AquaSmart Business Process Explanation

1. Diagram Overview
Four-lane BPMN diagram showing AquaSmart's smart irrigation system:

- Farmer/Manager: Human oversight and configuration
- Sensor System: Automated soil data collection
- Database (PL/SQL): Intelligent processing engine
- Irrigation System: Automated water control

2. Core Automated Flow
Farmer → Sensor → Database → Irrigation

- Sensors collect soil moisture data every 15 minutes
- PL/SQL compares readings with crop-specific optimal levels
- System automatically triggers irrigation when moisture is low
- Precise water amount calculated and delivered
- All actions logged for auditing and BI analysis

3. Farmer Management Role (MIS Focus)
Three essential tasks ensure system oversight:

- Configure Settings: Set optimal moisture levels per crop/zone
- Generate & Analyze Reports: Make data-driven decisions from water usage and crop performance data
- Manual Control Override: Emergency intervention capability

4. Key System Components

A. Database Intelligence: PL/SQL procedures make irrigation decisions, send alerts, and generate reports
B. Automated Control: Valves activate based on real-time soil conditions
C. Comprehensive Logging: Every sensor reading and irrigation event recorded

5. MIS Relevance & Analytics
Management Information System demonstrated through:

- Data-Driven Decisions: Farmers use system reports for crop management
- Resource Optimization: Precision irrigation reduces water waste by 30-50%
- Exception Handling: Alerts notify farmers of system anomalies
- Historical Analysis: Irrigation logs enable trend analysis and compliance reporting

BI Potential: Water conservation tracking, crop yield correlation, predictive maintenance, regulatory compliance reporting.

6. Organizational Impact

- Labor Reduction: Automation handles routine irrigation
- Water Efficiency: Eliminates overwatering through precise application
- Crop Health: Maintains optimal moisture levels consistently
- Decision Support: Empowers farmers with historical data and trends

Innovation: Business logic embedded directly in Oracle PL/SQL enables real-time decisions at data source, ensuring reliability and performance.