



Junior Scientists Tandems

Final Report

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Start and end date of stay at IARC/ GRI: 01 October 2024 – 31 March, 2025

Title: Enhancing buffalo health and productivity for smallholder dairy farmers in Nepal: an evaluation of village livestock promoters' training programs and business practices, under the 'Sapling Bhaisi' initiative

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1. Introduction

Livestock, particularly buffalo, plays a pivotal role in Nepal's agricultural economy. Integrated into small-scale farming systems, it provides both essential dietary nutrients and a steady source of income for rural communities. The sector contributes nearly 13% of Nepal's GDP and offers employment to more than half of the rural population. Despite these contributions, productivity remains low due to poor animal health, inadequate feeding practices, and limited access to veterinary and extension services.

To address these challenges, the International Livestock Research Institute (ILRI) launched the "Sustainable Animal Productivity" (SAPLING Bhaisi) initiative. It aims to enhance buffalo productivity by strengthening private sector service delivery through the establishment of Village Livestock Promoters (VLPs). These VLPs, selected by dairy cooperatives and supported by local governments, receive training in business and technical domains including animal nutrition, reproductive health, and disease management.

The goal of this career exploration stay was to evaluate the SAPLING Bhaisi initiative, particularly the impact and sustainability of the VLP model. The project assessed how training programs influence buffalo health, reproductive outcomes, milk production, and the financial viability of VLPs. This report summarizes my experiences and insights gained during my internship period in Nepal.

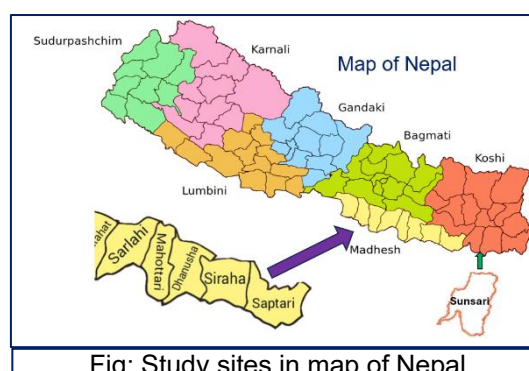
2. Objectives

The specific objectives of the research project were:

1. To assess the effectiveness of training programs on the performance of VLPs in terms of buffalo health, milk production, and reproductive success.
2. To evaluate the current business and financial practices of VLPs and identify key factors contributing to their success or challenges.
3. To explore perceived benefits and challenges of the VLP training programs.

3. Research Stay Experience

My internship and research stay were hosted by International Livestock Research Institute (ILRI) in Nepal, in collaboration with the University of Hohenheim, in Germany. The period was marked by extensive fieldwork, stakeholder consultations, and collaboration with both local and international supervisors. The ILRI team facilitated access to program documents, baseline datasets, and field visits across various districts in the Terai region. I developed digital data acquisition tools for data collection, conducted training sessions for enumerators, observed VLP-farmer interactions, conducted quantitative interviews with farmers, qualitative in-depth interviews with VLPs and several interactions with stakeholders.



The research was conducted across six districts in Madhesh and Koshi Pradesh, a southeastern plains region of Nepal that shares a border with India and is known for its distinct cultural and traditional landscape. Working in this unique setting offered me valuable



experience in navigating diverse cultural norms, traditions, and working systems-broadening both my professional and personal perspectives.

A significant portion of the internship period was spent gaining a deeper understanding of the operational ambience of VLPs, particularly how their services are perceived by farmers following the various training organized by ILRI. During the first three months, I was primarily involved in field observations, stakeholder consultations, and identifying key value chain actors within the SAPLING Bhaisi project. In parallel, I contributed to information gathering efforts to finalize the data collection tools and establish the working modality for data collection across the study sites. This included reviewing existing baseline data and conducting preliminary work to ensure the inclusion of the same farmers from the baseline study in this follow-up evaluation.

The exposure to the workings of ILRI, combined with insights from rural fieldwork, was truly transformative. I gained hands-on experience in mixed-methods research, especially in conducting and analyzing qualitative interviews using software for thematic coding. Additionally, I developed skills in designing quantitative data collection tools using Open Data Kit (ODK).

4. Interactions with Supervisors and Hosting Institution

I received continued guidance and mentorship from my supervisors both at ILRI and the University of Hohenheim. Dr. Nils Teufel (ILRI) offered continuous support in refining the methodology and finalizing the field tools based on study objectives. Their expertise in livestock value chains and research technicality was invaluable. Prof. Manfred Zeller and Dr. Orkhan Sariyev from the University of Hohenheim provided academic inputs that are helping me to maintain scientific rigor in my analysis. The ILRI team in Nepal was highly collaborative and inclusive. With the continued support of Mr. Padmakumar Varijakshapanicker, the Nepal-based local supervisor from ILRI, I gained valuable exposure that deepened my understanding of the local context. Regular meetings with supervisors helped track progress, resolve challenges, and explore emerging themes. Additionally, I participated in VLP interaction and capacity-building workshops organized by ILRI, which deepened my understanding of development-oriented livestock research, and the practical challenges faced in the field. I also took part in several training courses offered by ATSAF, such as “Good Scientific Introduction and General Principles,” “Working in a Diverse Team – Intercultural Competencies,” and “Be More Efficient with the Pareto Principle.” These courses, along with the interactive webinars, provided valuable practical insights into working effectively in diverse community settings.

5. Key Findings and Reflections

More detailed and comprehensive results will be presented in the master's thesis currently in preparation. Below are some preliminary findings and observations based on the data and field experiences.

5.1 Improved Animal Health and Productivity: The preliminary findings showed that farmers associated with trained VLPs reported notable improvements in buffalo health and milk yields. Farmers observed success rates of artificial insemination. These outcomes were linked to better feeding practices, timely veterinary support, and proactive herd management promoted by trained VLPs.



5.2 Financial Viability of VLPs: Initial findings suggest that while VLPs provide crucial services, their business models vary significantly in success. Factors contributing to financial viability included cooperative linkages, diversified services, competitive pricing strategies, and consistent record-keeping. SWOT analysis highlighted challenges like limited access to capital, dependency on subsidies, and low farmer purchasing power.

5.3 Training Outcomes and Perceptions: Stakeholders, including farmers, VLPs, and cooperative leaders, expressed positive feedback about the training programs. VLPs gained confidence in delivering technical advice and improved their communication and business skills. However, challenges such as knowledge gaps in advanced reproductive technologies and business expansion strategies remain. Farmers expressed a desire for continued follow-up training and support.

5.4 Gender and Inclusion: The participation of women in VLP programs was limited. The specific cultural barriers, workload, and mobility constraints hindered women's engagement both as service providers and recipients. Future programming must actively promote gender inclusion through targeted and quota-based recruitment, flexible training schedules, and gender-sensitive support systems.

6. Contributions and Future Steps: This research contributes to the understanding of sustainable livestock extension models in resource-limited settings. The VLP model to be more promising requires strategic support to ensure financial sustainability and service quality. The data and insights gathered during this stay will be used for my academic master's thesis, inform ILRI's project evaluations, and contribute to scholarly publications.

Future steps include:

- Finalizing data analysis and submitting the research findings for peer-reviewed publication
- Supporting ILRI in scaling strategies related to improving buffalo farming
- Exploring follow-up collaborations through the University of Hohenheim and ILRI

The career exploration stay was intellectually enriching, professionally fulfilling, and blends with my long-term research interests in agricultural development and rural livelihoods.

7. Acknowledgements

I extend my heartfelt gratitude to the ATSAF Academy for generously funding this research stay. My deepest appreciation goes to my supervisors-Dr. Nils Teufel, Prof. Manfred Zeller, and Dr. Orkhan Sariyev-for their invaluable mentorship, guidance, and encouragement throughout this journey. I am equally thankful to the ILRI Nepal team for their unwavering field support, insightful contributions, and warm hospitality. A special place in my heart is reserved for the participants of this study-especially the Village Livestock Promoters (VLPs), farmers, and other stakeholders-who generously shared their time and experiences to help tell the story of improving buffalo farming in Nepal. Lastly, I am forever grateful to my beloved family and friends, whose unwavering support and belief in my work made this journey possible.

8. Annex includes snapshots of my fieldwork in Nepal.

Please note that pictures included in this report were captured with the permission of the participants. While the image quality may not be perfect, the experiences and moments shared with them have been invaluable to me and for my career.

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Hands-on training for enumerators



Mithila art: a vibrant reflection of tradition



On site visit to farmer's fields



Data collection with a farmer



Navigating farmers



Milk transport and collection at a local cooperative



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Engaging in meaningful conversations with farmers



Data collection with a farmer



Milk collection center supporting local dairy farm



Conducting qualitative interviews with a VLP



Real-time digital reporting



Local milk analyzer to maintain quality and standard



A glance during data collection