IMPETUS
Animal Welfare

STRENGTHENING THE CATTLE PARTNERSHIP

Prioritising Animal Welfare & Abattoir Development

July 2024

ACKNOWLEDGEMENTS

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Australian Government
Department of Foreign Affairs and Trade

Project Partners

We would also like to express our heartfelt thanks to our project partners whose dedication and collaboration have been instrumental in the success of this initiative.

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We also owe our thanks to MLA and LiveCorp's jointly funded Livestock Export Program(LEP) team, for their assistance during our training program and access to their new virtual reality stunning training tool.

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Enquiries and data access

Stakeholders wishing to access the project dataset, including 3D imagery can apply for access directly to Impetus at admin@impetusanimalwelfare.org

FOREWORD

Vietnam's dynamic growth continues to capture the attention of global investors. The nation's strides in economic reform, coupled with increased consumer spending and urbanisation, make it a prime destination for strategic investments. The resilience and ambition of the Vietnamese people have been instrumental in creating a fertile environment for development and innovation.

Investing in Vietnam's beef abattoir sector presents a unique opportunity to contribute to and benefit from this vibrant market. As the sector evolves, there are significant prospects for enhancing animal welfare standards and boosting operational efficiencies. These advancements not only align with global expectations but also pave the way for sustainable economic growth.

The collaboration between Australian and Vietnamese stakeholders under the DFAT Australia Vietnam Economic Grant (AVEG) project exemplifies the power of partnership. By working together, we've identified key areas where investment can drive meaningful improvements in animal welfare and industry practices. This synergy creates a foundation for long-term success and mutual benefit.

This report encapsulates our shared insights and highlights the strategic importance of investing in Vietnam's beef abattoir sector. It serves as a guide for stakeholders to navigate the opportunities and challenges, ensuring a positive impact on both animal welfare and economic development.

Dr Michael Patching
CEO
Impetus Animal Welfare

ABBREVIATIONS

ACIAR	Australian Centre for International Agricultural Research
AI	Artificial Intelligence
AVEG	Australia Vietnam Enhanced Economic Engagement Grant
ASEAN	Association of Southeast Asian Nations
B2C	Business-to-consumer
B2B	Business-to-business
CCTV	Closed circuit television
DFAT	Department of Foreign Affairs and Trade
ESCAS	Exporter Supply Chain Assurance System
ESG	Environment, Social and Governance
FMD	Foot and Mouth Disease
HACCP	Hazard Analysis and Critical Control Points
HCMC	Ho Chi Minh City
Impetus	Impetus Animal Welfare Ltd
LiveCorp	The Australian Livestock Export Corporation
LF	Low frequency
MLA	Meat & Livestock Australia
OH&S	Occupational Health and Safety
RFID	Radio frequency identification
RMIT	Royal Melbourne Institute of Technology
UHF	Ultra high frequency

CONTENTS

Executive Summary

Project Overview

Supported by the DFAT Australia-Vietnam Enhanced Economic Engagement Grant (AVEG), this project aims to boost investment between Australia and Vietnam as part of the Australia-Vietnam Enhanced Economic Partnership. Our focus is on the Vietnamese beef abattoir sector, aiming to improve animal welfare and foster sustainable economic development within the live cattle export industry.

Vietnam is a crucial market for Australian cattle, being the second-largest destination on volume and value after Indonesia for slaughter and feeder cattle. Enhancing trade with Vietnam aligns with the interests of both nations. However, the beef abattoir sector in Vietnam faces challenges including low throughput, outdated technology, and insufficient regulation. Investment in this sector is vital for maintaining the competitiveness of the local cattle industry and sustaining Australian cattle imports.

Project Objectives

The primary objective is to implement strategic interventions that will elevate animal welfare standards, expand the bilateral investment landscape, and increase market opportunities sustainably. Key activities funded by the grant include:

- Market analysis of Vietnamese cattle abattoirs
- Tailored training programmes for abattoir staff
- Development of this investment report

Project Goals

The main goals of this project are to:

- Enhance economic engagement between Australia and Vietnam
- Promote sustainable practices within the live cattle trade
- Support improvements in animal welfare in Vietnamese cattle abattoirs

Background

Since 2014, Australia has been exporting significant numbers of cattle to Vietnam, primarily for local processing and consumption. The Exporter Supply Chain Assurance System (ESCAS) is a regulatory framework established by the Australian government to ensure animal welfare throughout the live export supply chain. ESCAS mandates that livestock exported from Australia are handled and slaughtered in accordance with international welfare standards, providing assurance from the point of import through to slaughter. This system requires exporters to demonstrate compliance with animal welfare, control, and traceability standards within the importing countries. ESCAS has driven substantial financial and in-kind investments into Vietnam's cattle and beef sector, accelerating local development.

Methodology

The project employed a mixed-method approach, integrating both qualitative and quantitative data collection. This included:

- Direct assessments at abattoirs
- Stakeholder interviews
- Industry engagement on future investment

Key components of the methodology included:

- **Market Analysis:** Comprehensive surveys and evaluations of abattoir facilities to identify current practices and areas needing improvement.
- **Training Programs:** Customised training aimed at improving animal handling, welfare standards, and operational efficiency.
- **Investment Insights Report:** Compilation of data from market analysis and training feedback to assess economic impacts and identify potential investment opportunities.








Key Findings

A market gap analysis of 99 known abattoirs revealed:

- Only 54 were processing Australian cattle, indicating significant industry contraction and restructuring by 2024.
- Operational facilities varied in infrastructure and process maturity, with many facing financial limitations and market insecurities hindering investment in expansions and upgrades.
- Compliance with local regulatory requirements was low, with many abattoirs lacking proper registration or adherence to international standards such as HACCP and GlobalGAP. ESCAS was the primary or only compliance program related to animal welfare for the abattoirs that were analysed.
- Deficiencies in modern stunning equipment and effective waste management systems were noted but not a high priority, highlighting the need to review how value is created through animal welfare and environmental sustainability programs.

Benefits to Industry

- Enhanced animal welfare and food safety standards through improved facility conditions and training delivered to 67 participants in Hanoi and HCMC.
- Benchmarking Vietnamese cattle abattoirs against each other and international standards, quantifying the gap to meet global competitiveness.
- Environmental risks and realities of the abattoir sector that need to be prioritised. One Health programs have shown the benefits to both humans and animals of improving hygiene and water use.

Figure 1. Abattoir lairage holding Australian cattle prior to processing

Recommendations

The main limitation to developing the abattoir sector in Vietnam is its small scale, which deters overseas investment in training, infrastructure, and systems. To address this, a coordinated response is needed to:

- **Improving Staff Capability - Implement Regular Training Programs -**

  Focus on animal handling and welfare. Improve staff certification through vocational training programs.

- **Infrastructure and Equipment**
  - **Launch Pilot Projects with Environmental Technology Solution Providers -**

    Address abattoir waste and environmental issues. Identify and commercialise suitable solutions for Vietnamese abattoirs.

  - **Fund a Transportable "High Technology Abattoir" from Australia -**

    Establish centres of excellence for training Vietnamese workers, connected to commercial leaders for relevance and product offtake. Test and then demonstrate the commercial benefits of new techniques and technologies to a wider number of Vietnamese businesses.

    Provides access to scalable infrastructure that is not reliant on any single partner business, reducing potential sunk costs from those investing.

- **Infrastructure and Equipment**

  Supporting regulatory reforms and abattoir consolidation to improve processing efficiency and infrastructure utilisation

- **Modernisation – Chilled/Frozen Beef**

  Investing in high-quality abattoirs, including redundancy systems, to produce chilled or frozen beef, enhancing product shelf life, eating quality, and market value.

- **Training Staff for Overseas (Australia)**

  Support training programs for Vietnamese workers to create a skilled labour base and facilitate formal labour exchanges with Australia.

1. Background Rationale to the Project

1.1 Introduction

Australia is committed to expanding its trading relationship with Vietnam through the Australia-Vietnam Enhanced Economic Partnership (AVEG). The Australian cattle and beef industry, a significant net exporter to Vietnam, generated A$147 million from live cattle in 2022-23 and A$162 million from beef exports in 2023 (MLA, 2023).

Vietnam's economy has seen significant growth in recent decades, leading to changes in dietary habits and increased demand for diverse protein sources. Transformations in trading patterns within Vietnam have impacted production and processing systems, potentially affecting live cattle exports and shifting the industry towards more of a niche local supply chain.

As a global leader in livestock production, Australia has the opportunity to secure trade into its second-largest cattle export market. Additionally, there are opportunities to understand how the sector can have wider direct economic impacts through exporting or importing services to meet the needs of both countries.

Several projects have explored the general needs and trends of the cattle sector in Vietnam, including other AVEG projects, Australian Centre for International Agricultural Research (ACIAR) projects, and Meat & Livestock Australia (MLA) projects. This project specifically focuses on investment in the Vietnamese abattoir sector, identified by us as the largest risk and bottleneck for industry development. Without improvements in this sector, other upstream and downstream investments in domestic industry development will not be realised.

The abattoir sector in Vietnam offers a unique opportunity as it remains the least developed element of the value chain. Despite efforts, development has been limited beyond simple infrastructure improvements. There are precedents in Vietnamese breeding, feedlots, distribution, sales of cattle and beef products, and modern cooking methods that have adopted systems equivalent to those in Australia. However, few examples of successful and ongoing abattoir investment exist. Exploring the causes of this and finding investment partners remains the aim of this project and report.

Improving the abattoir sector also offers benefits in sustainability and social outcomes. Globally, abattoirs often employ lower-educated staff and experience high turnover. Pollutants produced by abattoirs during processing need to be addressed to prevent issues for waterways (Ohiare, 2023) and wider human health effects.

1.2 Current Situation

1.2.1 Cattle Trading

Understanding farming systems is crucial as it impacts supply and therefore sentiment for investment in the abattoir sector. Land in Vietnam is scarce and expensive, making large-scale grazing uneconomical. Livestock is therefore either raised opportunistically on rice stubble or roadside grass, or more intensively. The climate supports crop and grass growth, with byproducts available for feed.

Local Beef Cattle

Vietnamese cattle are often used as an opportunistic income source for rice farmers, sold for cash rather than following a specific production calendar. Common herd sizes are fewer than five head, with male calves either sold directly via a trader to an abattoir or fattened by an aggregator before slaughter. Smaller feedlots fatten around 20 cattle at a time, often located within villages, causing other pollution and health impacts.

Vietnamese cattle are generally smaller due to yellow cattle genetics and poor nutrition, though improvements in genetics led by Vietnamese Government programs has resulted in increased cattle sizes in some provinces. Rough estimates based on meat consumption and known trading mean that Vietnamese cattle still make up around one million head slaughtered annually, almost completely for Vietnamese consumption due to the limited trading options for China and internationally.

Regional Cattle

Cattle are moved from and through India, Myanmar, Thailand, Laos and Cambodia. Cattle travelling through Thailand can be sold to China or Vietnam depending on the prevailing trading dynamics which regularly change in response to supply demand, disease, or market access factors. The cattle from Thailand can be comparable in appearance, size, and meat yield to Australian cattle, while those from Laos and Cambodia are generally smaller. Regional trading of livestock often results in variable meat yields and quality of cattle because of the many points of origin.

Regional cattle trading presents risks due to prevalent diseases such as Foot and Mouth Disease (FMD) and poor traceability. Additionally, feed additives like Beta Agonists are used to enhance lean meat yield but negatively impact meat quality and are a human health risk.

Australian Imported Cattle

The import of Australian cattle to Vietnam began in 2014, driven by increased beef demand and Vietnam quickly became Australia's second-largest market for feeder and slaughter cattle. Australian cattle, typically bos indicus, are disease-free, healthy, and suitable for the tropical climate. The predictable meat yield and consistent quality have led to significant investments in Vietnamese feedlots, transforming local feeding and finishing practices.

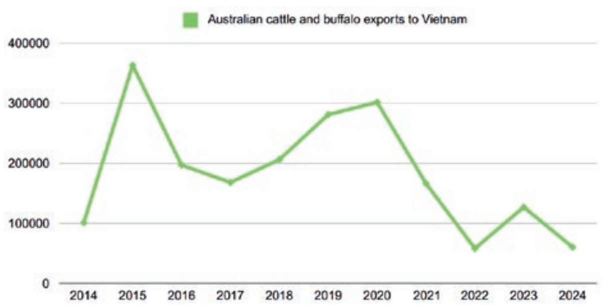

Figure 2. Australian cattle and buffalo exports to Vietnam by calendar year (Source: MLA, 2024)

The flow of cattle from Australia to Vietnam is highly dependent on the price differential between the two markets. When Australian cattle prices are lower compared to Vietnamese prices, the volume of cattle exported to Vietnam increases. Conversely, when the price gap narrows, the flow of cattle decreases. The relative volatility of Australian prices creates significant uncertainty for Vietnamese supply chain parties, making it challenging to invest, due to unpredictable profitability. The trade has experienced periods of attractive trading margins for importers, as well as times when importing Australian cattle resulted in net losses. This price-sensitive trade dynamic highlights the heavy reliance of the trade on competitive pricing in maintaining export volumes and ensuring consistent supply between the two countries.

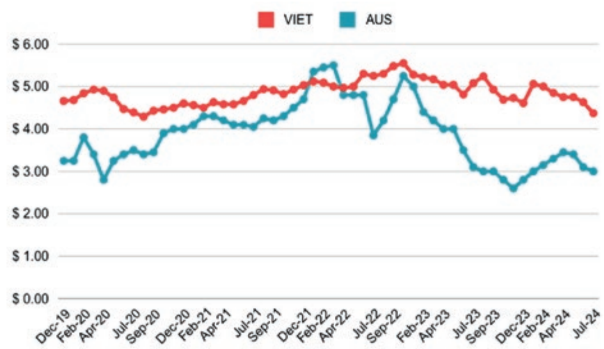

Figure 3. Australian and Vietnamese cattle price in AUD (Source: Alta Food and Agriculture, 2024)

1.2.2 Regulation

Vietnamese Regulations and Priorities

Vietnam's strategic plans for agriculture, outlined in the Current Law on Livestock 2020 (effective until 2030), prohibit livestock production in non-designated areas, including cities and towns, to reduce environmental pollution. From January 1, 2025, unsuitable livestock facilities must relocate, leading to the requirement to close village-based abattoirs and farms and should theoretically create an environment for further industry consolidation.

Due to the fragmented nature of beef abattoirs, and the limited number of registered legal abattoirs enforcing regulations is a challenge as it also impacts rural livelihoods. The small number and size of beef abattoirs complicates enforcement without risking a food crisis or industry collapse.

Australian Regulations – ESCAS

The introduction of Australian cattle to Vietnam necessitated compliance with the Exporter Supply Chain Assurance System (ESCAS), developed in 2011 to ensure adherence to global animal welfare regulations. This led to significant investments in abattoirs, including holding facilities, unloading ramps, restraint boxes, captive bolt stunners, and traceability records.

Australian cattle exporters and their Vietnamese importer customers have implemented sophisticated traceability and animal welfare monitoring systems using closed circuit television (CCTV) and radio frequency identification (RFID). Cattle are fitted with eartags using both low frequency (LF) and/or ultra high frequency (UHF) RFID which are scanned as the cattle move through critical control points such as entry and exit of facilities and at point of slaughter. Personnel external to the facility monitor records for compliance with ESCAS standards and apply corrective measures where issues are identified (IGLAE, 2021). ESCAS monitoring and compliance has resulted in substantial improvements in abattoir infrastructure and processes.

Much of this report's conclusions are related factors which are a result of the impact of the consistent profitability and consistently enforced regulation that Australian cattle and ESCAS brought to the industry in Vietnam from 2014. The lack of consistent supply from Australia in recent years due to various trade factors has reduced this development, and shows the importance of the interrelationship between the countries.

1.2.3 Protein Consumption in Vietnam

Importance of Beef

Vietnamese cuisine, characterised by fresh, locally-sourced ingredients, predominantly features pork, chicken, and seafood. While beef is less commonly consumed, it holds cultural significance in dishes such as pho bo (beef noodle soup) and hot pots. Vietnam ranks highest for beef consumption frequency in South-East-Asia(MLA, 2024).

Importance of Fresh Meat

Vietnamese consumers prefer fresh meat, historically meaning killed and consumed the same day, often referred to as “hot beef” or “hot meat”. Wet markets and traditional distribution networks support this preference, reducing health risks associated with bacterial contamination as well as cost for processing, storage, and cold chain related waste. Frozen meat is traditionally seen as inferior, which has led to the historical preference for fresh, locally-slaughtered beef.

Sources of Beef – Local Slaughter vs Imported Products

Modern production systems face challenges in Vietnam due to high costs and the need for improved hygiene standards. Local slaughter traditionally met consumer requirements, but increased wealth and higher quality expectations have driven a push towards western eating quality attributes such as fat and tenderness. Vietnam has built a reputation for being able to use all the carcass, and not leaving any meat on the bones or part wasted.

The challenge for the local industry is that imported beef offers modern quality and safety attributes. What is more challenging for local production is that imported beef can be bought and sold in large volumes at different price and eating quality points, often cheaper than an equivalent local product. This means some meat traders can focus on importing and using cuts that they want to use, rather than dealing with the challenge of whole carcass utilisation.

1.2.4 Impact of COVID-19

The COVID-19 pandemic significantly impacted the local cattle and beef industry in Vietnam. Lockdowns restricted movement of cattle and beef and disrupted traditional markets, increasing reliance on frozen products. The forced learning curve for new customers to understand the consistency and convenience of frozen beef has had lasting effects on demand, challenging the local processing sector to adapt to higher quality standards and different trading models.

1.2.5 Current Beef Abattoir Sector in Vietnam

For Australian live exports, the Vietnamese abattoir sector needs to:

- Maintain and grow exports of Australian cattle by meeting regulatory (ESCAS) and market competitiveness needs.
- Modernise abattoirs to compete with imported products.

Infrastructure

Most abattoirs in Vietnam now have basic infrastructure, including holding yards and restraint boxes. Some have adopted advanced tools like pneumatic hock cutters and hide pullers, but significant gaps remain in processing technology. Only a few abattoirs process chilled meat, with volumes remaining low. Investment from Meat & Livestock Australia (MLA) and Australian businesses has been crucial in these limited examples.

Figure 4. Example of modernised processing infrastructure

1.3 Current State of Vocational Training

Vietnam's vocational training programs are not developed or enforced for employment. This means that for abattoirs and meat processing all further education pathways are voluntary. Unlike Australia, Vietnam does not have certification programs for worker competency in occupational health and safety, animal welfare, and food safety, leading to significant gaps in worker knowledge. Even with development of these programs there is no support or enforcement mechanism to make them sustainable or profitable.

1.4 Existing Training Programs

Two main types of training programs are available:

- **Visa Programs:** Joint ventures between Vietnamese companies and Australian training organisations, designed to meet Australian visa requirements.
- **General Training Programs:** Supported by government or industry bodies like Meat & Livestock Australia, focusing on animal handling, meat processing, and other relevant aspects.

Visa programs require English proficiency and eligibility for an Australian visa, limiting the type of participants. General training programs are usually tied to specific businesses, with no Vietnamese regulatory demand or financial support for public training. Australia is engaged in both types of programs and continues to invest significant money for the development of the cattle sector in Vietnam through training.

Staff Capability and Needs

Vietnamese abattoir staff are skilled in hot boning carcasses and adopting pneumatic equipment when they see value. However, language barriers and low education levels hinder training which would equip them with the skills needed to pursue employment in Australian abattoirs. For the Vietnam to Australia migrant abattoir worker pathway to function changes to immigrant worker visas are needed as current skilled worker visa language and experience requirements remain impossible to meet for a large enough volume of Vietnamese workers.

3. Opportunities for Investment

3.1 Improving Staff Capability

There is a significant skills gap among Vietnamese workers in the abattoir sector, presenting a major investment opportunity. Implementing structured training programs can significantly improve abattoir performance by reducing waste from improper cutting, increasing processing speed, and ensuring good animal welfare. Enhanced hygienic meat handling can lead to a longer shelf life for products. Training programs focusing on correct storage and advanced meat cutting techniques can further enhance meat quality and open new market opportunities.

However, the lack of regulatory and financial support limits the widespread implementation of structured training programs in Vietnam. With government or large business support, structured programs with clear competency standards and certification could be developed. Companies or individuals seeking training in animal welfare, meat quality, or improved processing can collaborate with overseas companies or employ in-house experts. Independent animal welfare consultants, such as Impetus Animal Welfare (Australia), offer support for developing systems to comply with local or international regulations. Investing in structured training programs and regulatory support can significantly enhance the Vietnamese abattoir sector, ensuring higher standards of worker competency, animal welfare, and food safety.

3.2 Infrastructure and Equipment

Infrastructure remains a significant limiting factor in developing the abattoir sector. Most current infrastructure meets only the minimal handling capability requirements of ESCAS. Infrastructure investments have been impactful in two main areas: compliance with ESCAS standards; and improved slaughter and processing programs.

Initial investments in holding pens, restraint boxes, and the introduction of captive bolts were driven by the need to process Australian cattle under ESCAS standards. While these investments improved animal welfare and processing capabilities, a reduction in the number of importers, exporters, and cattle volumes in recent years has decreased oversight and investment from Australian exporters in Vietnam. The production of captive bolt devices and charges locally has both addressed, and introduced animal welfare risks, highlighting the need for continued Australian investment in compliance infrastructure and systems.

Programs run by Meat & Livestock Australia (MLA) and DFAT, such as MATES and MATES II under Aus4Skills, have funded equipment investments and encouraged abattoirs to meet requirements. These programs have led to practice changes, such as reducing faecal contamination of meat and introducing pneumatic hock cutters and dehiders. However, investment scalability remains a challenge, as many facilities fail to justify further business cases for improved processing or switch to local cattle processing.

For all the investment in infrastructure in Vietnam there are too many known examples where the development investment by Australia has been lost due to a change in commercial decisions. The overnight restriction to the movement of cattle due to COVID-19 meant that some local abattoirs could not function. The photos in Figure 5 show an example of an abattoir that had invested, with support from MLA in their own style of modern bed dressing system. This facility is located next door to the original abattoir that is still functional, but even though it is fully completed it has never been used because throughput dropped and the owner lost interest.

One potential solution is introducing a portable cattle abattoir, similar to the Provinir model in Australia. This technology could be used by businesses to train on high-technology equipment without the risk of sunk infrastructure investments. Collaborative investment in such technology could set a precedent for low-volume abattoir systems, showcase compliant infrastructure, and enhance waste processing efficiency. It could also serve as a fast-deployment method for testing and identifying market and consumer preferences.

Figure 5. New carcass processing tables(left) and restraint box(right) sit unused

3.3 Increased Throughput and Consolidation

To facilitate a rapid shift to higher quality processing, Vietnam needs to enforce regulations consistently. The new Vietnamese production laws require all facilities to move out of village centres, creating an opportunity for Australia to support these regulations. By supporting regulatory reforms and consolidating abattoirs while providing compliant processing alternatives, Australia can strengthen the Vietnamese abattoir sector and position itself favourably in livestock development in the region.

3.4 Modernisation – Chilled and Frozen Beef

Modernising abattoirs to produce chilled or frozen beef presents a complex but significant investment opportunity. With new regulatory reforms, external investors could build high-quality abattoirs, as seen with the recent Japanese investment through Sojitz and TH Milk (Sojitz Corporation, 2023). The advantages of higher-quality processed products include longer shelf life, increased eating quality, and the potential for branding and marketing to higher-value customers. However, the costs of managing inventory, low production volumes, and branding challenges have had limited success so far and are substantive.

Figure 6. Locally packaged beef from imported Australian cattle

Past MLA projects have shown profitability when stock is managed correctly, and livestock are under abattoir control. However, risks such as stock tampering impact meat quality, making direct oversight and quality assurance essential. There are significant opportunities for Australian investment in this aspect of the industry, but companies should manage operations and data directly.

3.5 Training Staff for Overseas (Australia)

Training staff in Vietnam offers bilateral benefits, improving skills locally and supporting a formal exchange of labour to Australia. Establishing these programs presents challenges, but some Australian businesses have engaged in formal training programs in Vietnam:

- **Elite Investment Solutions:**

  A joint venture between Katherine Pastoral Company of Australia and Mr T Beef (a subsidiary of Quang Phat Group). Their abattoir in Long An, South Vietnam, processes a mixture of Australian, Thai, and domestic beef. The training facility, managed by an onsite Australian manager and MINTRAC assessor, offers intensive courses modelled on Australian Cert I, Cert II, and Cert III training modules. The first round of participants qualified for placements in November 2023.

- **Response Group:**

  The Australian Meat School, established by San Ha Company Limited and Response Consulting APAC Company in 2023, aims to address the need for specialised meat processing skills in the Vietnamese workforce. The program, managed by an Australian resident in Vietnam, prepares participants for employment and long-term career development within the VISA 482 framework. By April 19th, 2024, they had secured job placements for five students in Australian schools, with up to 100 anticipated by the end of 2024.

4. Market Gap Analysis and Survey

The gap analysis and survey results form the foundation for recommendations for further investment in the Vietnamese abattoir sector.

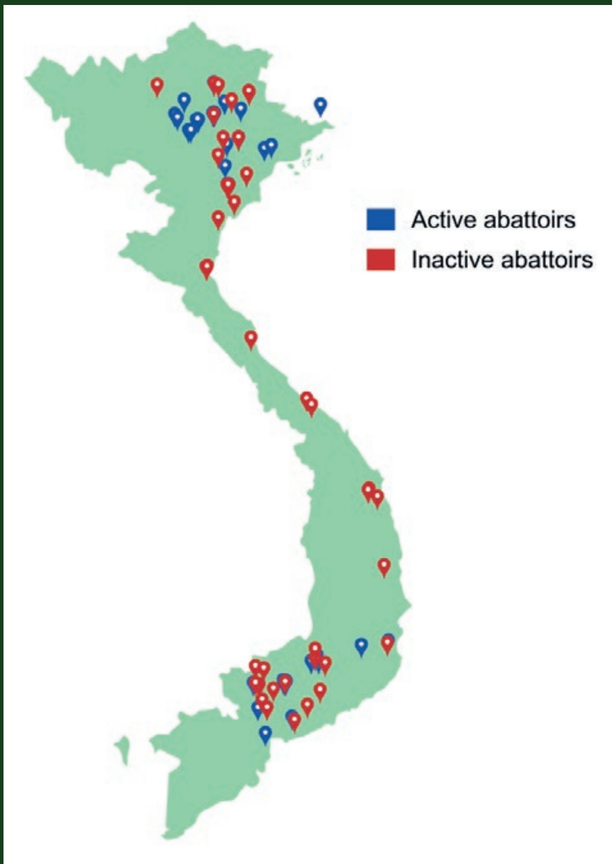

Figure 7. Location of surveyed abattoirs

4.1 Number of Abattoirs Surveyed

The market gap analysis and survey targeted 99 known abattoirs across Vietnam. During the investigatory phase, only 54 abattoirs were found to be actively processing Australian cattle. Many of the remaining abattoirs had either ceased operations entirely or significantly reduced their activities, processing local cattle only. This marks a substantial shift from 2018, when up to 120 ESCAS-approved abattoirs processed Australian cattle and 250 other non-approved (backyard) premises were known to be operational and processing local cattle. This rationalisation in the number of operational abattoirs is likely an indication of market demand rather than regulatory changes, and a reaction to lower trade volumes that come with the less profitable trading conditions experienced over the last 4 years, caused primarily by high Australian cattle prices.

Of the inactive abattoirs surveyed a majority retained the necessary infrastructure to restart operations in a relatively short period. The main impediment to these facilities resuming processing activity is the loss of skilled staff, customers and market share while they have been closed.

Figure 8. Screenshot from virtual tour of an abattoir

4.2 3D virtual facility tours

The data collection process for the gap analysis included the capture of 3D visual imagery and creation of virtual tours of the facilities visited by project staff. These 3D images now form an image library that can be used to monitor for future investment into the abattoir sector in Vietnam and track changes in specific facilities over time. The 3D imagery was also used by the project team to verify survey data. Access to this data may be made available to stakeholders upon request.

4.3 Survey Results

4.3.1 Focus of future planning for abattoir management

Survey results show that respondents were hopeful of prospects for growing the number of animals they can process each night, or their throughput capacity. As previously mentioned, due to the relative volatility of the Australian cattle price vs the Vietnamese price (BeefCentral, 2024), the fate of abattoirs is heavily reliant on the price disparity, and its effect on the cattle they purchase from importers and feedlotters. Prices had dropped significantly during the 12 months leading up to the survey period, possibly contributing to the reported interest in growth and expansion.

Maintaining consistent profitability of cattle in abattoirs for a long period improves the investment outlook and return on investment. The effects that consistent supply has is why the continued regional trade of livestock remains important for Australia. To do this, stability in animal quality (higher than from Thailand), price, and profitability needs to be maintained for all enterprises in the supply chain. Is also necessary to support all elements of the cattle industry, not just the regulated Australian trade elements, due to the interconnected nature of the local and Australian cattle supply chains.

The survey results in Figure 9 are the most optimistic, indicating that most businesses are focused on growth. However, these results should be considered alongside the other findings which detail the challenges that face the prospect of growth for most abattoirs.

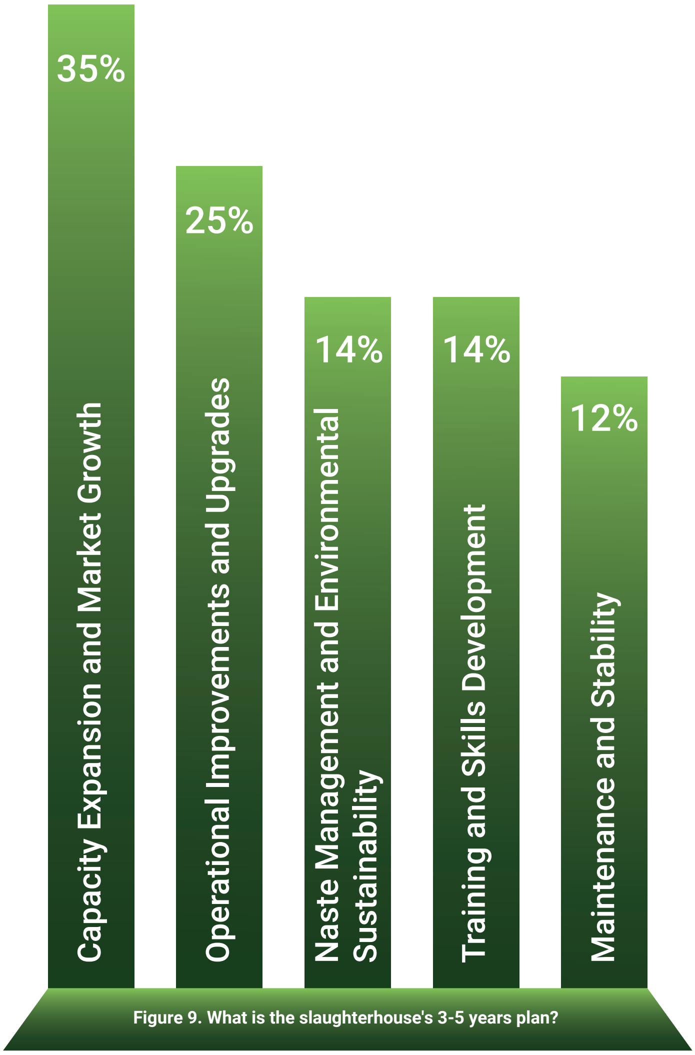

Figure 9. What is the slaughterhouse's 3-5 years plan?

4.3.2 Total Australian cattle processed by abattoirs from Aug 2021 to Aug 2023

The analysis showed that 63% of the abattoirs sampled processed fewer than two head of Australian cattle daily over the two-year period. This indicates that Australian trade is still reliant on many small abattoirs only processing a small number of cattle. These abattoirs process both local and Australian cattle which creates opportunities to have a greater impact on animal welfare if investment is made.....

.....but also highlights the limited overall impact or absolute reliance on Australian cattle in most Vietnamese abattoirs. Therefore unlike the period from 2015-2018, when Australian cattle exporters could exert direct pressure on abattoirs to improve systems and invest in infrastructure, the current lack of volume means that Australia's ability to influence further investment in Vietnam through external regulation is diminished.

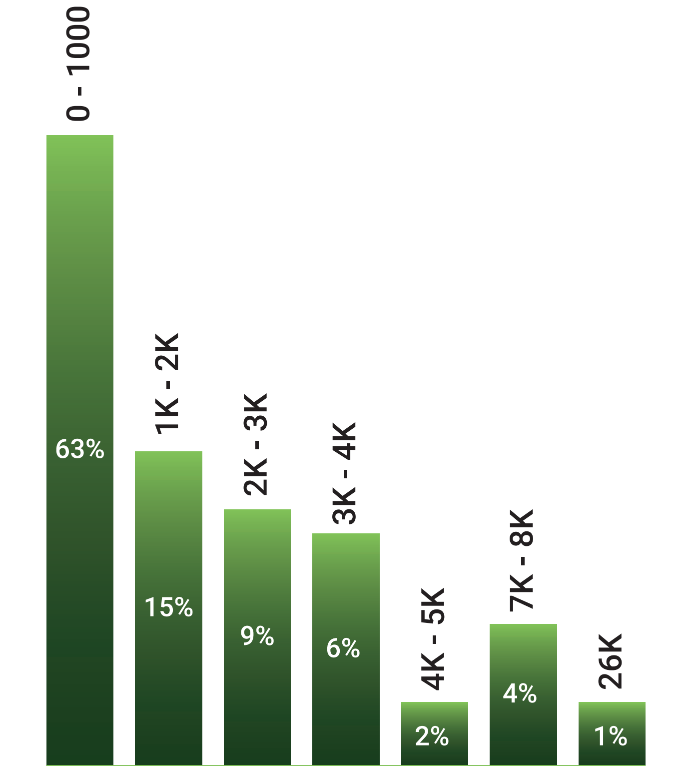

Figure 10. Total number of Australian cattle processed August 2021- August 2023

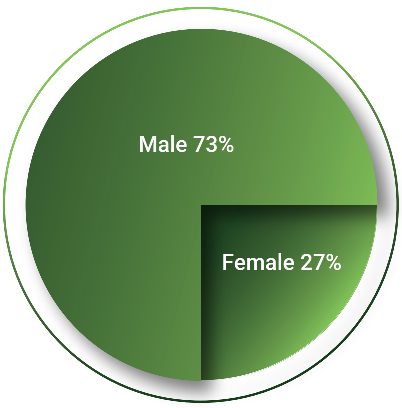

Figure 11. Gender representation amongst workforce

4.3.3 Abattoir Worker Gender

The Vietnamese abattoir sector is male dominated, with nearly all slaughter, boning, and processing tasks performed by males. Females typically work in butchering and packing roles. This gender distribution was reflected in the survey responses. Vietnamese facilities usually process and butcher carcasses on-site with their own staff, then distribute the meat to traders as eight sections per animal.

4.3.4 Type and Location of Abattoirs

The Vietnamese abattoir sector is male dominated, with nearly all slaughter, boning, and processing tasks performed by males. Females typically work in butchering and packing roles. This gender distribution was reflected in the survey responses. Vietnamese facilities usually process and butcher carcasses on-site with their own staff, then distribute the meat to traders as eight sections per animal.

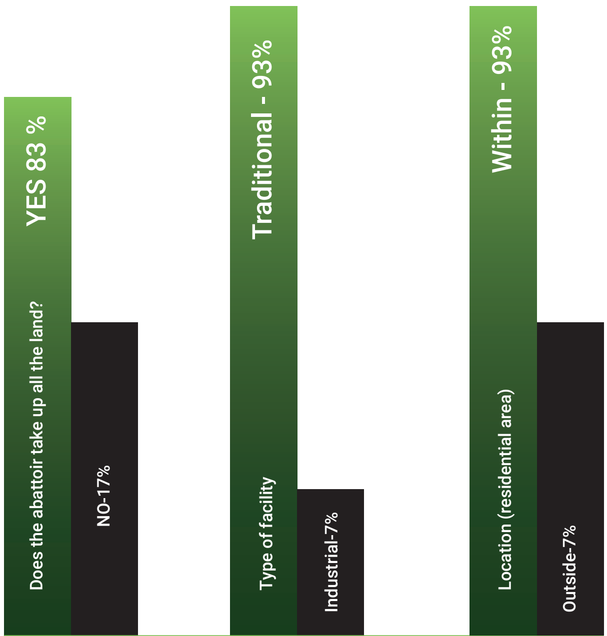

Figure 12. Type of facility

Only four of the surveyed abattoirs could be considered industrial. Most are traditional, family-run businesses, often located within residential areas, particularly in northern Vietnam. These abattoirs typically occupy their entire land plots, leaving little scope for expansion or development. While this makes investing in existing abattoirs challenging, it opens opportunities for relocating entire abattoir villages to centralised facilities. Such centralisation would align with Vietnamese government objectives and allow greater throughput and more efficient use of infrastructure and labour.

One example of centralisation that already exists is a model that has a central location where cattle are slaughtered and then carcasses are subsequently moved to village processing areas. While this centralised model potentially improves animal welfare oversight and use of resources, it does not allow for the natural progression of continual improvement and does not address environmental impacts as most of the waste remains in the village processing areas.

4.3.5 Pre-Slaughter Stunning

Survey results and other qualitative investigations have provided different information on the source and availability of stunner cartridges. Most abattoirs in the survey have reported sourcing and paying for the cartridges themselves, while other verbal reports indicate that importers or Australian exporters previously supplied and paid for them to encourage the purchase of Australian cattle. This practice may have shifted, reducing animal welfare risks due to decreased reliance on Australian cattle and stunner cartridge availability.

Another shift that may account for the conflicting answers is the introduction of local charges and stunners by a Vietnamese munitions company that is now legally producing charges and captive bolts in Vietnam. The process has taken several years, but the charges are now reportedly producing similar outcomes as imported charges.

Further investment is needed in stunner maintenance as this is a constant issue for the efficacy of the devices. Stunner models which use rubber washers to return the captive bolt to its starting position experience issues in humid climates, with the washers deteriorating over time. Replacing the rubber washer models with a design which uses manual reloading would likely be beneficial and lower cost for abattoirs in the long term.

Figure 13. Stunning equipment

4.3.6 Capacity for housing of cattle

Vietnamese abattoirs are generally focused on cattle processing and most will process cattle within 24 hours of their arrival. While some facilities hold up to 30 cattle in larger holding pen areas, these cattle are usually on maintenance rations and not held long, perhaps a few days, before slaughter.

Currently, there is limited linkage between data related to genetics, eating quality attributes, and other feedlot factors that could impact profit or enhance the quality of carcasses or meat for sale. The transactional nature of the current supply chain hampers the prospect of data reporting back to producers, rendering it financially unviable. As with all production systems, without consistent value being passed along the supply chain, there is little incentive for practice changes. Passing data back to producers could benefit closed-loop farms with finishing and higher-quality abattoir capabilities, but full-chain data reporting is improbable without regulation and remains a cost burden without a clear value driver.

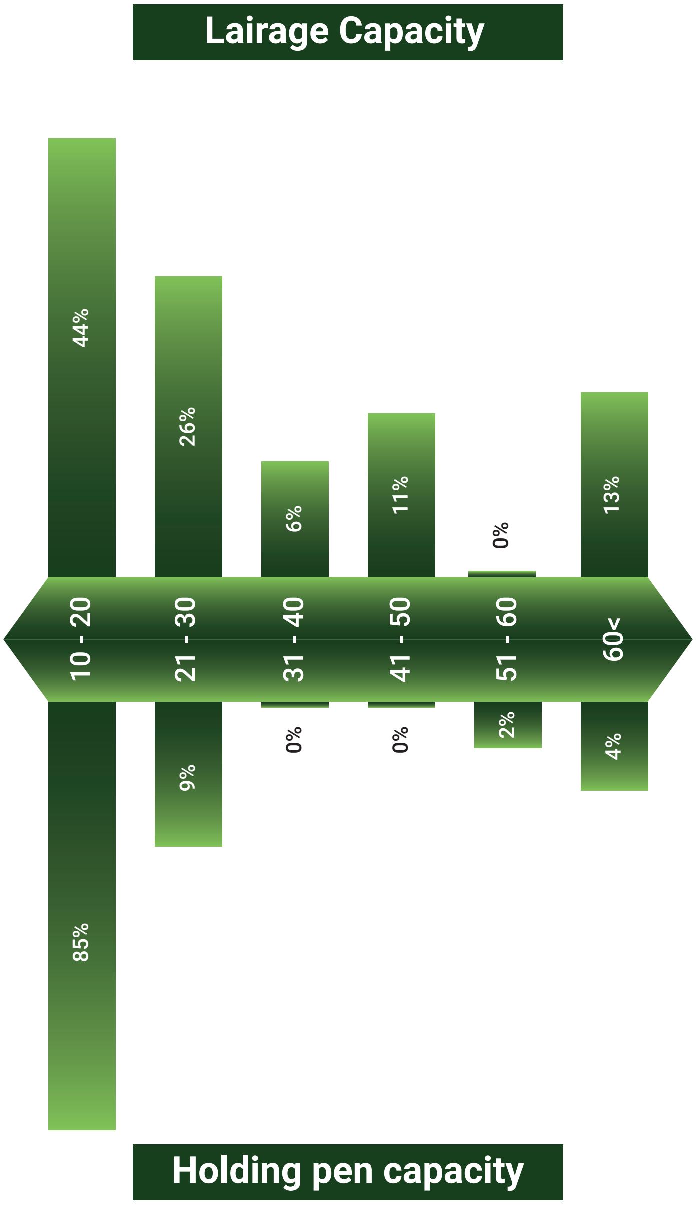

Figure 14. Lairage and holding pen capacity

4.3.7 Investability

The current investment environment among incumbent abattoir owners is not conducive to sector development. Many owners are small, family-run businesses with limited cash liquidity and land availability, making significant investments challenging. Status quo bias also plays a role, as these businesses have operated similarly for generations, making change difficult. Consequently, investment in significant abattoir improvements will likely need to focus on new businesses willing to adopt better practices rather than existing abattoir owners. Vietnam is an entrepreneurial nation and therefore there are always exceptions.

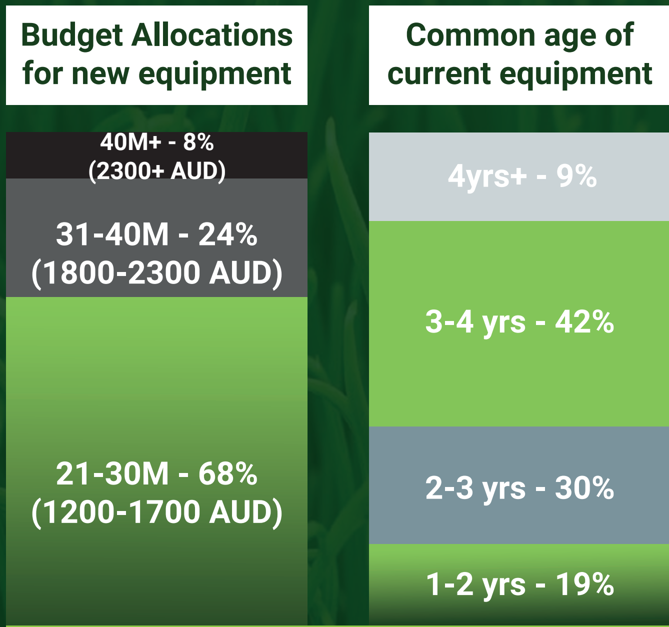

Figure 15. Budget allocated to new equipment in next 12 months

Most existing abattoir owners and managers are not willing to invest, despite a desire to grow, with most reporting that they are not in a position to do so. Where they are willing to invest, it is generally in training and knowledge transfer. This presents an opportunity for Australia to deliver skills training to abattoir workers, allowing continuous sector improvement. However, training delivery methods need reviewing, as the current "workshop or forum" design excludes owners, managers, or workers as they are either not invited to large workshops or cannot attend due to daytime sleep schedules.

Figure 16. Where is the priority for investment?

Figure 17. Appetite for internal investment

4.3.8 Environment and Water

The environment and water needs to be considered when looking at investment and return on investment. Most abattoirs are located in or near villages, and their water discharges into community drainage systems, often untreated.

Abattoirs face complex issues with both faecal and blood waste disposal and significant water usage for daily washdowns. Commercial scale and small scale feedlots and backyard biogas systems have been developed and are in use in other countries. These collect the faecal matter and convert it to a product that can be used for cooking and other purposes.

At this stage there are no efficient small-scale systems currently available in Vietnam to process blood and faecal material while returning the clean water to the drainage systems. Investment in technology scouting or innovation in this area would be encouraged and supported by global programs who need to deal with One Health issues relating to both human and animal health and welfare.

From our survey results, abattoir owners would be supportive of improved infrastructure to better manage their waste production.

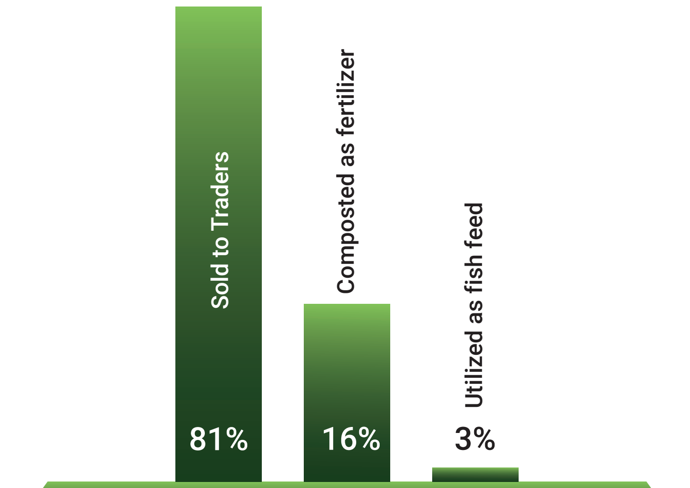

Figure 18. Where do solids go? (Solid dung, offal, skin, stomach content, etc.)

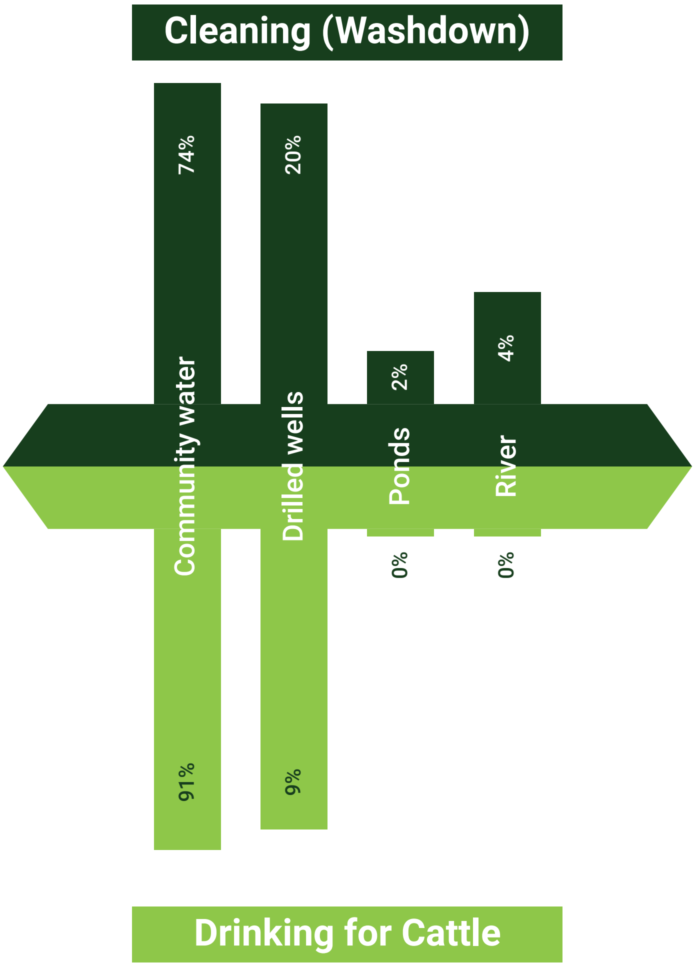

Figure 19. Where does their water come from?

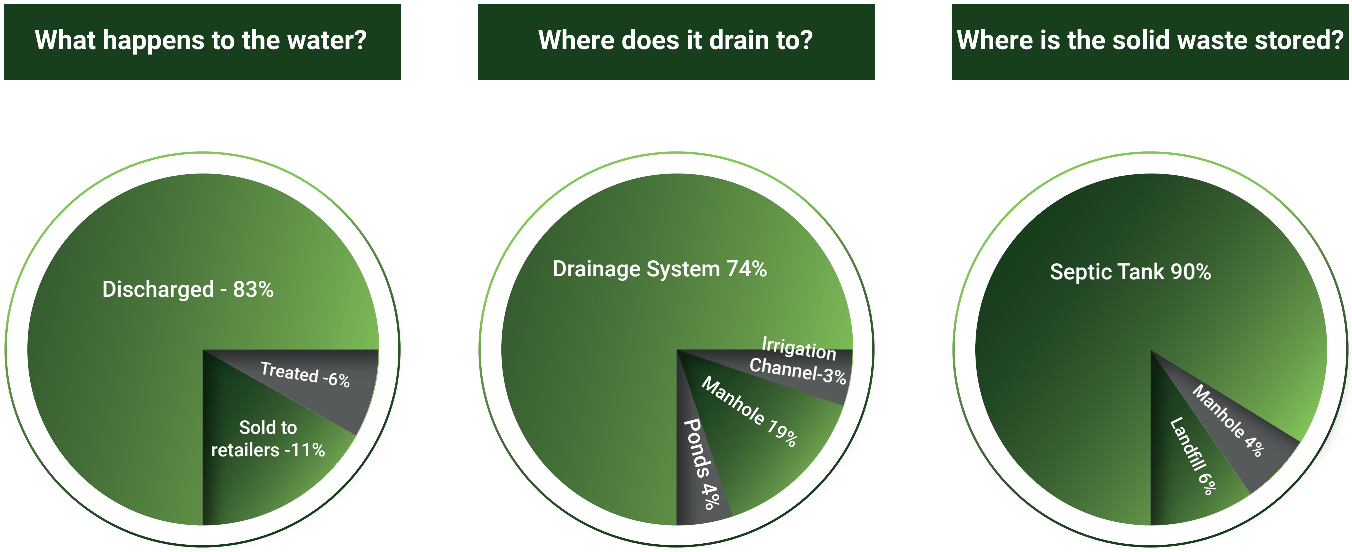

Figure 20. Where does the water go?

Figure 21. Where would they invest to reduce environmental risk

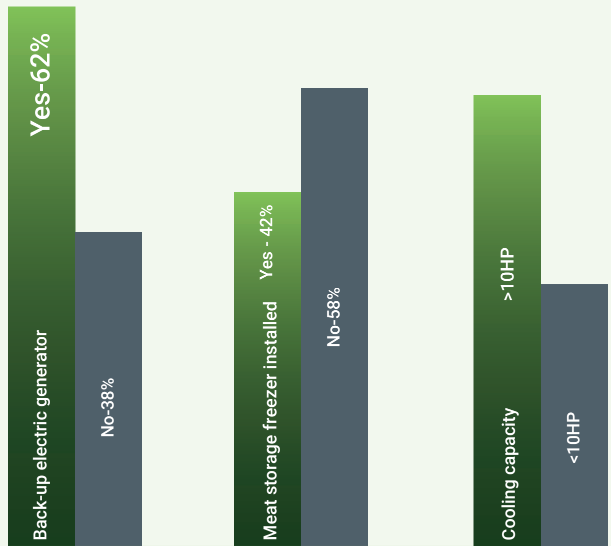

Figure 22. Meat chilling infrastructure and redundancy systems

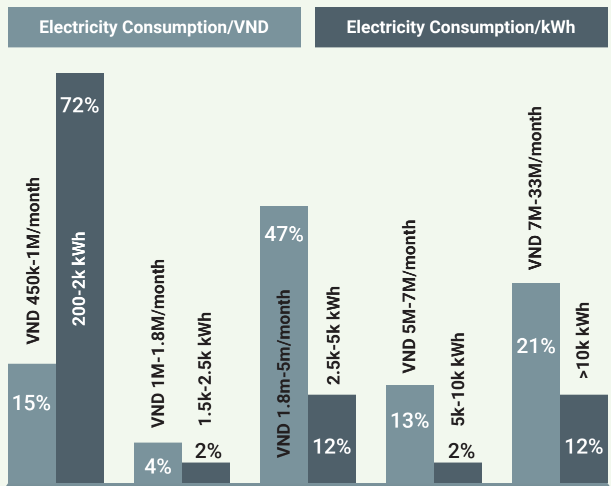

Figure 23. How much electricity does the facility consume and what does it cost?

4.3.9 Electricity, redundancy and infrastructure for chilling or freezing beef

Approximately 40% of the facilities had meat freezers installed, with most having over 500 kg of storage space. However, around 40% lacked backup generators, posing a significant risk in regions with frequent power interruptions. This highlights the urgent need for investment in backup systems to ensure operational continuity and food safety.

5. FINAL RECOMMENDATIONS

- **Improving Staff Capability - Implement Regular Training Programs**

  Focus on animal handling and welfare. Improve staff certification through vocational training programs.

- **Infrastructure and Equipment**

  - **Launch Pilot Projects with Environmental Technology Solution Providers**

    Address abattoir waste and environmental issues. Identify and commercialise suitable solutions for Vietnamese abattoirs.

  - **Fund a Transportable "High Technology Abattoir" from Australia**

    Establish centres of excellence for training Vietnamese workers, connected to commercial leaders for relevance and product offtake. Test and then demonstrate the commercial benefits of new techniques and technologies to a wider number of Vietnamese businesses. Provides access to scalable infrastructure that is not reliant on any single partner business, reducing potential sunk costs from those investing.

- **3Increased Throughput and Consolidation**

  Supporting regulatory reforms and abattoir consolidation to improve processing efficiency and infrastructure utilisation

- **Modernisation – Chilled/Frozen Beef**

  Investing in high-quality abattoirs, including redundancy systems, to produce chilled or frozen beef, enhancing product shelf life, eating quality, and market value.

- **Training Staff for Overseas (Australia)**

  Support training programs for Vietnamese workers to create a skilled labour base and facilitate formal labour exchanges with Australia.

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Contact

Please contact Michael Patching or Patrick Coole if you have any further enquiries

Michael Patching

CEO

+65 9247 0181

michael@impetusanimalwelfare.org

Patrick Coole

COO

+61 458 135 765

patrick@impetusanimalwelfare.org

https://impetusanimalwelfare.org/