Reducing Zoonosis Risks in Burkina Faso

Water, sanitation and hygiene with a One Health approach

Managing Health Risks Related to Excreta to Strengthen Human and Animal Health through Access to Water, Sanitation, and Hygiene

AFRICSanté
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FOREWORD

Burkina Faso faces many challenges related to the health and security of its population, but the country has also been home to innovative projects that point to potential solutions. This report aims to share lessons from some of these projects related to water, sanitation and hygiene (WaSH). The focus is on zoonoses, how to reduce the risks of diseases and infections being transmitted from animals to humans.

A sister report, ***Improving Agricultural Productivity in Burkina Faso***, explores WaSH projects from a resource perspective to study how agricultural productivity can be improved through the safe reuse of household waste, particularly human and animal excreta. Both reports are published by the SIANI expert group One Health in Burkina Faso.

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CONTENT

ACRONYMS AND ABBREVIATIONS

Acronyms and abbreviations	Meaning
AFRICSanté	Training, Research and Expertise Agency for Africa
ATPC	Community-Led Total Sanitation
CAV/Q	Village and Neighbourhood Sanitation Committee
CBDF	Burkinabe Women's Rights Coalition
CERTIS	Centre for the Study, Research, Promotion of Innovations and Technology in Health
CREPA	Regional Center for Drinking Water and Sanitation
DGAEUE	Directorate-General for Wastewater Treatment and Excreta
DLM	Hand WaSH System
DREA/DPEA	Regional / Provincial Directorate of Water and Sanitation
ECOSAN	Ecological Sanitation
EHA	Water, Hygiene and Sanitation
EPHA	Drinking water, hygiene and sanitation
FDAL	End of Open Defecation
GRAD-A	Think Tank and Action for Development in Africa
IFPRI	International Food Policy Research Institute
INERA	Agricultural Research Institute for the Environment
IRSS	Institute for Research in Health Sciences
INSD	National Institute of Statistics and Demography
MAHRH	Ministry of Agriculture, Hydraulics and Fisheries Resources
MEEA	Ministry of the Environment, Water and Sanitation
SDGs	Sustainable Development Goals
NEA	Essential Actions in Nutrition
NGO	Non-Governmental Organization
PHA	Promotion of Hygiene and Sanitation
PHAST	Participatory, Hygiene and Sanitation Transformation
PN-AEP	National Drinking Water Supply Program
PN-AEUE	National Program for the Sanitation of Wastewater and Excreta
PN-AH	National Hydraulic Development Program
PNHP	National Public Hygiene Policy
PS EEA	Environment, Water and Sanitation Sector Policy
PSNA	National Sanitation Policy and Strategy
RAISE	Supporting the Family Farm to Launch Poultry Farming and Enhance the Rural Economy
SEI	Stockholm Environment Institute
SMS	Safely Managed Sanitation Managed Sanitation
SNSA	National Food Security Strategy

UNICEF	United Nations Children's Fund
VPP	Clean and Productive Village
WaSH	Water Sanitation and Hygiene
WHO	World Health Organization

ABSTRACT / RESUME

The right to safe, accessible, and dignified water, sanitation, and hygiene is recognized by the United Nations, but Burkina Faso continues to face major barriers to its realization, exacerbated by insecurity and large-scale displacement. This study investigates the extent to which zoonotic risks—particularly those linked to human and animal excreta—are integrated into national WaSH policies and interventions. A mixed-methods approach was employed, combining a structured review of twelve national policy and legal documents with qualitative data from twelve focus group discussions conducted in six localities across the Northern and Central-Western regions. Findings reveal a widespread lack of explicit inclusion of animal excreta management in WaSH strategies, limited cross-sectoral coordination, and weak enforcement of existing regulations. However, three promising interventions—two using an extended Community-Led Total Sanitation (CLTS+) model and one adopting an integrated waste reuse approach—demonstrated positive community outcomes and offer replicable models. Persistent challenges remain, including material and financial constraints, limited capacity-building, and the absence of strategic and institutional frameworks linking WaSH to zoonotic risk management. The study concludes with key recommendations to improve policy integration, institutional coordination, and sustainability of local WaSH initiatives within a *One Health perspective*.

EXECUTIVE SUMMARY

The right to safe, accessible, and dignified water, sanitation, and hygiene is recognized by the United Nations, but remains largely unfulfilled in Burkina Faso. The WaSH sector faces significant challenges, further worsened by insecurity and mass population displacement. Zoonotic risks linked to human and animal excreta are still poorly integrated into national WaSH strategies. This study explores the inclusion of animal excreta management in policies, highlights implementation gaps, and documents local experiences, constraints, and needs in managing zoonotic risks within WaSH interventions.

The **analysis of national policies**, laws, and strategic plans showed a general absence of explicit inclusion of animal and human excreta management in WaSH-related initiatives. These issues are often treated in isolation, lacking coordinated cross-sectoral integration. Only three legislative texts include specific provisions to mitigate zoonotic risks from animal waste, such as banning the dumping of faeces in public spaces, restricting carcass burial in residential areas, and regulating urban livestock farming.

Among the 15 WaSH intervention documents reviewed, only four explicitly addressed animal excreta management in efforts to improve hygiene and sanitation at the household or community level.

Three **WaSH interventions** that explicitly integrated zoonotic risk prevention were analysed as potential models for future initiatives. Two of these applied an enhanced "Community-Led Total Sanitation" (CLTS+) approach, combining hygiene promotion with animal waste management in both rural and urban contexts, successfully reducing exposure to faecal pathogens.

Communities implemented practical measures such as building latrines and animal enclosures, improving environmental hygiene, and establishing local sanitation committees, leading to the spread of best practices to surrounding villages.
The third initiative, the "Clean and Productive Village" model, combined sanitation efforts with the safe reuse of human and animal waste in agriculture, showing how integrated waste management can improve both public health and food production.

Focus group discussions captured community members' experiences and challenges in adopting hygiene and sanitation practices that incorporate zoonotic risk prevention. **Prior to interventions**, sanitation conditions were extremely poor, with open defecation common near homes and public spaces, heightening the risk of disease transmission. **After WaSH programmes** were implemented, participants reported improved knowledge, cleaner environments, and stronger community engagement in fighting open defecation and zoonoses. Supportive actions included collective efforts to build latrines

for vulnerable households and improved sanitation in shared spaces like schools and markets.

However, persistent barriers such as lack of materials, financial constraints, and limited training still hinder full adoption and sustainability of good practices. Stakeholders also identified broader institutional gaps, including the absence of a national strategy linking WaSH and zoonotic risks, weak policy implementation, and a lack of long-term support for local initiatives.

To enhance the integration of zoonotic risks into national WaSH strategies, communication and awareness efforts should be strengthened, particularly in rural areas with high human-animal interaction.

- The PNCOH should lead advocacy promoting the integration of zoonoses prevention into hygiene and sanitation programmes.
- National WaSH policies must explicitly address animal excreta management to reduce health risks associated with agropastoral practices.
- A national strategic framework is needed to ensure systematic integration of zoonotic risks into the One Health and WaSH agendas.
- Sustaining local WaSH initiatives requires long-term policies that provide ongoing financial, material, and technical support.
- Greater emphasis should be placed on the effective enforcement of existing sanitation policies, especially those concerning waste and excreta management.

Proper implementation of these measures will enhance public health protection and build community resilience to future health threats.

INTRODUCTION

The United Nations General Assembly[1] recognizes the right of all human beings, without discrimination, to have physical access to sanitation in all aspects of life—sanitation that is safe, hygienic, culturally and socially acceptable, financially affordable, and that ensures privacy and dignity.

In Africa, despite progress in improving living conditions, nearly 34% of the population still lacks access to safe drinking water, while at least 64% do not have adequate sanitation infrastructure. This situation is particularly concerning in West African countries, where ongoing security challenges in recent years have led to mass population displacements. In Burkina Faso, only about 42% of urban households and less than 17% of rural households have access to adequate household sanitation. However, living environment hygiene significantly influences public health and environmental sustainability.

Most community hygiene and sanitation initiatives have traditionally focused on human waste management. These efforts primarily target the disposal of faecal matter and urine by promoting the construction and use of latrines, as well as handwashing at critical times. However, such approaches fail to address the risks of pathogen transmission between animals and humans. This is particularly relevant in rural areas, where extensive family-based livestock farming exposes populations to frequent contact with animals and their excreta.

Moreover, numerous studies highlight the need to take a holistic approach to health risks, including those originating from animals, to significantly improve public health in rural settings (Ercumen et al., 2017; Vila-Guilera et al., 2021). In an era marked by the emergence and re-emergence of zoonotic diseases and the rapid spread of pathogens—driven by increased livestock production, climate change, urbanization, and human and goods mobility—it is crucial to consider exposure risks related to animal excreta. Major epidemics such as Highly Pathogenic Avian Influenza, Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome (MERS), Ebola virus disease, and the recent SARS-CoV-2 pandemic have demonstrated that animals can be sources of severe human illnesses.

In Burkina Faso, beyond rural areas, there is an increasing trend of small-scale livestock farming in peri-urban zones, particularly around cities like Ouagadougou and Bobo-Dioulasso. This has led to a significant rise in animal waste volumes, posing potential health risks in the absence of proper management systems. Additionally, the expansion of agricultural activities, particularly market gardening and horticulture around these cities, has resulted in greater use of untreated animal excreta as fertilizer. This practice

[1] https://docs.un.org/fr/A/RES/64/292

increases exposure risks for farmers, consumers, and the environment. While water bodies are vulnerable to nutrient loading, long-term soil fertility—and consequently agricultural sustainability—depends on recycling nutrients and organic matter from key waste streams, including human and animal excreta. Soil fertility depletion is particularly felt in resource-constrained contexts, where farmers struggle to afford increasingly expensive chemical fertilizers.

This situation calls for more integrated sanitation interventions that link agricultural productivity with ecosystem health. Within the broader effort to promote integrated risk management at the human-animal-environment interface, it is essential to explore ways to reduce exposure to animal excreta and to strengthen food hygiene and water management practices (WHO, 2018).

This approach encompasses addressing health risks at the human-animal interface, including zoonoses and antimicrobial resistance, in residential areas. It also involves measures to minimize environmental pollution caused by poor management of both human and animal waste. In Burkina Faso, several integrated WaSH initiatives have been developed and tested to reduce the risk of animal-to-human disease transmission, as well as to enhance agricultural productivity using human and animal waste as fertilizers. While these initiatives have shown promising results on a limited scale, they often remain unknown to most stakeholders in the agriculture and WaSH sectors. This lack of awareness sometimes leads to redundant efforts and limited learning from past experiences. Some findings have been documented in scientific publications (mostly in English) and public reports, but many remain confined to internal project reports or unpublished data. Consequently, accessible and synthesized information for professionals in sanitation, health, veterinary public health, and agriculture remains scarce in Burkina Faso.

This study was initiated to document and consolidate experiences related to integrated WaSH interventions in Burkina Faso. Specifically, it aims to assess existing initiatives that:

1. Reduce disease transmission risks between animals and humans.
2. Improve agricultural productivity through the safe reuse of household waste, particularly human and animal excreta.

Additionally, the study examines the policy landscape and strategies implemented to promote access to hygiene and sanitation. The objective is to support policymakers and program implementers in adopting more integrated approaches to combating human diseases linked to animals and environmental factors. Ultimately, the study's findings will help raise awareness among stakeholders about the benefits of addressing human-animal cohabitation risks and promoting the safe reuse of various waste materials in WaSH initiatives.

This report specifically focuses on WaSH interventions and the reduction of zoonotic disease risks.

1. METHODOLOGY

1.1. Type of Study

This study primarily consists of a documentary review of project and programme implementation experiences related to the integration of water, sanitation, and hygiene (WaSH) approaches in animal husbandry. In addition to this literature review, primary data collection was conducted using focus group discussions with key resource persons from selected projects and direct beneficiaries of these initiatives in the field.

The operational approach involved exploring the challenges and constraints associated with integrating zoonotic risk management into WaSH initiatives in Burkina Faso, particularly concerning human-animal cohabitation.

The main sources of information include:

- Reference documents on national policies, including legislative texts and strategic plans related to water, sanitation, hygiene (WaSH), and zoonotic risks.
- Project and programme documents implemented by government agencies, national and international NGOs.
- Activity reports, evaluation reports, research studies, and other relevant documents related to the study themes.
- Interviews with beneficiaries and key stakeholders involved in integrated WaSH-zoonosis projects.

1.2. General and Specific Objectives

The general objective of this study is to identify the challenges of integrating zoonotic risks associated with animal excreta into WaSH initiatives in Burkina Faso within the framework of the "One Health" approach.

Specifically, the study aims to:

1. **Identify the limitations of WaSH policies in Burkina Faso regarding the integration of zoonotic contamination risks from animal excreta.**
    - This involves assessing to what extent WaSH promotion policies and strategies address the challenges of preventing and controlling zoonotic diseases.
    - To achieve this, policy documents (e.g., legislative texts defining ministerial responsibilities, strategic policies, and plans) will be collected and

analysed at the national level to identify gaps in integrating zoonotic disease control into WaSH initiatives.

2. **Identify gaps in animal excreta management within WaSH interventions.**
    - This objective involves collecting and analysing technical reports and project/programme documents implemented by state services and non-state organizations.
    - The study will describe existing deficiencies in addressing health challenges related to animal waste management and zoonotic disease control within WaSH interventions in Burkina Faso.
3. **Map experiences in managing zoonotic contamination risks within WaSH interventions in Burkina Faso.**
    - This will be achieved through a literature review, interviews with key informants, and focus group discussions with project beneficiaries.

1.3. Data Collection

The data collection was conducted in alignment with the specific objectives and included a documentary review as well as interviews with key informants (see Table 1).

Table 1: Description of the Methodological Approach Used for Data Collection

Objectives	Methods	Targets
Identify the limitations of WaSH policies in Burkina Faso regarding the integration of zoonotic contamination risks from animal excreta	Documentary review: Analysis of documents to identify gaps in policies and strategies for integrating WaSH into zoonotic disease control (policy design stage)	Sectoral policy documents
Identify gaps in animal excreta management within WaSH interventions	Documentary review: Analysis of documents to identify deficiencies in the promotion of WaSH in managing animal excreta to combat zoonotic diseases (implementation stage)	State and non-state technical and scientific reports
Map experiences in managing zoonotic contamination risks (WaSH) in Burkina Faso	Documentary review: Analysis of documents to identify initiatives, projects, and programs addressing the risk of human contamination from animal excreta	State and non-state technical and scientific reports
	Key informant interviews: Discussions with managers of initiatives focused on mitigating the risk of human contamination from animal excreta	Projects, programs, and other relevant initiatives

	Focus groups: Discussions with beneficiaries of these interventions	Populations benefiting from the interventions
Disseminate preliminary results from the two expert group reports and obtain input for improvement	Presentations of findings, feedback and discussions on constraints and, challenges	Governments institutions, NGO and key persons

1.3.1. Documentary Review

A structured review framework was developed to serve as an analytical matrix for document analysis. This framework was based on document type, source, key content, and the extent to which the document integrates zoonotic contamination risks from animal excreta.

The documentary review involved the collection and analysis of regulatory documents, public policies, strategic plans, and technical and scientific reports from both state and non-state entities. The goal was to identify and describe interventions, as well as the names of initiatives, projects, and programs focused on managing animal excreta to combat zoonotic diseases.

1.3.2. Informant Interviews

Interviews with key informants were conducted to gather additional information from resource persons who had implemented relevant interventions in Burkina Faso. These interviews followed a three-step process:

- **Identification of key informants**: Initiatives, projects, and programs addressing animal excreta management in zoonotic disease control were identified using a structured guide. This guide included the initiative's name, objectives, geographical coverage, and reference documents.
- **Conducting interviews with key informants**: Semi-structured individual interviews were conducted either face-to-face or via telephone using an interview guide.
- **Topics covered during the interviews**: Discussions focused on the context, approaches used, activities carried out, key results achieved, constraints faced, limitations, and lessons learned from each intervention. Additionally, the interviews addressed the needs and constraints of stakeholders to effectively integrate zoonotic disease control into animal excreta management.

1.3.3. Focus Groups with Beneficiaries

Focus group discussions were conducted with beneficiaries of interventions in targeted areas. An interview guide was used to gather insights on the needs and constraints of

beneficiaries regarding the integration of zoonotic disease control into animal excreta management.

1.3.4. Dissemination of the preliminary results

The workshop provided a platform to present the preliminary findings from the two expert group reports on zoonoses and resources. It also enabled participants to discuss the constraints and needs of beneficiaries as perceived during the discussions.

2. RESULTS

2.1. Integration of Zoonotic Disease Concerns into WaSH Policies and Strategies in Burkina Faso

2.1.1.Review of Consulted Documents

A total of twelve documents related to water access, hygiene, and sanitation at the national level were reviewed. Among these, eight were policy or strategy documents, while four were regulatory or legislative texts.

The policy documents included:

- The National Wastewater and Excreta Sanitation Program (PN–AEUE) 2016-2030.
- The National Strategy for the Management of the Wastewater and Excreta Sanitation Sector.
- The Strategy for Implementing Community-Led Total Sanitation (CLTS) in Burkina Faso.
- The Orientation Guide for Community-Led Total Sanitation (CLTS) in Burkina Faso.
- The Sectoral Policy on "Environment, Water, and Sanitation" 2018-2027.
- The National Sanitation Policy and Strategy (PSNA);
- The National Environmental Strategy (SNE) 2019-2023.
- The National Economic and Social Development Plan.

The regulatory and legislative documents reviewed included:

- Law No. 022-2005/AN on Public Hygiene Code in Burkina Faso.
- Law No. 048-2017/AN on Animal Health and Veterinary Public Health Code.
- Law No. 022-2005/AN on Public Hygiene Code in Burkina Faso.
- Law No. 048-2017/AN on the Code of Animal Health and Veterinary Public Health.

2.1.2. Analysis of Political and Regulatory Documents

Among the twelve reviewed documents concerning national policies on water access, hygiene, and sanitation. Only three regulatory or legislative texts mentioned zoonotic diseases with waste management and public health. No national policy or strategy documents acknowledged the necessity of integrating zoonotic disease risks associated with the transmission and spread of pathogens from animal waste.

Below is a summary of the analyses of the main policy documents:

a) The National Programme for Wastewater and Excreta Sanitation (PN–AEUE) 2016-2030

Adopted in 2016, this programme serves as the policy reference for interventions in wastewater and excreta sanitation subsector in Burkina Faso through 2030. Its objectives include eliminating open defecation (ODF), ensuring universal and continuous access to sanitation services aligned with the Human Rights-Based Approach (HRBA), optimizing wastewater and faecal sludge management and utilization with environmental and social protection considerations, and fostering research to enhance technological offerings and practices in wastewater and excreta sanitation. However, major concerns regarding animal waste management and their potential role in transmitting zoonotic diseases have not been addressed.

b) The National Strategy for Wastewater and Excreta Management

Adopted in 2018 based on the national program PN–AEUE, this strategy emphasizes the development of services relating to wastewater and excreta disposal, treatment, and valorisation, with particular attention to containment requirements. Grounded in circular economy principles, the strategy promotes the creation of favourable conditions for using sanitation by-products as an additional source of sustainable funding for the sanitation sector. It stresses the need to move beyond infrastructure construction towards providing comprehensive sanitation services. The opportunities linked to wastewater and excreta valorisation, notably in job creation and agricultural development, are highlighted. The strategy proposes combining autonomous and collective sanitation systems in urban areas and exclusively autonomous systems in rural areas. Nevertheless, the strategy does not mention animal excreta. The focus remains exclusively on human excreta (urine and faeces) and greywater (from showers, laundry, and kitchens) for autonomous sanitation and on greywater, blackwater, and pre-treated industrial wastewater for collective sanitation.

c) Implementation Strategy for Community-Led Total Sanitation (CLTS) in Burkina Faso

Adopted in 2014, this strategy provides guidelines for implementing Community-Led Total Sanitation, CLTS, to improve living conditions and access to sanitation in rural communities, primarily aiming to eradicate open defecation. It employs innovative mechanisms, including hygiene promotion, to engage communities actively in achieving ODF status (open defecation has ended). Proposed technological options are limited to Ventilated Improved Pit latrines (VIP) and Ecological Sanitation Systems (ECOSAN), adapted to the social context. However, the strategy does not specify CLTS's role in addressing zoonotic diseases transmitted through animal excreta.

d) Guidance Manual for Community-Led Total Sanitation (CLTS) in Burkina Faso

This manual, adopted in 2014, seeks to standardize CLTS implementation by sanitation sector stakeholders. It offers practical guidelines on adapting the CLTS approach to the local context, emphasizing community participation and collective commitment rather than simply constructing latrines. The manual provides step-by-step practical instructions for implementing CLTS through five distinct phases. To achieve ODF certification, Burkina Faso's approach focuses exclusively on human excreta, excluding animal waste. Post-ODF certification, the manual recommends a two-year community monitoring phase to reinforce achievements and encourage additional risk reduction measures, aiming for "Total Sanitation" certification. Notably, household waste and animal waste disposal practices are key indicators, with suggestions like establishing animal enclosures within compounds. However, there are no known examples of WaSH projects in Burkina Faso achieving "Total Sanitation" certification following ODF certification.

e) Sectoral Policy on Environment, Water, and Sanitation 2018-2027 Developed in 2018

This policy aims to ensure water access within a healthy living environment, strengthen environmental governance, and support sustainable development to enhance economic and social conditions. Objectives include universal sanitation access and sustainable urban sanitation in contexts of expanding informal settlements. The public health impact of inadequate hygiene and sanitation is explicitly addressed, citing sources indicating that poor sanitation contributes to over 4,000 child deaths annually in Burkina Faso. Additionally, about one-third of Burkinabe children under five experience stunted growth, significantly linked to poor sanitation. The World Bank has estimated the economic impact of inadequate sanitation at approximately CFA 83 billion annually, about 2% of GDP. Strategic Axis 3 targets sanitation improvement and environmental enhancement, including wastewater and excreta management, but lacks explicit measures addressing animal excreta management.

f) The National Sanitation Policy (PNSA)

Adopted in July 2007, this policy aims to contribute to sustainable development by addressing sanitation issues, improving living and housing conditions, preserving public health, and protecting natural resources. Strategic areas include education, training, and hygiene to raise community awareness about sanitation practices, but risks and management of animal excreta are not addressed.

g) The National Environmental Strategy (SNE) 2019-2023

Its objectives include sustainable management of forestry and wildlife resources amidst climate change, enhancing climate mitigation and adaptation capacities towards a green and inclusive economy, environmental sanitation, promoting environmental sustainability in development actions, and improving subsector efficiency. Two of the major actions

are the fight against pollution and nuisances and the promotion of the treatment and recycling of solid waste. However, the risk or management of excrement was not mentioned.

h) The National Plan for Economic and Social Development (PNDES) 2021-2025 (Phase 2)

Adopted in 2021, this plan aims to transform economic, demographic, and social structures, reduce inequalities, and sustainably improve well-being amid security, health crises, and social cohesion risks. Strategic objectives include enhancing living conditions and improving access to quality drinking water, sanitation, and energy services. The PNDES targets increasing national sanitation access and ODF-certified villages to 33.3% by 2024 and 40% by 2025. Once again, animal excreta-related risks or management practices remain unaddressed.

2.1.3. Analysis of Key Legislative Texts

From the analysis of the four main legislative texts, the following laws have been identified:

a) Law No. 006-2013/AN on the Environmental Code of Burkina Faso

The Environmental Code aims to improve the living conditions of living beings and protect them from harmful or inconvenient impacts and risks that endanger their existence. Health risks associated with agricultural activities are mentioned in article 46

"When the installation, construction, operation, or functioning of an industrial, artisanal, agricultural establishment, or any business or activity, or any machinery, presents serious dangers or inconveniences to the neighbourhood, public health, and safety, the territorially competent public authority, through an administrative decision, orders the closure of the establishment or business or the suspension of the activity, without prejudice to applicable criminal sanctions."

However, the issue of zoonotic risks related to excreta is not explicitly addressed.

b) Law No. 022-2005/AN on the Public Hygiene Code of Burkina Faso

The primary objective of this code is to preserve and promote public health. It covers various aspects of hygiene, including hygiene in public roads and spaces, swimming pools and bathing areas, housing, food products, water, industrial and commercial facilities, schools and healthcare institutions, public buildings, and the natural environment, as well as noise pollution control. The code also includes measures to reduce health risks associated with agricultural activities:

- **Article 14:** The discharge of wastewater of any origin, fats, used oils, and excreta onto public roads and spaces, into gutters, and into watercourses is prohibited.
- **Article 35:** The mixing of excreta with household waste is prohibited.

- **Article 37:** The burial of animal carcasses, remains of any kind, and household waste within private properties is prohibited.
- **Article 39:** The raising of animals and agricultural activities in designated urban areas is prohibited unless specifically authorized.
- **Article 115:** Manure deposits must not be established within protected water catchment areas, near watercourses, drinking water pipelines, or water points. Measures must be taken to prevent insect proliferation. Any manure deposit deemed harmful to public health must be removed.
- **Article 116:** The use of chemical or natural fertilizers and pesticides is only permitted under conditions specified by current regulations.

Although this code implicitly aims to preserve and promote public hygiene, it does not directly address the management of human and animal excreta in the context of reducing zoonotic risks.

c) Law No. 048-2017/AN on the Animal Health and Veterinary Public Health Code

This code governs animal health and veterinary public health. It applies to the following areas: (i) protection measures against zoonoses, (ii) organization of veterinary inspections, (iii) establishments subject to veterinary inspection, (iv) sanitary inspection of animals, animal products, and products of animal origin, and (v) suppression of illegal slaughtering and fraud.

Measures are proposed to reduce the risk of contamination by excreta in establishments subject to veterinary inspection, particularly in slaughterhouses. These include the separation of spaces designated for consumable products from those containing animal excreta. Specific standards have also been established for livestock and poultry farming facilities, including waste disposal measures.

This code enforces measures to prevent zoonotic risks by emphasizing the hazards associated with handling animal waste and consuming unfit meat.

d) Law No. 055-2004/AN on the General Code of Local Authorities in Burkina Faso

This code defines the framework for decentralization, outlining the competencies, means of action, institutions, and administration of local authorities. Decentralization grants local authorities the right to self-administer and manage their own affairs to promote grassroots development and strengthen local governance. Local authorities are empowered to establish or acquire facilities in the fields of education, health, environment, and other socio-economic or cultural domains.

According to **Article 89**, the competencies of urban municipalities in environmental matters include:

- Developing municipal environmental action plans,
- Sanitation,
- Combating unsanitary conditions, pollution, and nuisances,
- Collecting and disposing of household waste,
- Providing opinions on the installation of classified hazardous, unhealthy, or inconvenient establishments under the Environmental Code.

In terms of public health, local authorities are responsible for regulating and implementing hygiene, sanitation, and disease prevention measures. However, the management of livestock waste is not explicitly addressed.

2.2. WaSH Interventions and Animal Excreta Management

2.2.1. Information on Reviewed Documents

A total of fifteen study/research documents and technical reports on WaSH interventions were reviewed. These interventions covered both rural and urban settings and included state-led service initiatives through projects and programs, non-governmental organization (NGO) initiatives, and private initiatives. The focus areas encompassed sanitation, drainage, water supply, waste management, and the valorisation of animal excreta, faecal sludge, and household wastewater.

Among the fifteen documented interventions, only four explicitly considered animal excreta management within the broader scope of hygiene promotion and environmental sanitation. These interventions included:

- The valorisation of livestock waste and faecal sludge in urban and peri-urban areas of Ouagadougou.
- The management of livestock excreta in Bobo-Dioulasso.
- The Village Clean & Productive (VPP) approach.
- The WaSH SELEVER project.

Other WaSH interventions focused on:

- The project supporting access to drinking water, sanitation, and strengthening community resilience to COVID-19 and climate change in the peri-urban neighbourhoods of Ouagadougou (PAEPA-QP).
- The Autonomous Urban Sanitation Project.
- The Water Supply and Sanitation Program in Burkina Faso.
- The Water Supply and Sanitation Program.
- The Basic Sanitation Support Project in ten medium-sized cities in Burkina Faso.

- The urban ecological sanitation project in Ouagadougou (ECOSAN-UE);
- The collective sanitation project in Ouagadougou.
- The sanitation and drainage project in Ouagadougou.
- The sanitation project in the peri-urban neighbourhoods of Ouagadougou, Burkina Faso.

2.2.2. Documentary Synthesis on WaSH Interventions

The analysis of the four key interventions regarding zoonotic disease prevention highlighted the following aspects:

a) Valorisation of Livestock Waste and Faecal Sludge in Urban and Peri-Urban Areas of Ouagadougou

This initiative was primarily undertaken by private households in peri-urban areas of Ouagadougou. As these actors were not organized into a formal structure, they operated independently. The main stakeholders included livestock waste producers (farmers), users of animal excreta for agricultural fertilization (farmers), and policymakers responsible for livestock and animal health (technical services for livestock, production, and animal health).

Despite the absence of formalized approaches, these actors implemented WaSH initiatives using artisanal methods to manage livestock waste. One method involved digging pits to store waste for varying durations depending on waste quantity, demand for organic manure, and seasonality. The waste was then sun-dried. Another approach involved spreading collected waste directly on the ground to dry before being used as fertilizer in agriculture, horticulture, and vegetable farming.

The valorisation of livestock wastes mainly entailed its direct reuse in agriculture, despite associated health risks. Animal excreta contain pathogens such as parasites, bacteria, and viruses, and improper handling without adequate hygiene measures poses high contamination risks. Notable diseases include brucellosis, salmonellosis, botulism, anthrax, tetanus, and highly pathogenic avian influenza. Livestock farmers, frequently in contact with fresh animal excreta, are particularly vulnerable to infection. Unfortunately, the document reveals that most actors involved are unaware of these risks and the role of WaSH approaches in properly managing animal waste.

b) Management of Livestock Excreta in Bobo-Dioulasso

Similar to the Ouagadougou interventions, animal excreta management in Bobo-Dioulasso relied on individual initiatives developed by urban and peri-urban livestock farmers. The waste collection method involved gathering, storing, and using livestock waste in various agricultural activities. Farmers manually collected excreta using rudimentary tools such as shovels, wheelbarrows, and carts, storing them in open-air manure pits, sometimes located within household premises.

Additional measures included regular cleaning of livestock enclosures, periodic removal of excreta, composting, applying petroleum or creosote on waste, and covering pits to mitigate odours and reduce space occupation.

Collected waste was sometimes sold, donated, or directly utilized in farming. However, some farmers discarded waste into the environment or mixed it with household garbage, which followed conventional urban waste management pathways. During the rainy season, runoff often transported these excreta, leading to surface water contamination. This intervention highlights critical gaps in waste management practices, which pose significant risks of pathogen dissemination among humans and animals due to inadequate collection, storage infrastructure, and proximity to households.

As observed in Ouagadougou, waste producers lacked sufficient knowledge about disease transmission risks and primarily viewed waste management as an opportunity for agricultural valorisation rather than a public health concern.

c) Clean and Productive Village (VPP) Approach: Pilot Phase

The Clean and Productive Village (VPP)[2] approach promotes sanitation, hygiene, and the productive reuse of human and animal excreta, local waste, and residues. Implemented in rural settings, the approach integrates human health, animal health, livestock production, and agricultural productivity.

Once households gain access to clean water and sanitation through interventions such as Community-Led Total Sanitation (CLTS), VPP aims to mitigate pathogen contamination risks by ensuring the safe reuse of waste, including human and animal excreta.

The "clean" component focuses on minimizing health hazards through WaSH interventions addressing faecal sludge management, community waste (including animal excreta, organic waste, solid waste, and greywater), and overall sanitation improvements. The "productive" component promotes the safe reuse of household and community waste rich in nitrogen (N), phosphorus (P), and potassium (K), as well as organic matter and water.

In many rural contexts, this approach supports the productive utilization of human and animal excreta (urine and faeces), greywater, wood ash, and other organic residues.

Developed by the Stockholm Environment Institute (SEI), WaterAid-BF, and Eau Vive International (EVI), VPP was piloted in three villages in Burkina Faso in 2022. It offers a participatory and efficient waste management strategy to reduce health risks for individuals in close contact with animals. The pilot experience enabled the development and testing of awareness and monitoring tools. Scaling up the initiative to more localities would be beneficial.

[2] https://www.sei.org/wp-content/uploads/2023/11/sei2023.054-vpp-burkina-faso.pdf

d) WaSH/SELEVER Initiative

Led by the NGO Tanager, the WaSH/SELEVER initiative[3] is part of the "Supporting Family Farming for Poultry Farming and Rural Economic Development" (SELEVER) programme. It seeks to improve hygiene and sanitation practices at the community and household levels to reduce children's exposure to animal and human excreta.

The intervention focused on the safe disposal of animal and human waste, the separation of poultry and other animals from young children, and the protection of children from ingesting contaminated materials. Implemented in 30 villages across 15 municipalities in the Centre-Ouest, Boucle du Mouhoun, and Hauts Bassins regions, the project raised community awareness about constructing separate animal shelters and maintaining regular household cleanliness. Supervision visits ensured the proper application of recommended practices.

However, this initiative covered only three of Burkina Faso's 13 regions and was limited to 30 villages, benefiting a relatively small population. Expanding the project nationwide would enhance its impact.

Regarding the ten other WaSH interventions that did not explicitly address animal excreta management, they focused on improving access to water, sanitation, and hygiene, strengthening resilience to climate change and health crises like COVID-19, and promoting sustainable waste management practices.

e) Project to Support Access to Potable Water and Sanitation and Strengthen Resilience to COVID-19 and Climate Change in the Peripheral Neighbourhoods of Ouagadougou (PAEPA-QP)

The project's goal is to contribute to the improvement of living and health conditions, as well as the climate resilience of poor and vulnerable urban populations in the peripheral neighbourhoods of Ouagadougou. This includes household connections, the construction of water kiosks and latrines (both family and institutional), provision of handwashing kits, and community awareness and mobilization on adopting good hygiene, sanitation practices, and COVID-19 prevention. This project is being implemented by the African Water Facility (AWF) from 2022 to 2025 in eleven unplanned neighbourhoods located in the districts and peripheral municipalities of Ouagadougou.

f) Autonomous Sanitation Project in Urban Areas

The goal of the project is to improve access to sanitation services, develop the sanitation market and related professions, and establish appropriate financial mechanisms. It includes the construction of sanitation infrastructure (latrines, soak pits), capacity building for municipal sanitation services to develop real project owners in the

[3] https://www.ifpri.org/project/impact-evaluation-integrated-poultry-value-chain-and-nutrition-interventions-selever-burkina/

sub-sector, and the implementation of activities to promote hygiene (awareness campaigns, mass communication campaigns). This project is implemented by the National Water and Sanitation Office (ONEA) between 2014 and 2021 in six municipalities across the country: Koudougou, Ouahigouya, Fada N'Gourma, Banfora, Titao, and Boulsa.

g) Water Supply and Sanitation Programme in Burkina Faso

The programme focuses on supporting municipalities in managing the implementation of water supply and sanitation projects in urban areas through four key action areas. These include: (i) digitizing management tools for urban and peri-urban water and sanitation sectors; (ii) consolidating the foundations for large-scale autonomous sanitation development; (iii) strengthening municipal management capacity in water supply and sanitation; and (iv) providing climate-resilient water supply and sanitation services that meet the needs of ONEA's clients.

This programme is being implemented by ONEA from January 2022 to December 2024 in four regions of the country: Boucle du Mouhoun, Centre-North, Hauts Bassins, and South-West.

h) Water Supply and Sanitation Programme (PAEA)

The programme aims to improve access, sustainability, efficiency, and accountability in the delivery of water supply and sanitation services in both urban and rural areas, strengthen the knowledge base for Integrated Water Resources Management, and build human capital to ensure the sustainability of service provision. The program has been implemented by ONEA since 2019 for a duration of 5 years.

i) Basic Sanitation Support Project in Ten Medium-Sized Cities of Burkina Faso (AAB)

The project aimed to contribute to improving living and health conditions as well as climate resilience for poor and vulnerable urban populations in the peripheral neighbourhoods of Ouagadougou. It was implemented between 2014 and 2018 by ONEA.

j) Urban Ecological Sanitation Project in Ouagadougou (ECOSAN-UE)

Implemented in two phases, the ECOSAN project in Ouagadougou carried out activities related to the collection and sanitization of human excreta (urine and faeces) to transform them into fertilizers for agricultural production. The project activities included the construction of ECOSAN latrines (double pit) in both public and household settings. Additionally, the project established systems for collecting human excreta, treating them on designated sites, converting them into agricultural fertilizers, and conducting awareness campaigns, capacity building, communication, and advocacy. This approach preserves and returns nutrients and organic matter found in human urine and faeces to agriculture while significantly reducing groundwater and surface water contamination.

The project was implemented between 2006 and 2009 by CREPA, ONEA, and the German cooperation agency (GIZ) in Ouagadougou's peripheral neighbourhoods, specifically in sectors 17, 19, 27, and 30 of the districts of Boulmiougou, Nongr Masson, and Bogodogo. A follow-up initiative, AGLE, led by ACF and ONEA from 2013 to 2016, continued and expanded the ECOSAN system in Ouagadougou.

k) Sanitation and Drainage Project in the City of Ouagadougou

This project involved the construction of drainage infrastructure and rainwater evacuation systems in the Tanghin neighbourhood, located in the northern part of Ouagadougou. The works also included sustainable urban planning and the enhancement of the Tanghin canal banks to promote local economic activity.

l) Sanitation Project for the Peripheral Neighbourhoods of Ouagadougou

The first sub-project of the Sanitation Project for the Peripheral Neighbourhoods of Ouagadougou (SPAQPO) (Phase 1) was carried out between 2013 and 2021 by the Burkinabe government through SPAQPO. Its objective was to improve living conditions for the residents of Ouagadougou, particularly those in peripheral neighbourhoods. The project interventions included the development of sanitation infrastructure, public awareness campaigns, and training for teachers, educational advisors, members of Parents' Associations (APE), Mothers' Educators (AME) leaders, and community committee members. These training sessions focused on the management of rainwater drainage facilities. The project also conducted various studies, notably on the development of the rainwater sub-sector and the management and valorisation of plastic waste.

m) Support Project for the Right to Access Drinking Water and Sanitation in the City of Fada N'Gourma (Eastern Region) - PADAEPA

This project aimed to improve access to drinking water, sanitation, and hygiene for the urban poor and vulnerable populations in Fada N'Gourma. Implemented between 2013 and 2016, the project was led by ACF and ONEA. It focused on establishing water supply infrastructure, managing septic waste, and conducting public awareness campaigns regarding hygiene and sanitation practices.

2.3. Mapping of Zoonotic Contamination Risk Management Experiences

The analysis of interventions focusing on zoonotic disease prevention has led to the identification of three key experiences and the documentation of the approaches used, which can serve as models for future interventions. These include the WaSH approach from the SELEVER project, the WaSH approach from the PFDAL/MEC of GRAD-A funded by UNICEF, and that of the VPP project implemented by WaterAid.

The methodology employed involved reviewing various project documents, conducting interviews with implementation stakeholders, and holding focus groups with beneficiaries.

2.3.1. EXPERIENCE 1: The WaSH Approach of the SELEVER Project

The goal of this approach is to modify household WASH behaviours by integrating poultry and livestock farming to minimize the risk of young children's exposure to faecal pathogens in 30 rural communities in Burkina Faso.

2.3.1.1. Programme Context

The programme "Supporting Family Farms for Poultry Farming and Enhancing Rural Economies" (SELEVER) was established in 2015 by the Tanager NGO. Its aim was to improve the nutritional status of women and children by increasing poultry production. Ultimately, the program sought to reduce poultry mortality and increase livestock numbers, potentially boosting household incomes and improving nutrition through behaviour change communication on Essential Nutrition Actions (ENA) and women's empowerment.

To achieve this, Tanager partnered with local organizations, microfinance institutions, and government technical services to facilitate systemic changes in the poultry sector, helping women poultry producers access essential services such as animal feed, vaccinations, and financial services.

2.3.1.2. Impact Evaluation of the Programme

The impact evaluation (IE) of the SELEVER project is a randomized controlled trial (RCT) conducted by IFPRI and AFRICSanté. It was carried out in 120 rural communities/villages selected across 60 communes supported by the SELEVER program, with two locations per commune. The evaluation covered the regions of Boucle du Mouhoun, Centre-Ouest, and Hauts-Bassins in Burkina Faso. Communities were randomly assigned to one of three treatment groups: 1) the SELEVER intervention package; 2) SELEVER with an intensive WaSH component; and 3) a control group with no intervention.

Formative research was conducted in November 2016 across the three regions to assess the need for a potential WaSH-related intervention in parallel with the programme's impact evaluation. The results from household observations showed that:

- In 91% of households, children and poultry shared the same space
- In 69% of households, the compound required sweeping
- Chicken faeces were visible in 70% of households
- 59% of households had a functional, clean latrine; however, human faeces were visible in 6% of households
- In 58% of households, livestock had free access to the main drinking water source
- 72% of observed mothers had clean hands, while 37% of children had dirty hands
- 58% of observed children defecated in the open, and only in 13% of cases were children's faeces disposed of in a latrine.

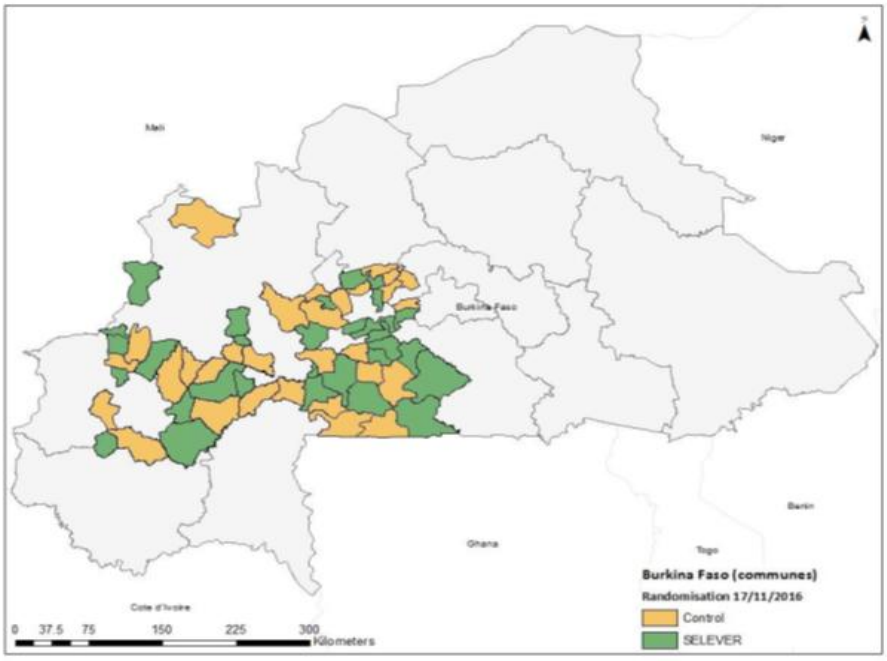
This formative research led to the hypothesis that livestock and poultry farming practices affect household hygiene and child health, particularly through diarrheal

diseases, Environmental Enteropathy, helminthic infections, and other common childhood illnesses such as acute respiratory infections (ARI) and malaria. It thus became evident that the links between farming practices and sanitation in households needed to be addressed.

As a result, optimal WaSH practices were selected as an effective support for preventing the transmission of pathogens between animals and humans, particularly young children. This finding highlighted the need for intensive WaSH and hygiene interventions to address the health risks associated with livestock practices in households. This justified the implementation of Community-Led Total Sanitation Plus (CLTS+).

2.3.1.3. Intervention Area

The CLTS+ approach was implemented in 30 villages (2 villages per commune) across 15 communes in the regions of Centre-Ouest (18 villages in 6 communes), Boucle du Mouhoun (4 villages in 2 communes), and Hauts-Bassins (8 villages in 4 communes).



Map 1: Geographical distribution of the CLTS+ intervention areas

2.3.1.4. Objectives and Results of the CLTS+ Phase

The goal of the intervention was to drive systematic behaviour change in communities regarding hygiene and sanitation practices related to livestock farming.

2.3.1.5. General Objective

The general objective of Community-Led Total Sanitation Plus (CLTS+) was to improve hygiene and sanitation practices at both the community and household levels to reduce children's exposure to animal and human faeces.

2.3.1.6. Specific Objectives

Specifically, the objectives were to:

- **Improve the WaSH environment at the community and household levels**
  Activities under this objective aimed to enhance conventional WASH practices (latrines, handwashing, personal hygiene, protection of drinking water, household environmental sanitation). Expected outcomes included:
    - Safe disposal of animal and human faeces
    - Proper handwashing after using the latrine, before preparing food, eating, and feeding children
    - Preparation of fresh food for children or reheating food to a boiling point before consumption
- **Reduce children's exposure to poultry and animal faeces at the household level**

Activities under this objective focused on improving household sanitation and driving behaviour change. Expected outcomes included:

- Reduce contact between poultry, other animals, and young children
- Protection of children from ingesting soil and animal faeces

2.3.1.7. Description and Steps of the WaSH Approach Used

The approach involved integrating animal waste management into all stages of the traditional Community-Led Total Sanitation (CLTS) model, which is typically focused on human waste management. Like raising awareness and building latrines for human waste management, the communities were sensitized to create separate animal shelters from human living spaces and to regularly clean their courtyards.

Messages were delivered on the construction, rehabilitation, use, and maintenance of latrines, the use of pots for the defecation of children under five, hygienic cleaning of children, handwashing at critical moments, regular sweeping of courtyards, the proper transport and storage of drinking water, the construction of animal enclosures, mechanisms to prevent children from ingesting soil and even animal faeces. These messages were delivered by the Village and Neighbourhood Sanitation Committees (CAV/Q), which had been previously trained.

All initiatives in response to the observed unsanitary conditions were formulated by the community into an action plan. This action plan was created by the community itself under the supervision/facilitation of the Tanager NGO facilitator. For each activity in the plan, one person per household was designated to be responsible for implementation. The CAV/Q members conducted weekly visits to households to ensure the actions were being carried out and that the plan was evolving as expected. They provided guidance and advice when necessary.

The Tanager facilitator supervised the implementation of the action plan through the CAV/Q committees. A weekly meeting was held with the CAV/Q committees to assess progress, identify bottlenecks, and suggest solutions. The facilitator also encouraged the CAV/Q committees for their efforts and motivated them to continue. Before each meeting, the facilitator made unannounced visits to randomly selected households to assess the situation firsthand and evaluate the effectiveness of the progress made. This approach helped empower the community to take responsibility for their health and well-being, ensuring the sustainability of the project's outcomes even after the NGO's withdrawal.

The Village and Neighbourhood Sanitation Committees (CAV/Q) are community-based organizations established after the triggering phase to carry out activities that enable them to overcome poor hygiene and sanitation practices. The committees are made up of young people, women, and respected community members who are valued by their peers. The committees are formed by consensus and work for the benefit of the community, being recognized as such. In larger villages, there may be multiple CAV/Q

committees for different neighbourhoods. Their efforts are voluntary, and they contribute to the development of their village. In return, they receive training and, most importantly, the respect of the community.

2.3.1.8. Preparatory Phase

This phase involved meetings between the stakeholders—Tanager NGOs, APS, and AFRICSanté — to discuss the model and the content of the intervention. A visit was then conducted to the villages to meet with village leaders and associations and to advocate for social mobilization during the triggering phase. The dates for triggering were set in coordination with the leaders of each village.

During this phase, data collection took place in the households to assess hygiene and livestock practices within the villages.

2.3.1.9. Triggering Phase

The triggering phase took place in seven steps:

1. **Step 1:** This step involved mapping the village with a focus on areas where human defecation and animal waste were found. During this exercise, human waste in the bushes was marked with yellow powder, waste around the compounds in emergencies was marked with red powder, and animal droppings were marked with black powder.

Photo 1: *Mapping of defecation areas by adults*

Photo 2: *Mapping of defecation areas by children*

In the end, the maps are saturated in red, yellow and black, giving them a "dirty" appearance. This reflects the actual state of the village (photo 1 and photo 2).

2. **Step 2:** The second step involved a quantitative estimation of faecal matter. This step aimed to calculate the amount of human faeces and animal waste produced daily, weekly, and annually by the community.
3. **Step 3:** The third step involved calculating medical expenses related to zoonotic infections (diarrhoea, typhoid fever, dysentery) that can be transmitted between

animals and humans, primarily through faeces. Simple questions were used to help the community estimate these costs: *"What do you do if someone contracts one of these diseases? How much do you spend on treatment? What about in a month or a year?"* This estimation helps the community realize the savings they could achieve if waste were managed in a way that prevents zoonotic contamination or other infections caused by faecal matter.

4. **Step 4:** The fourth step was the transect walk: a. Visiting defecation sites (open areas, latrines, water points, etc.), b. Asking open-ended questions to understand the community's practices, without guiding them, c. Visiting a few households to assess hygiene conditions and observe how livestock farming is practiced.
5. **Step 5:** The fifth step involved demonstrating contamination between faeces and food, along with the water glass exercise. During the transect walk, animal faeces and droppings were brought out publicly and placed next to food. Seeing flies moving between the excrement or animal droppings and the food, the community vowed never to consume the meal because it had become contaminated. The facilitators then explained that this is what happens every day when faeces are left out in the open near homes and roaming animals defecate freely around the compounds.

   The water glass exercise involved passing a stick over the faeces, then moving it over a glass of drinking water. The community was then invited to drink the water. The response was a firm refusal. These two exercises helped the community realize that open defecation and poor management of animal waste in the household expose them to the unintentional consumption of faeces.

Photo 3: *Water Glass Exercise*

Photo 4: *Faeces-to-Food Contamination Exercise*

6. **Step 6:** Advocacy by Children. After the triggering session, two or three children will speak on behalf of all the others to deliver a message to their parents. In response, the parents will give a positive commitment to their children, who will then return to their seats to follow the rest of the activity alongside the adults.

Handwashing demonstration: During the triggering session, practical demonstrations of proper handwashing techniques using soap are also conducted.

7. **Step 7:** Community Commitment. After analysing their situation, the community commits to ending open defecation. They raise their hands as a sign of commitment and pledge to build latrines, enclosures, and other shelters for animals. Early adopters of this commitment are recorded on-site and will receive close monitoring to ensure the integration of good hygiene and sanitation practices.

Photo 5: *Community Engagement*

Photo 6: *Early adopters*

2.3.1.10. Post-Triggering Monitoring

The post-triggering monitoring consisted of several actions:

- Establishment of monitoring committees by village (CAVQs)
- Training of CAV/Q members on good hygiene and sanitation practices
- Monitoring the construction of latrines in the community
- Monitoring the construction of chicken coops and other appropriate animal shelters in the community
- Monitoring practices to reduce contact between animals and humans, which could expose them to contamination
- Monitoring the creation of child-friendly spaces
- Monitoring the regular cleaning of courtyards and homes
- Monitoring the use of latrines and child-friendly defecation pots
- Monitoring the protection of drinking water
- Monitoring handwashing at critical times with soap

2.3.1.11. Results

The results suggest that the WaSH approach used contributed to improving knowledge and encouraging the adoption of good hygiene practices related to poultry farming in the intervention areas compared to the control areas. Some practices related to the separation of poultry from children also showed improvement.

The improvement in practices was particularly evident in the population under the WASH sub-study during the lean season, with more significant effects in the SELEVER + WASH group than in the SELEVER study group. However, it was also shown that WASH practices not related to livestock farming did not improve in the SELEVER + WASH group.

These communities had very low WASH levels at the beginning, and improving WASH in these areas will likely require further interventions, including infrastructure improvements.

2.3.1.12. Lessons Learned

Several positive points were noted regarding the use of this WaSH approach:

- The WaSH approach in the SELEVER project is a promising method that can help address hygiene issues and contribute to sustainable development
- The population's interest in solving hygiene-related problems after the triggering session
- Increased awareness of the harmful effects on health caused by poor hygiene and living with animals
- Commitment to building latrines and chicken coops
- Strengthening social cohesion through various activities that bring together multiple communities in the village square (triggering, CAV/Q training, village feedback sessions)
- Community monitoring through village sanitation committees
- A ripple effect on neighbouring villages to the triggered villages

2.3.1.13. Limitations

- The lack of subsidies, particularly for the most disadvantaged, in the construction of sanitation infrastructure (latrines, chicken coops, manure pits)
- The construction of latrines with weak and non-durable materials (wood for slabs, straw or plastic bags for walls)
- The practice of separating animals from people due to fears of theft, the way poultry are fed (wandering around the households), and the lack of resources to build proper chicken coops (fencing)
- The lack of training on waste transformation for agricultural production for the population

2.3.2. EXPERIENCE 2: WaSH Approach of the FDAL

As part of the partnership between GRAD-A and UNICEF Burkina for the implementation of the project aimed at eradicating open defecation and promoting potable water, hygiene, and sanitation in households, schools, and health centres in the Yako commune, zoonotic risks were considered in the approach. This capitalisation notes reports on the inclusion of this dimension within the project.

The implementation of the Community-Led Total Sanitation (CLTS) approach followed the nationally accepted procedure. The pre-triggering, triggering, and post-triggering phases were respected. At each stage, zoonotic aspects were integrated and specifically addressed to ensure a holistic intervention.

2.3.2.1. Pre-Triggering

During the pre-triggering phase, a baseline study was conducted to assess key indicators, providing a reference point for measuring the qualitative and quantitative changes brought by the project. The zoonotic dimension was considered from this early stage.

2.3.2.2. Triggering Villages from a Zoonotic Perspective

Zoonotic considerations were already evident in the triggering process, starting with the development of the triggering materials and, particularly, in the implementation of the three key tools.

2.3.2.3. Triggering Materials

In traditional triggering, two colours are typically used: yellow and red. Yellow is used to mark open defecation sites within the village, which are universally recognized, though residents generally do not find this situation problematic. Red is used to mark emergency defecation sites, such as during rain, illness, at night, for children, the elderly, etc. In consideration of zoonoses, black was added to represent animal droppings.

2.3.2.4. Mapping

During the mapping process, the locations of open defecation under normal and emergency circumstances were marked. Similarly, the locations of animal droppings from all types of animals (sheep, cattle, poultry, etc.) were also mapped on the village's social map to highlight the extent of the issue and the associated risks. The goal was to cover the map as much as possible to trigger a heightened awareness.

Photo 7 et 8 : Marking of black for domestic animal drippings during triggering

2.3.2.5. Shame Walk

During the Shame Walk, a special mention was made in households with domestic animals that lack enclosures separating them from the family living space. Questions were asked to the family members about the risks associated with this lack of separation between animals and humans. These concrete examples can serve as testimony and reinforce awareness.

2.3.2.6. Food-Faeces Test and Water Glass Test

The food-faeces test and the water glass test are triggering tools that carry a strong awareness-raising impact. Human faeces and animal droppings are separately collected in black bags during the environmental visit and kept near the triggering session. After the lead facilitator simulates hunger, a meal prepared for the event is presented to the group to regain strength by eating with some community members, who also drink potable water with their guests. The various samples are placed next to the meal and carefully presented to be visible.

A scene of flies landing on both the meal and the faeces/animal droppings ultimately convinces the audience of the real dangers of this seemingly ordinary practice in the village. A twig is then used to lightly touch the faeces, animal droppings, and the water in a disposable glass that was previously consumed. This meal and water are offered to the participants for consumption. Those who ate the meal refuse to finish it because, from their perspective, it is contaminated by the swarm of flies. They also refuse to drink the water because it is thought to be tainted by the faeces and droppings that the facilitator added to it.

2.3.2.7. Community Action Plans and Zoonoses

Following the commitments made at the end of the triggering, a community action plan is developed by the community to address the concerns raised during the triggering. This action plan includes activities related to zoonoses, particularly the construction of enclosures in households that own domestic animals.

Photo 9 : *Community Action Plan Presentation with the Construction of 813 Animal Enclosures in Song-Naaba (Village, Burkina Faso)*

To support households in implementing their action plans aimed at promoting basic sanitation, the field team worked closely with the communities. Home visits were conducted to reach everyone in the community. The primary goal of all these initiatives was to enable households in the intervention villages to build their basic sanitation facilities. Members of the village or neighbourhood sanitation committees (CAV/Q) were heavily involved in monitoring the implementation of community action plans to accelerate the construction of sanitation facilities by the communities. These initiatives, along with the team's dynamism, allowed for close monitoring. Specifically, the tasks included:

- Monitoring households committed to building latrines, soak pits, and animal enclosures
- Raising awareness in the communities about the use and maintenance of latrines
- Raising awareness about the management of animal waste concerning their living environment
- Updating the social maps of the villages with the CAV/Q committees
- Educating the communities on good hygiene and sanitation practices
- Meet with community leaders to request their further support for households and encourage them to back the actions of the CAV/Q members in various neighbourhoods.

2.3.2.8. Achievements from the Implementation of the ATPC / ZOONOSE Approach

The ATPC approach activities helped the communities become aware of the harmful consequences of not separating animals from human living spaces, leading them to take concrete actions to address these issues. With the support of CAV/Q members, animal enclosures were built. All communities in the intervention villages were sensitized on

proper animal management through the construction of enclosures. Both men and women were educated on managing animal waste. Today, community members who practice animal husbandry use enclosures to limit the spread of animal waste. Subsequently, CAV/Q members, traditional leaders, religious authorities, and the GRAD-A field team increased the frequency of awareness sessions, which led to the following changes at various levels:

- Regular cleaning of courtyards by household members
- Regular maintenance of animal enclosures
- Strengthened hygiene measures, taking animal waste into account
- A real awareness of the dangers posed by the failure to separate animals from human living spaces

2.3.3. EXPERIENCE 3: WaSH Approach "Clean and Productive Village"

2.3.3.1. Programme Context

The Clean and Productive Village (VPP) framework presents a comprehensive vision for rural sanitation, aiming at better management of health risks as well as the systematic valorisation of resources like water, organic matter, and agricultural nutrients from waste. The VPP framework includes two tracks: the "Clean" track and the "Productive" track, each consisting of stages of community evolution to achieve the highest status in these areas, where both risks and resources are effectively managed at the household and community levels. To achieve this vision, various approaches and tools are available for implementation, including Community-Led Total Sanitation (CLTS), PHAST tools, the development of appropriate technologies, waste valorisation techniques, organizational and governance principles, demonstration fields, and more.

Sanitation and hygiene interventions in rural communities in Burkina Faso typically focus on the management of human excreta (faeces and urine), promoting the construction and use of latrines and handwashing at critical times through the CLTS approach. However, growing research highlights the need to address a wider range of local contamination risks to significantly improve health in rural contexts (Ercumen et al., 2017; Vila-Guilera et al., 2021). To achieve this, it is essential to reduce exposure to animal excreta and enhance food hygiene practices and water management (WHO, 2018).

Simultaneously, so-called "productive" sanitation could significantly strengthen agricultural production and environmental sustainability, provided that all major household and community waste flows containing fertilizers, organic matter, or water are reused wherever possible.

To support the government of Burkina Faso in managing the risks and resources associated with waste in rural areas, the Stockholm Environment Institute (SEI) developed the outlines for the Clean and Productive Village (VPP) framework, which aims to promote sanitation and hygiene while allowing households to safely recycle resources from local waste streams (Dagerskog & Dickin, 2019). WaterAid-BF, Eau Vive

International (EVI), and SEI operationalized the VPP framework for the first time in Burkina Faso between 2020 and 2023.

The concept of "Clean and Productive Village" (VPP) is a framework for implementing productive sanitation in rural areas, aiming to enhance both health and agricultural production. Once basic access to sanitation and hygiene is achieved, for example through the CLTS approach, the ambitions of the VPP framework are raised to address a wider range of local contamination risks while encouraging the safe reuse of various local waste and residues, such as human and animal excreta, organic waste, ash, and wastewater. In Burkina Faso, an initial trial in three communities helped develop several tools to facilitate the implementation of this framework.

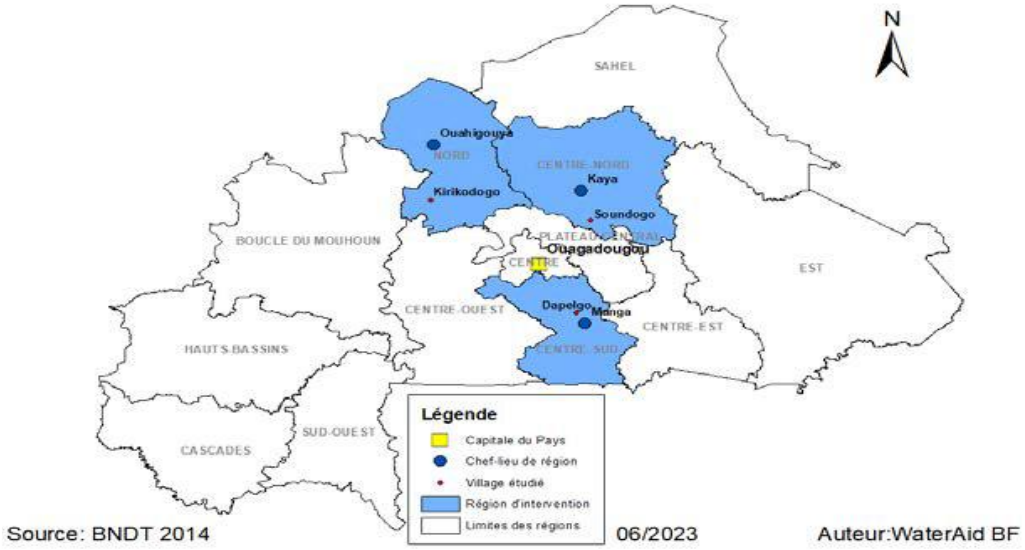
2.3.3.2. Intervention Area

The operationalization of the VPP model serves as an action-research component within the implementation of the Hygiene and Sanitation Promotion Project in the regions of Centre-South, Centre-North, and North. The intervention covered six villages, two per region of the project, with one village per region designated as the pilot village. The table below shows the selected villages by region:

Table 2: List of Selected Villages

Region	**Commune**	**Village**	**Type**
Centre-North	Korsimoro	Soundogo	Pilot
	Ziga	Douré	Control
Centre-South	Bindé	Dapélogo	Pilot
	Guiba	Kougbaga	Control
North	Boussou	Kirikodogo	Pilot
	Bassi	Kennedo	Control

The three intervention villages (pilot villages) were selected in consultation with regional and local stakeholders based on certain criteria (size, accessibility, participation in WaterAid-BF's "Ecole Bleu" program, and others). The control villages were chosen based on their similarities to the intervention villages (size, cultural, and environmental aspects) while ensuring they were located at a sufficient distance to avoid replicating the habits of the VPP village.



2.3.3.3. Description and Steps of the WaSH Approach Used

The elimination of open defecation at the village level through the Community-Led Total Sanitation (CLTS) approach is a key component of sanitation policy and practice in many countries, including Burkina Faso. The VPP framework recommends achieving the first step of "Open Defecation Free" (ODF) status, as it reduces the risk of faecal exposure and germ transmission while fostering community cohesion and commitment to sanitation.

The second level of the VPP framework consists of two main components (Figure 1):

- **The Clean Component** aims to further reduce health risks associated with sanitation, such as managing faecal sludge and other waste generated by the community, including animal waste, organic and solid waste, and greywater. Additionally, this approach emphasizes the hygienic handling of food and drinking water. The Clean Component is inspired by the progressive rural sanitation development approach adopted in the Philippines (DoH, 2019; Robinson & Gnilo, 2016).

For this Clean Component, the project employs various tools to raise awareness about hygiene and sanitation challenges within the community. The VPP approach focuses on participatory methods to identify waste, and residues present in the local context and determine appropriate ways to manage risks and resources effectively.

- **The Productive Component** promotes the safe reuse of waste produced at the household and community levels, including materials rich in fertilizers (nitrogen N, phosphorus P, and potassium K), water, or organic matter. In many rural contexts, this involves the productive use of human and animal excreta (urine and faeces), greywater, wood ash, and other organic waste. Furthermore, special emphasis is

placed on community engagement levels and shared responsibility in implementing this initiative.

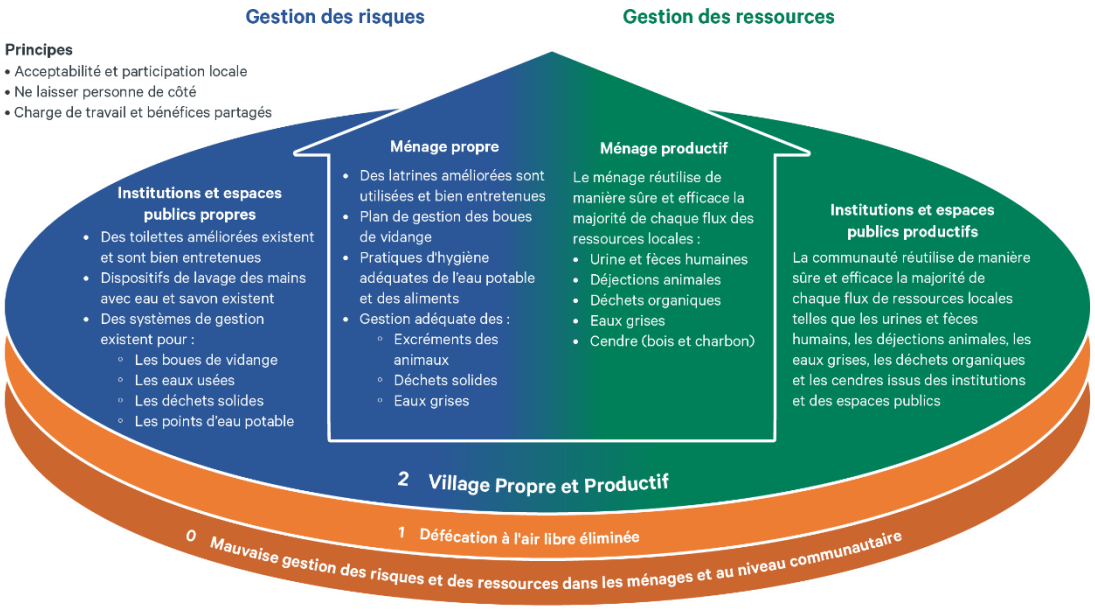


Figure 1: *Overview of the VPP Reference Framework*

2.3.3.4. Implementation Tools

Table 3 below presents various participatory tools used for diagnostics, awareness-raising, and capacity-building within both the productive and clean components of the VPP approach.

Table 3: Participatory Tools Used in the Pilot Phase for Implementing the VPP Approach

Component	Participatory Tool	Objectives and Description
Productive	**Resource Flow Mapping (RFM)**	**Diagnosis/Awareness**: RFM helps visualize the agricultural system and the management of various "natural" waste streams generated at the household level. The map produced helps identify system weaknesses and facilitates discussions on potential improvements.
	Fertilizer Calculation from Human Excreta	**Awareness**: Calculations on the quantity of nutrients (N, P, K) present in human urine and faeces at the individual, household, or village level spark discussions on the potential monetary value of

		human excreta and its implications for families and communities.
	Human Excreta Cycle	**Awareness/Capacity-Building**: Illustrated images depict the sanitation chain, from collection to application, allowing participants to visualize the entire cycle. Discussions follow on health and resource conservation at each stage.
	Farmer Field Schools	**Capacity-Building**: A group of interested farmers learns how to safely apply treated urine and faecal matter and evaluates the impact on agricultural production in a demonstration field, often under the guidance of an agricultural extension officer.
Clean	**Rapid Sanitation Risk Assessment (RSRA)**	**Diagnosis**: Illustrated maps highlight hygiene and sanitation practices, ranging from hazardous to safe behaviours in different risk situations.
	Three Card Sorting Exercise	**Awareness/Capacity-Building**: Participants use three types of cards (unsafe/moderately safe/safe) to classify different risk situations.
	Human Faecal Transmission Pathways	**Awareness/Capacity-Building**: Participants use illustrated cards to map out the faecal-oral transmission pathways of human excreta.
	Animal Waste Transmission Pathways	**Awareness/Capacity-Building**: Participants use illustrated cards to map out the faecal-oral transmission pathways of animal waste.

Identifying Different Types of Waste and Their Current Management within the Community

This step uses the **Resource Flow Mapping (RFM) tool**. With the help of pre-designed images, participants identify the different types of animals (goats, sheep, cattle, poultry, etc.) present in the village. This tool is used for a participatory assessment of the management of various "natural" waste streams at the household level. These waste streams are by-products generated through the preparation, use, and consumption of different natural resources brought into the household, such as food, animal feed, firewood, construction materials, and water.

Using visual illustrations and follow-up discussions, the goal is to help participants recognize that various "natural" household waste streams contain valuable resources that can be harnessed to enhance agricultural sustainability. Participants then identify the strengths and weaknesses of their current system, as well as potential solutions. They also share their perceptions regarding the value and risks associated with these waste streams.

The results of this exercise provide essential insights that guide and shape the content and implementation of the **"Productive Track"** within the **"Clean and Productive Village"** approach.


Photo 10 et 11 : *Resource Flow Mapping Session (Photo : Danièle Sebgo)*

Rapid Sanitation Risk Assessment (RSRA)

This is a diagnostic step to assess the hygiene situation in the village using illustrated cards in discussion groups. These cards depict hygiene and sanitation practices, ranging from hazardous to safe behaviours in various risk situations. Discussion group participants estimate the proportion of households in the village adopting different practices. The results help identify key local risk-related issues and guide interventions.

The Rapid Sanitation Risk Assessment (RSRA) tool also aims to assess local health hazards associated with environmental pathways, with a focus on sanitation, water, and excreta management. Typically, RSRA is conducted in focus groups of 8-10 participants from the same community, with each session lasting about 1.5 hours.

This tool allows for a **quick assessment**, whether for exploratory or formative research, for establishing a baseline in programs, or for evaluating ongoing initiatives. Two key outcomes are expected from the RSRA in the studied villages:

- **Perception of health risks**: Participants' views on local health risks and their opinions on the most critical ones they have identified.
- **Current risk situation**: A clearer understanding of local health risks and community vulnerabilities.

Practical Implementation

Participants distribute small stones to represent proportions, providing insight into their awareness of risks and their risk priorities. During the focus groups, participants allocate **ten stones** across different illustrated risk scenarios (low/medium/high risk) observed in village households.

For example, placing **two stones** on the image representing high risk suggests that approximately **20% of village households** face high-risk conditions for that specific indicator. Once all indicators are assessed, an overall score, along with individual scores for each category of indicators, is determined.

Thus, the RSRA tool generates a **scorecard** outlining the types of hazards, exposure pathways, and vulnerabilities, highlighting risk areas that require special attention.

Risk Situation Classification

Participants use three illustrated cards (**unsafe/moderately safe/safe**) to classify different risk situations. Discussions follow to analyse the reasoning behind the classifications and define what constitutes good hygiene practices and a clean local environment.

Identifying Pathways of Contamination from Human and Animal Excreta

As part of the implementation of this initiative, the **contamination pathway identification tool** is an adaptation of the **transmission pathway activity**. It highlights diseases that can be transmitted through animal excreta and emphasizes the importance of proper waste management.

This tool was developed by **CAWST**, and the images (link) and instructions (link) are available for reference. It helps identify various disease transmission pathways and the control measures that can block these transmissions. Additionally, it allows participants to explore and analyse how diseases linked to animal waste can spread in the environment.

At this stage, participants use **illustrated cards** to map out the **faecal-oral transmission pathways** of **human excreta**. Discussions follow on how to break these transmission routes through proper sanitation and hygiene measures.

Steps Followed During Group Work

- **Print and cut out** the cards before starting the group work. The cards depict local activities and livestock species raised in the village (e.g., pigs, cows, goats, poultry).

- **Introduce the topic** and begin with pictures of animal excreta and a child.
- **Explain that pathogens can be transmitted** from faecal matter to children in various ways. Transmission is not necessarily oral; it can also affect other parts of the body, such as the respiratory system or the feet (in the case of soil-transmitted helminths).

Photo 12 : *Pre-test of the tool "Animal Excreta Contamination Pathways," followed by an awareness-raising session (Photo : Danièle Sebgo)*

- **Divide participants** into small groups of three to five people. Distribute blank cards and arrows to each group. Explain that they must use these materials to create as many transmission pathways as possible, illustrating how pathogens travel from animal faeces to children.
- **Once the groups have completed their diagrams**, ask them to present and explain their work to the other groups. Allow time for questions and discussions.
- **Compare similarities and differences** between the diagrams. Encourage discussion on why participants arranged the images in a particular sequence and ensure everyone understands what a "transmission pathway" is.
- **Facilitate a discussion** to help participants apply their new knowledge to their own environment.
- **Discuss and identify**:
    - Transmission pathways in the community.
    - Problematic areas and behaviours that put people at risk of infection.
- **Next, ask participants to identify practices that can interrupt transmission pathways (barriers to transmission).** Distribute the **orange cards** to each group.
- **Explain that** participants should use the **orange cards** to block disease transmission. Provide paper and pens so groups can create additional barriers if needed.
- **Once the groups have completed their diagrams**, ask them to present and explain their work to the other groups. Allow time for questions.
- **Discuss different ways** to block pathogen transmission from animal excreta and compare them with methods used to prevent diseases from human faeces. Ask participants if they have identified any additional methods not included in the orange cards, such as:

    - Treating water to make it safe.
    - handwashing.
    - Proper food preparation (e.g., washing vegetables with potable water).
    - Covering water and food to prevent contact with animals and flies.
    - Keeping animals fenced or tied.
    - Fencing gardens to keep animals out.
    - Wearing protective shoes to prevent soil-transmitted helminth infections.
    - Removing excreta from living areas and disposing of it safely.
- **Summarize by explaining that** preventing animal excreta from entering the environment in the first place reduces concerns about water treatment, food safety, and fly control. The **priority should be animal waste management and handwashing with soap**.
- **Ask participants to identify local diseases linked to animal waste and good management practices to prevent their transmission.**

2.4. Experiences, Constraints, and Needs of Beneficiaries in WaSH Interventions Integrating Zoonoses

In the previous sections, the literature review analysed WaSH policies and strategies related to zoonoses and shared experiences from WaSH initiatives aimed at reducing the risk of zoonotic disease transmission in Burkina Faso. This section focuses not only on the experiences of beneficiaries during the implementation of these interventions but also on the challenges encountered and, more importantly, the needs of beneficiaries to encourage the adoption of the promoted best practices.

2.4.1. Study Area and Target Population

A qualitative approach based on focus group discussions was used to gather insights into beneficiaries' experiences, challenges, and needs regarding the adoption of best practices promoted in villages exposed to WaSH interventions under the SELEVER programme.

Six localities were purposefully selected based on accessibility and, most importantly, security considerations. These include the villages of Kolbila, Lilbouré, and Saria in the Northern region and the villages of Godé, Goumogo, and Kamsé in the Central-West region.

In each village, two focus groups were conducted: one with women and another with men. In total, focus group discussions gathered 135 participants, including 68 women and 67 men.

The high level of participation in the discussions reflected the strong interest of the participants in hygiene and sanitation issues, particularly regarding animal waste management and hygiene in livestock farming. Opinions were openly expressed, and the diversity of perspectives among participants helped capture various sensitivities related to each topic.

2.4.2. WaSH Experiences in Villages

2.4.2.1. Before WaSH Interventions

Before the implementation of WaSH interventions, hygiene conditions in the villages were poor, exposing inhabitants to various diseases. Participants unanimously recognized that their living environment was highly unsanitary before the introduction of WaSH programmes. Both the areas surrounding their homes and public spaces were used for open defecation due to the lack of toilets in households and public places. The following excerpts from the focus group discussions illustrate the conditions before the interventions:

> "Our main sanitation issues were the holes caused by wastewater runoff from our showers, which flowed into and polluted the rivers. Additionally, the lack of toilets in households led to open defecation." (FGF Goumogo)
>
> "Before the WaSH program in our village, people practiced open defecation, the air was foul-smelling, and wastewater ran everywhere. Wastewater and roaming animals polluted the rivers due to a lack of awareness, and we drank this water, believing it to be safe. Many people fell ill. We lacked toilets and even pots for children, who defecated everywhere in the streets." (FGF Kamsé)
>
> "We used to relieve ourselves in the bushes due to the lack of latrines, and the smell of our own waste was unbearable. The absence of soak pits allowed pigs to create stagnant water pools behind our showers, leading to mosquito proliferation. This lack of sanitation caused diseases such as malaria and cholera." (FGH Kamsé)
>
> "We used to defecate in the bushes because we had no latrines, and our children relieved themselves everywhere due to a lack of knowledge about using pots" (FGF Kolbila)

Due to the absence of septic pits, wastewater from showers flowed directly onto the ground, both inside and outside of households. Animals often waded through these stagnant pools, creating foul odours and breeding grounds for mosquitoes. Furthermore, household environments were unhygienic; food and drinking water were not protected. Flies carried faecal matter to food, leading to frequent gastrointestinal illnesses, particularly recurring diarrhoea among children. The proliferation of mosquito breeding sites further increased malaria cases.

Regarding livestock-related hygiene related to livestock, testimonies indicate that animals roamed freely within households, and their droppings were scattered everywhere. Families spent significant amounts of money on medical care for children who frequently fell ill due to unsanitary conditions, particularly from ingesting poultry droppings or consuming food and water contaminated by flies.

Specifically concerning livestock hygiene, some participants stated:

"Our courtyards were filled with garbage and animal droppings. We did not sweep our yards to remove animal waste, our drinking water was unprotected, and our kitchen utensils were not clean. We had no enclosures for our animals and lived alongside them." (FGF Kolbila)

"Before the program arrived, we coexisted with animals; they had access to our kitchens and even dipped their mouths into our drinking water. At times, when parents were not paying attention, animals would eat from the children's food. Previously, our animals lived with us inside our compounds, and we were unaware that many diseases were linked to this close cohabitation." (FGH Saria)

"The entire village smelled awful, distressing the inhabitants. Pigs would wallow in the stagnant water pools created by toilet runoff, which became breeding grounds for mosquitoes." (FGH Kamsé)

2.4.2.2. After WaSH Interventions in the Villages

All six villages visited reported having benefited from WaSH awareness programs, with varying degrees of impact. While some villages demonstrated success and full adoption, others lacked proper training and follow-up. The activities implemented targeted the entire community, engaging men and women, the elderly, young people, and children. Everyone played an active role in the triggering process through the Community-Led Total Sanitation (CLTS) approach, which combined messages on the management of human and animal waste.

The state of the living environment was collectively illustrated (see photos above). The participatory mapping exercise raised community awareness about environmental unsanitariness and the need for behaviour change. A participant in the triggering session shared his personal experience and key takeaways:

"Our experience with WaSH programs began when the program team requested to meet with the inhabitants of Koulbila. We invited the entire population to a gathering, which saw a large turnout of at least 400 people, including authorities, men and women, young and old, and children. Before saying anything, the team drew a map of our village on the ground. They described our houses, meeting places, sanitation areas, and drinking water sources. As we observed, we noticed the proximity between our homes, open defecation sites, and animal waste. We realized that this was an unpleasant and unhealthy image. There were faeces and excrement scattered throughout the community, and chickens moved freely between the waste and the food in our homes. We found this to be very unhygienic. To address this, the team advised us to protect our water sources and drinking containers from animals, keep our homes clean, drain wastewater from our showers into soak pits, and build toilets for our needs. Initially, we were concerned about the cost of building toilets, but they reassured us that with determination, we could construct affordable toilets, even at no cost, in just three months. None of us thought we were capable, but in the end, we realized

that it was within our reach. Some were able to cover their toilets with concrete slabs, while others used wood and mud." - FGH Koulbila.

2.4.2.3. Awareness and Improvement of Living Conditions

The messages conveyed and behaviours promoted by the WaSH programmes focused on the health risks associated with open defecation, the construction and use of latrines, the risks of cohabiting with animals, the need to separate animals from human dwellings by building enclosures, water protection and purification, food hygiene, regular cleaning of living spaces, handwashing with soap at key moments, the use of defecation pots for children, and the management of animal waste.

For focus group participants, adopting the practices promoted by WaSH programmes has improved their living environment. The increased knowledge and impact of this awareness are well reflected in these testimonies from different focus groups:

> *"Since the WaSH programme, the environment is much cleaner, there are no longer any mosquitoes, and illnesses have significantly decreased. The community in Kamsé lives better, our showers are cleaner, and we can now eat near them without being disturbed by any odours. Children now have pots for their waste, and we WaSH our water containers and jugs regularly; everything is clean." - FGF Kamsé.*

> *"We were advised to always keep our homes clean because malaria is worsened by unsanitary conditions. It is because we do not clean our compounds that mosquitoes find breeding grounds. We were also advised to have designated washing areas for dishes, pots, and clothes in our homes and to prevent water from stagnating. We must protect our water sources, clean the well (borehole) at least once a week, and avoid doing laundry near it. Every household must have latrines so that adults and children aged seven and above can use them, with water and soap available for handwashing after toilet use. To prevent open defecation, children under seven should use defecation pots." - FGF Goumogo.*

> *"We were sensitized about sweeping our courtyards, cleaning our pots, washing the pumps, and keeping schools clean." - FGF Goumogo.*

> *"Through the guidance we received, we understood that wastewater is a major source of diseases. Men mobilized to fill in holes caused by wastewater runoff, while women were actively involved in cleaning. The men also dug and built latrines, putting an end to open defecation. Now, children use the latrines and ask for soap to wash their hands afterward. Younger children who cannot use the toilets use pots for their needs." - FGF Goumogo.*

Regarding animal hygiene, the population has well assimilated the instructions given during the triggering sessions, as participants expressed in various focus groups:

"We understood that cohabiting with animals in households is a source of poor hygiene and a risk factor for diseases such as cholera, malaria, and diarrheal diseases in children. We regularly clean our courtyards to remove animal waste and are making efforts to build enclosures." - FGF Kamsé.

"Cohabitation between household members and their animals increases the risk of contact between animals and kitchen utensils, drinking water, and food. This can lead to contamination and disease transmission. Animal excrement scattered throughout the compound contributes to unsanitary conditions and disease risks, especially for young children who often share food with animals. We must build enclosures away from our homes for our animals and keep our utensils and food out of their reach to avoid contamination." - FGF Kamsé.

During interviews, participants noted that WaSH programmes also fostered solidarity and mutual aid within villages through solidarity groups. These groups were organized and mobilized to improve sanitation, end open defecation, and prevent zoonotic diseases. Small financial groups were initiated through voluntary contributions to help those unable to afford toilets, and collective work initiatives were launched to equip some households with sanitation facilities. Local authorities were often involved in persuading those resistant to change. One participant summed it up well:

"The arrival of the WaSH programme strengthened our solidarity and created spaces for discussion on hygiene and sanitation, as well as other topics beyond WASH. It fostered friendships and mutual aid within the village, much to the delight of the population." - FGH Kamsé.

Overall, WaSH programmes have significantly improved community well-being. Most households have built a toilet, even those with limited means, using wood and mud. Public places like markets and schools have also been equipped with sanitation facilities and are regularly cleaned. Households have adopted measures to prevent zoonotic diseases by separating animals from human dwellings, maintaining cleanliness, protecting food, and practicing handwashing at critical times.

"With WaSH programmes, we have been encouraged to clean our homes and tidy our courtyards, and women have embraced these recommendations. We have done our best to build toilets. Wastewater must be drained into pits filled with wild stones to prevent pigs from creating holes in the streets by bathing in it." - FGH Koulbila.

WaSH programmes have brought many other benefits, such as reducing diseases, improving livestock conditions, and increasing compost availability for agriculture. As participants stated:

"WaSH programmes have greatly benefited our village in terms of health; our health centre recorded fewer malaria cases this year." - FGF Libouré.

"By keeping animals in enclosures, we maintain cleanliness, centralize animal waste for composting, and reduce the risk of theft." - FGF Lilbouré.

"WaSH practices have generated many benefits. We now use collected waste to make compost for our fields, improving our yields. Also, we no longer eat contaminated food as we have adopted the use of defecation pots for our children." - FGH Koulbila.

2.4.2.4. Consideration of Gender Aspects in WaSH Programmes

Women have been actively involved in various WaSH interventions. The SELEVER project, in particular, was a nutrition- and gender-sensitive agricultural intervention aimed at strengthening poultry production capacity. This initiative primarily targeted women and children, ensuring their participation at every stage. The following testimonies illustrate this engagement:

"The WaSH programmes have genuinely involved women in their activities. The program has been particularly beneficial to women. Thanks to this initiative, we have been organized into groups, which has strengthened our sense of community and solidarity. Before the programme, we could go for a month without hearing from each other. Now, thanks to these newly formed groups, we hold weekly meetings where we exchange ideas and share resources. The WaSH program also introduced us to the idea of collective savings within our groups. The pooled funds allow us to purchase essentials such as potties for children, brooms, and soap, significantly improving sanitation in our community. Additionally, these funds support members in need." (FGF Goumogo)

"In Goumogo, women are the most involved in hygiene and sanitation issues. We can even say they are at the heart of the project, as they are on the front lines. They participate in all WaSH-related activities, attending training sessions and awareness campaigns." (FGF Goumogo)

2.4.3. Constraints and Challenges in Implementing Promoted Behaviours

Several constraints have been identified in implementing the behaviours promoted by WaSH interventions. The primary challenges are material constraints and the lack of awareness among some community members due to insufficient training and continuous sensitization efforts. The material constraints mainly stem from the lack of financial resources to acquire construction materials for sanitation infrastructure (latrines, poultry houses, animal enclosures), such as cement, iron, metal sheets for latrines, and fencing for poultry houses. The following testimonies highlight the material constraints faced by certain households:

"Some households lacked the financial means to purchase materials like cement for latrine slabs. However, thanks to solidarity and social cohesion, they received support from other community members to build their toilets. We also lacked tools for digging latrines." (FGF Goumogo)

"In Godé, the WaSH programme had little impact and did not achieve success because activities started in August, during the peak of the rainy season. The established community cell failed to capture the community's attention. We often spoke with people who turned away to attend to their farming activities. Mobilization was particularly difficult in some neighbourhoods compared to others. For example, in Tanghin, mobilization was successful, and people showed up in large numbers. However, in other areas, even when the town crier announced meetings, no one showed up at the scheduled time. Given that it was farming season, we couldn't blame them. After the rainy season, the program leader never returned to our village, which discouraged the community cell from continuing its activities." (FGF Godé)

"One of the major challenges in implementing the WaSH programme's recommendations was the reluctance of some community members who did not understand the necessity of sanitation. It was very difficult to convince them to follow the guidelines." (FGF Goumogo)

"The challenges we faced were mitigated by the involvement of programme facilitators and assistants. Through continuous follow-up, they helped us overcome obstacles. Since these were initiatives never undertaken before, such as digging latrine pits, the facilitators courageously set an example by personally digging the pits. Seeing them do it motivated us because if they could do it, so could we." (FGF Goumogo)

"To facilitate the implementation of WaSH programme recommendations, continuous training for community members is essential. This will boost community engagement in improving village sanitation" (FGF Goumogo)

"We need material support, such as pickaxes, shovels, potties, gloves, and wheelbarrows" (FGF Goumogo)

The constraints and difficulties related to implementing good hygiene practices for animals are primarily financial and material. This concern is reflected in participants' statements during focus groups:

"Coexisting with our animals is not ideal because they can be disease vectors. It is not advisable to live close to animals, but everything depends on financial means. If a household cannot afford to build enclosures for its animals, cohabitation becomes inevitable." (FGH Koulbila)

"We have been trained on the importance of having separate enclosures for animals away from our homes. The community has embraced this principle, and many have built shelters for small ruminants and poultry in Koulbila. These enclosures are regularly cleaned of waste to prevent odours and mosquito infestations. However, a major challenge remains with enclosures for large ruminants, as we lack the necessary fencing materials to construct them." (FGH Koulbila)

2.4.4. Beneficiaries' Needs for Adopting Promoted Behaviours

During interviews, beneficiaries expressed their needs to better adopt the behaviours promoted by WaSH interventions. Given the constraints and challenges mentioned earlier, it is evident that their needs are primarily material and financial, along with an improvement in knowledge about WaSH. In the six villages, participants requested support in acquiring sanitation tools such as shovels, wheelbarrows, pickaxes, rakes, machetes, and construction materials for animal enclosures and poultry houses, including cement, fencing, doors, metal sheets, and windows. They also emphasized the necessity of continuous training and awareness campaigns on hygiene and sanitation in general, with a specific focus on animal hygiene. Over time, some commitments have begun to wane, as highlighted in the statements below:

> *"Our community cell committed to keeping the CSPS and market areas clean, but this requires material support such as wheelbarrows, carts, shovels, rakes, machetes, face masks, and even distinctive uniforms for responsible members." (FGF Godé)*
>
> *"To facilitate the implementation of WaSH programme recommendations, continuous training for community members is essential. This will boost community engagement in improving village sanitation" (FGF Goumogo)*
>
> *"We need material support such as pickaxes, shovels, boots, gloves, and wheelbarrows" (FGF Goumogo)*
>
> *"We request support in materials, particularly fencing, to build enclosures for our animals, keeping them away from our homes" (FGH Koulbila)*

2.5. Experiences, Constraints, and Needs of Stakeholders and Beneficiaries

Divided into two groups, participants in the workshop on disseminating capitalization results of integrated WaSH experiences in reducing zoonotic contamination risks and improving agricultural productivity using human and animal excreta as fertilizer were invited to reflect on constraints and necessary actions. Their goal was to facilitate the adoption of practices integrating zoonotic contamination risks into WaSH interventions and to promote the use of human and animal excreta for agricultural productivity enhancement.

The group focusing on animal-to-human zoonotic contamination risks suggested that the research team further document the following integrated WaSH initiatives:

- Emphasizing the promotion of good hygiene and sanitation practices in communities within the SELEVER 2 project (Centre-Sud, Centre-Ouest, Boucle du Mouhoun, Hauts-Bassins), implemented by associations and NGOs such as Chant

de Femmes, the Coalition Burkinabè des Droits des Femmes (CBDF), the Centre for Research, Innovation, and Technology in Health (CERTIS), and CESEO.

- The "Vegetables Go to School" (VGTS) initiative on quality water, hygiene, and sanitation (Plateau Central and Centre-Ouest) in schools to improve the nutritional status of school-aged children in Burkina Faso. This initiative, led by the Institute for Health Sciences Research (IRSS), included activities such as the installation of handwashing stations, rehabilitation of latrines and boreholes, and WaSH awareness combined with nutritional gardens.
- Another initiative, Community-Led Total Sanitation (CLTS) in emergencies, addresses animal waste management in internally displaced persons (IDP) sites and is implemented by the General Directorate of Wastewater and Excreta Sanitation (DGAEUE).

Regarding the constraints and difficulties in implementing the WaSH approach within One Health, workshop participants identified the following issues at political, implementation (NGO/association), and community levels:

Political Constraints:

- Lack of clear strategic guidance documents related to this approach.
- Absence of municipal ownership policies to sustain initiatives.
- Inadequate implementation of policies and strategies for wastewater and excreta management.

Implementation Constraints (NGOs/Associations):

- Lack of synergy among actors.
- Insufficient coordination frameworks.
- Lack of awareness of existing coordination frameworks by some actors.

Community Constraints:

- Low community engagement.
- Lack of long-term ownership, affecting the sustainability of WaSH project achievements, particularly in managing human and animal waste.

To address these constraints and challenges, workshop participants proposed the following actions:

- Advocacy by WaSH implementation actors to urge the government to integrate zoonotic disease control into WaSH initiatives.
- Establish a consultation framework for all actors and structures involved in WaSH and zoonotic disease control at national, regional, and provincial levels. The One Health Technical Secretariat could serve as a meeting platform, with additional thematic groups at national, regional, and provincial levels.
- Strengthening municipal capacity in project ownership by enhancing their technical and financial autonomy to independently manage sanitation, hygiene, and potable water activities.

- Capitalizing on experiences from WaSH and zoonotic disease control projects in municipal accountability sessions.

3. CONCLUSIONS

A documentary review of policies and legal frameworks in Burkina Faso reveals a strong focus on water, hygiene, and sanitation (WaSH), particularly on human excreta management. These documents address topics such as waste treatment, hygiene promotion, environmental sanitation, and community education. However, there is a notable absence of specific reference to animal excreta management within the WaSH framework, despite the zoonotic risks it poses. While some legislative texts include general measures to mitigate health risks from agricultural activities—such as restrictions on animal waste disposal and livestock farming in urban areas—these are often broad and punitive rather than preventive or integrated.

This lack of attention to animal excreta in WaSH policy highlights a significant gap in strategic coherence. Addressing this requires the development of targeted policy briefs for decision-makers that emphasize the links between WaSH, zoonotic disease prevention, livestock productivity, and public health. In addition, increased investment in scientific research is needed to better understand the risks and evaluate the effectiveness of existing mitigation strategies in the Burkinabe context.

In terms of implementation, most WaSH initiatives are led by state agencies like the National Water and Sanitation Office (ONEA), often funded externally and focused on infrastructure (e.g., water supply systems, drainage, and sanitation facilities). These interventions also involve community awareness on hygiene and IWRM but generally omit the management of animal waste. NGO-led efforts are more limited in scale but have begun integrating animal excreta management through awareness campaigns, waste valorisation, and sanitation improvements in both urban and rural settings.

At the grassroots level, informal initiatives by farmers and livestock producers involve artisanal practices for collecting and reusing animal waste, particularly in peri-urban areas. While they support resource recycling, these unregulated methods pose significant health and environmental risks. However, promising models like SELEVER, FDAL, and VPP—especially those incorporating Community-Led Total Sanitation (CLTS)—are beginning to bridge this gap. These approaches combine awareness-raising, risk identification, and productive waste reuse, offering valuable entry points for more integrated and zoonosis-sensitive WaSH strategies at the national level.

4. RECOMMENDATIONS:

To enhance the impact of WaSH programmes on beneficiary communities, the following recommendations are proposed:

At the Strategic Level:

Burkina Faso established a National One Health Coordination Platform (PNCOH) in 2019, institutionally anchored within the Prime Minister's Office, which chairs the National Council. Efforts in communication should be intensified to effectively integrate WaSH initiatives into zoonosis control, particularly in rural areas where cohabitation between humans and animals is a common practice. To achieve this, policy briefs should be developed and provided to policymakers highlighting WaSH contributions to zoonosis control, improved productivity through livestock waste management, food safety, and the protection of public health.

Updating Burkina Faso's Community-Led Total Sanitation (CLTS) strategy is necessary to better incorporate zoonotic risks, inspired by the CLTS+ model implemented by GRAD-A. Furthermore, stronger engagement from research institutions is essential to better understand how various measures (behaviours, practices, and technologies) reduce zoonotic risks, enabling prioritization.

At the Programmatic Level:

For government agencies, technical partners, and NGOs working in WaSH enhancement aimed at improving agropastoral productivity:

- Strengthen and operationalize the One Health approach by enhancing coordination among ministries responsible for health, water and environment, agriculture, animal, and fishery resources.
- Establish a consultation framework among stakeholders involved in public health management, hygiene and sanitation, and animal health to harmonize interventions, build synergies, and pool human and financial resources.
- Share relevant tools and conduct training sessions on integrating zoonotic risks within WaSH projects.
- Undertake joint supervision missions in intervention areas to exchange field experiences and collaboratively address encountered challenges.
- Share practical implementation experiences to collectively resolve execution challenges.
- Promote successful WaSH program examples integrating animal and human waste management to strengthen advocacy for the One Health approach.
- Sustain and intensify activities over time to enhance community knowledge and foster genuine behavioural change and ownership.

- Incorporate animal waste management into all national WaSH policies and strategies to effectively control health risks transmitted between animals and humans.
- Support communities in implementing WaSH initiatives through training, awareness sessions, and material assistance for constructing sanitation facilities for both humans and animals.

For community leaders and beneficiaries:

- • Sustain village and neighbourhood committees to ensure the durability of projects promoting and integrating WaSH within zoonotic disease control interventions.
- • Maintain high levels of collaboration between NGO actors and the community to achieve intended outcomes.
- • Establish a community-based motivational system to encourage identified resource persons involved in executing community-level interventions.

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