EBAFOSA

ANALYSIS OF THE IMPACT OF ENVIRONMENTAL SOLUTIONS IN ADDRESSING THE TRIPLE CRISES FOR FOOD AND LIVELIHOOD SECURITY

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Introduction

The three target countries – Cameroon, Nigeria, and Uganda – have put forth policy positions targeted at driving the realisation of the Sustainable Development Goals (SDGs) ideals, including through enhancing environmental action, food security, and socioeconomic transformation. Environmentally, all three countries have ratified their commitments to climate action, popularly called Nationally Determined Contributions (NDCs) and have also submitted updated NDC commitments. As an example, in Nigeria, its updated NDCs prioritise cutting methane by up to 61% by 2030 while cutting crop residues being burnt by up to 50%. Uganda on its part has committed to reverse deforestation, increase use of sustainable cooking energy by 25 - 40%, as well as clean cook stoves. Cameroon, on its part, has committed to substituting unclean biomass with biogas by increasing biodigester investments by 5 – 10%. Furthermore, 2 of these countries – Cameroon and Nigeria – have committed to the methane pledge to cut methane emissions. In addition, these countries have put in place, various national climate change legislations to operationalise these commitments. Uganda has the National Climate Change Act of 2021.

Nigeria has the Climate Change Act, which also mandates the country to put in place national climate change action plans every 5 years and a carbon budget to operationalise its commitments. Cameroon, on its part, has key sectorial policies to operationalise the NDCs – including the forest code, as well as policies, including the National Adaptation Plan to Climate Change and the National Development Strategy 2020-2030 (NDS30) among key ones. The countries also have elaborate agriculture and other socioeconomic policies that prioritise not only enhanced food security but also value addition, reversing postharvest losses (PHLs), and climate-proofing agriculture. Uganda has a National Agriculture policy in addition to national food standards issued through the Uganda National Bureau of Standards (UNBS). Nigeria has the National Policy for Agriculture, as well as a strong entrepreneurship culture in its academic institutions that train youth in accessible enterprise areas where agriculture fits, considering that it is the most inclusive sector in the country. Cameroon has the National Development Strategy (NDS30), which prioritises increasing agricultural productivity and creating income and job opportunities simultaneously with enhancing food security, and ties in with the climate-smart agriculture policy and the agriculture investment plan.

These policies are in the context of enhancing socioeconomic growth as expressed in the country development blueprints, which also include environmental action and agriculture and food systems as an area of economic diversification and growth, with key interventions including the reversal of PHLs. This includes the National Development Plan (2021-25) in Nigeria, vision 2035 and SND30 in Cameroon, and vision 2040 and 3rd National Development Plan in Uganda. Their realisation is also prioritised in the United Nations Sustainable Development Frameworks (UNSDCFs) of these countries through the UN country teams (UNCTs), wherein each of them, there are "enviro-centric" priority areas that aim to enhance environmental sustainability simultaneously with the actualisation of socioeconomic priorities.

In Cameroon, these are "Strategic Priority 1: Inclusive and sustainable growth through a structural and green transformation of the economy that creates decent jobs" and "Strategic Priority 4: Environmental sustainability and efficient climate and disaster risk management".

In Nigeria, it is "Outcome 2.1: By 2027, Nigeria benefits from improved food security and nutrition, and sustainable food systems and natural resources management", and "Outcome 2.2: By 2027, Nigeria is implementing improved management of climate change risk and building resilience to adapt to its long-term impact through the National Determined Contribution (NDC), sustainable energy production/consumption and climate finance".

In Uganda, it is "Strategic Priority 2: Shared prosperity in a healthy environment". The work done focused on the application of environmental solutions – nature, climate, pollution action – towards enhancing food and livelihood security and realisation of multiple Sustainable Development Goals (SDGs), all which aligns to actualise different socioeconomic priorities of the development blueprints. The approach taken was linear. Starting off with feasibility studies to establish environment, socioeconomic, and food security gaps aligned to the country policy positions that could be addressed through application of nature, climate, pollution/waste action solutions. These feasibility studies also focused on key actors that need to be engaged in bridging these gaps at the operational level, with a focus on youth and the informal sector as the core constituency of implementers. Over 80% of Nigeria's working population is engaged in the informal sector, which also contributes up to 50% of the GDP, while up to 70% of the country's population is youthful and under 30 years. In Uganda, up to 90% of the working population is engaged in the informal sector, while over 70% is youthful. In Cameroon, up to 90% of the working population is engaged in the informal sector which contributes up to 50% of the country's GDP, and over 60% is youthful under 25 years. Based on these gaps, targeted actions were undertaken towards bridging them. Accordingly, informal and youth actors were trained in bridging the gaps and guided to undertake actions towards bridging them. These actions generated experiences, information, and data that were then used to inform policy implementation pathways of policies needed to enhance the uptake of these solutions and inform UNCT uptake of nature, climate, and pollution/waste solutions. This work constitutes an example of how environmental solutions can be leveraged to meet countries' leading socioeconomic priorities that enhance realisation of the SDGs. This is an example that can be expanded through UNCTs and direct engagements with other stakeholders across Africa.

1.1.1 Objective

To analyse gaps that can be addressed by application of nature, climate, and pollution action solutions (environment solutions) for food and livelihood security among key implementers and inform cross-sectorial policy implementation trajectories and UNCT work to prioritise enablers of bridging gaps and expanding successes.

2.0 Feasibility studies and gap analysis

The feasibility studies involved evaluating/analysing gaps experienced by key actors on the ground (youth/informal sector) who already engage in food & livelihood security actions to establish their productivity gaps and how these could be bridged using environment action solutions -i.e., nature, climate, pollution/waste solutions. A survey methodology was used to collect and analyse data on gaps. Stakeholders were engaged through communal cooperatives and local governance structures that engage most of the community and for traceability. Accordingly, in Uganda, actors were engaged through the structure of communal cooperatives under the CBS PEWOSA cooperative in the Buganda kingdom. This cooperative is decentralised to the community through a structure called Village Savings and Loan Associations (VSLAs). A total of 5 VSLAs with a combined membership of 125 people were engaged in the feasibility studies that revealed gaps in the need for clean cooking, postharvest losses reversal, application of nature solutions, and skills in developing and decentralising these solutions. Cumulatively, the survey established that up to 80% of yields were lost per season for lack of adequate preservation and value addition. It was also found that up to 56% of respondents have heard of climate action solutions of solar dryers. Up to 70% of community members were willing to take up solar dryers as an alternative value addition, while the rest expected to see the effectiveness of the dryers before making the shift. On clean cooking, up to 50 respondents who use different cooking methods – charcoal, firewood – and drawn from households to eateries were surveyed, and 92% indicated their eagerness to try clean cooking fuel briquettes as an alternative fuel to learn how to make these briquettes. All those surveyed engaged in the agro-value chain were also willing to take up Ecosystem Based Adaptation (EBA) approaches to enhance farm-level productivity. Young people were also surveyed to reveal skill gaps in developing and decentralising these solutions, and 100% of the youth engaged were willing to be trained to bridge this skill gap. In Cameroon, feasibility was conducted leveraging the structure of communal/village cooperatives popularly called tontines or jangui's. A total of 30 tontines engaged in different agro-value chains were mapped, surveyed, and engaged for gap analysis on productivity that could be bridged using environment action solution.

EBAFOSA trained women taking roles in building sorting cassava strips. The cassava are well grated and dried in sun,the drying allows the farmers to later add value to their produce and increase their shelf life. The training also allows the farmers to be trained on increasing the shelf life of cassava through utilization of solar dryers.

These tontines were sampled from all country regions – Western, Eastern, Adamawa, Far-North, Central, and Southern regions. Specific gaps mapped were:

- on-farm level application of EBA: the need for increased yields where solutions like organic fertilizer are critical, the need to conserve soils using approaches like agro-forestry etc.,

- value addition using clean energy solutions: need to cut high post-harvest losses through applying solar dryers that have been proven to reduce aflatoxin cases by over 50% to enhance food safety compliance, need to increase incomes, savings through value addition of solar-dried produce – e.g. milling dried cassava to flour, making snacks from flour etc., need to switch to use clean energy solutions for value addition – e.g. switch from open-air dried rice, vegetables etc., to solar dryer dried rice, switching from using fish smokers, chicken smokers to using solar dryers etc.

- need for clean cooking/charcoal substitution: where cleaner cooking fuel made from recovered waste can offer affordable yet non-polluting cooking alternatives to charcoal in households, eateries etc.

- need for training and skills development in developing and applying the above climate action solutions by youth in the local communities in the tontines. Up to 213 members of cooperatives, including 20 youth, were available for training.

In Nigeria, the local governance structure through the Emirates of Nasarawa and academic institutions through the Nasarawa State University at Keffi (NSUK) were leveraged to engage communities in gap analysis. Through the Emir's office, local communities were mobilized for gap analysis to establish productivity gaps that can be bridged using environmental action solutions. Cassava farmers in the Shabu region, which hosts the largest cassava market in Nigeria, were engaged for feasibility studies. Accordingly, a sample of 50 active farmers & processors drawn from 4 villages were surveyed with the leadership of the grassroots officials of the Emir. This survey established that over 90% of the population in Nasarawa engages in agriculture, including cassava farming. It was also found that the Emir-led local government prioritized agro-value chains, especially cassava farming, as the comparative advantage crop for enhanced food and livelihood security. It was also established that up to 90% of local farmers and processors in Nasarawa practice open sun drying to preserve their harvest. This exposed them to risks of increased PHLs due to the low drying efficiency and exposure of the material to contamination with dust, vermin, and insect/pest infestation. The survey further revealed that biomass (charcoal and firewood) accounted for over 73% of total domestic energy consumption, with up to 87% of households using firewood or charcoal at levels of 2 kg of charcoal or 4.6 kg of firewood

Up to 60 community members expressed readiness for training in using fuel briquettes and the benefits of the briquettes to health and household savings. Of those engaged, 90% were female, and 10% were male. Up to 78% indicated readiness to switch from charcoal to fuel briquettes. In addition, up to 22 young people were ready for training in bridging these gaps.

Solar dryers being used for drying of harvests to increase their shelf life. The solar dryers are local solution for drying and thus have proven to be effective as local solution.

These analyses informed on the socioeconomic gaps that could be addressed through the application of environmental solutions to address nature, climate, and pollution challenges in communities in a manner that enhanced food and livelihood security and unlocks diverse Sustainable Development Goals (SDGs).

The detailed gap analysis is covered in the feasibility reports in the annexe section.

3.0 Bridging gaps and generating data on impacts

Based on the gaps and opportunities established in these feasibilities, key actions were undertaken towards bridging gaps. This started off with training and capacity enhancement, especially of youth and community members engaged in the informal sector towards development & deployment as well as application of the environmental solutions respectively.

This training leveraged inclusive structures to engage key constituencies of implementers (youth and informal sector) to enhance skills towards expanding the uptake of environmental solutions. The focus was on enhancing the capacity of these operational stakeholders to uptake the nature, climate, and pollution action solutions to implement them in their own enterprises and, in so doing, generate data on impact and key enablers for expansion. Specifically

In Nigeria, the trainings leveraged the structure of local governance and academic institutions to enhance uptake of solutions to bridging the gaps as established in the feasibility. Through the local governance structures of the emir of Nasarawa, communities were trained and engaged in taking up clean cooking and solar dryer solutions and, through this, incentivised uptake of nature-based solutions as well. Farming communities in Luzuya farm were trained in the uptake of fuel briquettes and solar dryers, and these served to further incentivise the application of nature-based solutions. At the Layuza farm, over 100 youths and 60 women from different groups were trained in the development and use of solar dryers. Over 50 local farmers/processors were further trained in applying solar dryers across different value chains, including yam, millet cassava, tomatoes, maize, and rice. In addition, communities in the leading cassava processing region within Nasarawa called Azuba, that specialises in processing cassava into garri, a local delicacy, were also trained and guided to take up solar dryers to enhance quality of their dried garri, and fuel briquettes to substitute charcoal and firewood use. Training in using solar dryers and clean cooking benefited over 300 community members who switched to applying these environmental solutions in their food system activities. The training followed a “training of trainers” model, where a group of 4 active, youthful entrepreneurs were trained first. These youth were then guided to train the community on solar dryers and waste recovery to fuel briquettes, where up to 500 community members, including additional youth, benefitted. They also trained up to 200 students/youth from different disciplinary backgrounds in the Nasarawa State University Keffi (NSUK) entrepreneurship school to develop and apply solar dryers to improve food and livelihood security.

Regular trainings at community level to enhance adoption of briquettes to increase adoption of green fuels . The briquettes also offer an opportunity for the youth to increase their socioeconomic wellbeing.

EBAFOSA training to a local community on ways to recycle wastes to create biofertilizer, the initiative has helped a large group of women and youth in rural setting to help avert use of fossil fuels hence reducing forest cover and increase local solution to local challenges.

In Uganda, training covered over 300 community members, with up to 74% being women. Specifically, 58 young people were trained in the development/fabrication of solar dryers. Up to 139 agro-value chain actors drawn from 5 VSLAs were trained to apply solar dryers for processing & preservation to cut PHLs & enhance their incomes. 150 community members holding a total of 92 acres of farmlands were trained on diverse EBA techniques to improve their knowledge of EBA application. These trainings indirectly benefitted over 8000 community members spread over 21 VSLAs represented by family members in the trainings. Manuals for EBA training, solar dryer fabrication and use were also developed to guide the training and expand it to more VSLAs. Up to 60 VSLA members were also trained on financial management to complement the technical training in developing and applying climate action solutions to enable them to improve their savings in the VSLAs cooperatives groups. In Cameroon, over 200 - 1000 community members, including 20 youth, were trained in the uptake of environment solutions for food and livelihood security, including solar dryers, biofertilizers, biopesticides, biogas production and use, among key areas. Training manuals were developed from experiences in these countries to facilitate continental-level knowledge uptake.

Trainings translated to impact actions

The trainings were then followed by the development and deployment of the environmental solutions to bridge the analysed gaps and generate impact data that informs optimal policy implementation trajectories.

In Cameroon, out of this training, five agroforestry nurseries were established to supply seedlings for uptake within the cooperatives. These were a 4000-plant nursery in Mogazang, a 200-plant nursery in Maga, a 2000-plant nursery in Pitoa, a 1000-plant nursery within Kaélé, and a 2000-plant nursery in Ngong. Specifically, the application of solar dryers resulted in PHLs decreasing from 90% to less than 5% of the initial product, while the shelf life of potatoes, carrots, and onions increased by at least 50%. In addition, the application of solar dryers results in diverse value-added product lines being developed from cassava, including starch production: 20kg/week; Production of cassava flour:300kg/week; production of Gari/tapioca: 200kg/week; production of cakes and bread from processed dried cassava; dried fruits:50kg/Month; dried vegetables:10kg/month. The application of nature solutions of biofertilizer and biopesticides resulted in the total area covered by these nature inputs increasing by 920 hectares. In addition, up to 30 green jobs were created for the community in the making of organic inputs as well as the application of solar dryers, while the increase in earning opportunities resulted in membership in local cooperatives increasing from 0 to 15.

Furthermore, over 50 community members were engaged for technical capacity enhancement to invest in biodigester for the uptake of waste to biogas and biofertilizer solutions. Accordingly, a 20 cubic metre biodigester was set up through a complementary partnership at the community level between skilled youth and the community – where the youth provided technical skills while the community provided unskilled labour and materials. The community formed themselves into a biodigester cooperative. Over 2000kgs of organic waste monthly are intercepted, which amounts to a significant amount of baseline methane emissions that are avoided. This waste translated to over 2000 litres of biofertilizer and 144cubic metres of biogas every month that the community can use and also trade to generate income, where initial tests show the community can earn between CFA 2000 – CFA 8000 weekly from trade in biogas and biofertilizer.

Regular trainings at community level to enhance adoption of climate action and sustainable production amidst challenges of climate change. The EBAFOSA led trainings are improving the adaptation knowledge of the community.

In Uganda, impacts were generated as follows:

- 7 giant solar dryers of over 400kgs capacity each were designed and decentralised to be tested by over 300 agro-value chain actors through communal solar dryer centres where the use of the dryers is shared. Among the primary beneficiaries are actors cultivating cassava, which is the strategic crop of both the Buganda kingdom and the CBS PEWOSA cooperative and pumpkin and vegetables. These 300 beneficiaries were spread across 5 VSLAs. The uptake of solar dryers created over $1800 in income opportunities earned from trade-in quality solar dryer dried products. Up to 363 farmers across five districts accessing solar dryer services to enhance incomes. Solar dryers efficiently dehydrate cassava to 10-12% moisture content levels up to 4 times faster, and this driving realization of national food safety standards. Postharvest losses were reduced by 30% and up to 85% in some cases, amounting to over 270kgs of produce. Beneficiaries' savings increase by up to 50% from the application of solar dryers, and this is an added incentive for EBA. Youth manning & maintaining dryers earned up to $141 in the past three months, an incentive that taps the EBA supply chain. Up to 3 tonnes of cassava were harvested and dried for value addition to enhance earnings.

- gender inclusion in the application of climate solutions for food and livelihood security undertaken. Up to $1300 of the solar dryer value addition opportunities accrued to women farmers. Decentralisation of solar dryers created up to 3.8 times more income opportunities for women than men. Women farmers have seen savings increase by up to 50% by applying solar dryers.

- On EBA, after training, a total of 60 agro-value chain actors, representing 125acres and 609 household members, directly benefited from the testing uptake of organic cassava cuttings to be cultivated using EBA approaches and to be used for multiplication gardens to reach more beneficiaries. Up to 375,000 cassava cuttings were distributed. Cassava is highly climate-resilient and resistant to moisture stress. Expanding its cultivation is part of EBA. Projections show that while other crops are likely to experience significant declines of up to 22% under moisture stress, cassava will experience the least decline – of about 8%. Uptake of EBA enhanced application of nature approaches that are critical to protecting the ecological base of producing food. As a result, 100 farmers embrace agroforestry, and up to 40 more acres are cultivated with intercropping. Up to 150 farmers embrace the use of organic manure.

- On fuel briquettes, over 500 pieces were made, tested and proven capable of creating earning opportunities for the community. A prototype briquette machine capable of making up to 500 pieces per day was tested and passed, and this is set to be used as an example to make machines to be taken up and used by up to 9 VSLAs in the area with up to 150 members benefiting directly, and 900 indirectly.

This uptake of clean cooking solutions unlocked diverse income opportunities. Up to $460 in income created from trade in fuel briquettes in about 3 months. Up to $321 was invested in assets to enhance the production of fuel briquettes. Up to $1,524 worth of charcoal displaced by uptake of fuel briquettes, and this offsets charcoal which destroys forest ecosystems. Increased number of people taking up fuel with over 800 customers/families taking up fuel briquettes and reduced and others stopped using charcoal, which has reduced degradation risk.

In Nigeria, a dryer each was decentralised for testing and use in Azuba, Layuza, and the NSUK entrepreneurship centre.

Specifically, a 1,500-kilogram Greenhouse solar dryer was developed at NSUK.

A 2500-kilogram capacity Greenhouse Solar Dryer was constructed by trained youth and decentralized for communal use at Shabu.

In Azuba, a 2000 kilogram Greenhouse Solar Dryer was developed and decentralised, which helped improve the shelf life of the garri, reduced impurities and pest infestation, and increased the income of the farmers, processors, and manual workers operating.

At the Layuza farm, trained youth and community members developed 11 box dryers and a Giant Greenhouse community solar dryer, and these were decentralized for use.

Testing of dryers yielded further crucial results of superior performance towards enhancing food and livelihood security compared to traditional open sun drying. Data showed that using a solar dryer can dehydrate cassava to safe moisture levels of 9.8 – 10.7%, which are needed to prevent the growth of mycotoxins within 5 hours. At the same time, an equivalent sample in the open sun will be at unsafe moisture levels of 15.7-20% within the same period of 5 hours. For tomatoes, test results showed that using a solar dryer can dehydrate tomatoes to 10% within 8 hours, while an equivalent sample in the same period left in the open sun would be at unsafe levels of 34%. These positive results registered for value chains with a high moisture retention capacity showed the efficacy of solar dryers in actualising food safety in line with national standards.

The data generated from the fuel briquettes testing with the community showed that the price for a kilo of briquettes in Nigeria is between N200 and 300. At the same time, 1 kg of fuelwood goes for about N500-600, equivalent to about 2 litres of kerosene that sells for N710 but produces the same amount of energy. Briquettes were found to be two times cheaper than fuel wood and up to 3 times cheaper than kerosene.

Income opportunities were created from solar dryer-powered processing. Specifically, in Azuba, the application of solar dryers lowered PHLs by 50%, and garri processors made 3,000-5,000 Naira more from a bag of garri dried using solar dryers as it stands out hygienically and in quality from the ones dried in the open sun. Community-level actors reported up to 100% more revenues from postharvest loss reductions and better-quality dried produce. Cumulatively, 500 community members in Azuba and Layuza reversed postharvest losses estimated at 50,000 – 200,000 Naira. Additional details on actions undertaken in bridging gaps and the impacts generated are covered in reports attached in the annexe section.

4.0 Impact data informing policy decisions, UNCTs, and continental uptake of environmental solutions

4.1.1 Policy Implementation Pathways informed

In all three countries, data informed the implementation of existing policies to enhance food and livelihood security and buttress diverse SDGs through the lens of nature, climate, and pollution action solutions.

In Uganda, the policies are the 3rd National Development Plan (NDPIII) that prioritises agro-industrialisation, the Nationally Determined Contributions (NDCs) that underscore reversing forest degradation, and the US2241 market incentive standards guideline, a policy from the Uganda National Bureau of Standards (UNBS) that drives food safety, as well as a new policy – the solar dryer standard.

In Cameroon, two national workshops on data for policy were held by the government to evaluate data generated from ground implementation actions by diverse actors taking up environmental solutions to the triple crises and how these enhanced food and livelihood security and the SDGs. These workshops brought together diverse actors crucial to taking up this empirical information to inform policy processes in various dockets towards implementation of different policies – including the NDCs and the national development strategy by 2030 (SND30) – in a manner that enhances food and livelihood security, addresses the triple crises, and buttresses the SDGs. Among stakeholders in this workshop included the UN Cameroon team implementing the United Nations Sustainable Development Cooperation Framework (UNSDCF) priorities on environmental sustainability & energy. The data was shared to be taken up to inform policy implementation pathways in different sectors – including the Ministry of Agriculture and Rural Development (MINADER), Ministry of Environment, Nature Protection and Sustainable Development (MINEPDED), Ministry of Water Resources and Energy, Ministry of Youth Affairs and Civic Education (MINJEC), and the Standards and Quality Agency (ANOR) to inform implementation pathways of the Nationally Determined Contributions (NDCs) on priority areas of solar and sustainable agriculture as well as increased biodigester investments; the climate-smart agriculture policy, and the agriculture investment plan – all critical to drive uptake of nature, climate, pollution action solutions from a food systems lens. Cameroon is also a signatory to the global methane pledge, contributing to meeting the set emissions reduction target in the country's NDCs. Accordingly, the data from the waste municipal solid waste and manure recovered through the biodigester was used to compute the level of methane emissions abated by the interventions done at the community level. Accordingly, an analysis was undertaken, and a report compiled showed that the 20 cubic metre biodigester intervention mitigates about 1792.276 tCO2e per year and can process up to 2,000 kg of waste monthly.

This provided a critical foundation to prove the capacity of the informal sector and youth to ensure the country meets its methane mitigation pledge, and NDC aims to increase biodigester investments by 5-10%.

In Nigeria, a multistakeholder meeting to take up data on the impact of climate, nature, and pollution actions for food and livelihood security and to inform pro-SDGs policy implementation pathways was hosted by the Nasarawa State University, Keffi (NSUK). The meeting convened policy actors drawn from different dockets and departments of government to deliberate data and lessons of application of environmental solutions for food and livelihood security by actors drawn from diverse sectors and to highlight the pro-SDGs policy implementation pathways of their respective dockets that the data and lessons inform for their uptake. The meeting took stock of data on the impact of the application of nature, climate, and pollution action solutions for food and livelihood security generated from coherent actions of youth from different sectorial backgrounds & informal sector actors in Azuba, Nasarawa and how it aligns to implement different priority policy areas - education curriculum, food systems, one-health, NDCs etc., so such successes can be incentivised for expansion as impactful pathways for effective pro-SDGs policy implementation.

The data informed policy at two level, one conceptual, and then followed by implementation. At the conceptual level, the impact data informed the integration of environmental action solutions into the academic curriculum of the entrepreneurship centre at the Nasarawa State University at Keffi (NSUK). The data and lessons on the technical, social, economic, and financial impacts of applying environment action solutions of fuel briquettes and solar dryers among local communities in Nasarawa and the food & livelihood security benefits this generated were used to engage with faculty of the Nasarawa State University at Keffi (NSUK) towards taking up environment action as an area of enterprise training. The entrepreneurship school takes in students from multi-disciplinary backgrounds. Integrating environmental action solutions into the curriculum is a critical step to ensure the uptake and implementation of these solutions by actors drawn from diverse sectors towards SDG implementation. To this end, a climate action and entrepreneurship centre was established at the NSUK to take the lead in operationalising this curriculum that engages students of diverse disciplinary backgrounds to take up environment action as an enterprise area to drive food & livelihood security and the SDGs. At the implementation level, data informed the implementation of this environmental action Entrepreneurship Curriculum of the NSUK and its revisions to ensure entrepreneurship training aligned to enhancing food and livelihood security from the lens of tapping nature, climate, and pollution action solutions.

Beyond academic policy, the data also informed the implementation of the Standards Organization of Nigeria (SON) tomato quality standard, a policy for ensuring quality standards, including for dried tomatoes to reduce spoilage/PHLs, and thus enhance food and livelihood security, the Nigeria NDC which prioritise clean cooking, to ensure the ecological base of producing food is not destroyed by the leading risk driver – wood fuel, and also the reduction of food waste that ends up disposed of irregularly/burned to enhance emissions, the climate change act with anchors these targets, and the National Development Plan which calls for economic diversification.

4.1.2 Continental lessons sharing, including through UNCTs

Data from the above was leveraged to enrich thought environmental solutions of climate action, nature action and pollution action accessible to the informal sector and youth that directly provided data for a policy that was applied to inform UNCTs and other continental policy processes. Specifically:

- lessons informed the preparation of a policy background paper on One-Health and AMR that informed an AMCEN decision,

- informed policy papers on sustainable budgeting approach for Cameroon that are being shared for uptake by UNCTs to support countries to re-engineer their budget making and make nature, climate, and pollution action a priority area,

- Informed topical issues discussions with UNCTs on how leading countries' socioeconomic priorities and needs of interest, including in emerging areas, can be addressed through nature, climate, and pollution action. Discussions have been held with Benin, Botswana, Cameroon, Gabon, Namibia, and Nigeria on topical issues like food systems and socks from the energy crisis and leveraging accessible solutions to drive the implementation of SDGs at the country level through the environmental lens

- data used to update the UN-wide information portal – the UNINFO, for continental-wide accessibility,

- Data is used to update the continental information portal with knowledge materials. The knowledge portal registers an average of 5000 visits per month. The data was also shared in a continental lessons-sharing webinar.

– data used to inform policy papers on One-Health/AMR for AMCEN decision, SBA, and updates shared on the UNINFO portal

- a continental cross-hybridization forum organised to share lessons on the uptake of environmental solutions towards enhancing food and livelihood security and buttressing

multiple SDGs attracted over 300 persons convened for this forum. Lessons on informing entrepreneurship curriculum were also shared with the Ba Isago University in Botswana, resulting in the setting up of a climate action entrepreneurship centre at that university. Lessons sharing also focused on the uptake of clean cooking solutions in the DRC, whose food systems are highly threatened by degradation, with timber harvesting for fuel being a major risk driver.

5.0 Conclusion

The application of environmental solutions – i.e., nature, climate, pollution/waste – in unlocking socio-economic priorities in key areas of food and livelihood security that is also key to the realisation of multiple SDGs – calls for a closer linkage of empirical data on proven successes and policy. Policy is the biggest driver of change. However, for effective implementation, data is one of the core enablers of objective policy implementation. Empirical data that leverages on successful actions – even pockets of success - in addressing on-demand gaps among critical groups of implementers, to inform policy implementation pathways towards prioritising pathways that address those gaps and enables the expansion of proven successes among key constituencies of implementers is critical. These connections were the focus of this intervention, which was conducted in three stages.

The first was gap analysis in key on-demand areas of the community - food & livelihood security, and the SDGs and how environment (nature, climate, pollution action) solutions could be applied to the enhanced realisation of these core aims.

The second was the application of environment solutions to these on-demand areas to generate impact on how these gaps were bridged, thus matching gaps with practical solutions.

Third was leveraging the impact data to inform policy implementation pathways of relevant policies, UN strategies in countries – the UNSDCFs, and work of other stakeholders, towards enabling investments that will expand the application of environment solutions for food & livelihood security and drive the continent toward realising multiple SDGs.

Pictorials of several EBAFOSA led trainings at community level. The trainings have been carried in several countries in the sub-Saharan Africa.

EBAFOSA

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Ecosystem Based Adaptation for Food Security Assembly