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Capitalisation note

Eco-Kilichi: Structuring a high-quality dried meat sector in Niger through ecological innovation

With technical and financial support of :

Schweizerische Eidgenossenschaft
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Project : Creation of a self-sufficient complex for the ecological production of dried meat in Niger (Eco-kilichi Complex)

Country : Niger

Implementing institutions : National Solar Energy Agency (ANERSOL), Directorate for the Promotion of Animal Sectors and Quality (DPFAQ), Directorate-General for Animal Production and Industries of Niger, Niamey Cold Storage Slaughterhouse (AFRIN), Central Livestock Laboratory (LABOCEL)

Executive summary

The Eco-Kilichi project is modernising the kilichi sector in Niger through an autonomous eco-friendly production complex in Niamey, equipped with solar dryers and a wastewater treatment unit. Funded to the tune of 65 million CFA francs, it has enabled the construction of infrastructure that is 95% complete, the equipping of the Kilichi Innovation Platform (PIK) and the training of 100 producers in hygiene practices.

Despite delays linked to Covid-19 and organisational challenges, the project is improving the sanitary quality of kilichi, strengthening its export potential (PGI) and increasing incomes, particularly for women involved in marketing.

Recommendations include better institutional coordination, ongoing technical support and a pilot phase to test operationality. The Protected Geographical Indication (PGI) certificate for kilichi, combined with the African Continental Free Trade Area (AfCFTA), positions the product as a lever for exports to Europe and Asia.

Key messages

- The Eco-Kilichi project addresses a key issue for Niger: structuring and modernising the kilichi production sector in order to make it a lever for economic development, job creation and exports, while ensuring the product's sanitary quality.
- It has resulted in the establishment of an autonomous, environmentally friendly production complex equipped with solar dryers and a water treatment system, supported by training and awareness-raising activities for stakeholders in the sector.
- Despite delays in implementation, the project has provided the Kilichi Innovation Platform with a pilot infrastructure that meets the requirements of hygiene, environmental sustainability and professionalisation of production.
- The introduction of renewable energy and enhanced hygiene practices paves the way for a sustainable transformation of the kilichi sector, with expected effects on the incomes of beneficiaries, particularly women involved in marketing.
- Experience shows that the success of this type of project depends on strengthened institutional coordination from the design phase onwards, constant technical support for innovation, and realistic planning of infrastructure works, including a pilot operational phase.

Challenge

A promising but under-exploited sector

Niger, a landlocked Sahel-Saharan country, has a large livestock population and an agro-pastoral tradition deeply rooted in economic and social dynamics. Livestock farming plays a strategic role, generating a variety of jobs throughout the livestock and meat sector. Meat, particularly kilichi – seasoned and dried meat – is an iconic product with high cultural, nutritional and commercial value. This processed product is not only popular nationally, but also in high demand in West African trade corridors and internationally, particularly in Europe and Asia.

The entry into force of the African Continental Free Trade Area (AfCFTA) provides an opportunity to increase trade in this product. In this context, Nigerian kilichi, recently recognised by a Protected Geographical Indication (PGI) certificate, could become a major lever for promoting national animal production and stimulating the local economy. However, the sector remains dominated by artisanal practices, characterised by poor organisation, obsolete technology and hygiene conditions that compromise the sanitary quality of the product.

Major technical and economic constraints

The current artisanal production of kilichi relies on rudimentary drying methods, often poorly controlled, which alter its organoleptic and sanitary qualities. This situation considerably hinders export prospects and positioning in demanding markets. In addition, production capacity remains limited, hampered by inadequate equipment, low investment, and the economic precariousness of operators in the sector. The latter, often small informal units, struggle to modernise their working tools or meet the regulatory requirements of regional and international trade.

Added to these limitations are significant environmental and energy challenges. Traditional processes, which consume wood or non-renewable energy, are not sustainable. They expose the sector to growing risks related to climate change and pressure on natural resources

An urgent need for technological modernisation and sector organisation

In light of this situation, the needs identified are clear: the kilichi production chain must be modernised to improve the product's hygiene and nutritional quality, increase production volumes and meet the hygiene standards in force in target markets. This involves developing more efficient, cleaner and more environmentally friendly drying technologies, taking advantage of Niger's high levels of sunshine to promote autonomous solar systems.

At the same time, it became clear that it was essential to bring together the various players in the sector around a leading processing centre capable of standardising processes, initiating training programmes and serving as a showcase for certified, traceable and exportable production. The aim of the Eco-Kilichi project, led by a consortium of public and technical stakeholders, is precisely to meet these needs. By equipping the Kilichi Innovation Platform (PIK) with an autonomous eco-friendly production complex, it aims to develop a model that can be replicated in other production areas, with the support of public authorities and development partners.

Thus, beyond the immediate objective of upgrading kilichi production, the project addresses broader issues such as promoting local products, creating jobs, energy transition and food sovereignty. It is fully in line with the strategic priorities of Niger and ECOWAS, particularly within the framework of ECOWAP 2025, which aims to strengthen regional agricultural value chains while improving their competitiveness, sustainability and export capacity.

In practice

Activities carried out

As part of efforts to intensify the production of high-quality meat, the Eco-Kilichi project has drawn on the Kilichi Innovation Platform (PIK) in Niamey to implement a series of structural activities. The main focus of the intervention was the construction of a self-sufficient, environmentally friendly kilichi production complex, an infrastructure designed to serve as a model for the modernisation of the sector.

Civil engineering work enabled the construction of meat processing units prior to drying and drying units. A field of solar dryers was set up to ensure a healthier and more environmentally friendly processing method. Equipment was purchased to improve hygiene practices along the production chain, including protective suits, high-pressure cleaning equipment and cleaning products. Kilichi samples were analysed to assess the quality of the processed product. At the same time, training sessions were organised for platform stakeholders to disseminate good hygiene and manufacturing practices.

The funding mobilised for this component amounted to 65 million CFA francs. The approach was based on a partnership dynamic bringing together key national institutions such as the National Solar Energy Agency (ANERSOL), the Directorate for the Promotion of Animal Sectors and Quality (DPFAQ), the Directorate-General for Animal Production and Industries, the Niamey Cold Storage Slaughterhouse (AFRIN), and the Central Livestock Laboratory (LABOCEL).

Results achieved

The main activity is the construction of the Eco-Kilichi complex, which is now a benchmark infrastructure for kilichi production in Niger. Although the work had not yet been completed at the time of the evaluation, the imminent completion of the complex, combined with the installation of solar equipment and the establishment of a wastewater treatment unit, suggests a significant improvement in the sanitary quality of the processed product.

The actions taken have also laid the foundations for greater professionalisation of the sector, thanks to the introduction of modern equipment and the upskilling of producers. The testimonials collected highlight the importance of these changes in terms of improving the positioning of kilichi on local and regional markets. The momentum generated has opened up economic opportunities for women, particularly in the supply of spices and retail sales at promotional events, thereby contributing to an improvement in their incomes.

Challenges encountered

The implementation of the project faced several major constraints. The first was the delay in starting activities, partly attributable to the effects of the Covid-19 pandemic. This context disrupted the initial planning and led to significant adjustments in the operational schedule.

In addition, organisational difficulties, particularly related to the choice of site and the awarding of works contracts, slowed down implementation. The change in the originally planned location and the low level of mobilisation on the part of the beneficiary counterpart also constituted significant obstacles. Although PIK provided the land for the complex, it struggled to provide sufficient logistical and institutional support in the early stages of the project.

Despite these obstacles, the resumption of work and the high level of progress on the site (95% complete) are evidence of a recovery in momentum. The efforts made by the partners, combined with the clear interest of the public authorities, have made it possible to preserve the viability of the project and ensure continuity in the implementation of the planned activities.

Lessons learned and recommendations

- **The physical structuring of a modern complex is a key lever for modernising the kilichi sector, provided that its implementation is coordinated and monitored**. The initiative to provide the Kilichi Innovation Platform (PIK) with an autonomous complex has proved to be a mobilising force and well suited to the challenges of quality and production standards. However, the delays observed in the work, partly due to organisational difficulties and low mobilisation of the beneficiary counterpart, show that solid coordination from the early stages is essential. It therefore seems appropriate to consolidate the responsibilities of each actor from the design stage onwards and to support beneficiaries in logistical and administrative preparation, particularly with regard to the mobilisation of local resources.

- **The integration of renewable energies into agri-food processing is an innovation that is well suited to the Sahelian context, but which requires enhanced technical**

support. The use of solar energy to power the Eco-Kilichi complex makes it possible to reconcile energy performance and environmental sustainability. This innovative approach was made possible thanks to the technical expertise of ANERSOL, which supported the design of the system. However, experience shows that the success of this type of innovation depends on the availability of local technical skills. It is therefore recommended that, in any similar project, structured technical support be anticipated from the planning stage onwards, and that care be taken to strengthen the capacity of end users to maintain and operate these facilities independently.

- **Delays in infrastructure work compromise the achievement of results and the measurement of impacts, especially when these depend directly on the effective commissioning of equipment**. In the case of the Eco-Kilichi project, almost all of the expected results (in terms of production, hygiene, employment and exports) depend on the effective operation of the complex. The delay in construction prevented these results from being achieved within the planned timeframe, making them difficult to evaluate. It is therefore important to build realistic margins of flexibility into the planning, as well as a pilot phase to test the operationality of the system before the project is completed.

- **Institutional and political support is an essential factor for sustainability, particularly when it comes to promoting an iconic product**. The support given to the Protected Geographical Indication process by national institutions has strengthened the legitimacy of the project. The Nigerien government and its partners have shown support for the official recognition of kilichi as a strategic product. To take this further, it would be useful to formalise this support through mechanisms for integration into public policy and to encourage the networking of similar initiatives in order to create a ripple effect at the national level.

- **The reproducibility of the model depends as much on its economic viability as on the ability of stakeholders to perceive its benefits**. The interest expressed by other production basins demonstrates the potential for replication of the Eco-Kilichi model. Nevertheless, in order to encourage similar initiatives, it is necessary to demonstrate that the model is economically viable. This requires documenting the investment costs, the gains generated by improved quality, and the savings achieved through energy self-sufficiency. Conducting a simple economic study, accessible to local decision-makers, would strengthen the prospects for disseminating the model.

- **Capacity building is an essential lever for success, provided that it is appropriate and sustained over time**. The training provided to platform members has led to a better understanding of health requirements and good practices. However, its impact remains limited as long as the complex is not fully operational. It would be wise to schedule refresher sessions when activities actually start, as well as a long-term support and advisory system, in order to firmly establish the new practices within the operational teams.

- **Scaling up :** Replicate the Eco-Kilichi model in Maradi and Zinder, where kilichi production is significant, targeting 200 producers per region in an 18-month pilot phase, based on DPFAQ data.

About this capitalisation note

This note is the result of a participatory capitalisation process conducted as part of the Programme to Support Livestock Marketing in West Africa (PACBAO). The aim of capitalisation is to document and promote experiences in the field in order to encourage learning, accountability and the scaling up of promising approaches. The information was gathered through interviews, field visits, document analysis and stakeholder consultations.

About the PACBAO programme

The Regional Programme to Support Livestock Marketing in West Africa (PACBAO) is an ECOWAS initiative with financial support from Swiss Cooperation (SDC). It is part of the implementation of the Regional Agricultural Policy, ECOWAP. It aims to create conditions conducive to increasing livestock farmers' incomes by drawing on the private sector of regional livestock trade and regional public institutions. During its first phase (2018–2023), the programme contributed to strengthening the institutional and operational capacities of ECOWAS and financed 16 pilot projects in 11 countries in West Africa and the Sahel, which generated around ten good practices and innovations. The pilot projects mainly aimed to increase livestock productivity, improve the competitiveness of meat produced in the region in the face of competition from extra-community imports, facilitate and modernise intra-regional livestock trade, and improve relations between value chain actors, facilities and means for processing and transporting red meat.

The second phase of the programme (2024-2028) is in line with this approach and will focus on scaling up existing innovative practices while creating favourable conditions for promoting the livestock and meat sector. Its overall objective is to help meet the red meat and meat product needs of the populations of West Africa and the Sahel through the development of intraregional trade in livestock and meat and the control of extraregional imports of meat products. Specifically, the second phase of the programme aims to increase the supply of livestock and meat in terminal markets by at least 2.6% and reach approximately 500,000 direct beneficiaries, 40% of whom are young people and women

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