

CHAPTER V

CONCLUSION AND RECOMMENDATION

5.1. Conclusion

The existing condition analysis, corporate strategy formulation, and final financial projections for the 2027–2032 Universitas Andalas SPAM Business Plan lead to these conclusions:

1. Evaluation and Optimization Plan for Existing Infrastructure.
 - a. The existing infrastructure capacity of 90 liters per second is theoretically sufficient. The production water quality falls short of the health standards outlined in *Permenkes* Number 2 of 2023 because the system operates without coagulation and disinfection processes.
 - b. The Community Satisfaction Index sits at a score of 69.53, which categorizes as poor. The most urgent consumer feedback points to slow resolution times for technical disruptions and inefficient customer complaint management.
 - c. Total water demand projections for the end of the 2032 planning period reach 5,427.5 cubic meters per day. This volume equals 63 liters per second and will accommodate the internal campus population while expanding into nearby residential markets.
 - d. Infrastructure optimization focuses on upgrading the distribution pipes using 300-millimeter High-Density Polyethylene materials. The plan also includes installing an integrated metering system to push the Non-Revenue Water ratio below 20 percent.
2. Strategy Formulation and Work Programs.
 - a. The water supply system currently operates as a passive cost center. It relies heavily on subsidies from the Directorate of General Affairs and Asset Management. The institution functions without water metering instruments and independent cost recovery tariffs.
 - b. Strategic position mapping through the SPACE Matrix yields an X coordinate of 1.0 and a Y coordinate of -1.2. These precise coordinates place the entity in Quadrant IV (bottom right). This position requires the implementation of a competitive or diversification strategy.

- c. The corporate target establishes a vision to transform the unit into an independent, reliable, and sustainable utility business. This transition utilizes the financial autonomy and regulatory flexibility provided by the university's legal entity status.
 - d. Non-technical development programs execute a Virtual Ring-Fencing mechanism to secure tariff revenue cash flow. The plan establishes a Customer Relationship Management division tasked with a 12-hour maximum repair resolution target. It also empowers student interns to lower the operational costs associated with water quality monitoring.
3. Financial Feasibility and Risk Management
- a. The system manages high possibility operational risks, such as drought anomalies and sudden increases in water turbidity, through preventive measures. These measures involve optimizing reservoir storage capacity and applying coagulant and disinfectant dosing, specifically *Calcium Hypochlorite* and *Polyaluminum Chloride*.
 - b. The Capital Expenditure requirement is set at Rp19,100,000,000. Upgrading the distribution pipeline network dominates this allocation. Planners project the total cash operational costs for the first year at Rp1.36 billion.
 - c. The absolute base production cost for water calculates to Rp1,301.76 per cubic meter. A tiered cross-subsidy tariff structure covers and secures this cost. Rates begin at Rp500 for social facilities and extend up to Rp6,000 for commercial blocks.
 - d. Financial feasibility analysis confirms this business plan is viable for execution. The calculations return a positive Net Present Value of Rp7,254,008,663.80 and an Internal Rate of Return of 15.00 percent. The Benefit-Cost Ratio stands at 1.22, and the initial investment reaches its payback period in 6.26 years.

5.2. Recommendation

Based on the findings and limitations of this study, several recommendations can be proposed for future work and practical implementation:

1. University leadership should consider implementing a Ring-Fencing budget mechanism for the SPAM unit through a formal administrative policy. This approach secures the funding system, ensuring that utility revenue returns directly to the operational unit. The unit can then use this specific cash allocation to fund routine annual maintenance and build capital reserves for future pipe replacements, maintaining financial stability alongside other campus departments.
2. The management team could adopt a technical complaint resolution standard with a target response time of under 12 hours. To support this, managements can establish a centralized customer communication channel and deploy an electronic ticket-tracking system. Applying this responsive approach directly addresses customer feedback regarding service times, helping improve overall satisfaction and trust across the academic community.
3. Future researchers should consider drafting Detailed Engineering Design documents for the hydraulic modification projects. Completing these technical designs serves as a helpful next step. Managements can use this documentation to complement the financial feasibility findings before proceeding with the procurement auction and beginning the water quality improvement construction phase
4. Universitas Andalas could also implement a structured performance monitoring and evaluation mechanism for the *SPAM* unit by adapting the guidelines of Minister of Home Affairs Regulation (*Permendagri*) No. 118 of 2018. The management team can execute the first annual evaluation at the end of 2027 the initial implementation year to review technical performance indicators, financial health regarding Full Cost Recovery targets, and overall service quality for the campus community.