

Adoption of Good Agricultural Practices (GAP) Transforms Cashew Yields

A learning brief for the Innovating Cashew Value Chain Project

Situational Analysis / Context

Before the start of the Innovating Cashew Value Chain Project in 2021, cashew farming in Mkinga District, Tanga Region, faced persistent challenges. Farmers used outdated practices such as random spacing, lack of pruning, and limited pest management.

Inputs like improved seedlings and pesticides were scarce or unaffordable. Extension services were weak, with only 25% of farmers reporting access before the project (per baseline study conducted)

As a result, yields averaged just 205 kg/acre (Project baseline study, 2021), incomes were low, and households—particularly women-headed ones—remained trapped in poverty. Women farmers faced additional barriers, including limited access to land, inputs, and extension support, further widening productivity gaps.

Key Learning

- Hands-on learning through the Farmer Field and Business Schools (FFBS) approach enabled farmers to adopt Good Agricultural Practices (GAP), turning cashew farming into a more productive and profitable enterprise.
- The Lead Farmer model, combined with AMCOS and extension officers, localized training and peer learning, ensuring knowledge reached even the most remote farmers. Women also improved their confidence and participation.

Key practices adopted

- Proper spacing of trees
- Pruning for light and air flow
- Timely weeding,
- Organic pest management
- Improved post-harvest handling (drying and grading)

Lessons Learned

- Blending knowledge with finance works: GAP adoption was strongest where VSLAs provided loans for inputs.
- Peer-to-peer models sustain learning: Lead Farmers and Community-Based Trainers built trust and localized extension.
- Women benefit more from group-based learning: VSLAs and FFBS created safe spaces for participation and decision-making.
- Institutional integration drives scale: The GAP manual, FFBS model, and AMCOS involvement positioned practices for national replication.

Recommendations & Way Forward

- Scale GAP training nationwide through FFBS and Lead Farmer models, while integrating climate-smart and gender-transformative modules.
- Strengthening input access via collective purchases through AMCOS, bulk buying, and affordable financing mechanisms.
- Link GAP adoption to better markets by expanding organic certification to many farmers, premium pricing, and contract farming.
- Target women farmers with tailored support—ensuring land access, input packages, and leadership opportunities in cooperatives.

Evidences and Statistics

- Average raw cashew nut (RCN) yields improved significantly by 79%, rising from 205 kg/acre at baseline to 367 kg/acre at endline, with male farmers increasing from 261 kg to 467 kg and female farmers from 150 kg to 268 kg. This productivity gain is closely linked to several key project outputs.
- The project trained 43 extension officers and 22 lead extension staff, who then cascaded agronomic knowledge to farmers through the FFBS model. These extensionists supported 1,430 farmers (47% women) through a structured GAP curriculum, with 32 FFBS pilot plots serving as live demonstrations on pruning, spacing, pest management, and soil fertility.
- The development and dissemination of a cashew-specific GAP Manual, officially launched by the Minister of Agriculture and adopted by the Cashew Board of Tanzania (CBT). The manual became a standardized reference for training both farmers and extension agents across the sector, extending the project's reach beyond its direct beneficiaries. Evidence from Iringa and Njombe, FFBS offers Tanzania a scalable pathway to achieve efficient, climate-resilient agricultural transformation.
- By project close in June 2025, 780 farmers (55%) were trained through FFBS and were applying at least one GAP, contributing directly to improved farm productivity.
- Additionally, the project promoted climate-smart and organic farming practices, training 573 cashew farmers (175F & 398M) in organic farming methods and registering 441 for organic farming licenses in the 2024/25 season, the first batch of 100 compliant farmers were audited by external auditor and approved for organic cashew supply to Biotan Group in the 2024/25 season further enhanced both yield and sustainability outcomes.
- The average income from cashew farming increased from TZS 252,279 ~ US\$ 101.8 to TZS 458,149 ~ US\$ 184.9, a growth of 82%. For men, income grew from TZS 288,024 ~ US\$ 116.3 to TZS 523,203 ~ US\$ 211.2, while for women it rose from TZS 217,679 ~ US\$ 87.9 to TZS 396,141 ~ US\$ 159.9. This income growth was made possible through multiple reinforcing project outputs, including improved yields through application of GAP, access to high-value markets via organic certification processes, and better agronomic knowledge through FFBS training.

Quotation



Hussein Ally, a project participant and cashew farmer explained
“Training on GAP has awakened us. Even with the same number of trees, my harvest is higher and better than before.”

Implications

The adoption of GAP through the FFBS and Lead Farmer model clearly boosted yields, knowledge, and confidence among farmers, proving that hands-on training drives real transformation.



VSLA Participation Drives Women’s Economic and Social Empowerment

A learning brief for the Innovating Cashew Value Chain Project

Situational Analysis / Context

In Mkinga District, women farmers faced limited access to finance and weaker roles in household decision-making. With little control over income, women struggled to purchase inputs, invest in farms, or pursue alternative livelihoods. This deepened gender inequalities in cashew farming, where women’s productivity and incomes lagged men’s.

The Innovating Cashew Value Chain Project introduced Village Savings and Loan Associations (VSLAs) to address this gap.

VSLAs not only increased financial access but also built solidarity, trust, and confidence among women—enabling them to take on stronger economic and social roles such as leadership positions.

Key Learning

VSLAs are a dual empowerment tool:

- Economic empowerment: They increase access to credit, improve savings, and enable investments in farming and other businesses.
- Social empowerment: They enhance women’s participation in household decision-making, improve planning, and strengthen community bonds.

Lessons Learned

- Small loans create big impact: Even modest credit access enabled women to invest in farms, pay school fees, and manage emergencies.
- Financial literacy is essential: Households reported stronger budgeting and planning when training was combined with VSLA membership.
- Women’s agency grows through group platforms: VSLAs provided a safe, supportive space for women to discuss, learn, and lead.

Recommendations & Way Forward

- Expand VSLA coverage in cashew-growing communities, targeting both women and men.
- Integrate business and entrepreneurship skills into VSLA training to maximize economic returns.
- Link VSLAs to formal financial institutions (banks, SACCOS) to unlock larger credit for collective investments.
- Promote joint participation of men and women to normalize shared decision-making at the household level.

Evidences and Statistics

- **Income effect:** Through the project, VSLA members doubled their annual income compared to non-members (TZS 2,936,695 ~ US\$ 1,185.46 against TZS 1,419,500 ~ US\$ 573.01) due to saving more and getting profits percentages at the break of the cycle.
- **Widespread uptake by women:** Compared to the baseline in 2021, 78.6% of female respondents joined VSLAs, compared to 45.1% of men at the endline.
- **Access to credit:** Access to small loans improved to VSLA members mostly to women who often used loans to invest in Income Generating Activities (IGAs), pay school fees, and buy farm inputs.
- **By project close in June 2025, 780 farmers (55%) were trained through FFBS and were applying at least one GAP, contributing directly to improved farm productivity.**
- **Social empowerment:** Through VSLA, members have better household planning and budgeting, while women gained stronger voices in decisions on income use.

Implications

VSLAs are powerful in promoting gender equality and advancing income. Future programs in Tanga Region should expand coverage, integrate business skills training, and encourage men’s participation to normalize shared financial decision-making. Linking VSLAs to formal finance can unlock larger credit for productive investments.

Quotation



Pili Ally Makau, a project participant and cashew farmer explained **“The loans I took from our VSLA group have supported me to build my house that’s in the final stages.”**



LEARNING BRIEF

Private Sector Partnerships Drive Organic Farming Premiums in Cashew Farming

A learning brief for the Innovating Cashew Value Chain Project

Situational Analysis / Context

For decades, cashew farming in Mkinga District, Tanga Region, was marked by a paradox: hard work produced little reward. Farmers invested their labor but earned low incomes due to:

- Selling through informal middlemen who offered quick cash but low prices.
- Weak cooperatives with limited bargaining power.
- Lack of incentives to adopt sustainable or quality-enhancing practices.

In 2021, most cashew farmers sold cashew to middle-men at an average price of TZS 500 ~ US\$ 0.2 per kg. With such little return, farmers saw no reason to invest in pruning, organic pest control, or soil fertility. For women—who faced greater barriers to land, inputs, and finance—the burden was heavier, and the benefits slimmer.

Globally, however, demand for ethically sourced, organic cashew was rising, led by European and North American buyers seeking traceable, high-quality products. Mkinga cashew smallholder farmers were missing out on this opportunity. The Innovating Cashew Value Chain Project (2021–2025) set out to change this by forging a partnership between Duga AMCOS and Commercial partner - Biotan Group Limited, demonstrating how private sector engagement could deliver both farmer prosperity and sustainable farming.

Key Learning

When private sector partnerships are designed around mutual value, they create powerful incentives for change. Through the partnership with Biotan Group, farmers were:

- Rewarded with premium prices for organic cashew.
- Integrated into structured markets with guaranteed buyers.
- Encouraged to adopt sustainable farming practices that restore soil health and protect the environment.

This partnership shows that market-driven incentives, not subsidies, sustain long-term transformation.

Lessons Learned

- Premium prices motivate adoption: When farmers see direct financial reward, they embrace sustainable practices.
- The private sector can de-risk farmer engagement: Biotan's guarantee gave AMCOS credibility and drew in more members.
- Trust takes time: Payment delays undermined enthusiasm, showing that financial efficiency is as important as market access.
- Certification can drive systemic change: Organic standards raised overall farming practices, even among non-certified farmers.

Recommendations & Way Forward

- Scale Public-Private Partnerships (PPPs): Replicate the Biotan-AMCOS model in other cashew-growing regions, engaging private buyers early.
- Invest in Payment Solutions: Link AMCOS with financial institutions to offer advances while awaiting buyer payments.
- Reduce Certification Burden: Pool certification costs at cooperative level, supported by government and private partners.
- Expand Gender & Youth Engagement: Design tailored training and input packages to help women and youth meet certification standards.
- Strengthen Market Transparency: Establish clear pricing systems and farmer feedback loops to build trust.

Evidences and Statistics

- A sale of 112 MT organic cashew to Biotan at a Farm-gate price of TZS 1,800 ~ US\$ 0.72. (selling via AMCOS-Biotan channel).
- The project trained 43 extension officers and 22 lead extension staff, who then cascaded agronomic knowledge to farmers through the FFBS model. These extensionists supported 1,430 farmers (47% women) through a structured GAP curriculum, with 32 FFBS pilot plots serving as live demonstrations on pruning, spacing, pest management, and soil fertility.

This shift was directly linked to:

- i. Organic certification processes that positioned cashew for premium buyers.
 - ii. Collective sales through AMCOS, which reduced exploitation by middlemen.
 - iii. Biotan's buyer agreements, which guaranteed reliable purchase and stable demand
- Organic certification required farmers to adopt and maintain Good Agricultural Practices (GAP):
 - i. Reduced use of chemical pesticides.
 - ii. Use of organic pest management methods.
 - iii. Pruning and tree management to improve nut quality.
 - iv. Soil fertility improves through organic manure.

At baseline, 68% of farmers rated their GAP knowledge as poor. By endline survey, 70% reported high knowledge, with organic standards as the driver. Farmers reported healthier trees, better nut quality, and improved soil health.

Quotation



Fatuma Boi, a project participant and cashew farmer said **Before, we sold quickly for whatever price was offered. Now, with organic cashew, we have a better price of up to TZS 1,800 ~ US\$ 0.72 from Biotan who a reliable buyer.**

Implications

The Duga AMCOS–Biotan partnership demonstrates that private sector engagement is the missing link in transforming smallholder farming from subsistence to sustainable enterprise. By tying better prices to sustainable practices, farmers are motivated, cooperatives are strengthened, and markets become more inclusive.



LEARNING BRIEF

Localization and Enhanced Community Structures Ensure Sustainability and Accessibility.

A learning brief for the Innovating Cashew Value Chain Project

Situational Analysis / Context

Many agricultural projects collapse when donor funding ends because they fail to build strong community-led systems. Farmers are left dependent on external actors for training, inputs, or markets, and progress quickly unravels.

The Innovating Cashew Value Chain Project (2021–2025) in Mkinga District, Tanga Region, deliberately took a different approach: localization. Instead of keeping knowledge and leadership within project staff, it invested in farmers themselves, cooperatives, and extension officers, ensuring that structures would remain functional beyond the project’s lifespan.

By embedding ownership in Lead Farmers, AMCOS, and local government, the project created a self-sustaining ecosystem of knowledge, services, and leadership.

Key Learning

- Sustainability in agricultural projects is not an afterthought — it requires deliberate localization of skills, tools, and leadership.
- Through training Lead Farmers, strengthening AMCOS, and embedding project tools into national agricultural systems, the project demonstrated how community-driven approaches anchor long-term change.

Key practices adopted

- Proper spacing of trees
- Pruning for light and air flow
- Timely weeding,
- Organic pest management
- Improved post-harvest handling (drying and grading)

Lessons Learned

- Proximity matters: Farmers learn best from people they know and trust — Lead Farmers became more effective and reliable to helping cashew farmers.
- Scaling requires embedding in policy: The national adoption of GAP Manuals shows how local pilots can influence national systems.
- Community pride drives sustainability: When farmers feel ownership, they sustain practices even without donor presence.
- Blended systems are strongest: Combining local trainers with formal government extension creates resilience.

Implications

The Innovating Cashew Value Chain Project shows that true sustainability comes from local ownership. By building farmer-led extension systems, strengthening cooperatives, and embedding tools in national policy, the project ensured continuity beyond donor timelines.

This approach has broader lessons for agricultural development:

- Donors can exist confidently when skills and leadership are localized.
- Governments benefit from scalable models that reduce dependency on overstretched extension services.
- Communities thrive when they own the knowledge, tools, and structures that drive transformation.

Evidences and Statistics

- **Lead Farmer Model: Trusted Peer-to-Peer Extension**
 - i. 83% of farmers as per endline survey accessed advice from trained Lead Farmers in their own communities
 - ii. Lead Farmers provided timely, accessible, and relatable support, supporting extension officers who were often few, overstretched or absent in most villages.
 - iii. Farmers trusted Lead Farmers because they “walked the same path” — living in the same villages and sharing the same struggles.
- **Capacity Building: Multiplying Knowledge**
 - i. 43 extension officers and 22 lead extension farmers were trained as trainers.
 - ii. This created a cascade effect, where trained trainers continued to replicate knowledge within villages long after donor visits ended.
 - iii. Knowledge was not just passed down but embedded in community pride — farmers began identifying themselves as “custodians” of improved cashew practices.
- **National Adoption: Scaling Beyond Mkinga**
 - i. The Cashew GAP Manual, developed through the project, was adopted nationally as a reference tool.
 - ii. This alignment with national agricultural policy safeguarded sustainability at scale, making the project more than a district-level success story.
- **Strengthened Local Institutions (AMCOS and Government Linkages)**
 - i. Duga AMCOS was not only transformed into a professional cooperative but also linked with government and private buyers - Biotan Ltd.
 - ii. Duga AMCOS operations are now full year compared to the past when it was only seasonal.
 - iii. Local government extension officers were trained alongside Lead Farmers, creating a blended system of state and community trainers.
 - iv. This dual system bridged the gap between formal extension and grassroots knowledge, making support more accessible.