Dashboard Monitoring Pembiayaan Petani Tebu KUR - Documentation

Overview

This dashboard is designed for monitoring KUR (Kredit Usaha Rakyat) and KUR Khusus financing for sugarcane farmers in Indonesia, complying with Bank Indonesia and OJK reporting standards.

Key Features

1. Key Performance Indicators (KPIs)

- **Financial Metrics:**
  - Total Kredit Berjalan (Outstanding loans)
  - Total Kredit Selesai (Completed/disbursed loans)
  - Pencapaian Target (Target achievement)
  - NPL Rate (Non-Performing Loan)
  - Collection Rate
  - Jumlah Debitur Aktif (Active borrowers)

- **Operational Metrics:**
  - Rata² Kredit/Petani (Average loan per farmer)
  - Total Lahan (Total land area in hectares)
  - Restrukturisasi rate
  - Tingkat Utilisasi (Utilization rate)
  - Collateral Coverage ratio
  - Subsidi Bunga (Interest subsidy)

2. Portfolio Analysis

- **Comparison Charts:**
  - KUR vs KUR Khusus outstanding comparison
  - Historical portfolio trends
  - Quarterly disbursement analysis
  - NPL trend monitoring with threshold indicators

3. Regional Performance

- **Geographic Distribution:**
  - Credit distribution by region (Jawa Timur, Jawa Tengah, Lampung, etc.)

- NPL rate by region with color-coded risk levels

- Number of borrowers per region

- Land area financed per region

- Top 3 performing regions with detailed metrics

4. Risk Analysis & Collection

- **Aging Analysis:**
  - Lancar (Current)

  - 1-30 days overdue

  - 31-60 days overdue

  - 61-90 days overdue

  - | 90 days overdue

- **Collection Performance:**
  - Collection rate trends

  - Monthly collection performance

  - Comparison against minimum targets

- **Risk Categories:**
  - Kredit Lancar (85.2%)

  - Dalam Perhatian Khusus (6.8%)

  - Kurang Lancar (4.5%)

  - Macet (3.5%)

5. Farmer Segmentation

- **Segmentation Types:**
  - Petani Individu (Individual farmers)

  - Kelompok Tani (Farmer groups)

  - Pemula (<2 years experience)

  - Berpengalaman (>2 years experience)

- **Analysis by Segment:**
  - Number of borrowers

  - Total credit amount

  - NPL rate comparison

- Average loan size

6. Seasonal & Agricultural Insights
- **Harvest Cycle Analysis:**
  - Monthly harvest patterns
  - Payment alignment with harvest seasons
  - Seasonal trends
- **Productivity Analysis:**
  - Loan performance vs land productivity
  - NPL correlation with productivity levels
  - Average loan size by productivity tier

7. Early Warning System
- **Risk Monitoring:**
  - Weather Risk (flood-prone areas)
  - Price Risk (sugarcane price fluctuations)
  - Payment Due Alerts (upcoming maturities)
- **Alert Priorities:**
  - 🔴 High priority (immediate action required)
  - 🟡 Medium priority (monitoring needed)
  - 🟢 Low priority (routine follow-up)

8. Compliance & Reporting
- **Bank Indonesia Compliance:**
  - PSR (Portofolio Sehat dan Risiko) compliance
  - SLIK (Sistem Layanan Informasi Keuangan) integration
  - GCG (Good Corporate Governance) score
  - Audit findings tracking

Banking Compliance Standards

Bank Indonesia Requirements

1. **NPL Monitoring:**
  - Maximum threshold: 5%
  - Target: Below 3%
  - Monthly reporting required

2. **Collection Rate:**
   - Minimum target: 90%
   - Best practice: Above 95%

3. **Portfolio Quality:**
   - Categorization by collectibility (1-5)
   - Regular assessment required
   - Restructuring tracking

4. **SLIK Integration:**
   - Real-time data synchronization
   - Credit information sharing
   - Debtor history tracking

OJK (Otoritas Jasa Keuangan) Standards

1. **Consumer Protection:**
   - Transparent pricing
   - Fair collection practices
   - Complaint handling

2. **Risk Management:**
   - Credit scoring implementation
   - Collateral valuation
   - Regular stress testing

3. **Reporting:**
   - Monthly financial reports
   - Quarterly risk assessment
   - Annual audit compliance

Data Structure

Required Data Sources

1. **Loan Portfolio Data:**
   - Loan ID, borrower information
   - Disbursement date, amount
   - Outstanding balance
   - Payment history

- Collateral details

2. **Borrower Data:**
   - Demographics
   - Land ownership details
   - Farming experience
   - Group membership

3. **Agricultural Data:**
   - Land area (hectares)
   - Productivity levels
   - Harvest cycles
   - Crop types

4. **External Data:**
   - Weather forecasts
   - Market prices
   - Regional risk factors

Filters & Customization

Available Filters:

1. **Time Period:** Monthly/quarterly/yearly selection

2. **Region:** All regions or specific provinces

3. **Loan Type:** KUR, KUR Khusus, or combined

4. **Masa Tanam:** Planting season selection

5. **Bank:** Multi-bank filtering support

Alert System Configuration

Automatic Alerts:

1. **NPL Threshold Alert:** Triggered when NPL > 5%

2. **Payment Due Alert:** 30 days before maturity

3. **Weather Alert:** For high-risk weather events

4. **Price Alert:** Significant price fluctuations (>10%)

Alert Actions:

- Email notifications to management

- SMS alerts for critical issues

- Dashboard highlights

- Automated reporting

Export & Reporting Features

Export Options:

1. **Excel Report:**
   - Complete data export

   - Pre-formatted templates

   - Multiple sheets for different analyses

2. **PDF Summary:**
   - Executive summary

   - Key visualizations

   - Management presentation format

3. **Email Integration:**
   - Scheduled reports

   - Custom recipient lists

   - Attachment options

Implementation Guide

Step 1: Data Preparation

```python
# Prepare your actual data in these formats:
portfolio_data = pd.DataFrame({
    'Bulan': [...],  # Monthly dates
    'KUR_Disbursed': [...],  # KUR disbursements
    'KUR_Khusus_Disbursed': [...],  # KUR Khusus disbursements
    'KUR_Outstanding': [...],  # KUR outstanding balance
    'KUR_Khusus_Outstanding': [...],  # KUR Khusus outstanding
    'NPL_Rate': [...],  # NPL percentage
    'Collection_Rate': [...]  # Collection percentage
})
```

Step 2: Database Integration

Connect to your existing database:

```python
```

```python
import psycopg2  # or your preferred database connector
import pandas as pd

# Example connection
conn = psycopg2.connect(
    host="your_host",
    database="your_database",
    user="your_user",
    password="your_password"
)

# Query actual data
query = """
    SELECT
        date_trunc('month', disbursement_date) as bulan,
        loan_type,
        SUM(disbursed_amount) as total_disbursed,
        SUM(outstanding_balance) as total_outstanding
    FROM loans
    WHERE loan_type IN ('KUR', 'KUR Khusus')
    GROUP BY bulan, loan_type
"""

df = pd.read_sql(query, conn)
```

Step 3: Customize Visualizations

Modify charts based on your specific needs:

```python
# Example: Add your company branding
fig.update_layout(
    title_font_size=20,
    title_font_color='#your_brand_color',
    template='plotly_white'  # or your preferred template
)
```

Step 4: Deploy

```bash
```

```
# Local deployment
streamlit run sugarcane_finance_dashboard.py

# Production deployment (example with Streamlit Cloud)
# 1. Push to GitHub
# 2. Connect to Streamlit Cloud
# 3. Deploy with environment variables
```

Customization Options

1. Add Your Logo

```python
st.image("your_logo.png", width=200)
```

2. Custom Color Scheme

```python
# Update color schemes in plotly charts
color_scheme = {
    'primary': '#1f77b4',
    'secondary': '#ff7f0e',
    'success': '#2ca02c',
    'danger': '#d62728',
    'warning': '#ff9800'
}
```

3. Additional Metrics

Add company-specific KPIs:

```python
# Example: Add productivity metrics
st.metric(
    "Produktivitas Rata²",
    f"{avg_productivity:.1f} ton/ha",
    f"{productivity_change:.1f}%"
)
```

Best Practices

1. Data Security

- Implement role-based access control

- Encrypt sensitive data
```

- Regular backup procedures

- Audit trail logging

## 2. Performance Optimization
- Use caching for expensive computations

- Implement data pagination for large datasets

- Optimize database queries

- Use appropriate aggregation levels

## 3. User Experience
- Provide clear navigation

- Include helpful tooltips

- Implement responsive design

- Regular user feedback sessions

## 4. Maintenance
- Regular data validation

- Monitor system performance

- Update thresholds based on business needs

- Document all customizations

# Support & Contact

For technical support or questions:

- Technical Team: [your_email@company.com]

- Business Analyst: [ba_email@company.com]

- Database Admin: [dba_email@company.com]

# Version History

- **v1.0** (Current): Initial comprehensive dashboard
  - Full KPI monitoring

  - Regional analysis

  - Risk management

  - Compliance reporting

# Future Enhancements

**Planned Features:**

1. **Machine Learning Integration:**
   - Predictive NPL modeling
   - Credit scoring automation
   - Default probability forecasting

2. **Mobile App:**
   - Field officer mobile access
   - Offline data collection
   - Real-time updates

3. **Advanced Analytics:**
   - Cohort analysis
   - Survival analysis for loan performance
   - Portfolio optimization recommendations

4. **Integration Capabilities:**
   - Core banking system integration
   - Payment gateway integration
   - Weather API integration
   - Market price API integration

# Glossary

- **KUR**: Kredit Usaha Rakyat (People's Business Credit)
- **KUR Khusus**: Special KUR for specific purposes
- **NPL**: Non-Performing Loan
- **PSR**: Portofolio Sehat dan Risiko
- **SLIK**: Sistem Layanan Informasi Keuangan
- **OJK**: Otoritas Jasa Keuangan (Financial Services Authority)
- **GCG**: Good Corporate Governance

# References

1. Bank Indonesia Regulations on Agricultural Credit
2. OJK Guidelines for Rural Banking

3. KUR Program Guidelines (Ministry of Finance)

4. Best Practices in Agricultural Finance (FAO)