



Adaptation for
Smallholder
Agriculture
Programme

ASAP



Investing in rural people

ASAP Innovations, Policy and Scaling

MALI

- The project has contributed to developing new policies, such as the Renewable Energy Technologies policy on biodigesters, and mainstreaming climate change into local planning.
- The project's success aligns with national policies and strategies for rural development, providing a solid foundation for scaling up similar initiatives.

The challenge: Climate change impacts agriculture, migration, and resource scarcity

Mali is one of the Sahelian countries hardest hit by climate change. Climate trends show an increase in the average temperature across the country, a gradual decrease in mean annual rainfall, and an increase in the frequency and magnitude of extreme weather events such as droughts, floods and strong winds.

In the north, intense droughts drive mass migration of people and livestock southward in search of greener pastures and a reprieve from the arid conditions. However, this influx carries a heavy toll, placing enormous pressure on the already strained natural resources in the south. The domino effect is palpable: deforestation, aggressive land clearing for agriculture, soil depletion from overuse, and the tragic loss of biodiversity.

This intricate web of ecological upheaval carries grim implications for Mali's agrarian sector. Crop yields are faltering, wild food resources are increasingly scarce, traditional production methods are being disrupted, and households are sinking deeper into poverty, haunted by food insecurity. Meanwhile, the competition for access to these dwindling natural resources is stoking conflicts, a disturbing trend on the rise.



Fostering Agricultural Productivity Project (PAPAM)

2010 - 2018

Project Financing

Total project cost: US\$ 174.55 million
IFAD financing: US\$ 41.94 million
ASAP grant: US\$ 9.9 million

Outreach

- Kayes and Sikasso, Mali
- 129,140 household members (89% of initial target of 148,800) and 78,259 ASAP beneficiaries (120% of initial target of 65,000)

Target group

- Primary target groups are family farms and producer organizations in the area of intervention using small-scale irrigation, with a particular emphasis on equitable access for women and young people involved in local irrigation development activities.

Programme objective

The key project objective is to increase the productivity of smallholder agricultural and agribusiness producers in the targeted production systems (irrigated rice and vegetables, rainfed cereals, cowpea, fodder, and livestock) within the targeted project areas.

The innovation: Taking renewable energy to rural Mali

The project has introduced a range of innovative technologies and approaches to enhance the lives of rural populations. At the heart of PAPAM's endeavors is the promotion of **renewable energy**.

The project has pioneered diverse forms of **biogas digesters** to alleviate the burdens on women and reduce deforestation pressures. This effort led to technological enhancements, such as coupling biodigesters with latrines, piloting plant-based biomass, and refining slurry storage to preserve fertilizing properties contributing to sustainable production and consumption, as bio slurry will replace the use of chemical fertilizers, allowing households to save and consume healthier foods within communities.

Initially devised to reduce wood usage and facilitate cooking, this innovation has far-reaching effects. Beyond providing renewable energy for household needs, it eases the strain on forests, reduces women's tasks related to wood gathering, allowing them instead to focus more on other productive activities and build their leadership capabilities within their communities, improves the environment where they live, augments sanitation efforts when combined

with latrines and offers valuable organic fertilizer. The economic analysis highlights the viability of 4m3 bio-digesters even with a \$600 loan and a 20% annual interest rate over 15 years, considering economic, social, and environmental factors.

The combination of biodigesters and photovoltaic kits reached more than 600 households. This revolutionary fusion is poised for wider adoption through the upcoming MERIT project, set to distribute 5,000 biodigesters, photovoltaic kits, and improved stoves.

The installation of biodigesters has prevented the cutting of nearly 1,347,192 kg of wood, exceeding the original target. Moreover, they have preserved 88,747 hectares of forest and reduced carbon emissions by 7,724 tons of CO₂eq due to reduced wood consumption and the combustion of methane - a more potent greenhouse gas than carbon dioxide.

PAPAM's goals resonate with the aspirations of rural communities and national agricultural policies. Its inception was aligned with the Millennium Development Goals, focusing on eradicating extreme poverty and hunger. As the project progressed and concluded, it maintained alignment with the Sustainable Development Goals, particularly targeting zero hunger, gender equality, accessible energy services, and climate action.





Results and impacts

The benefits have been significant, including reduced respiratory problems due to cleaner kitchen environments, lower carbon emissions, availability of nitrogen-enriched fertilizers, and increased agricultural yields. Additionally, women have reported spending less time on household chores like wood-gathering and meal preparation. The project has also created job opportunities and engaged the private sector through artisan training for the construction and maintenance of biodigesters and photovoltaic kits.

The project has been highly relevant in terms of climate change adaptation. It has increased the resilience of smallholders to climate change. Activities related to lowland development and infrastructure have improved access to water for agriculture and reduced the percentage of households not cultivating in the dry season.

Furthermore, the project has played a role in raising awareness of environmental issues and climate change among beneficiaries. The number of weather information sources households receive has increased, and partnerships with local radio stations have contributed to disseminating agrometeorological information. The project has also contributed to developing new policies, such as the **Renewable Energy Technologies policy on biodigesters**, and mainstreaming climate change into local planning rules adopted by local governments.

Overall, the project's success aligns with national policies and strategies for rural development, providing a solid foundation for scaling up similar initiatives. For example, the MERIT project aims to build upon the PAPAM experience with biodigesters, further extending the impact of these environmentally friendly technologies.

Lessons Learned

- PAPAM is one of several projects in Mali that have used matching grants to finance microprojects. Given their potential to 'scatter' the impact, it may be worthwhile to explore innovative matching grant programs or other financing mechanisms that would attract financial institutions to finance agricultural activities.
- PAPAM demonstrated that building synergies between implementing agencies and establishing clear roles and responsibilities ensured the effective delivery of some of the core project activities, as well as potentially the sustainability of interventions.
- More crowding in of private sector in service provision is needed in Mali. Although this was in the initial design of the project, a more nuanced approach, perhaps with a pilot would have been more effective to demonstrate what works and what does not.

PAPAM Footprint



78,259 smallholders with increased resilience to climate change



645 biodigesters were installed enabling the production and consumption of 64,152m³ of biogas



Nearly **1,347,192 kg of wood were not cut** and **88,747 ha of forest were preserved**



Carbon emissions were **reduced by 7,724 tons of CO₂eq** (75% of the original target)



71,864 people benefited from biogas services, including **38,807 women**



Women reported spending **58 per cent less time** on household activities such as wood-gathering and meal preparation






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