Photo: Ngaamba Water Distribution Point in Makueni County (Credit: ADA)

Assessing the effectiveness of locally-led public good climate investments in water infrastructure in Makueni County

Findings from a 2023 functionality and governance longitudinal study

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Key Messages

- Using a combination of technical information (climate information, hydrogeological information) and local knowledge (through community forums and consultation) helped to identify suitable sites for public good climate investments in Makueni County. Seven out of the thirteen sites visited in 2023 were fully functional and two more were partially functional.
- The investments were well used by households and livestock during both the wet and dry seasons and user numbers had increased since the 2019 study. Only three investments were not-in-use during the study period due to seasonality.
- It is essential to build on and carry out repairs to existing infrastructure. Repairs to infrastructure had mostly been carried out or were in the process of being planned for - with the support of Ward Climate Change Planning Committees. There were some outstanding repairs needed to the partially functional investments.
- Makueni benefited from developing a strong partnership between Makueni County Government, communities and institutions (including investment partners and other stakeholders), enabling the investments to be effective, value for money and sustainable.
- Only one investment, Kya Aka Sand Dam, was non-functional due to silting. It had been replaced by an alternative structure nearby, which the community raised funds for through a different project.

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Summary

Climate change poses significant challenges to water security in arid and semi-arid regions, necessitating innovative and sustainable approaches to water resource management. This technical brief outlines the key findings and recommendations derived from a longitudinal functionality and governance study that assessed 13 public good climate investments in water infrastructure implemented through the County Climate Change Fund (CCCF) mechanism between 2016 and 2017 in Makueni County. The study was conducted in 2023, seven years after the investments were first implemented, by the Adaptation Consortium (ADA), Anglican Development Services – Eastern (ADSE) and the County Government of Makueni, supported by the Climate and Development Knowledge Network (CDKN) programme.

The brief provides valuable insights into the technical and governance factors influencing the success of locally-led adaptation (LLA) investments implemented through the CCCF mechanism in Makueni County. It offers recommendations to support the successful and sustainable implementation of locally-led projects to enhance their long-term impact.

Study Background

Makueni County is situated in the south-eastern part of Kenya and has a largely arid and semi-arid landscape. It was the first county in Kenya to pass regulations on climate change with the support of UKAID, ADA, Christian Aid and ADSE. As a result, Makueni County positioned itself to seed money for climate change adaptation and resilience. ADA, with funding from the UK's Department for International Development,[5] supported the County Government to mainstream climate adaptation into planning and budgeting at the county level and set up mechanisms to access climate finance (from global, national and private sources) for climate adaptation prioritised by local communities. The County Government has allocated 2% of its total development budgetary cost to address climate change impacts in the county. Together with development partners, Makueni County has proved that climate adaptation planning, supported by devolved funds managed by county authorities, and informed by climate information services, can render significant benefits for people in poor and marginalised households.

In the 2016/2017 financial year, the County Government of Makueni partnered with ADA and ADSE to support 15 public good climate investments in water infrastructure in six wards as a pilot for community adaptation initiatives.

The County Government of Makueni gives the water sector a very high priority out of the eight sectors prioritised in its County Integrated Development Plan for the 2023-2027 planning window. It considers water scarcity to be one of the major drivers of multidimensional poverty in the county. Their goal for the water sector is to increase access to improved water sources within 2km and to improve sanitation in both rural and urban areas through enhancing water harvesting, storage, treatment and distribution, supporting good governance and improving wastewater management.

In 2019, ADA conducted a comprehensive functionality and governance study assessing 13 of the 15 investments[6] with the aim of evaluating the technical sustainability and governance of the investment, and with a specific focus on quality assurance, usability and sustainability. The County Government used information from the June 2019 study for learning and improving the functionality of the investments

[5] The Department for International Development has since closed and has been replaced by the Foreign, Commonwealth and Development Office.
[6] To enable a clear comparison as a longitudinal study, the same 13 sites that were visited in 2019 were visited during this study in 2023.

through the 2% CCCF allocated to the ward development of the climate change investments from the county budgets and funding from other development partners.

In October 2023, the County Government of Makueni, ADSE and ADA, supported by the CDKN programme, conducted a longitudinal functionality and governance study, a repeat study assessing the same investments as the 2019 study. The lessons from the longitudinal study are intended to provide insights and guide the local, national and regional conversations on facilitating climate finance flows to the local levels, gender and social inclusion in decision-making, and the suitability, efficacy, sustainability and impact of locally-led public good climate investments.

Methodology

The primary objective of the longitudinal study was to identify and assess the factors (challenges and successes) that affect the functionality and governance of the investments. Specific objectives included investigating technical issues, assessing community engagement, examining governance challenges, and analysing environmental factors that impact project sustainability. To achieve this, a mixed-methods approach was employed, combining focus group discussions and key informant interviews with videography, photography and observation checklists for technical assessments. Field data was gathered capturing the perspectives of communities, site committees and relevant stakeholders. These findings were collated and synthesised into a series of reports and videos to derive meaningful insights.[7] The study took place in October 2023, during the dry season in Makueni.

Study Findings

Definition of terms

Functional: A functional water point is one that is operating as expected and serving the community well on the day of the visit and within the last month.

Partially functional: A partially functional water point is one where some of the components are absent, broken or damaged, but there is still some water available to the community.

Non-functional: A non-functional water point is one where some or all of the components are absent, broken or collapsed, with the result that water is not accessible or available to the community.

Not-in-use: This term applies to those waters points that may not be in use due to seasonality and low rainfall, but they are intact and functional during the wet season.

The longitudinal study considered the functionality status of the investments and found that seven out of the 13 investments were functional, providing water for domestic, irrigation and livestock use. Two investments were found to be partially functional and only one investment was non-functional. Three investments were not in use during the visit.

The main findings from the study include:

- Local knowledge was integrated into the identification, prioritisation, planning and implementation of the investments. Community forums were used extensively to identify the most suitable investment site.

[7] For more information, see CDKN's project page: Building water resilience in Kenya's arid and semi-arid lands.

- In the seven investments that were functional, there were no noted emerging issues and repairs that had been noted in 2019 had been carried out (e.g. burst tank at Kaseve Pipeline Distribution).
- Community members reported that they had increased incomes by introducing agricultural activities and that they were using the investments for domestic, livestock and irrigation use. For example, the Ngutioni Sand Dam was being used for micro-irrigation through an extension developed by the County Government. The Kwa Ndambuki Sand Dam was also used to support agricultural activities and had attracted users from the neighbouring Kajiado County.
- The two partially functional investments were still serving their communities but some of the components needed repairing (e.g. fences, sanitation facilities). For example, the Kwa Kilii Sand Dam was well-sited, but heavy rainfall in 2017 had extended the riverbanks and washed away some of the dam wall. Supported by the WCCPC, the site committee was in communication with the County Government to request that the structure be extended to reach the new riverbanks.
- The development of the investments in Makueni has saved women and children from walking for long distances in search of water for both domestic and livestock use.

Recommendations

Based on the study findings and to enhance the efficacy and sustainability of the investments:

- **Include sustainable land management in the water catchment area to ensure protection against siltation at source and beyond.** For example, consider sustainable land management within the adjacent farms. The focus has been on the water resource sites, with no consideration given to the catchment conservation. Rehabilitation of the catchment should be considered as an approach, using a sustainable ecosystem landscape model. In addition, programmes on catchment protection need to be strengthened at the community level to ensure that riparian land and the water catchment areas are well protected. This will help maintain the natural ecosystems for sustainable access to safe and clean water for both domestic and livestock use.
- **Carry out capacity strengthening.** Strengthen the capacity of newly elected Ward Climate Change Planning Committees on leadership and proposal writing, and strengthen the project management skills of the site committees before an investment is handed over to them.
- **Follow land easement processes when a community member donates his/her land for the public good climate investment.** Land ownership should be transferred to the community. In addition, the piece of land donated should be marked and fenced off. This would prevent possible conflicts such as community owned resources being grabbed by landowners in the future, or other emerging conflicts between the owner or his/her kinship with the community over the piece of land where an investment has been established.
- **Manage production costs to increase accessibility.** Instead of using diesel pumps, there is a need to transition to green energy sources such as solar powered water pumps. This will lower the price of water for the community members, increase access, and improve environmental conservation and climate action as a mitigation strategy.
- **Consider and leverage increased benefits from similar projects in nearby locations.** There were two investments set up adjacent to Kya Aka Sand Dam that led to the neglect of this sand dam, and eventually to its being non-functional. While development of alternative sources is condoned, it is important to build on/repair/expand an already existing facility so as not to marginalise those benefiting from the facility and increase benefits to more people.
- **Consider security for the investment during its design.** It was revealed that components of an investment would be vandalised where an investment did not have a perimeter fence and a security guard, or where an investment had been non-functional or not-in-use over a long period.

- **Develop a financing mechanism to facilitate operations and maintenance of investments over their lifespan.** Communities encounter multiple challenges in maintaining and managing the investments. These range from low revenue collection that cannot cater for the continuous costs of repairs to a lack of proper bookkeeping skills for financial accountability at the community level. Some major repairs are too costly to be possible through the community revenue collection and resource mobilisation. Minor repairs were generally executed through community initiatives by engaging local technicians and plumbers, with the community assuming financial responsibility. These costs are typically funded through the revenue generated by user committees from water fees or contributions from water users. Developing a financing mechanism will avoid overburdening community members or risking rendering an investment non-functional due to financial challenges for operations and maintenance.
- **Establish investments that serve communities even in the driest seasons**. Investments that are still functional during the dry spells or drought are preferred by the community as they help the community at their time of need.

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