

2024 Country Exchange Tanzania

Twenty-One National Implementing Entities experience locally led adaption projects in Tanzania



Cover photo: National Implementing Entities view drip irrigation project at Ibwaga School.



ADAPTATION FUND

Helping developing countries build resilience and adapt to climate change

Contents

- Adaptation Fund country exchange in Tanzania showcases resiliency through LLA3**
 - Climate change impact in Tanzania 4
 - National Environment Management Council – NEMC – hosts fifth country exchange 4
- NEMC project site visits highlighted broad reach of projects8**
 - The Adaptation Fund and NEMC facilitated this fifth country exchange in Tanzania, bringing in NIEs from around the globe..... 8
 - Five project sites visited – Demonstrating Transformational adaptation 9
 - Five key commonalities observed across the projects 13
- Lessons Learned and Recommendations from the NEMC Projects..... 14**
- Participating NIEs Use Knowledge Fair to share lessons learned from their own projects..... 14**
- Conclusion 19**
- Annexes 20**
 - Annex I – Adaptation Fund and NIE participants..... 20
 - Annex II – Consultations during Country Exchange including National Government and Ministry Representatives plus PMM 23
 - Annex III – NEMC Staff met..... 25

Adaptation Fund country exchange in Tanzania showcases resiliency through locally led adaptation (LLA)

The country exchange in Tanzania was held under the theme of ‘Building Resilience through Locally Led Adaptation.’ It was the largest country exchange held thus far, with 21 countries represented along with 27 National Implementing Entities (NIEs) representatives, two of which represent indigenous peoples.¹ The country exchange aimed to enhance the capacity for project design, development, and implementation by accredited NIEs through direct interaction and engagement with Tanzania project stakeholders. The Exchange equally aimed to facilitate benchmarking for these NIEs towards an Adaptation Fund project within a sector or model of interest.

The application of the Adaptation Fund’s Readiness Program, an overview of challenges facing Tanzania, a summary of field visits, a summary of lessons learned, and the results of NIE knowledge sharing are all highlighted in this report.

Adaptation Fund Medium Term Strategy promotes direct engagement with experts

Country exchanges remain an important aspect of capacity-building to support two essential elements:

1. Individual gain of experience, skills, and knowledge of the Fund’s project life cycle through visual learning,
2. Direct engagement with experts, project beneficiaries, and other project stakeholders.

The Adaptation Fund supports developing country Parties that are particularly vulnerable to the adverse impacts of climate change in meeting the costs of adaptation. Support includes financing concrete adaptation projects and programs that are country driven and based on the needs, views, and priorities of eligible Parties.

As part of the Adaptation Fund’s second Medium Term Strategy (2023-2027) (MTS) and implementation plan approved by the Board in March 2023, an expanded Readiness Program is included for climate finance; through this program, the Adaptation Fund actively supports the use of its Direct Access modality by eligible developing countries and provides readiness and capacity-building support for project development and implementation.² The Readiness Program employs a variety of instruments and tools such as grants, seminars, workshops, and country exchanges to deliver support to accredited implementing entities and developing countries seeking to access funds from the Fund.



The Exchange focused mainly on the region of Dodoma, in Central Tanzania.

¹ Armenia, Bangladesh, Benin, Bhutan, Cook Islands (indigenous person), Costa Rica, Cote d'Ivoire, Dominican Republic, Ghana, Honduras, India, Indonesia, Kenya, Micronesia, Panama, Peru, Rwanda, South Africa, Senegal, Tanzania (plus pastoral women's council indigenous organization), Uganda

² 2023-2027 [Medium Term Strategy](#) and [Implementation Strategy](#)

Additionally, the Fund's second MTS strengthens the cooperation and linkages between the three main pillars of action, innovation, learning and sharing, and introduces the crosscutting strategic emphasis on promoting locally based innovation and locally led adaptation.

The Adaptation Fund's country exchanges include field visits between NIEs with projects in the same sector or that use a similar model. These exchanges help to build capacity in project design, development, and implementation, plus explore lessons learned. To date, the Fund has facilitated five country exchanges in Chile, Senegal, India, Indonesia, and Tanzania. The exchanges in Chile and Indonesia were hosted in person, whilst the exchanges in Senegal and India were held online due to the Covid-19 pandemic. The Tanzania exchange is the third one to be held in person.

Key lessons learned during the project (and shared by the NIE participants) range from the communities' desire for immediate results without bureaucracy to the importance of securing key experts who can do long-term forecasting. In addition, an underlying theme of hope emerged during the exchange, which is expounded upon further in this report.

Climate change impact in Tanzania

Tanzania is highly vulnerable to climate change impacts such as drought, floods, agricultural productivity decline, the decline of woodland and forest tree species, and temperature increases -- affecting urban and rural areas. It is a country with a population of 60 million that heavily relies on agriculture. The country is classified as lower middle-income.

Specific to the Dodoma region visited, this semi-arid area is highly vulnerable to all climate change impacts affecting the country. Dodoma City became the capital city in 1996, so the combination of a rapidly growing urban area with predicted changes in climate will create several challenges to the people, hydrology, and ecosystems. While local government and communities are uniquely placed to identify, prioritize, and address these challenges, local adaptive capacity is constrained by limited technical capacity and financial resources.

National Environment Management Council – NEMC – hosts fifth country exchange

The Adaptation Fund accredited NIE for Tanzania, the National Environment Management Council, or NEMC, hosted this Country Exchange from May 13-17, 2024. Participants spent three days in the capital region of Dodoma and visited five sites in the Kongwa and Bahi Districts ranging from cattle dipping stations to school gardens. Participants also spent a full day in Arusha to take part in a knowledge fair, which consisted of NIEs sharing their lessons learned from various projects.

The Tanzania project funded by the Adaptation Fund is entitled, 'Strategic Water Harvesting Technologies for Enhancing Resilience to Climate Change in Rural Communities in Semi-Arid Areas of Tanzania (SWAHAT).' The objective of this project is to enhance the resilience and adaptation of semi-arid rural communities to climate change-induced impacts of drought, floods, and water scarcity. The project is an Enhanced Direct Access Project, which offers opportunities that help build the capacity of local organizations to program adaptation finance and design and implement their own projects through locally led action.

This project achieves its objectives through strategic water harvesting technologies that contribute to improved crops, aquaculture and livestock productivity, reforestation, as well as combating emerging crops and livestock pests and diseases. The NIEs were able to view these initiatives firsthand.

Major achievements of the SWAHAT project highlighted by NEMC include the following:

- SWAHAT project managed to facilitate and make use of existing farmer groups to undertake climate adaptation actions.
- The project has capitalized the community-led organizations to undertake water management actions in a legally acceptable manner.
- The project has provided a platform for local government authority workers in Kongwa District to significantly practice their professions.
- Project visibility and awareness has been achieved through a strong presence across social media sites.
- Tomato production in Ibugule has attracted buyers from local and distant markets including from Dodoma.
- Certain farmers in Ibugule have earned a total cash income of 6.3 million shillings (US\$2,570) per acres of land.
- Thousands of seedlings have been distributed to communities including schools, farms, and religious institutions.

Adaptation Fund and NEMC partnership

The Adaptation Fund has been instrumental in addressing the challenges posed by climate change in Tanzania. The daily lives of Tanzanians are significantly impacted by climate change, making the role of the Fund crucial in sharing experience and practical knowledge. The presence of NIEs from various countries highlights the global commitment to locally led adaptation.

The opening ceremony of the exchange program featured welcome remarks by Dr. Immaculate Semesi, Director General of the NEMC and an opening speech by Eng. Cyprian Luhemeja, Permanent Secretary of the Vice President's Office (Union and Environment). They emphasized the importance of locally led adaptation, especially during the aftermath of Cyclone Hidaya, expressing condolences for the losses and highlighting the impact of climate change.³ The establishment of the locally led adaptation funding window, which prioritizes local communities and emphasizes gender and local inclusion, marks a new chapter in collaborative knowledge sharing. The Permanent Secretary also acknowledged the devastating impact of climate change,



Eng. Cyprian Luhemeja, Permanent Secretary of the Vice President's Office delivers opening remarks.

³ *Hidaya was the strongest tropical storm ever recorded in the Tanzania area, contributing to flooding in the region when it made landfall on May 4, 2024.*

with floods and landslides becoming more frequent and severe. Tanzania's experience with two projects Kongwa and Bahi Districts was showcased, demonstrating the country's enhanced capacity to resist climate change impacts.

Farayi Madziwa, the Adaptation Fund representative for this Exchange, highlighted that through the Adaption Fund, Tanzania has implemented multiple projects to improve water harvesting techniques and resilience in coastal communities, emphasizing the need for more support to meet the challenges of climate adaptation.



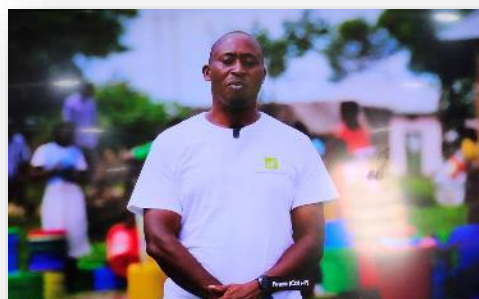
Ms. Genoveva Mashenene, an engineer with the NEMC, was instrumental in offering the NIEs an overview of the project's design, development, and implementation.

Further into the opening ceremony, Dr. Menan Jangu, Director of Environmental Research and Management at NEMC, highlighted the significant environmental decline due to various factors, including climate change. The Director further highlighted how the Environmental Management Act of 2004 established the NEMC as an advisory board to the government, with a mandate to ensure all programs undergo environmental evaluation. The NEMC has further introduced an electronic tracking system in 2020, which has improved project transparency and efficiency.

NEMC's reaccreditation process with the Adaption Fund and the Green Climate Fund (GCF) is underway, with several projects under review. The organization also plays a key role in coordinating biosphere reserves, as well as addressing major climate change issues such as floods, drought, and sea level rise.

The first day of the opening ceremony concluded with a question-and-answer session addressing compliance with environmental regulations and the challenges of ensuring project management entry. The importance of community involvement and the moral obligation towards environmental sustainability were emphasized.

Following the opening ceremony, Mr. Frederick Mulinda, NEMC Environmental Management Officer, provided a summary of the coming days' visits, highlighting the Strategic Water Harvesting project and the Enhancing Climate Change Adaptation for Agropastoral Communities projects of Kongwa District project. Both projects aim to address climate-induced impacts and improve water management and agricultural practices. Key achievements, challenges, and lessons learned were discussed, underscoring the importance of community engagement and government support in maintaining the assets created by these projects.



Fredrick Mulinda was the overall host for the event and NEMC Environmental Management Officer.

In conclusion, NEMC highlighted the critical role of the Adaption Fund and locally led adaptation in fostering partnerships and leveraging collective expertise to combat the effects of climate change in Tanzania and beyond. The collaborative nature of Exchanges offers a platform for sharing valuable opportunities and insights, with the expectation of collective actions.

NIEs and NEMC share project insights and lessons learned during plenary

The NEMC's question and answer sessions revealed significant lessons learned from environmental and climate adaptation projects in Tanzania. A key takeaway was the complexity of ensuring government compliance with environmental zoning and impact assessments. The NEMC grapples with resistance from groups that are reluctant to integrate environmental considerations into their business models, often due to a lack of perceived benefit and the misconception that environmental regulations are merely financial impositions rather than moral imperatives.

Despite these challenges, Tanzanian law requires that every project undergo an Environmental Impact Assessment, a mandate that NEMC enforces to uphold environmental standards. Financing the Impact Assessment process and ensuring compliance is a two-pronged approach involving payments to consultants and a review of charges for project submissions to NEMC. Even though these charges constitute a minor fraction of the total investment, they are sometimes contested by investors who deem them excessive. To counteract this, NEMC provides a list of experts to foster competitive pricing and conducts random inspections to ensure ongoing compliance.

The Strategic Water Harvesting project, as summarized by Mr. Mulinda, exemplifies a collaborative initiative that addresses climate change-induced challenges such as drought, floods, water scarcity, and forest degradation. This project, involving stakeholders from the Vice President's Office, NEMC, Sokoine University of Agriculture, and local government authorities, has led to the installation of outdoor faucets, earthen dam excavation, borehole drilling, and the use of solar power for water pumping and storage. The project also emphasizes community empowerment through training and information dissemination.

A critical lesson learned is the community's preference for tangible results over procedural formalities. The project faced challenges such as the need for long-term forecasting expertise, cattle waste contaminating water sources, termite infestations, vandalism, and concerns over charges for the use of dip tanks. Similarly, the project encountered obstacles like flood-induced infrastructure damage, power struggles among stakeholders, and the necessity for government support.

The project's major achievements include the construction of boreholes, water tanks, water points, drip irrigation schemes, and the promotion of beekeeping and poultry farming. All projects in Tanzania underscore the significance of locally led adaptation and the pivotal role of community engagement in the stewardship and maintenance of assets. The discussions underscored that, despite the hurdles, the cooperative spirit between the government, communities, and various stakeholders is vital for enhancing resilience against the impacts of climate change.

NEMC project site visits highlighted broad reach of projects

The Adaptation Fund and NEMC facilitated this fifth country exchange in Tanzania, bringing in NIEs from around the globe.

NEMC sets the stage for the projects

Ms. Genoveva Mashenene, an engineer with the NEMC was instrumental in offering the NIEs an overview of the design, development, and implementation of the three-year project SWAHAT project, which was generously funded with a budget of 1.2 million dollars. The overview was offered to better prepare the NIEs for the site visits.

The entire project initiative is a collaborative effort involving the Energy and Environment Foundation, the Kongwa District Council (KDC), the Vice President's Office (VPO), NEMC, the Adaptation Fund, the Foundation for Energy, Climate Change and Environment, and the local technical team, with the ultimate beneficiaries being the local communities.

The project has equally been meticulously documented, including detailed village and district maps. One of the primary challenges addressed by the project was the unpredictable rainfall patterns, a common issue shared with other similar projects. The overarching goal was to enhance the resilience of approximately 320,000 people living in the affected areas.

To achieve resilience, the project successfully drilled two boreholes and constructed four water tanks, from which 3,823 people are now benefitting. Additionally, two raiser towers (towers that increase gravity fed water systems) were built, and a solar-powered pump was installed to ensure a sustainable water supply. Ms Mashenene also emphasized gender-sensitive governance, and how they trained 60 individuals in knowledge management to further support the community.

In terms of livestock and agriculture, the project saw the construction of nine water troughs capable of serving 540 cows simultaneously, which has been a boon for local livestock keepers. A drip irrigation scheme was established over eight acres, benefiting 2,500 individuals, and a poultry house was set up to diversify income sources. Beekeeping was introduced as an alternative livelihood, with 200 beehives distributed to the community. To support crop production, 3.5 tons of drought-resistant seeds, including sunflower and sorghum, were provided. Additionally, a 12,000-liter cattle dip was constructed, significantly reducing the prevalence of tick-borne diseases.

The project also focused on capacity building, with nine livestock keepers trained in pasture management and 24 agro-farmers educated in marketing strategies. A 150 square meter nursery was established to support plant propagation, and the rehabilitation of contour bands was undertaken to prevent soil erosion.

Overall, the project has made significant strides in improving the quality of life for the local population by providing sustainable solutions to water scarcity, enhancing agricultural productivity, and promoting alternative livelihoods, all while addressing the challenges posed by climate variability.

All activities are carried out in collaboration with government authorities. Once completed, they are handed over to the relative authority. Activities are also monitored after they end.

Five project sites visited – Demonstrating Transformational adaptation

Kongwa cattle dipping station reduces tick-borne disease by 25-40 percent

Site visit day 1 -- A significant transformation is taking place in the heart of Kongwa District, located within the community of Machenje in Central Tanzania. Cattle dipping tanks are benefitting villagers who have long been plagued by a devastating tick-borne disease affecting their herds.⁴ Historically, the disease claimed the lives of approximately 25 percent of their cattle -- a loss that not only impacts the economic stability of the farmers, but also the village's food security and cultural heritage. The dipping tanks reduce tick-borne disease by 25-40 percent.



Cow leaping into solution at dipping tanks to prevent ticks



Cattle sometimes need convincing to leap into dipping tanks.

A cattle dipping tank consists of a narrow pool into which cattle are led and then subsequently submerged in a chemical solution (mixed with water). The process takes less than a minute and entire herds can be led through the tank within twenty minutes. The NIE participants were able to view this process firsthand. Before the introduction of the new cattle dipping tank, the villagers faced a 15-kilometer journey to the nearest facility, a trek that was both time-consuming and arduous. The distance was a major barrier before the Kongwa tank.

According to some of the local herder's spoken to, "the proximity of the tank has brought relief and a renewed sense of hope to the community." The district, home to 7,000 cattle and between 8,000 to 10,000 goats, now benefits from a more accessible and efficient means of protecting their livestock. The cattle are dipped twice a month, a regimen that is essential for their health and well-being.

⁴ *Anaplasma marginale, Anaplasma centrale, Babesia bigemina, Babesia bovis, Ehrlichia ruminantium, and Theileria parva are the most prevalent types of tick-borne diseases in this region.*

The project's success is also a testament to the community's involvement and organization. Dipping committees have been formed, exemplifying the villagers' commitment to the sustainability of the project – many are women led. Each cow's treatment costs 200 shillings, goats 100 (US\$.08 and US\$.04 respectively), which is a modest amount for the residents. The fees help to sustain the tanks in addition to extra funding received from small nurseries found throughout the community. Herders also pay an organization fee, which is directed back into the tank and trough maintenance.

In addition to the tanks, water troughs were constructed in the same cattle staging area. It is essential that the cattle drink fresh water before entering the dipping tanks. This helps them avoid drinking the chemical solution. The troughs also allow for a cattle watering station, which greatly benefits the community during the dry season. The troughs are fed by a borehole enabled tap.

These initiatives, established by the NEMC SWAHAT project and led by the community, go beyond a dipping tank; it is a symbol of resilience and community empowerment. The initiative serves as a model and is being replicated by other communities who see the direct benefits: the vitality of the village's livestock and, by extension, the well-being of its people. One herder commented that such initiatives used to be common several decades ago, but the migration of youth to urban centers meant much of this historical knowledge was lost.

Ibwaga Secondary school unites community and supplements school meals

NIE participants next visited the Ibwaga Secondary School founded in 2009 and also located in the Kongwa District. This large, stone-constructed school is using a mini drip irrigation scheme to grow small fields of crops containing a variety of vegetables ranging from local cabbage to tomatoes. These crops are used to add nutritional value to the afternoon school meal in addition to supplying extra income for the school. As part of the SWAHAT funding, a borehole was installed, which supplies water to the fields. This initiative was originally started in 2017, with the addition of a nurse in 2022.

Of the schools 658 students (178 boys and 480 girls), all are involved with the project in some way. Their involvement includes tending the fields with teacher supervision, collecting crops, and helping to prepare meals. The school's head mistress oversees committees consisting of 25 teachers, 3 cooks, and a lab technician to supervise the crop production and sales.

A group of teachers interviewed commented on how this irrigation initiatives reaps many benefits, including improved nutrition of the school community, extra income, and a sense of community ownership.

As part of the school visit, the Executive Director of Kongwa district along with the district chair, commented on the importance of this school initiative, as it helps to guide surrounding schools in establishing similar projects. With the initial funding, such projects are able to sustain themselves, and offer an additional level of practical education for students.

Similar to comments from the cattle herders of Machenje, the Director noted that it is sometimes challenging to change the local communities' way of thinking, and that some remain stubbornly tied to unsustainable



Young student explains to NIEs the school's project and how they tend to the fields.

development practices. However, the school initiative helps to revise more sustainable, historic planting techniques, which can then be shared at home. In fact, many student households now use seeds garnered from the school crops to plant more productive home gardens. Another challenge is the scarcity of water during the height of the dry season, which can directly impact the practicality of a drip irrigation system.

Chimotolo block farm creates community-led cooperative

NIE participants ended the day by visiting the Chimotolo block farm cooperative consisting of vast fields of drip-irrigation-fed crops, nurseries, chicken houses, and a tomato depot. This cooperative is part of a collaborative agricultural endeavor and acts as a cornerstone of productivity. The participants were met with large groups of traditional dancers highlighting the sense of pride felt by those involved with the initiative, which consists of the collective effort of seven villages to grow and sell crops in a completely sustainable manner.

The land on which the initiative takes place was given by local farmers via the guidance of the NEMC. The main crops grown include onion, local cabbage, tomatoes, plantain, and banana. The block farm works using a two-year rotation method meaning workers are replaced regularly to ensure full community involvement plus soil vitality as the fields are also rotated. Money earned from the project is put into its maintenance and distributed to local households. The impact of this community-led initiative is already being seen at the household level, as many are using the techniques learned at the block farm to create home gardens.

The fields are divided into 55 local acres, which are interspersed with Baobab trees.⁵ Participants follow guidelines for planting and maintenance published by the local agricultural office. One of the more profitable crops is tomatoes, which sell for approximately US\$30 a bushel (around 30kg). Sellers come directly to the block farm to buy the produce and then distribute to local shops. NIE participants were able to directly observe the tomato commerce in action and interact with the growers



The block farm offers the community a variety of resources and income.

and sellers. The proceeds from the sale of the tomatoes are funneled back into the project's heart or find their way into the hands of the families who tend the land, nurturing not just the soil but the community itself.

In addition to the crops, seedlings are raised in the small greenhouse. They include a variety of trees and plants ranging from cashews to avocado. These seedlings are distributed to the local cooperative members at the village level and allow for the diversification of home-grown food.

Expansion plans for the block farm include the installation of fishponds. The existing ponds are used for irrigation in coordination with boreholes. The members also wish to reduce the use of pesticides by using more organic methods. Regarding the chicken coop, the chicklets are sold along with the eggs while the fully grown chickens are kept for breeding.

⁵ 1 acre in this region = 70x70 meters -- about .12 actual acres or .5 ha.

NIEs noted the underlying theme of hope again surfacing from this project, which fosters collaboration and locally led adaption. In this case, the adaption centers on the more effective use of water due to decreased levels caused by climate change.

Ibugule Dam and Ndalibo water pump rejuvenate water-starved region

Site visit day 2 -- Within the Ibugule District community lies an earthen embankment dam, a vital source of life and sustenance for farmers and cattle herders established as part of the SWAHAT project. The dam stretches for more than 300 meters and the reservoir behind the wall is four meters at its deepest point. This reservoir has become the lifeblood for sustainable gardens flourishing around it. The dam, fed mostly by diverse water sources including rain runoff, stands as a testament to the community's commitment to locally led adaptation. Water scarcity used to mean options for crops were extremely limited during the dry season, but the community now can produce several harvests year-round. Additionally, the catchment area water remains free for the community who maintains it.

Behind the earthen embankment are lush tomato fields, which have helped increase household income throughout the area. Residents use the tomatoes at home, but equally sell them. As part of the fields, a solar-powered water pump (known as the Ndalibo pump) carries water via drip irrigation to the crops. The solar pump is a low-maintenance method to ensure water can be transported as needed without the need for costly fuel.



NIEs stand upon the earthen dam, which is fed by a recently renovated catchment area.

Cattle also depend on the reservoir as many of the surrounding lakes, ponds, and rivers are dry outside of the rainy season.

A female head of committee member oversees the tomato fields and spoke of the transformation brought about by continuous production; a concept new yet warmly embraced by the families it supports. The fields act as a hopeful example ensuring that even in the absence of rain, the harvest can go on.

Residents also decided to plant trees within the catchment area to improve water retention and reduce silt build-up in the reservoir. They sought guidance from Dodoma university agricultural professors to ensure the trees planted were viable. Thus far, the planted trees have an 80 percent survival rate and are tended by a woman's group. The trees are a mix of mango, jackfruit, and avocado.

The area is a prime example of locally led adaptation. Another example of this is a 150-meter deep well, once used for rice fields, now repurposed to support the nursery. The community has become quite innovative by cultivating mango trees through a technique called grafting -- fusing different species to enhance resilience

and variety by literally binding seedling stems together. This nursery is not just a place of growth for plants but also for the community's agricultural acumen, as they observe and learn the art of grafting, which promises improved resilience against drought and a diversification of crops.

Challenges remain however. Initially, the community relied on manual labor to till the fields, but with the profits from their tomato sales, they've invested in a tractor, a symbol of development and reduced manual effort. The community's adaptability is further demonstrated in their approach to pest control, where they've adopted a weekly insecticide spray routine, although market variability on costs remains unpredictable.

Within walking distance of the dam, the community maintains a beekeeping project, a venture that involves a committee of thirty men and women. With 200 beehives suspended high in the trees, they harvest approximately twenty liters of honey per hive, weighing around forty kilograms. The honey is mostly sold and acts as an additional revenue stream shared by the village. Despite the success, they face challenges such as theft and the inherent dangers of traditional treetop harvesting methods. The community plans to transition to ground-based stands, a safer and more efficient way to continue their beekeeping initiative.

During the dam visit, NIEs were asked directly on the viability of such projects in their own countries. The representative from Kenya plans to use similar concepts from the block farm, although he mentioned land management may be an issue. The representative from Panama plans to replicate the school feeding program found at the Ibwege Secondary School. All NIEs appreciated the locally led aspect of the projects viewed.

The final visit of a SWAHAT project culminated at a renovated cattle dipping tank in the Ibugule Dam district. This tank lay dormant for years and was rehabilitated as part of the project now servicing 4,000 cattle every 2 weeks. As this tank and adjoining troughs have only been available during the past year, data on its effectiveness is not yet fully known. However, the cattle herders interviewed commented that they already notice a difference within their herds.

Cattle remain precious for the surrounding communities as they can fetch a price as high as 800,000 Shillings (US\$306.00) a head. In addition, having more accessible tanks and troughs, reduces the distances of cattle migration, which often consists of multiple heads from varying households.

During the visit, some notable questions from the NIE participants included the following:

Q: Bhutan: Is terracing an option here? A: The area is too flood prone with not enough elevation to allow for terracing.

Q: Bhutan: Trees normally consume a lot of water, how does that impact project? A: The long run objective is that the trees will help retain water within the dam, eventually creating a microclimate, which encourages moisture. The tree planting initiative is managed by a group of women who were directly interviewed. They work three hours a day on maintaining and watering the seedlings two times per week. They receive payment for their work through funds generated by the project.

Overall, the community members interviewed said they were grateful for the project, mostly because it allows them to create produce year-round.

Five key commonalities observed across the projects

During the Exchange, five key commonalities were highlighted by the NIEs and included the following:

1. It is important to ensure community consultation and buy-in when forming projects.
2. There is a universal need for better water conservation measures.
3. Financial resources are best managed locally.
4. Capacity building should be an integral part of project implementation, especially for the executing entities.
5. It is important to understand the relevance of flexibility in project design and the importance of including adaptive management.

Lessons Learned and Recommendations from the NEMC Projects

A major theme of the Tanzania exchange was the importance of sharing lessons learned and recommendations with the NIEs who, in turn, shared their experiences. As noted previously in this report, NEMC shared firsthand many of their experiences with the NIEs. The following lessons learned shared by the NEMC were highlighted during the exchange as part of the plenary and on-site visits:

1. A critical lesson learned is the community's preference for tangible results over procedural formalities. The project faced challenges such as the need for long-term forecasting expertise, the problem of cattle waste contaminating water sources, termite infestations, vandalism, and concerns over charges for the use of dip tanks. To address this, NEMC has increased its education and knowledge management focus, to keep communities better informed and involved in the project approval process.
2. Similarly, SWAHAT in Kongwa District project encountered obstacles like flood-induced infrastructure damage, power struggles among stakeholders, and the necessity for government support.
3. The challenge of securing key experts who can do long-term weather forecasting was also highlighted. Communities need further expertise to advise them on when to plant as the normal seasonal cycles have been disrupted by climate change.
4. Communities are learning the importance and methods to prevent cattle from entering water sensitive areas, as this can lead to contamination.
5. Another key lesson learned was the complexity of ensuring government compliance with environmental zoning and impact assessments.
6. The NEMC also sometimes grapples with resistance from groups that are reluctant to integrate environmental considerations into their business models, often due to a lack of perceived benefit and the misconception that environmental regulations are merely financial impositions rather than moral imperatives.

Participating NIEs Use Knowledge Fair to share lessons learned from their own projects

During the Tanzania Country Exchange, a Knowledge Fair was held on the last day in Arusha. NIEs shared experiences and lessons learned from various projects related to climate change adaptation and resilience in

different countries. It was the largest in-person gathering of NIEs at an exchange (19) plus one indigenous organization and one indigenous representative. The Fair aimed to promote the sharing of knowledge and lessons learned from NIE projects and identify effective strategies for addressing climate change impacts. As part of the learning and sharing experience, the NIEs will further communicate to the Adaptation Fund Secretariat how the experience and knowledge gained from the exchange is applied to their own projects.

Due to the large number of NIEs present, some regions elected to highlight one project per region resulting in 21 total presentations, the largest amount ever given during an exchange. The following is a summary of shared experiences:

1. **Costa Rica Fundecooperación** – The Adapta2+ project spans 50,000 square kilometers and aims to strengthen the livestock sector and improve agriculture. It involves collaboration with various organizations and supported extension offices benefiting 297 livestock farmers. The project uses an innovated approach to climate risk analysis by combining it with drone technology to select farms for intervention. The project faces challenges in meeting the unique needs of each farm and required the purchase of essential materials.



Representative from the Pastoral Women's Council of Tanzania

Recently, a bio-factory was constructed in collaboration with 15 local organizations.⁶ The project's success hinged on tailored training and the development of easy-to-use, applicable tools. The selection of participating entities was based on an invitation process through Fundecooperación, with a focus on sustainability.

Lessons learned: The Agroclimatic platform and Biofactories provided valuable farm-specific weather, soil, and crop information, aiding in decision-making for crops and irrigation. This platform is also used in Guatemala and other countries. A total of 17 bio-factories were deemed necessary.

2. **Indonesia KEMITRAAN** -- The KEMITRAAN initiative focuses on enhancing community resilience to climate change by promoting alternative livelihoods. This includes managing social forestry products like coffee, candlenut, and palm sugar, with a significant role played by women's groups. The program also introduced a rice intensification system that conserved water and reduced production costs, thereby increasing food resilience.

Lessons learned: Women's groups were empowered to cultivate vegetables and crops in their backyards. The use of local wisdom was crucial in enhancing livelihood adaptation strategies.

3. **South Africa SANBI** – The SANBI project uses the Enhanced Direct Access platform to facilitate local adaptation efforts. The project, which began in 2002, involves consultations with potential partner municipalities and features a three-component design.

⁶ *Biofactories use technical-scientific advances, inspired by commonly used local biotechnology, to promote the development of appropriate technologies that ensure the conservation of biodiversity.*

Lessons learned: Site selection needs to be less complex along with the need for standardized municipal data. Also, it is important to have adjustable timeframes, informed project management, and effective incorporation of feedback.

4. **Panama Fundación Natura** -- Their project focuses on climate change adaptation through integrated water resource management in the Chiriqui Viejo and Santa Maria provinces, crucial for food security. The project includes water harvesting and agroforestry systems, with a strong community and women's group involvement. Innovations included mapping for beneficiaries and establishing meteorological stations for early warning systems.

Lesson learned: Strengthening technical teams helps to overcome certain challenges such as government changes and natural disasters.

5. **The Dominican Republic Dominican Instituto Dominicano de Desarrollo Integral, Inc.** -- Their project aims to enhance rural development and manage important hydrographic basins. The project addresses the challenges of potable water access and sustainable agricultural systems.

Lesson learned: Community participation has increased through newly established associations, and women's and youth involvement has equally been promoted. The project has had a significant impact, with 4,200 hectares reforested and 180,000 indirect beneficiaries.

6. **Peru Profonampe** – They manage over 20 projects with a focus on climate change impacts on rural communities, including fisheries and livestock. Despite challenges posed by COVID-19, local coordinators maintained contact with beneficiaries, and the project emphasized women's economic empowerment and the importance of government support for pilot adaptation measures.

Lesson learned: The project recently concluded with a recognition of the need for more beneficiary ownership of facilities and resources.

7. **Honduras Comisión de Acción Social Menonita (CASM)** – They implement the "Adaptation and Cambio Climatico en Honduras" project, focusing on climate change adaptation) with an emphasis on human rights and gender, plus strengthening the capacity of local organizations. The country is currently on yellow alert due to pollution from sugar cane production, which has led to conflicts over smoke. The project aims to generate training processes for sustainable farming and promote sustainable agricultural practices. It also seeks to establish monitoring networks and climate services, disseminated through radios and churches, which are particularly useful during harvest periods. Innovative techniques like aquaponics and gastronomy schools are part of the project, with 406 graduates from the schools contributing to family income.

The project works closely with local producers and uses a food truck to serve rural communities, focusing on local species. Challenges include implementing protections for smaller farmers and combating open-air burning.

Lessons learned: Cultural challenges with the indigenous population, socioeconomic factors, and immigration pose difficulties.

8. **Tanzania Pastoral Women Council Indigenous Organization** – This organization is working in six provinces to build capacity in health, leadership, training, and economic intervention, as well as improve water access and climate intervention. Twenty-seven pastoralist villages have developed

action plans submitted to district governments. The council is trying to reduce the workload of fetching firewood and deforestation by using energy-saving stoves and establishing a grass-seed bank to restore land and provide an additional income source for women.

Challenges include high demand and the need to scale up responsibly. Conflicts between local herders, rangers, and national parks are being addressed, with efforts to harmonize approaches and create friendly bi-laws.

Lesson learned: The national parks contribute to local communities by building schools and health centers and drilling for water, although there is still conflict over the provision of basic services versus other initiatives.

9. **Kenya National Environment Management Authority (NEMA)** – They are working on building resilience to climate change through the Adaptation Village model, which includes solarized boreholes, training halls, storage tanks, water kiosks, sanitation facilities, and demonstration plots, all managed by communities. Challenges include sustainability, managing change, and measuring progress.

Lessons learned: Having a robust monitoring and evaluation system is key to manage baseline studies. Continuous learning is also essential along with adaptive management. One method of addressing this is the village learning mode, which reaches households by using individual farms and providing seeds to continue the initiative.

10. **Uganda Ministry of Water and Environment** -- This project is enhancing the resilience of communities to climate change through catchment-based integrated management of water and related resources. The project includes terracing in catchment areas to prevent flooding and engages women's societies in accessing funds and promoting alternative livelihoods. Knowledge management outputs include radio broadcasts and published materials, with demonstration sites at schools and agricultural places.

Lessons learned: It is important to plan for political intervention and delays in regional approvals, but overall stakeholder engagement has been positive.

11. **Cote d'Ivoire The Interprofessional Fund for Agricultural Research (FIRCA)** – This project started seven months ago and focuses on agriculture, including cocoa and cashew production, with 195 rice producers involved. The project has four objectives and has faced challenges such as reaccreditation and making the definition of climate change clear to stakeholders.

Lessons learned: There is a need for widespread dissemination of modalities and sensitizing beneficiaries and political entities.

12. **Zimbabwe Environmental Management Agency** – They are working on enhancing the resilience of communities and ecosystems in the face of climate change in arid and semi-arid regions. The project includes small livelihood-oriented and adaptation measures, ecosystem resilience support, and strengthening government frameworks and knowledge management systems. Challenges include project design, cyclone damage, limited expertise on climate change, and development policies.

13. **Benin National Fund for Environment and Climate (FNEC)** -- This project is in the planning stages to address deforestation with a focus on climate adaptation and multi-use forest management, including beekeeping. Challenges include finding knowledgeable consultants for implementation.

14. **Rwanda Ministry of Water and Environment** -- This is an Enhanced Direct Access project proposal focusing on increasing water availability and managing extreme rainfall and drought. Rwanda has implemented a number of adaptation projects, including with funding from the Adaptation Fund. However, there is an implementation and funding gap. Their proposal seeks to help fill this gap.
15. **Micronesia Conservation Trust** – They are working on reducing community vulnerability to climate change through the Micronesia Conservation Trust Project, which includes a marine protected area and small grants facility. Challenges include getting the Adaptation Fund to buy into the small-grant facility and managing data and project information.
16. **Senegal Centre Suivi Ecologique** – They are reducing coastal erosion vulnerability in the Saloum islands with a three-component project that includes adapting local materials for construction and gaining strong community support.
17. **The Cook Islands Ministry of Finance and Economic Management** - They are working on community resilience projects for the outer Cook Islands, using an integrated approach to further increase the adaptive capacity of remote island communities and ecosystems to disaster risk and climate change impacts.

Lessons learned: It is critical to involve communities throughout the project processes and effectively manage isolated communities.

18. **The Republic of Armenia Environmental Project Implementation Unit (EPIU)** -- This project takes place in the city of Artik, which is tackling environmental challenges associated with closed stone quarries and flood management. The project also uses Enhanced Direct Access and aims to bolster the community's capacity for adaptation and to refine land management procedures. The project faces several challenges, including the intricate process of selecting degraded lands to target, limited funding, a narrow understanding of gender-related issues, and legislative hurdles.

Lessons learned: It is essential to involve the community and ensure they feel ownership over the projects, which has been achieved by ARTIK. It is also important to underscore the value of adaptive management and community consultation, which have facilitated the identification of alternative project sources and guaranteed project continuity.

19. **Bangladesh Palli Karma Sahayak Foundation (PKSF)** – This project addresses the need for safe drinking water in the climate-vulnerable coastal belt through the use of reverse osmosis technology. The project confronts issues such as ensuring community ownership, providing equal access to water, and the willingness of the community to pay for water, as well as the operation and maintenance of the osmosis plant.

Lessons learned: It is important to secure community contributions, both physical and financial. Also, community involvement is key along with the necessity for technically competent human resources and the promotion of social entrepreneurship. Community engagement is achieved through consultation meetings to gather and incorporate community opinions.

20. **Bhutan Trust Fund for Environmental Conservation** – They are overseeing three projects, with one approved in May 2023 that focuses on improving water infrastructure in response to the drying up of

springs and rivers. The projects are in the early stages of material procurement. Challenges being addressed include inadequate local capacity, cost escalation, and the remoteness of project sites.

Lessons learned: It is important to outsource to local experts, consulting at all levels, and employing global information services (GIS) for design and survey work. Other lessons learned point to the critical role of in-house capacity, community inclusion from inception to completion, and the necessity of timely monitoring for compliance and performance. Social media is leveraged to enable stakeholders to quickly raise issues.

21. **India National Bank for Agriculture and Rural Development (NABARD)** – This project is working on climate-proofing watershed development projects in Tamil Nadu and Rajasthan regions. The project grapples with challenges such as the lack of adequate institutional arrangements and the need to consider location-specific natural resource endowments.

Lessons learned: Community participation is key and includes involving all stakeholders, diversifying cropping patterns, and closely monitoring the project. NABARD has integrated climate resilience into all its projects, ensuring that resilience is a built-in component. A system is in place for community contributions towards maintenance and decision-making, with monitoring and evaluation conducted directly by NABARD to ensure project sustainability.

Conclusion

The Adaptation Fund is well underway in supporting NIEs to improve their capacity for project design, development, and implementation. Viewing the NEMC projects first-hand and interacting with the stakeholders offers the most direct method for capacity building.

Such capacity building starts with hope, and this remained the overall theme of the Exchange. Communities expressed their hope that overcoming water scarcity was possible through locally led adaptation. They expressed this hope by highlighting their newly established, year-round harvests. Their hope was also expressed at the schools visited by the student and teachers. They are clearly reaping the nutritional and economic benefits of supplemental fruits and vegetables.

The NIEs also expressed their hope in applying benchmarks for their projects using of the techniques observed ranging from school feeding programs to the block farm method. Several NIEs commented how they can immediately implement similar initiatives, as the vast majority have projects that deal with water scarcity. This ambitious Tanzania Exchange will positively impact 21 programs across the globe.

An illustrative brochure highlighting how the participating NIEs have applied the lessons learned from this country exchange to their own projects will be released two months following this report.

ANNEXES

Annexes

Annex I – Adaptation Fund and NIE participants

Adaptation Fund Participants:

1. Farayi Madziwa | Adaptation Fund Representative
2. Matthew Pueschel | Communications Officer
3. Martina Dorigo | Climate Change Specialist
4. Alyssa Gomes | Climate Change Specialist, Innovation, and Project Development
5. Cristina Dengel | Climate Change Specialist, Knowledge Management Officer
6. Justice Musah | Climate Change Specialist
7. Maisa Nurein | Adaptation Fund Coordinator
8. Marc Neilson | Communications Consultant and Rapporteur

National Implementing Entities

	Name	Email Address	NIE	Country	Title
1.	Ms. Marianella Feoli Pena	mfeoli@fundecooperacion.org	Fundecooperacion para el Desarrollo Sostenible	Costa Rica	Executive Director
2.	AYEMOU DJATIN EDMOND	ayemou@firca.ci	Fonds Interprofessionnel pour la Recherche et le Conseil Agricoles (FIRCA)	CÔTE D'IVOIRE	Head of Agricultural Financing Unit
3.	Mr. Namgay Wangchuk	namgay@bhutantrustfund.bt	Bhutan Trust Fund for Environmental Conservation (BTFC)	Bhutan	Chief Financial Officer
4.	Mr. Joseph Lule	josephlule2@gmail.com	Ministry of Water and Environment	Uganda	Principal Policy Analyst
5.	DOMINGO Modeste Marius Kossi	domingomarius@yahoo.fr	Fonds National pour l'Environnement et le Climat (FNEC)	BENIN	Head of Programming, Monitoring and Evaluation Department
6.	Ms. Emily Pierre-Oaariki	emily.pierre@cookislands.gov.ck	Ministry of Finance and Economic Development (MFEM)	Cook Islands	NIE National Program Manager
7.	Mr. Papama Yose	p.yose@sanbi.org.za	SANBI	South Africa	Stakeholder and Community Engagement Intern
8.	Jean Aristide Nicaise AMAN	nicaise.aman@cse.sn	Centre de Suivi Ecologique (CSE)	Senegal	Climate Finance Expert
9.	Md. Mahmuduzzaman	mahmud3407@yahoo.com	Palli Karma-Sahayak Foundation (PKSF)	Bangladesh	Deputy Manager (Environment and Climate Change)

	Name	Email Address	NIE	Country	Title
10	Marlen Marisol Chinchilla	coordinacionlacampa@cas.mh	Comisión de Acción Social Menonita (CASM)	Honduras	Field Coordinator
11	Mr. Maximino Herrera Ramirez	joselito.herrera@iddi.org	Instituto Dominicano de Desarrollo Integral, IDDI	Dominican Republic	Program Director
12	Ms. Tamara Greenstone	tgalefaio@ourmicronesia.org	Micronesia Conservation Trust (MCT)	Micronesia	Deputy Director, Conservation and Climate Change
13	Mr. Laode Muhamad Syarif	laode.syarif@kemitraan.or.id	KEMITRAAN	Indonesia	Executive Director
14	Vilna Cuéllar	vcuellar@naturapanama.org	Fundación Natura	Panama	Special Projects Manager
15	Sylien Gasangwa	sgasangwa@environment.gov.rw	Ministry of Environment	Rwanda	Green Economy Mainstreaming Specialist
16	Dadirai Kwenda	dadirai.kwenda@ema.co.zw	Environmental Management Agency (EMA)	Zimbabwe	Environmental Officer
17	Mr. John Wafula	jswafula@gmail.com	National Environment Management Authority (NEMA)	Kenya	Deputy NIE Coordinator
18	Ms. Lia Apikyan	lia.apikyan@epiu.am	Environmental Project Implementation Unit (EPIU)	Armenia	-
19	Lisbeth Malpica Quispe	lmalpica@profonanpe.org.pe	Profonanpe	Peru	Innovation and Strategic Management Specialist
20	Mr. Patrick Jasper	patrick.jasper@nabard.org	National Bank for Agriculture and Rural Development (NABARD)	India	General Manager

Self-sponsored NIE participants

	Name	Email Address	NIE	Country	Title
1.	Mr. Kouadio Kouacou Fidele	kouadiokf@firca.ci	Fonds Interprofessionnel pour la Recherche et le Conseil Agricoles (FIRCA)	Cote d'Ivoire	Head of the Gender and Environment Service
2.	Mr. Leki Tshewang	leki@bhutantrustfund.bt	Bhutan Trust Fund for Environmental Conservation (BT FEC)	Bhutan	Program Officer
3.	Ms. Zumzang	zumzang@bhutantrustfund.bt	Bhutan Trust Fund for Environmental Conservation (BT FEC)	Bhutan	Finance Officer

4.	Ms. Annet Nantongo	anantongo@gmail.com	Ministry of Water and Environment	Uganda	Senior Water Officer
5.	Ms. Felicity Shai	f.shai@sanbi.org.za	SANBI	South Africa	Gender and Climate Change Intern
6.	Mr. Abimanyu S Aji	abimanyu.aji@kemitraan.or.id	KEMITRAAN	Indonesia	Senior Program Manager
7.	Mr. Armen Yesoyan	yesoyanarmen@gmail.com	Environmental Project Implementation Unit (EPIU)	Armenia	Acting Director
8.	Ong Pulam Mounklang	op.mounklang@nabard.org	NABARD	India	Deputy General Manager
9.	Rosabel Solano	rsolano@fundecooperacion.org	Fundecooperacion para el Desarrollo Sostenible	Costa Rica	

Annex II – Consultations during Country Exchange including National Government and Ministry Representatives plus PMM

Project 1: Enhancing Climate Change Adaptation for Agro-Pastoral Communities in Kongwa District

Executing Entity: Foundation for Energy, Climate and Environment (FECE) in collaboration with Kongwa District Council

Names of people consulted

1. Dr. Dominic Kilemo: Executive Director; Foundation for Energy, Climate and Environment
 2. Dr. Omary Nkullo; District Executive Director, Kongwa District Council
 3. Mr. Simon Maeka; District Commissioner, Kongwa District
 4. Ms. Lydia Chale: Project supervising teacher; Ibwaga Secondary School, Kongwa District
 5. Vanesa Simsokwe: Student, Ibwaga Secondary School, Kongwa District
 6. Yael Mushi: Student, Ibwaga Secondary School, Kongwa District
 7. Bahati Lubeleje; Beneficiary, Chimotolo block farm, Kongwa District Council
 8. Debora Muhaha, Beneficiary, Chimotolo block farm, Kongwa District Council
 9. Ernest Ng'ambi Mhulula, pastoralists representative, Machenje dip tank, Kongwa District Council
-

Project 2: Strategic Water Harvesting Technologies for Enhancing Resilience to Climate Change in Rural Communities in Semi-Arid Areas of Tanzania (SWAHAT)

Executing Entity team

1. Dr. Nsenga: Project team member; Sokoine University of Agriculture
 2. Prof. Paul Kusolwa; Project Coordinator, Sokoine University of Agriculture
-

At Bahi District

3. Dr. Ziwa Michael: Representative of Bahi District Executive Director
 4. Ms. Siwajibu Selemani: Head of Agriculture, Livestock and Fisheries Department; Bahi District Council
 5. Mr. Jonas Kagoa; Pastoralists chairperson, Ibugule village in Bahi District
 6. Mr. Paul Wiscome (Village chairperson)
-

At Manyoni District

7. Ms. Kemilembe Lwota; District Commissioner, Manyoni District
8. Ms. Anastazia Tutuba, District Executive Director, Manyoni District Council
9. Mr. Fadhili Mohammed Chimsala; Head of Agriculture, Livestock and Fisheries Department, Manyoni District Council

10. Mr. Edward David Mbuya; Head Master of Mpamaa Secondary School in Mkwese Village, Manyoni District
11. Mr. Josephat Cyprian Mweta: Chairperson, Majengo Mtaa, Manyoni District
12. Ms. Janet Alfred Madama: Ward Executive Officer, Mkwese Ward, Manyoni District
13. Mr. Emmanuel Ramadhan: Ward Livestock Officer, Mkwese Ward, Manyoni District

Annex III – NEMC Staff met

	Name	Email Address	Entity	Country
1	Fredrick Mulinda	fredrick.mulinda@nemc.or.tz/ kasigazi.koku@gmail.com	NEMC	Tanzania
2	Pendo Kundyia	pendo.kundyia@nemc.or.tz	NEMC	Tanzania
3	Paul Kalokola	paul.kalokola@nemc.or.tz	NEMC	Tanzania
4	Naomi Joshua	naomi.joshua@nemc.or.tz	NEMC	Tanzania
5	Germana Ijiko	Germana.ijiko@nemc.or.tz	NEMC	Tanzania
6	Genoveva Mashenene	Genoveva.mashenene@nemc.or.tz	NEMC	Tanzania
7	Namwaka Omary	Namwaka.omari@gmail.com	NEMC	Tanzania