

HEIFER INTERNATIONAL SENEGAL

LEARNING REPORT

Building Nutrition Resilience Through Community-Led Systems

A Learning Paper on Nutrition Resilience and Sustainability Implemented by the Heifer International Senegal & AAJAC/COLUFIFA Consortium, in partnership with the National Council for Nutrition Development (CNDN), Government of Senegal.

SENEGAL

LESSONS FROM THE KAYRA PROJECT

Over five years, the project contributed to substantial, verified improvements in child nutrition and household resilience:

- Global Acute Malnutrition (GAM) among children under five declined from 4.5 percent to 2.0 percent.
- Underweight Prevalence among infants aged 0–23 months fell from 12.69 percent in 2020 to 2.84 percent in 2024.
- The Proportion of Children Experiencing Positive Weight Gain advanced to 89.30 percent.
- Community Growth Monitoring Services expanded from 71 to 110 active nutrition sites, establishing comprehensive geographic coverage across all 14 municipalities in the department.
- Maternal Healthcare Uptake increased significantly, with facility-based deliveries reaching 90.60 percent and pregnant women completing standard prenatal care visits rising to 72.18 percent.



Malnutrition remains one of the most persistent barriers to human development, particularly in rural communities where poverty, seasonal food insecurity, limited access to services, and traditional social norms intersect to shape nutritional outcomes. While considerable investments have expanded access to clinical health and nutrition services across Sub-Saharan Africa, evidence increasingly indicates that lasting progress requires addressing the broader, interconnected systems that influence nutrition at the household and community level.

Implemented between 2020 and 2025 across all 14 communes of the Bounkiling Department in Senegal's Sédhiou Region, the KAYRA Project ("happiness and peace" in Mandinka) was designed to support the Government of Senegal's Nutrition Reinforcement Program (PRN). Executed by the Heifer International Senegal and AAJAC/COLUFIFA Consortium in partnership with the National Council for Nutrition Development (CNDN), the project paired nutrition-specific interventions with livelihoods development, women's economic empowerment, local food systems strengthening, community governance, and social and behavior change initiatives.



On the economic front, community-led savings groups mobilized more than 528 million CFA francs (XOF) in local internal capital, community granaries collected more than 50 metric tons of locally produced food items, and women-led enterprises generated sustainable income through the production and sale of fortified infant flour, animal-source proteins, and hygiene commodities.

Yet the project's most distinctive contribution emerged as implementation began winding down. As external project funding concluded and field activities financed through the national Nutrition Reinforcement Program were temporarily interrupted, the systems established through the project continued to function autonomously. Community granaries remained active and self-funded, savings groups continued mobilizing resources and issuing internal credit, women's micro-enterprises remained fully operational, and trained peer educators, known as Model Mothers, autonomously continued screening children and promoting optimal family practices.

This experience offers an important lesson for governments, donors, and development practitioners: sustainable nutrition outcomes depend not only on the external delivery of services, but on the structural strength of the local systems, institutions, and relationships that enable communities to continue acting long after external support has ended.

THE KAYRA PROJECT

The KAYRA Project was operationalized within the institutional framework of Senegal's Nutrition Reinforcement Program (PRN) to improve the nutritional status of children under five, pregnant women, and breastfeeding mothers while strengthening the economic and social resilience of vulnerable households.

Recognizing that malnutrition is shaped by multiple, overlapping structural vulnerabilities, the project adopted a multisectoral approach combining:

- Growth monitoring and promotion (SPC) at decentralized community nutrition sites.
- Community-based management of acute malnutrition and reference tracking.
- Continuous social and behavior change communication (SBCC) and household outreach.
- Maternal and child health promotion coupled with conditional Results-Based Financing (RBF) cash distributions.
- Community granaries (Children's Pantries) to help eliminate seasonal lean-period hunger gaps.

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- Backyard gardens and community fields for micronutrient-dense crop production.
- Small livestock production (poultry and ruminants) using Heifer's asset-transfer approach.
- Village-level Savings and Credit Groups (GECs).
- Local food processing and high-nutrient composite infant flour production.
- Targeted women's economic autonomy and micro-enterprise formalization.
- Community dialogue, local leadership strengthening, and municipal budget advocacy.

The project directly reached more than 29,000 active participants, the vast majority of whom were women, and worked through an integrated network of community volunteers (relays), municipal authorities, district health services, regional technical line departments, and grassroots community-based organizations.



WHAT KAYRA CONTRIBUTES TO THE NUTRITION SECTOR

The KAYRA experience contributes to a growing body of evidence showing that nutrition resilience is most effectively built when communities are empowered to become active agents of change rather than passive recipients of services. The project demonstrates that nutrition outcomes can be strengthened when investments in health and nutrition are combined with investments in livelihoods, women's economic empowerment, local food systems, community governance, and social behavior change.

The ultimate test of sustainability is what happens when project support ends. In Bounkiling, several community-led systems, including savings groups, community granaries, local enterprises, and the Model Mother network, continued operating after external support declined. This experience provides practical evidence that communities can sustain important nutrition and resilience functions when ownership, leadership, and resource mobilization mechanisms are built into program design from the outset. While projects are temporary by nature, communities are permanent. The systems that continued functioning after external support declined indicate that sustainability is most likely achieved when communities have the capacity, authority, resources, and confidence to lead their own development processes.

INSIGHTS AND FINDINGS

Nutrition Outcomes Improve When Immediate and Structural Drivers of Malnutrition Are Addressed Together

• **Evidence from KAYRA:** The most significant nutrition gains occurred where nutrition-specific interventions were reinforced by livelihoods activities, savings groups, livestock production, backyard gardens, community granaries, and local food processing. The drop in underweight prevalence to 2.84% was accompanied by an expansion in household food security. The Household Dietary Diversity Score (HDDS) increased from a baseline of 6.17 to 9.56 in FY25, driven by home consumption of meat, eggs, and micronutrient-dense vegetables. Furthermore, the Months of Adequate Household Food Provision (MAHFP) rose from 9.75 to 10.07 months, effectively reducing the traditional seasonal hunger gap. This shield was supported by an increase in the value of household-produced agricultural commodities, which grew from a baseline of 674,282 XOF to 2,254,725 XOF per family by project closure.

Why This Matters: Malnutrition is rarely the result of a single health factor. Sustainable improvements are more likely when programs address not only treatment and prevention, but also the underlying economic and social conditions that shape household food availability and purchasing power.

Women's Economic Empowerment Strengthens Nutrition Outcomes

·**Evidence from KAYRA:** Through the establishment of 80 highly structured Savings and Credit Groups (GECs), rural women successfully mobilized 528,058,300 XOF in internal savings. This pool of local capital funded 518,466,000 XOF in internal, low-interest micro-loans, allowing women to launch or scale micro-enterprises such as market gardening, small livestock rearing, and artisanal soap manufacturing. Crucially, the women independently structured a General Solidarity Fund of 55,440,900 XOF, explicitly utilized to fund emergency medical transportation, specialized prenatal exams, and prescriptions for children, which substantially improved local healthcare access.

·**Why This Matters:** Nutritional education regarding dietary diversity and infant care is constrained if a mother lacks the independent cash liquidity and household decision-making power to purchase specialized foods or pay for clinical prescriptions. Knowledge is most effective when households have the resources needed to act on it.

Community Ownership Enables Continuity Beyond Project Closure

·**Evidence from KAYRA:** Local Steering Committees (CLPs), Village Management Committees, and networks of local community relays became the primary managers of the department's 110 nutrition sites. Rather than relying on project-paid staff, these community bodies independently mobilized over 4,000,000 XOF in cash contributions from local citizens and municipal budgets to maintain infrastructure, stock local granaries, finance health transport for vulnerable families, and manage monthly growth tracking campaigns. The findings indicate that many of these structures continued functioning after external support declined, maintaining activities that communities considered valuable and necessary because they felt a direct sense of ownership over the outcomes.

·**Why This Matters:** Development initiatives frequently experience an operational collapse once external funding ends. KAYRA demonstrated that rural communities are more likely to sustain initiatives when they are actively involved in decision-making, resource management, and implementation from the outset, transforming them from aid recipients into system custodians.

Local Food Systems Increase Nutrition Resilience

·**Evidence from KAYRA:** To reduce reliance on external food imports, the project built 205 decentralized community granaries (Children's Pantries). Between 2022 and 2025, these granaries collected 50,242 kg of local crop contributions directly from village harvest shares, creating a food reserve consisting of 26,092 kg of groundnuts, 10,947 kg of rice, 7,445 kg of maize, 3,335 kg of corn, 1,902 kg of cowpeas, and 433 kg of sorghum. To add value, 4,399 local actors (including 4,114 women) were certified in sanitary processing techniques, successfully transforming these raw materials into 6,796 kg of highly nutritious composite infant flour. To diversify revenues, participants produced 130,354 bars of solid soap and 16,777 liters of liquid soap, generating 34,693,250 XOF from certified local sales to cover granary maintenance costs.

·**Why This Matters:** True nutrition security cannot depend on erratic global supply chains or national procurement logistics. Communities are far less vulnerable to macroeconomic shocks when nutritious foods are produced, stored, processed, and distributed locally throughout the year.

INSIGHTS AND FINDINGS

Peer-Led Models Can Sustain Essential Nutrition Functions After External Support Ends

·**Evidence from KAYRA:** The Model Mother (Maman Modèle) strategy emerged as an effective community-led mechanism for continuing nutrition screening, counseling, growth monitoring, and early childhood support activities after external funding declined. In the pilot community of Aloutte Mandingue, a cadre of 25 trained Model Mothers took complete ownership of local child tracking. Utilizing mid-upper arm circumference (MUAC) bands and local fortified flours, they autonomously executed 6 independent screening campaigns, monitored 55 children under five, and successfully resolved 4 cases of moderate acute malnutrition directly at the household level, preventing severe regressions. This peer leadership accompanied broader social shifts: joint household domestic and financial decision-making rose from 49% to 75.98%, and women occupying active management positions within community structures reached a peak of 89.97% in FY25.

·**Why This Matters:** The continuity of these activities demonstrates that communities can maintain important nutrition functions when knowledge and leadership are embedded locally. People are more likely to adopt new behaviors when information comes from trusted peers who share similar experiences and challenges.



Incentive-Based Approaches Can Increase Service Utilization but Demand Simple, Digital Infrastructures

·**Evidence from KAYRA:** The integration of conditional Results-Based Financing (RBF) cash incentives contributed to increased uptake of antenatal care services (72.18%) and facility-based deliveries (90.60%) among highly vulnerable pregnant women. However, implementation highlighted the high operational demands associated with manual data verification, paper-heavy payment processing, and beneficiary tracking, which introduced administrative bottlenecks that delayed cash deliveries to participants.

·**Why This Matters:** Financial incentives can encourage the use of health services, but administrative burdens can limit the effectiveness, transparency, and scalability of incentive-based approaches.

Sustainability Is Built During Implementation, Not at Project Closure

·**Evidence from KAYRA:** Several of the project's most durable outcomes, including the savings groups, community granaries, community fields, and the Model Mother approach, remained active post-exit because their replication methodology was built into early field implementation via Heifer's "Passing on the Gift" (Pouvoir de Transmettre le Don) approach. At the end of a group's maturity cycle, the community completely self-funded and supplied fresh asset packages, toolkits, and peer training to emerging cohorts, successfully expanding benefits across 110 distinct sites without requiring renewed external capital injections.

·**Why This Matters:** Sustainability is not achieved through an exit strategy alone. It is the result of deliberate choices made throughout the life of a project. It cannot be added at project closure; it must be embedded throughout the project lifecycle.

WHAT WE ADAPTED

While KAYRA achieved important results, several challenges offer valuable lessons for future multi-sectoral programming:

- **Deeply Rooted Behavioral Resistance:** While metrics like child weight gain improved rapidly, indicators such as the early initiation of exclusive breastfeeding and the consistent household consumption of adequately iodized salt showed slower progress than expected. This highlights the intense power of deeply rooted cultural norms and generations of family traditions, which require sustained engagement over time rather than short-term communication campaigns.

- **Livelihood Vulnerability to Disease Shocks:** Early iterations of the poultry and livestock asset transfers suffered unexpected losses due to localized disease outbreaks. This experience demonstrated that promoting productive assets is high-risk unless it is supported by veterinary frameworks, consistent community-based animal health workers (Auxiliaires d'Élevage), reliable vaccine cold chains, and ongoing technical assistance.

- **Administrative Complexity of Paper Workflows:** The manual data collection, receipt verification, and multi-tiered transmission required for the Results-Based Financing (RBF) mechanism created administrative delays. This design reduced operational efficiency and increased project management overhead, risking a loss of participant enthusiasm due to delayed incentive disbursements.

- **Community Structural Capacity and Governance Constraints:** While community ownership increased substantially, some Local Steering Committees faced operational bottlenecks related to low adult literacy levels, volunteer relay turnover, and inconsistent record-keeping. Community-led systems are not fully autonomous in a vacuum; they remain vulnerable unless they are continuously supported by simplified, highly visual tools and linked to supportive local institutions and technical services.

- **Geographical Isolation and Cross-Border Mobility:** Bounkiling Department's geographical proximity to international borders meant that vulnerable households, particularly those with children experiencing acute malnutrition, frequently moved across borders for seasonal work or alternate health access points. This cross-border mobility complicated the continuity of clinical care, referral mappings, and standard verification follow-ups.



BUILDING SUSTAINABLE NUTRITION SYSTEMS

The evidence emerging from the KAYRA project shifts the focus from short-term project interventions to broader principles for designing resilient, enduring nutrition infrastructure. The experience points to seven central implications for future sectoral investments:

1. Community Systems Need to Be Treated as Permanent Long-Term Assets

One of the clearest lessons from KAYRA is that community structures are most effective when they are designed as permanent local institutions rather than temporary project implementation mechanisms. Evidence suggests that community-led structures can help sustain vital nutrition services even during periods of institutional transition and funding uncertainty. Future interventions should focus from inception on strengthening the independent governance, financial management, and leadership capacities of these bodies, ensuring they are formally recognized by and integrated into local government systems and municipal development plans.

2. Nutrition Investments Are More Effective When Linked Directly to Economic Resilience

The experience suggests that nutrition knowledge alone cannot achieve lasting impacts unless households have the financial resources to act on it. The synchronization of nutrition tracking with savings groups, livelihood asset transfers, and locally managed solidarity funds allowed families to convert health education into concrete nutritional actions, such as purchasing specialized diets or financing healthcare transport. Future program architecture should avoid isolating clinical nutrition from financial inclusion and economic empowerment components.

3. Local Food Systems Are Central to Nutrition Infrastructure and Resilience

True nutrition security in vulnerable rural areas is inherently tied to localized production and supply chain security. The active maintenance of community granaries, village processing hubs, and backyard vegetable gardens insulated households from seasonal lean-season shortfalls and macroeconomic food price spikes. Future national and regional investments should treat localized storage, crop preservation, and certified processing systems as vital nutrition infrastructure that safeguards community health against external market disruptions.

4. Sustainability Must Be Designed, Tested, and Monitored Throughout Implementation

The autonomous continuation of savings networks, children's food banks, and peer-led screening services after project funding ended demonstrates that sustainability is best approached as a continuous implementation objective rather than a late-stage exit strategy. Incorporating peer-to-peer transmission frameworks (such as Passing on the Gift) and early co-financing benchmarks allows the durability of local operations to be tested, measured, and optimized well before the close of an external funding cycle.

5. Peer-Led Models Offer a Promising Mechanism for Service Continuity

The resilience of the Model Mother network illustrates that local capacity and trusted peer leadership can effectively preserve core nutrition screening, growth monitoring, and early infant counselling functions when external professional project staff are no longer present. Embedding technical knowledge deep within existing social structures ensures that communities retain accessible, culturally resonant entry points for health promotion that endure across generations.

6. Incentive-Based Approaches Require Efficient Delivery Systems
The KAYRA experience suggests that financial incentives can improve utilization of maternal and child health services when they are predictable, transparent, and easy to administer. However, administrative complexity can reduce efficiency and delay benefits to intended participants. Future results-based financing and social protection initiatives should prioritize streamlined verification systems, digital payments, and simplified reporting mechanisms that reduce transaction costs for both beneficiaries and implementers.

7. Digital Infrastructure Can Strengthen Community Systems
The structural and operational constraints encountered through paper-based reporting networks highlight opportunities to improve data quality, expedite local accountability, and facilitate real-time adaptive management. Transitioning away from paper workflows and embedding digital tools, such as smartphone data systems and automated digital ledger platforms, from the inception of a program can significantly enhance system transparency and efficiency without displacing or replacing strong, underlying community ownership.

BEYOND THE PROJECT



The KAYRA experience demonstrates that lasting nutrition improvements are achieved not only through the delivery of services, but through strengthening the systems that allow communities to continue generating results long after external support has ended.

The ultimate test of sustainability is what happens when a project ends. In Bounkiling, the continuation of community granaries, savings groups, local enterprises, and the Model Mother network after external support declined provides evidence that communities can sustain important nutrition and resilience functions when ownership, leadership, and resource mobilization mechanisms are intentionally built into program design. As governments, donors, and development organizations seek sustainable, cost-effective approaches to addressing malnutrition, the lessons from KAYRA suggest that investing in community-led systems offers a compelling, evidence-based pathway toward long-term nutrition resilience.

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