprain@kdsg.gov.ng 08063226597
	All Farmers Association of Nigeria (AFAN)	Yunusa Halidu Phone no: 08027434800
7.	All Farmers Association of Nigeria, Kaduna Chapter	Nuhu Aminu Phone no: 08036799643
	All Farmers Association of Nigeria Kubau Chapter	Safiyanu Samaila 08028570654
8.	Kaduna Agricultural Development Agency (KADA)	Mohammed Rili Phone: 08062513652
9.	Kubau Local Government Council	Dr Yusuf Makama Phone no: 08179555556
10.	Federal Ministry of Agriculture and Food Security Abuja	Abdullateef Opoola Phone no: 08068021448
11.	Kaduna State Ministry of Environment	Muazu Usman Phone no: 08033968632
12.	Kaduna State Ministry of Local Government	Alhassan Mohammed Phone: 08023784449
13.	Oxfam Nigeria	25B Katsina-Ala St, Maitama, Abuja 904101, Federal Capital Territory 07086625290
14.	National Association of Agricultural Journalists (NAAJ)	Emmanuel Ogbonnaya Phone: 07055692114,07033592020

15.	Nigerian Agricultural Business Group (NABG)	Emmanuel Ijewere Phone: +2348129929300 or +2348023591357
16.	International Institute for Tropical Agriculture (IITA)	Office line Phone: 08034035281, 08034035282
17.	National Water Resource Institute Kaduna (NWRI)	Eng Kassim Baba 07035662472
18.	Agricultural Research Council of Nigeria (ARCN) Kaduna station	Institute of Agricultural Research Training, O.A.U., P.M.B. 5029, Moor Plantation, Apata, Ibadan, Nigeria. PHONE +234(0)9035061807.
19.	Kaduna State University (KASU) Faculty of Agriculture	Dr. Maharazu Ibrahim, Phone no:07030399040
20.	Kaduna State Ministry of Agriculture	Mrs Vasily Shamaki 08069565925
21.	Small-Scale Women Farmers Organization in Nigeria (SWOFON)	Agera T. Liti Phone no: 08020515243, 08182598225