



INITIATIVE ON  
Agroecology



## Ex-ante Impact of School Feeding Scaling on the Fatick (Senegal) Local Inclusive Economy: an evaluation on Income and Employment



Modou Gueye Fall, Koki Ba, Maimouna Ndour, Rokhaya Diene,  
Daouda Faye, Moussa Sall, Pape Bilal Diakhaté, Astou Diao  
Camara, Jean-Daniel Cesaro

Décembre 2024

## 1. Background and rationale

Since 1994, the concept of food system has been defined as the way in which societies organize themselves in space and time to produce and consume their food. This definition highlights the links of interdependence between production basins (rural areas) and consumption spaces (urban areas).

In Senegal, in the face of climate and economic crises, agri-food policies have been revised, favoring export crops, such as peanuts, to the detriment of local cereals, particularly millet. In the peanut basin, and particularly in Fatick, consumption of local millet has decreased, replaced by imported products, particularly rice. This has weakened the links between local production and consumption, increasing dependence on international markets and lengthening supply chains, which also increases the carbon footprint.

To meet these challenges, the Fatick department has been committed, since 2022, to an agroecological transition through the Dynamics for Local Agroecological Transition ( Dytael ). This multi-stakeholder platform, bringing together local authorities, civil society, producers, consumers, technical services and research, has set itself the objective of becoming agroecological by 2035.

Supported by research and development projects, such as the One CGIAR agroecology initiative, Dytael works to promote local and resilient value chains, particularly around millet and milk. The challenge is to strengthen local outlets for these products, particularly via school canteens, which are an important lever to support the agroecological transition.

In the commune of Niakhar , which is home to the Dytael secretariat , three ecological school canteens are supplied with local products such as goat milk and millet. These canteens, in partnership with the ANPDI association, support local production and processing sectors, particularly those run by women. The link between the canteens and local producers encourages the agroecological transition and strengthens demand for products from sustainable practices.

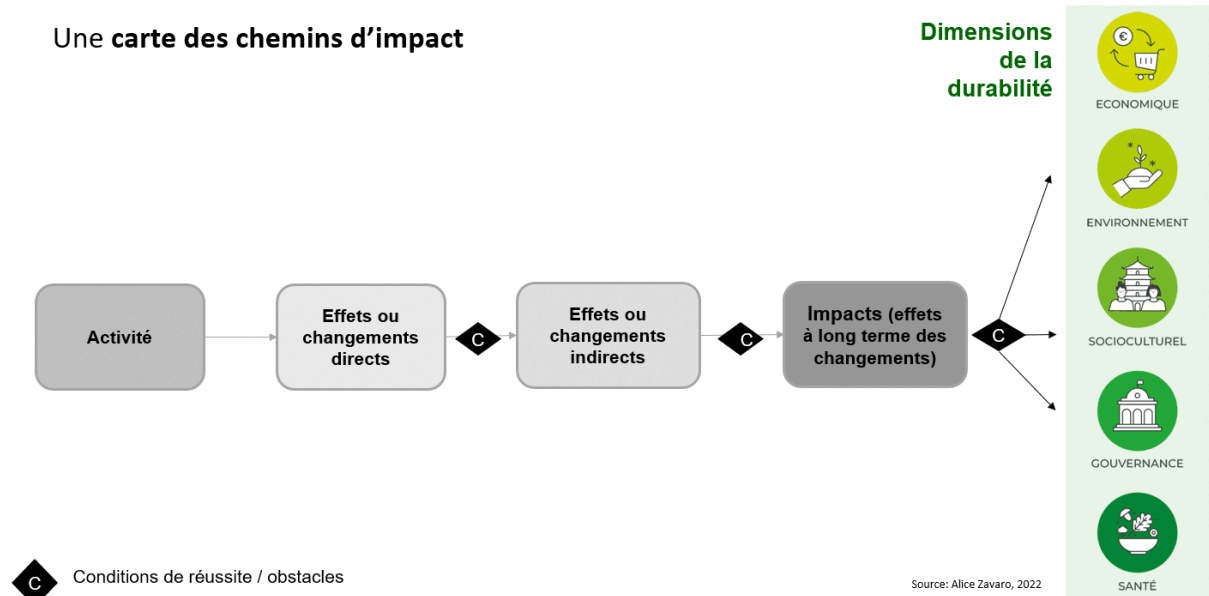
This experience of relocating value chains offers large-scale opportunities. However, a major challenge remains: finding profitable markets for agroecological products. The Senegalese government has been committed since 2023 to increasing the coverage of school canteens from 11% to 75%, while prioritizing local supply. Civil society, for its part, is advocating for better consideration of school canteens in public policies, in order to boost small local producers.

In this context, the One CGIAR agroecological initiative considers school canteens as strategic drivers to promote sustainable, inclusive and resilient food systems. This paper proposes a reflection and a participatory assessment of the inclusive socioeconomic impact of scaling up school canteens on smallholder farms.

## 2. Methodology

The methodology used is based on two complementary approaches to assess the increase in the school canteen coverage rate from 6% (current situation) to 75% (desired situation). These approaches include defining the baseline situation and projecting the desired situation. In this regard, the URBAL tool <sup>1</sup>, developed to assess the impact of innovations in sustainable food systems, was used to define an impact pathway to visualize the desired situation.

Figure n°1 : Impact pathway



The school canteen model developed by ANPDI in the commune of Niakhar made it possible to carry out an objective and supervised projection, serving as a basis for defining the reference situation. This impact path made it possible to set indicators for expanding the coverage rate of school canteens. These indicators were defined according to two dimensions: economic and social, in order to measure income, added value and employment. Simulations of scaling up to 75% were carried out to assess the impact on the added value and income of direct actors (producers, processors), as well as on overall income, wealth creation and employment.

To do this, the EX-ACT VC assessment tool <sup>2</sup>, a multidimensional and multisectoral tool developed by FAO, was used. This tool assesses the environmental, economic and social sustainability of agri-food value chains, encompassing the sectors of culture, livestock, fisheries, etc. It consists of comparing the performance of current value chains with that of an improvement scenario. The current situation thus serves as a reference for comparison with the improvement scenario, represented here by the expansion of the coverage rate of school canteens supplied with local products, such as millet and milk.

<sup>1</sup> <https://agritrop.cirad.fr/607810/1/Guide-Urbal-FR.pdf>

<sup>2</sup> <https://www.fao.org/in-action/epic/ex-act-tool/suite-of-tools/ex-act-vc/en/>





### 3. School canteen model developed by ANPDI

The school canteen model developed by ANPDI in the Niakhar communes aims to promote local and sustainable food, while supporting the local economy. This system is based on the supply of local products, such as goat's milk, vegetables and cereals, grown and processed by local producers and processors. The meals, served twice a week (Tuesdays and Thursdays), are mainly based on local products, such as millet porridge and milk-based dishes, thus contributing to improved nutrition for students. Reciprocally, the consumption of one encourages and stimulates that of the other.

ANPDI plays a key role in this model by facilitating supply, providing training to canteen managers, and supporting municipalities in financing and monitoring. However, the involvement of the local community is essential to ensure sustainability. Parents of students actively contribute in kind, by providing products such as millet or peanuts, and participate in the management of the canteens within the School Management Committees (CGE). Their contribution strengthens the community's ownership of the canteens, promotes cohesion and ensures a regular supply of local products.

In parallel, awareness-raising workshops organized by ANPDI encourage parents to support the model and understand the importance of local food for children's health. Thanks to this participatory and inclusive approach, school canteens become a central element of community life, contributing both to students' food security and to local economic development.

## 4. Identification of impact indicators

### 4.1. Actor mapping

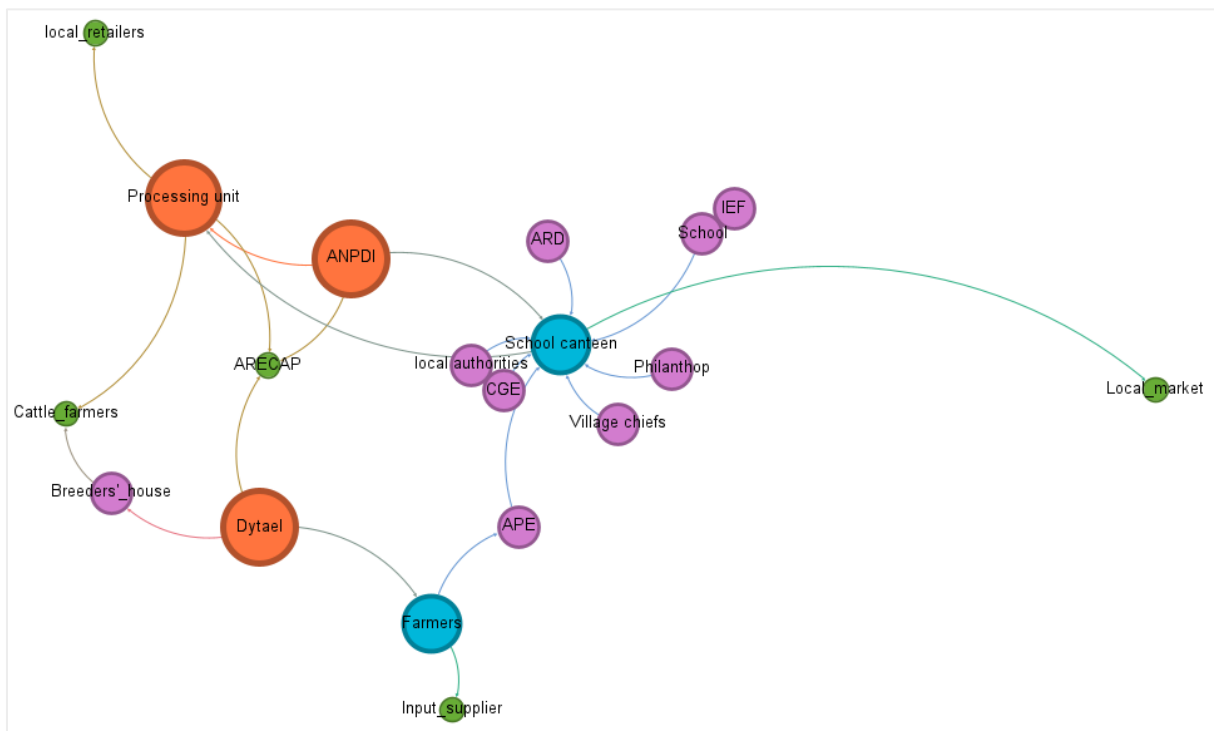
School canteens, placed under the supervision of the Education and Training Inspectorate (IEF) and managed by a local committee bringing together teachers, parents of pupils, mothers of pupils and local authorities, operate thanks to the support and coordination of the ANPDI, a central player in their establishment and operation. The ANPDI is the centerpiece of this ecosystem and the main donor of the canteens. It ensures the mobilization of local contributions, in particular that of the parents of pupils who provide 10 kg of millet per pupil per year, and makes a financial commitment to enable the canteens to regularly obtain supplies of local products, in particular curdled milk and millet. In addition, it facilitates relations between the canteens and the actors of the territorialized value chains, while providing logistical support to the processing unit and the milk producers.

The processing unit, for its part, plays a key role in the milk sector by diversifying its sources of supply. Although it mainly collaborates with goat milk producer associations, it also obtains supplies from dairy cow farmers, organized within the Maison des élevages. This diversification allows it to meet the growing demand from canteens, its main objective being to supply curdled milk, essential for preparing school meals.

This system is also based on collective and territorial dynamics. The DYTAEL, of which the ANPDI is a member alongside the Maison des élevages and the ARCAP, is campaigning to

make the department of Fatick an agroecological zone by 2035. It highlights the promotion of local products and the development of territorialized value chains. Thus, the ANPDI, as a financial lever and facilitator, structures this entire ecosystem, promoting sustainable food, local economic development and the anchoring of school canteens in a circular and resilient economic model.

Figure n°4 : Stakeholders network of millet transformation value chain in Fatick



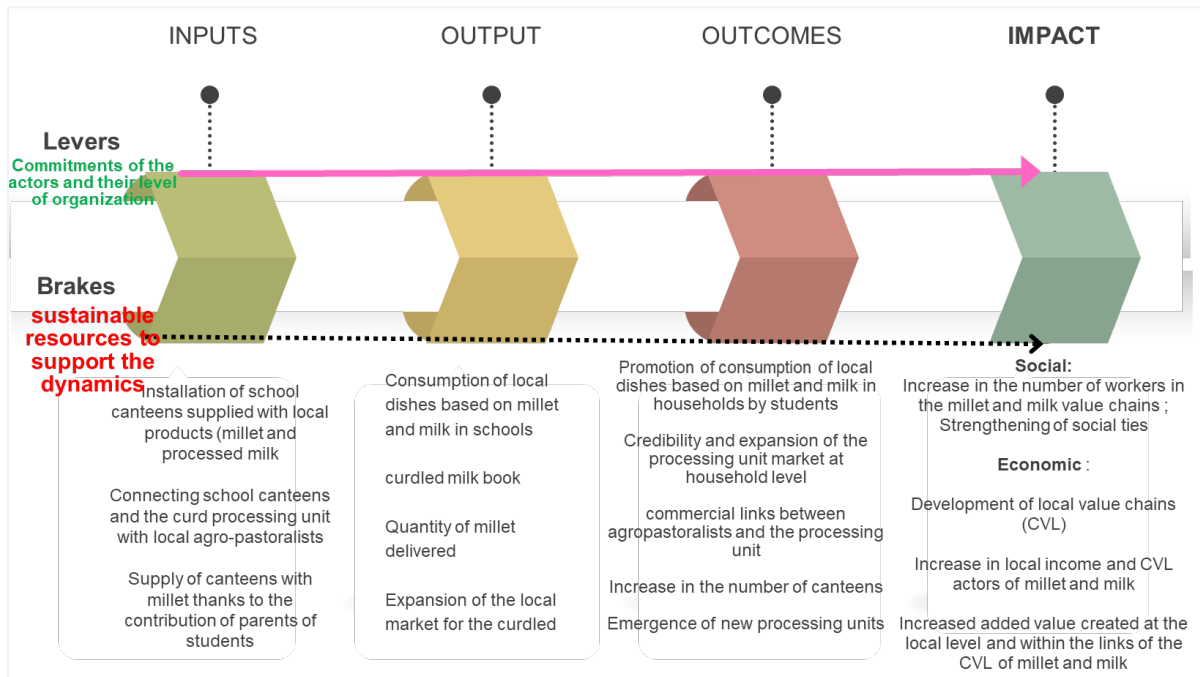
#### 4.2. Impact path

The impact path of school canteens begins with the installation of canteens supplied with local products thanks to the connection with a milk processing unit and the contribution of parents of students in millet. These canteens allow the consumption of local dishes based on millet and milk, leading to an increasing volume of curdled milk and millet delivered. This dynamic expands the local market for the processing unit, which diversifies its outlets, while strengthening commercial links with agro-pastoralists.

Students, satisfied with these dishes, encourage domestic consumption of similar meals, promoting the adoption of local products in households. Collaboration with canteens strengthens the credibility of the processing unit, opening up opportunities in other markets, such as ceremonies. The increased demand for milk stimulates the emergence of new processing units and the expansion of school canteens.

These developments generate significant social and economic impacts: development of local millet and milk value chains, increase in income for local stakeholders, job creation, strengthening of social ties, and promotion of local production, consolidating a sustainable territorial economy.

Figure n°6 : Impact path of the valorization of local products through school canteens



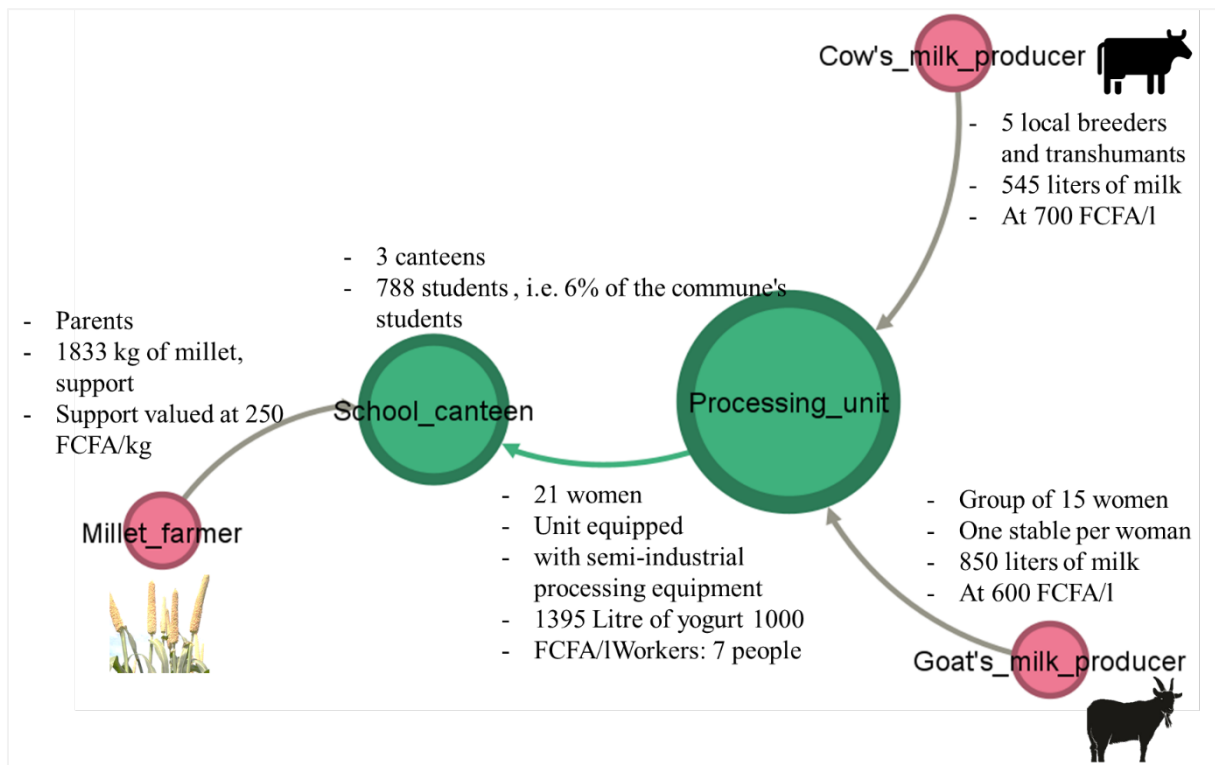
## 5. Ex-ante impact assessment of the scaling up of school canteens

The impact points of the impact pathway are the key elements for defining the indicators. They are classified into two categories: social indicators to assess the social impact and economic indicators to measure the economic impact. The social impact assessment focuses mainly on the employment created, while the economic impact focuses on the income and added value generated at the level of companies and sectors. The impact assessment is carried out by comparing the gaps between the baseline situation, which corresponds to the current level of intervention, and the desired situation, aiming for 75% coverage of schools.

### 5.1. The reference situation

Currently, in the commune of Niakhar, school canteens cover 5% of students, or 788 children spread across 3 canteens. These canteens are supplied locally thanks to a processing unit bringing together 21 women, equipped with semi-industrial equipment, which produces 1,395 liters of yogurt. This production is based on the contribution of 850 liters of goat's milk, supplied by a group of women breeders at 600 FCFA/liter, and 545 liters of cow's milk, supplied by a breeder at 700 FCFA/liter. The yogurt is sold to the canteens at 1,000 FCFA/liter, generating 7 direct jobs in the processing unit. In addition, 1,833 parents of students participate in kind by providing 1,833 kg of millet, valued at 250 FCFA/kg, to support the canteens. This baseline situation makes it possible to measure the impact on employment, with 7 direct jobs and indirect activities for breeders and processors; on the income generated throughout the value chain; and on the local added value created through milk processing and the use of parents' contributions. These elements will form the basis for assessing the effects of extending canteens to 75% coverage of students.

Figure n°7 : Quantification of school canteen millet and milk sourcing according stakeholders workshop



## 5.2. The desired situation

In the desired situation, the coverage rate of school canteens in the commune of Niakhar would reach 75%, or 10,133 students spread across an extensive network of canteens. This would involve multiplying the current model by 13, with a proportional increase in the production of goat and cow milk, as well as processing into yogurt. Contributions from parents of students in millet would also be multiplied by 13 to support this expansion. This scaling up would strengthen direct and indirect jobs throughout the value chain, increase the income of producers and processors, and create significant added value for the local economy.



## 6. Ex ante impact of scaling up school canteens

The main commercial activity linking the canteens to local value chain players is milk, an activity mainly managed by women, in particular goat's milk production, which is a lever for economic inclusion. On the other hand, the cow's milk sector remains relatively unstructured due to the involvement of transhumant herders, which complicates the implementation of effective measures.

Millet, provided in kind by parents of schoolchildren (from family farms), is seen as a support product that encourages milk consumption in canteens.

The impact of scaling up school canteens is therefore analyzed primarily from the angle of women's socio-economic activities.

### 6.1. Economic dimension: income and added value

#### ✓ Milk production

Thanks to a rationalization of investment expenditures to control production costs and a better organization to capitalize on the technological advances acquired with the technical support of ANPDI, milk production will follow the trend observed over the last five years, with an increase of 12%. Taking into account the trend sales prices, which currently fluctuate between 600 and 700 FCFA per liter, the extension of school canteens to 75% coverage, accompanied by the same rationalized technical package, will allow milk production, which is not profitable today, to become profitable within five years. The net income per producer will be positive, exceeding 21,500 FCFA, thus making processing a profitable activity for women.

At the municipal level, this scaling up will generate wealth creation of more than 8,950,000 FCFA per year, with an overall income exceeding 4,042,400 FCFA.

Figure n°8 : Economic indicators of milk production by category of actors

Economic Indicators by Category of Actors				
<i>Currency for the economic analysis is in Local currency</i>	Increase canteen coverage to 75%			
	Current	Planned	Change	
Total Gross Production Value	510 000	10 829 000	▲	10 319 000
Total Gross Value Added	396 200	9 349 600	▲	8 953 400
Total Net Income	-13 050	4 029 350	▲	4 042 400
<b>Net Income, per average actor</b>	<b>-870</b>	<b>20 663</b>	<b>▲</b>	<b>21 533</b>

#### ✓ Milk processing

The obstacles observed at the production level are also found at the milk processing level. The processing unit is equipped with semi-industrial equipment, well beyond its current production capacity. However, the expansion of canteens, supported by units adapted to demand, will make processing profitable. Thus, net income per unit will exceed 58,000 FCFA per year, excluding the salaries of women processors.

At the municipal level, this scaling up of the transformation will generate wealth production greater than 8,100,000 FCFA per year, with an overall income exceeding 756,000 FCFA.

Figure n°9 : Economic indicators of milk processing by category of actors

Economic Indicators by Category of Actors			
Currency for the economic analysis is in Local currency	Increase canteen coverage to 75%		
	Current	Planned	Change
Total Gross Production Value	1 395 000	25 389 000	▲ 23 994 000
Total Gross Value Added	211 752	8 160 906	▲ 7 949 154
Total Net Value Added	104 148	6 762 051	▲ 6 657 904
Total Net Income	-315 852	756 051	▲ 1 071 904
<b>Net Income, per average actor</b>	<b>-315 852</b>	<b>58 158</b>	<b>▲ 374 010</b>

## 6.2.Social dimension: Jobs created

### ✓ Milk production

For milk production, employment is seen as self-entrepreneurship. Indeed, within each group of 15 women, production management is individual, with each woman responsible for her stable and her own goats. With 75% coverage of schools, 13 groups will be mobilized at the municipal level, thus involving 195 women entrepreneurs in milk production. This represents an increase of 180 additional women compared to the current situation.

Figure n°10 : Economic indicators of milk production by category of actors

Employment by Category of Actor			
<i>*In full time equivalents</i>			
180 days = 1 full time employment position			
Category of Actor	Current	Planned	Change
Increase canteen coverage to 75%	15	195	▲ 180

### ✓ Milk processing

With the current coverage rate of the canteens, milk processing is managed by 18 women, who work in weekly rotation, divided into groups of 7. On average, over a monthly period, 7 people work in the unit, with a daily wage of more than 660 FCFA. With the expansion of the canteens, this figure will increase from 7 to 91, an increase of 84 people. The daily wage will also increase from more than 660 to more than 730 FCFA, an increase of more than 65 FCFA.

Figure n°11 : Economic indicators of milk processing by category of actors

Employment by Category of Actor			
*In full time equivalents			
90 days = 1 full time employment position			
Category of Actor	Current	Planned	Change
Increase canteen coverage to 75%	7	91	▲ 84
<u>Average Daily Wage by Category (Local currency)</u>			
Category of Actor	Current	Planned	Change
Increase canteen coverage to 75%	667	733	▲ 67

## 7. Conclusion

The scaling up of school canteens in the commune of Niakhar, with a target coverage of 75% of students, offers a concrete response to the challenges of promoting local products and strengthening territorialized value chains. The results show that this initiative will make milk production and processing activities profitable, which were previously loss-making, with an annual wealth creation estimated at more than 8,950,000 FCFA.

This economic transformation is based on controlled production costs, improved productivity (+12%), stronger organization of local players and economies of scale fostered by the scaling-up of canteens. These advances are part of a context in which canteens are becoming a structuring lever for promoting a circular economy, improving producers' incomes and strengthening the resilience of communities in the face of socio-economic challenges.

The emergence of new production and processing units, due to the expansion of school canteens, could be organized into cooperatives. This structure would promote the creation of savings and investment mutuals, thus guaranteeing the sustainability of activities beyond the support of technical and financial partners.

## 8. Bibliographic reference

Ndiaye, A. (2013). L'agriculture sénégalaise de 1958 à 2012: analyse systémique et prospective

<https://agritrop.cirad.fr/607810/1/Guide-Urbal-FR.pdf>

<https://www.fao.org/in-action/epic/ex-act-tool/suite-of-tools/ex-act-vc/en/>

[https://grdr.org/IMG/pdf/grd-\\_guide\\_pat\\_a5-lowdef--2.pdf](https://grdr.org/IMG/pdf/grd-_guide_pat_a5-lowdef--2.pdf)

[https://mediatheque.agencemicroprojets.org/wp-content/uploads/Publications-National\\_Feeding\\_Guide\\_Senegal-details-1.pdf](https://mediatheque.agencemicroprojets.org/wp-content/uploads/Publications-National_Feeding_Guide_Senegal-details-1.pdf)

<https://www.alimenterre.org/system/files/2021-12/1296-fiches-pays-alimentation-scolaire-benin-bf-senegal-togo.pdf>

<https://grdr.org/IMG/pdf/entretien-2014061-2015084-dlaure-mniokane-vc.pdf>