Objectives of the project

LIDISKI aims at improving the livelihood of smallholder farmers in the North of Nigeria. LIDISKI will contribute to the reduction of small ruminants and poultry mortality by improving the surveillance and the control of *Peste des petits ruminants* (PPR) and *Newcastle Disease* (ND), the two main diseases affecting the livestock of smallholder farmers in Nigeria.

Background

Many Nigerian households are heavily reliant on livestock, which are a source of both animal protein and income, and which represent critical assets to cope with shocks. Supporting the smallholder sector thus serves to boost food security, improve quality of life, notably for the country's smallholders, and empower women, who are major players in the poultry and small ruminant value chains in particular.

A community animal health worker vaccinating chickens against Newcastle disease in a community. ©Ikore

Nigeria's agricultural sector is highly vulnerable to climate change, notably in semi-arid northern parts of the country. In this context, livestock diseases are a major issue. They are the biggest economic threat to the livelihood of poor rural farmers and livestock owners. It is estimated that PPR causes between $1.4 and $2.1 billion in damage in Nigeria each year, while the highly virulent ND virus can wipe out entire flocks of chickens. Therefore, mitigating these two diseases will have a positive impact on smallholder farmers livelihood. Mitigation requires efficient surveillance and control systems. Nevertheless, these systems are not fully operational in Nigeria. To reach sustainable surveillance and control systems for those two diseases, commitment of local actors must be obtained (through capacity building and early engagement in the development of the strategies) and strategies must be tailored to the context and to actors' expectations.

The theory of change to achieve the objectives

In order to contribute to improving the livelihood of smallholder livestock owners in Nigeria, the final aim of the LIDISKI project is to reinforce PPR and ND surveillance and control systems in North Central Nigeria, through the development of tools and guidelines specific to the context.

This relies on three main outcomes: the improvement of the understanding of the socio-economic and epidemiological context of the two diseases, the strengthening of the human and material capacities of national partners, and the improvement of the engagement of local stakeholders in vaccination and disease reporting.

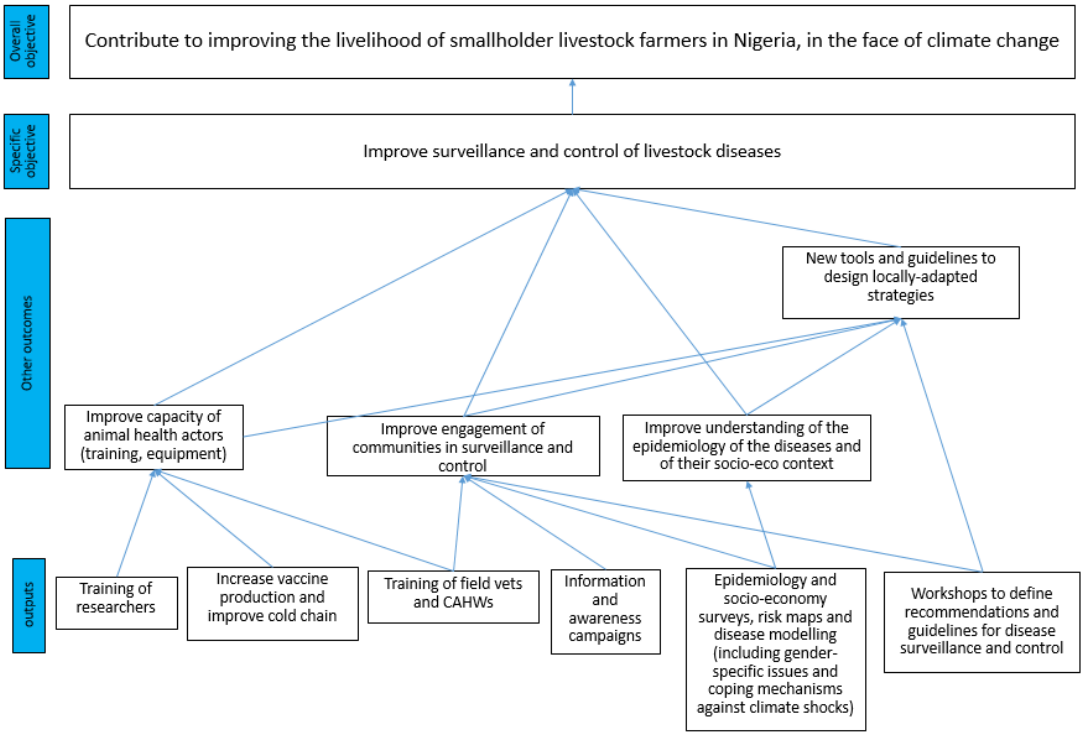
To improve the situational understanding, several surveys are conducted in the three states of the intervention zone of the project (Plateau, Bauchi and Kano). Using conventional and participatory approaches, the epidemiological survey allows to gain a better understanding of the prevalence and

distribution of the two diseases, as well as the risk factors contributing to their maintenance and spread. Socio-economic surveys help to characterize the impacts of the diseases and the management strategies developed by farmers to cope with the diseases and climate-related shocks. Finally, animal mobility surveys provide insight about the mobility patterns and potential hotspots and routes for the transmission and diffusion of the diseases. All these data are then combined in risk maps and models to provide an overall understanding of the disease dynamics and impacts in the area.

To strengthen the capacities of national partners, several training modules are designed and provided to meet the specific needs of the researchers and public veterinary services (laboratory testing, epidemiology, socio-economics, risk analysis, biostatistics). All training sessions have both a theoretical and a practical component directly linked to the project activities, to reinforce the "learning-by-doing" process. In parallel, equipment is purchased to increase the vaccine production (for PPR and ND) and to improve the cold chain in the remote outstations.

To improve engagement of local stakeholders in vaccination and disease reporting, a network of Community Animal Health Workers (CAHWs) is established in the three states. This involves developing a specific training curriculum in relation with the regulatory body for veterinary practice, selecting suitable candidates from the communities and training them to recognise the diseases and to vaccinate animals when needed. CAHWs are also trained to report suspected cases of ND and PPR using an electronic-based form accessible on their mobile phone. CAHWS are involved in communication campaigns implemented at community level during the course of the project to inform and raise awareness of the importance of reporting PPR and ND, and of requesting animal health services. Awareness contents are tailored to the context by using the information collected by the epidemiological and socio-economic surveys (see above), conducted at community-level using participatory appraisal.

All these activities are contributing to the main outcome of the project which is the development of new tools and guidelines to support preventive and control strategies tailored to the context. Workshops at state and federal levels are conducted with all categories of stakeholders (public and private) to co-design an information system fed with data reported by CAHWs and providing information services meeting end-user needs. A final series of workshop bring together all knowledge and tools generated during the course of the project (including the MEL plan's results) to co-design guidelines and recommendation to improve surveillance and control of PPR and ND in Nigeria in general and in North Central in particular.



Main activities

The project is structured in four main blocks of activities.

- ✓ **Capacity building** of animal health actors through (i) Training of National Veterinary Research Institute (NVRI) field and laboratory staff, field vets, CAHWs services, livestock owners and staff of the Ministry of Agriculture, (ii) Providing a secure source of electricity for better storage and delivery of diagnostic samples and vaccines and for computerized data collection on disease suspicions in the field, (iii) Improving production of efficient PPR and ND vaccines.
- ✓ **Engaging** communities through (i) Connecting with communities to benefit from their knowledge about ND and PPR and to assess their perception of the diseases as well as the mitigation strategies to cope with them, (ii) Community awareness campaigns on PPR and ND with the support of CAWHs, (iii) Advocacy actions with State veterinary services and community leaders.
- ✓ **Understanding** the epidemiology of PPR and ND and their socio-economic context through (i) Epidemiological surveys on disease distribution, (ii) Socio-economic surveys on perceived impact and coping strategies, (iii) Mapping of animal movement and identification of risk pathways of disease dissemination.
- ✓ **Developing tools and guidelines** for sustainable scale-up actions through (i) The design of an information system for surveillance and control of animal diseases giving access to tools and data to animal health actors, (ii) The evaluation of the effects of the project interventions on communities, veterinary services, laboratory services, and research partners, (iii) The organization of participatory workshops with key stakeholders to produce recommendations and guidelines for surveillance and control of ND and PPR, tailored to the context and expectations of stakeholders, and to build on the outputs of the projects.

Results to date (December 2022)

After three years of implementation, activities in Plateau and Bauchi states have been completed. At this stage, most of the targets of our project's indicators have been reached or are close to be attained. Our training programme reached the desired number of researchers, field veterinarians, and community members, with continued actions to ensure long-term assimilation. Community animal health workers (CAHWs) are now involved in vaccination and disease reporting, and are actively

engaging with farmers to increase awareness of animal diseases and vaccination. Since the installation of solar panels in 2021, the outstations have not suffered power failure and energy bills have continued to decrease. Vaccine sales have also increased at the outstations, with first sales now possible in Katsina and Yola. The efficacy of NDV-I2 vaccine, widely used by backyard poultry farmers, has been evaluated for the first time, suggesting that vaccination campaigns with a single intervention will probably not be effective in controlling the disease in Nigeria. Vaccination strategies tested in the frame of the project will be discussed with veterinary services.

The first results of epidemiologic and socio-economic surveys showed the high prevalence of PPR and ND in Plateau state, and the multiple contributions of poultry and small ruminants farming to households' livelihood. Surveys confirmed that livestock owners, especially women, are likely to use vaccination when they are aware and have access to it and that CAHWs can significantly contribute to increase vaccination coverage. Mapping animal mobility across markets in Plateau helped identifying key areas for surveillance. These results will be compared with the data collected in Bauchi. Several participatory workshops with representatives of the key actors in animal health in Nigeria have already been carried out to model vaccination strategies. Activities to evaluate the impact of the project's actions on beneficiaries are about to start. Outputs of the project will be shared with stakeholders and used to co-create guidelines and policy briefs for disease surveillance and control during the last part of the project.

Organisation

The project is led by a coordination team from CIRAD. The coordination team meets monthly with work package leaders from CIRAD, NVRI, Istituto Zooprofilattico Sperimentale delle Venezie (IZSVe) and Ikore ensuring implementation of the activities, and with desk officers of the Federal Ministry of Agriculture and Rural Development of Nigeria (FMARD) allowing for a close follow-up on the progress of the project by the Ministry. The scientific committee, composed of the coordination team and representatives from IZSVe, IKORE, Ahmadu Bello University (ABU), World Organization for Animal Health (WOAH) and the International Livestock Research Institute (ILRI), provides advice to the coordination team regarding the scientific activities and the results. The steering committee, composed of CIRAD, NVRI, IZSVe, and IKORE, analyses the state of progress of activities in view of the provisional programme, the management of finance and solves potential conflicts. A high-level committee, composed of CIRAD direction, EU delegation in Nigeria and FMARD, oversees the progress of the project, and revises and validates any major change proposed in project activities or budget allocation. The project is organized in 10 work-packages structuring the 4 interdependent actions described in the previous figure. One is specifically dedicated to the evaluation of the effects of the project as well as the development of final recommendations and guidelines.

Implementing organisations

- ✓ Centre de coopération Internationale en Recherche Agronomique pour le Développement (CIRAD, France)
- ✓ National Veterinary Research Institute (NVRI, Nigeria)
- ✓ Ikore International Development (Nigeria)
- ✓ Istituto Zooprofilattico Sperimentale delle Venezie (IZSVe, Italy)

Associates of the project

- ✓ World Organization for Animal Health (WOAH)
- ✓ International Livestock Research Institute (ILRI)
- ✓ Federal and State Ministries of Agriculture and Rural Development of Nigeria
- ✓ Ahmadu Bello University (ABU) in association with the National Agricultural Extension and Research Liaison Services (NAERLS) of Nigeria

Other main stakeholders

Public and private vets, community animal health workers, livestock owners, vaccine producers and suppliers.

Location

Nigeria

Funding and co-funding

European Union	€ 2,500,000
Co-financing from the 4 partners institutions	€ 175,514
Total budget	€ 2,675,514

Duration

Four (4) years; January 2020 - December 2023 (Pending request for extension until December 2024)

Website: www.lidiski.org
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Twitter: @lidiski1
Linkedin: @lidiski
Youtube Channel: @lidiskicommunications3078

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