



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

FEED THE FUTURE INNOVATION LAB FOR LIVESTOCK SYSTEMS

Mapping of smallholder dairy value chains in Ouagadougou and Dori, Burkina Faso

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Introduction

Milk and dairy products are a key source of essential nutrients, and are an important food product especially for children and pregnant and lactating women. Despite the large cattle livestock sector in Burkina Faso, milk production in the country is limited and dairy consumption is well below recommended levels. Most milk produced in the country derives from traditional low-yielding extensive farming system, with few semi-intensive dairy units mostly located in peri-urban areas. Increased urbanization in the country means the demand for milk and dairy products is increasing. Such demand is now being met primarily by imported milk powder, given that the current dairy production systems in the country are unable to satisfy this demand. On the other hand, such increased demand represents an economic opportunity for the dairy sector in the country and the government is planning investments to grow and modernize milk and dairy products production and marketing in the country. However, livestock intensification is associated with increased environmental impacts, as well as increased health hazards in larger and longer supply chains. The dairy sector and farm associated hazards is poorly known in Burkina Faso, and such information is required to appropriately inform policies and dairy sector development strategies.

Despite being an essential food nutriment, milk and dairy products are vulnerable to contamination with bacteria and important human foodborne pathogens. Health risk associated with *Salmonella* spp. and *Staphylococcus aureus* have been associated with consumption of milk and dairy products of poor microbiological quality. More recently, reports on high levels of aflatoxins in milk products and their associated carcinogenic effect and putative association with chronic malnutrition (stunting) in children have shown the importance of understanding the levels of such hazards in milk and dairy products and which management approaches can be used to limit their presence in the dairy supply chains.

In line with the planned project activities, a workshop was organized involving key smallholder dairy value chain actors on 10 October 2018 in Ouagadougou and on 11 October 2018 in Dori to inform key actors in dairy production and food safety about the project and to map the smallholder dairy value chain.

The lists of participants at both meetings are in Annex 1 (18 at the meeting in Ouagadougou and 14 in Dori). The participants included dairy producers, processors and traders. Researchers from INERA and IRSAT also participated along with officials from the Ministry of Animal Resources and Fishery, Ministry of Health and food safety regulatory agency.

Mapping the dairy value chain

To guide the mapping of dairy value chain in peri-urban areas of Ouagadougou and in rural areas of Dori, the facilitator of the workshop introduced the value chain concept. The overall objective was to characterize smallholder dairy value chain in peri-urban area of Ouagadougou and in rural area of Dori to inform their strategic development and improve efficiency. The specific objectives were to (1) characterize the important activities and actors for the smallholder dairy value chain and (2) identify constraints, difficulties and possible interventions to improve the value chain.

For the mapping exercise, the participants were divided into three work groups in Ouagadougou representing production, processing and commercialization segments of the chain. Due to the low number of participants in Dori, there were only two work groups (production and processing). The instructions and questions for the work groups were as below.

A. Identification of actors

- List all input suppliers by type and location of these providers for dairy production, processing and marketing.
- List the different types of dairy products and their origins at the level of your production, processing and marketing activities.
- List all clients or customers (type and size if possible).

- List dairy producer, processor or trader organizations who work with you.
- List all of the support services for dairy production, processing and marketing, and the nature of their services.

B. Identification of the constraints and difficulties

- List the main difficulties and constraints you have encountered in production, processing and marketing of milk products.
- What are the issues related to hygiene that you have encountered in the production, processing or marketing of milk products?

C. Identification of solutions

- What solutions do you suggest for a better organization of dairy value chain in Burkina Faso in terms of production, processing and marketing?
- What solutions do you suggest to resolve the identified difficulties and constraints?
- What action do you suggest to minimize and/or resolve constraints you have encountered?

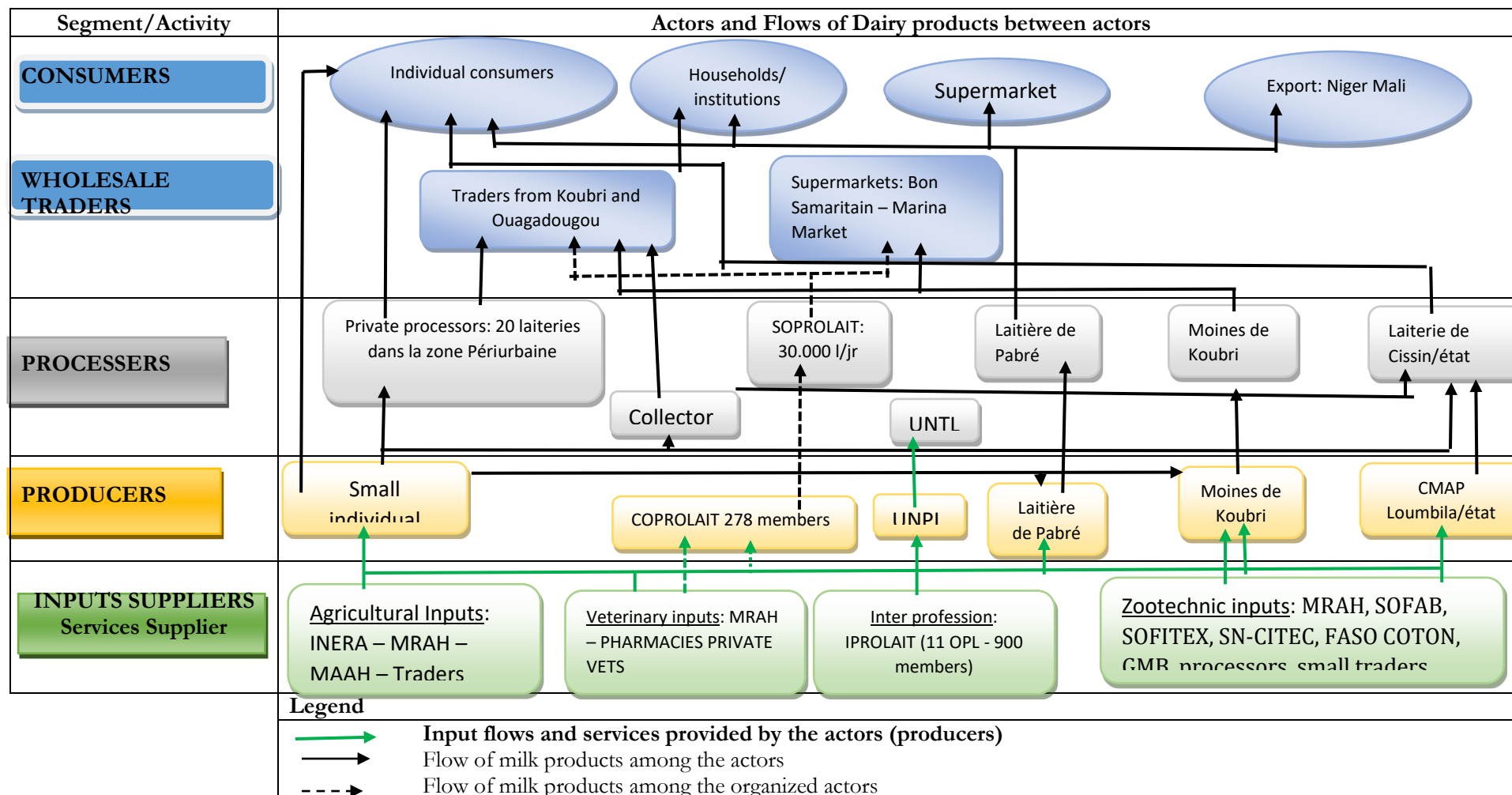
The reports from the work groups were used for the mapping of the dairy value chain in peri-urban areas of Ouagadougou and in rural areas of Dori.

Synthesis of dairy value chain work groups for Ouagadougou

		Production	Processing	Commercialization (marketing)
Identification of actors	Category of actor	<ul style="list-style-type: none"> Government Large producer Smallholder producers Cooperatives 	<ul style="list-style-type: none"> Processors' organization unit and cooperatives (small-scale milk processing unit) 	<ul style="list-style-type: none"> Farms (COPROLAIT) Breeders, women processors or processing units (area of: Koubri, Laiterie de Fada, Pabré) Supermarkets (Marina market, Surface, ALIMENTATION BON SAMARITIN) Government import
	Input supplier	<ul style="list-style-type: none"> Agricultural Inputs (seed, fertilizer): INERA, MRAH, MAAH, traders Veterinary inputs (drugs, vaccines): MRAH, veterinary pharmacies Zootechnic inputs (concentrate feeds, artificial insemination service): MRAH, SOFAB, SOFITEX, SN-CITEC, FASO COTON, GMB, small processors, small traders 	<ul style="list-style-type: none"> Fresh milk producers and collectors Powder milk, sugar, aromas, packaging materials: traders in urban centres 	
	Product	<ul style="list-style-type: none"> Fresh milk, pasteurized milk, sour milk, yoghurt, cheese 	<ul style="list-style-type: none"> Yoghurt, fresh milk in sachet, pasteurized milk, sour milk, locally processed products (gappal – milk mixed with millet; dèguè – yoghurt mixed with millet) 	<ul style="list-style-type: none"> Fresh milk, fermented milk, sour milk, yoghurt, powder milk, cheese, butter, condensed milk
	Client (customer)	<ul style="list-style-type: none"> Individual consumers (all products) Supermarkets (all products) Processing units by associations and cooperatives (fresh milk) UNICEF, Ministry of Education, WFP Milk collection centres 	<ul style="list-style-type: none"> Individual consumers Supermarkets Governmental and non-governmental institutions Sale outlets 	<ul style="list-style-type: none"> Individual consumers, hotels Restaurants, hospitals School restaurants Boutiques Military camps, prison services
	Support Service	<ul style="list-style-type: none"> Ministry of Animal Resources and Fishery: strengthening, technical support, veterinary cares, artificial insemination Projects and NGOs (e.g. PADEL-B, PRAPS, VSP): financial and technical support, Ministry of Scientific Research and Innovation: applied research, improved seed 	<ul style="list-style-type: none"> INERA: Capacity building IRSAT: quality control and capacity building, technology development and dissemination ABNORM: advisory support, sensitization et sharing of information on quality standards MRAH: technical support and technology dissemination PDEL/ZPO & PADEL-B: technical and financial support 	<ul style="list-style-type: none"> Institutions that support commercialization and marketing of milk products (laboratories, regulatory bodies for quality of products to be marketed) Microfinance Development projects and programs (training in marketing, market study) Ecole Nationale d'Elevage et de la Santé Animale (National College on Livestock production and health) – training of the livestock farmers
Identification of constraints and difficulties	Difficulty and constraint	<ul style="list-style-type: none"> Non-availability and high cost of inputs Low productive breeds 	<ul style="list-style-type: none"> Milk conservation/processing Inadequate facilities for conservation and processing due to financial constraints, lack of access to credit Non-compliance by the input suppliers Lack of competence in appropriate technologies for conservation and processing due to insufficient training Inadequate quantity of milk during the dry season 	<ul style="list-style-type: none"> Conservation of milk products Lack of infrastructures or facilities for conservation of milk products Problem with transport of milk products Limited access to markets by the producers Bad roads to transport milk Weak implementation of the regulations for quality control of milk products

		Production	Processing	Commercialization (marketing)
	Problems related to hygiene	<ul style="list-style-type: none"> • Lack of awareness and training in milk handling and hygiene • Socio-cultural problem • Poor conservation of fresh milk: inappropriate materials, lack of cold storage • Sanitary problem: abusive use of antibiotics, udder infection 	<ul style="list-style-type: none"> • Dirty environment • Contamination by pathogens • Milk contamination by residues of veterinary drugs 	<ul style="list-style-type: none"> • Presence of pathogens in fresh milk • Poor packaging of milk products • Use of materials that can contaminate the milk products
Solutions	Organization of dairy value chain	<ul style="list-style-type: none"> • Organizing the actors into cooperatives and producers' associations • National regulations for cooperatives and producers' association • State support 	<ul style="list-style-type: none"> • Incentives for functioning associations 	<ul style="list-style-type: none"> • Establishment of platform for all the actors in dairy value chain
	Suggested solutions to constraints and difficulties identified	<ul style="list-style-type: none"> • State subsidy for inputs et equipment • Infrastructural development particularly good road network • Policy that promote local production and value addition, for example high tax on imported dairy products • Better access to credit by smallholder dairy producers • Improvement in technical support services 	<ul style="list-style-type: none"> • Application of good practices for milk conservation and processing • Improved energy supply by the State • Promotion of renewal energy • Awareness building in implementation of standard control measures • Training of the actors • Support for producers' and processors' associations • Promotion of sale of processed milk products by institutions 	<ul style="list-style-type: none"> • Facilitate access to renewable energy e.g. solar energy • Subsidy for materials for conservation of milk products • Establishment of innovation platform to link different actors in the value chains • Strengthening the organization of the value chain and the actors. • Rehabilitation of roads to better link the producers to the market • Building awareness and training of the actors in quality control

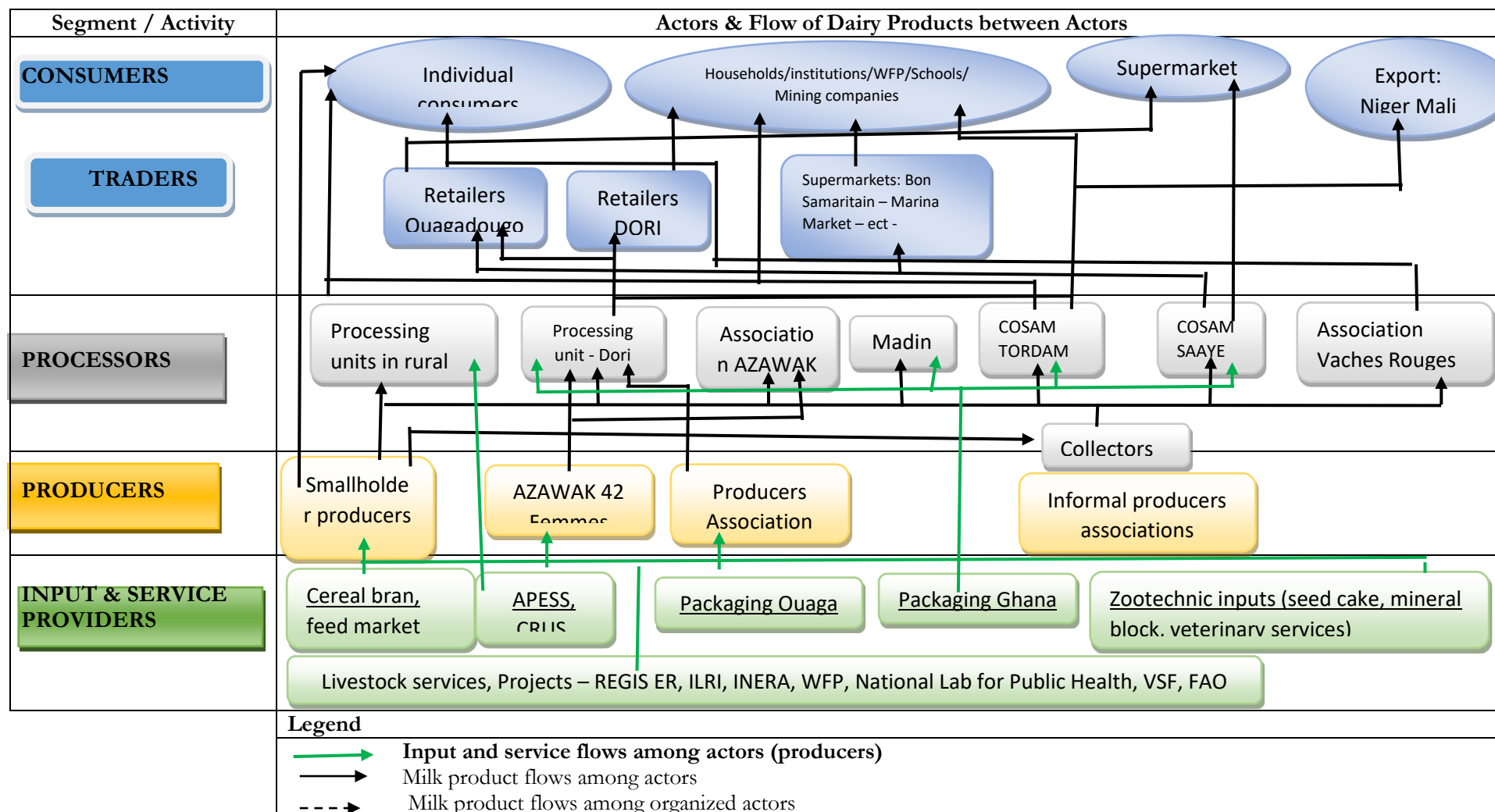
Dairy value chain mapping in urban areas of Ouagadougou



Synthesis of dairy value chain work groups for Dori

		Production	Processing
Members of work group		<ul style="list-style-type: none"> N'dicko Bouleima Abdoulaye Bocoum Boureima Manga MODIBO Oumarou IDO korou Diallo Amadou Amadou Bouleima Dicko Amadou 	<ul style="list-style-type: none"> SAWADOGO Karim Dr Augustine Ayantunde BARRY Ibrahima Zongo Mamounata Mme Barry/dicko Aminata Dicko Mariama KOITA Oumou
Identification of actors	Category of actor	<ul style="list-style-type: none"> Producer groups (many producers' associations, each consisting of at least 15 members) 	<ul style="list-style-type: none"> 12 processing units (Unité de transformation de lait des groupements et coopératives - mini laiterie) such as COSAM SAAYE, COSAM NAÏBOUDEGUI, COSAM TORDEM, Madim, AZAWAK)
	Input supplier	<ul style="list-style-type: none"> Agricultural inputs: INERA, Ministry of Animal Resources, Ministry of Agriculture and water resources, traders Veterinary inputs: State veterinary services, Private veterinary shops Zootechnic inputs (cotton seed cake, cereal bran, agro-industrial byproducts, mineral block, multi-nutrient block) Small-scale traders at markets in Dori 	<ul style="list-style-type: none"> Fresh milk: Village milk collectors, milk collectors in Dori Gallons for milk collection: traders from Ouagadougou and Dapoya, import from Ghana Approved sugar by the National Laboratory for Public Health, Ouagadougou Approved sugar from local sources Millet grain for Gapaal: traders at Dori market
	Product	<ul style="list-style-type: none"> Fresh cow and goat milk 	<ul style="list-style-type: none"> Fresh milk in sachet, yoghurt, gapaal (milk mixed with millet grain), soap from milk processing, oil from milk processing, cheese
	Client (customer)	<ul style="list-style-type: none"> Individual consumers (all products) Supermarkets et small shops (all products) Small milk processing units in Dori, small milk processing units owned by cooperatives (fresh milk) Milk collection centres UNICEF, Ministry of Education, WFP 	<ul style="list-style-type: none"> Individual consumers Local retailers (boutiques, processing units in Dori and Falagountou) Retailers from Ouagadougou WFP Mining companies (IAM-Gold) Supermarkets (Alimentation Bon Samaritain)
	Support service	<ul style="list-style-type: none"> Ministry of Animal Resources and Fishery: training, technical advisory services, veterinary service, artificial insemination Projects et NGOs: subsidized improved sorghum and cowpea seeds INERA: Capacity building State: subsidy on agro-industrial by-products REGIS ER (USAID project): cotton seed cake and goats Ministry of Scientific Research and Innovation: training, applied research, improved seeds 	<ul style="list-style-type: none"> National Laboratory on Public Health: control of milk quality, training in hygiene Livestock services: training in good hygienic practices, milk processing techniques WFP: improved milk processing techniques and materials INERA: multi-nutritional blocks
Identification of constraints and difficulties	Constraints	<ul style="list-style-type: none"> Reduction in feed biomass and quality Low access to agro-industrial byproducts (non-availability and high cost) Water scarcity particularly in the dry season Animal diseases Low value addition Sale of fresh milk in traditional ways Inadequate watering points for animals 	<ul style="list-style-type: none"> Inadequate energy supply for conservation of dairy products Transport problem Fluctuation in price of fresh milk particularly at producer level Insufficient quantity of agro-industrial by-products Inadequate quantity of milk produced Strong imbalance between demand and supply Non-compliance with regulatory norms
	Problems related to milk hygiene	<ul style="list-style-type: none"> Traditional milking practices Lack of training in modern milking techniques and milk hygiene Inadequate knowledge about dairy husbandry Lack of appropriate materials for milking Poor hygiene of materials used for milking 	<ul style="list-style-type: none"> Sick cows Hygiene during processing and pasteurization of milk Hygiene problem related to materials used
Solutions	Organization of dairy value chain	<ul style="list-style-type: none"> Organizing the key actors in a platform Building capacity of difference actors in the value chain Technical and financial support to the producers' associations or platforms 	<ul style="list-style-type: none"> Promoting and supporting platform of actors
	Solutions	<ul style="list-style-type: none"> Construction of watering points (dugouts, well and hand-pumped well) Rehabilitation of degraded rangelands for use by the pastoralists Establishment of feed mills in the region Strengthening veterinary services (providing necessary materials and recruiting new staff) Protection of the existing pastoral zones from encroachment Promotion of cultivation of forage plants Strengthening the capacity of producers in feed conservation and processing techniques 	<ul style="list-style-type: none"> Supply of improved breeds by the State Subsidy for animals feeds for the producers Reducing the costs of collection materials Spacious building for milk processing Regular testing of the animals for infectious diseases (tuberculosis, brucellosis by the regional laboratory for animal health) Training needs

Dairy value chain mapping in rural zone in Dori



Annex 1: List of participants

Available upon request



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