Dairy Industry in West Java: Challenges and Opportunities

Arief Daryanto, PhD
Director, Graduate Program of Management and Business-IPB (MB-IPB)

Second Workshop on Capacity Building for Research:
Promoting Inclusive Development of Agricultural Value-Chains,
Collaboration between the University of Adelaide and
Presentation Snapshot

- Overview of the Indonesian and West Java Dairy Sector
- Key Driving Forces in the Dairy Transformation
- Opportunities and Challenges
- Dairy Business Development Models
Overview of the Indonesian and West Java Dairy Sector
Overview of the Indonesian Dairy Sector

- Indonesia’s estimated per capita milk consumption is only 14.6 liters per annum which is significantly lower than 22 liters in the Philippines and 34 liters per capita in Thailand.
- Indonesia has approximately 500,000 dairy cattle which are mainly found in small numbers and tended to by individual farmers who are members of their local dairy cooperative (Koperasi Unit Desa, KUD).
- Indonesia’s 2013 dairy cattle population was 636,000 head. However, with the high level of dairy cattle culling in 2013, in 2014 the Indonesian dairy cattle population will decline to 395,000 head.
Overview of the Indonesian Dairy Sector

- Close to 90% of such farms are concentrated in West, Central and East Java with a small proportion of around 2% in Sumatra. East Java is Indonesia’s largest dairy production base accounting for 57.09% of all milk production. West Java is second largest dairy producer accounting for 29.86%.

- The average productivity of cattle in Indonesia is nearly half of the international standard at 12-14 liters per day.

- Only 25% of the raw materials for milk supply are produced locally with 75% coming from foreign imports.

- More than 90% of the dairy market is dominated by processed milk as opposed to fresh i.e. UHT milk and that in powdered or sterilized form.
Overview of the Indonesian Dairy Sector

- There are 192,160 dairy farmers managing about 3 cows each on average. Most of these producers average 10-11 liters per cow per day.
- Small-holder farm yields remain limited as these farms do not benefit from scaling technologies. The majority of smallholder milk is marketed through local cooperatives.
Figure 1. Indonesia’s Milk Consumption

Source: Tetra Pak Compass Product and Packages 2011
*DGLS, 2012
Table 1. Dairy Cows Population and Milk Output by Main Provinces, 2013

<table>
<thead>
<tr>
<th>Province</th>
<th>Dairy Cows Number</th>
<th>Dairy Cows Percent</th>
<th>Milk Production Tones</th>
<th>Milk Production Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Java</td>
<td>323.814</td>
<td>50,90</td>
<td>560.398</td>
<td>57,09</td>
</tr>
<tr>
<td>Central Java</td>
<td>154.398</td>
<td>24,27</td>
<td>107.982</td>
<td>11,00</td>
</tr>
<tr>
<td>West Java</td>
<td>143.382</td>
<td>22,54</td>
<td>293.107</td>
<td>29,86</td>
</tr>
<tr>
<td>Other</td>
<td>14.470</td>
<td>2.27</td>
<td>20.099</td>
<td>2,04</td>
</tr>
<tr>
<td>TOTAL</td>
<td><strong>636.064</strong></td>
<td><strong>100</strong></td>
<td><strong>981.586</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Livestock Statistics, 2013
Table 2. Major Dairy Industries on Java and Their Main Products

<table>
<thead>
<tr>
<th>Dairy Industry</th>
<th>Location</th>
<th>Products Manufactured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frisian Flag Indonesia</td>
<td>West Java (Jakarta)</td>
<td>Liquid milk, Sweetened Condensed Milk (SCM), Milk powder</td>
</tr>
<tr>
<td>Indomilk</td>
<td>West Java (Jakarta)</td>
<td>Liquid milk, SCM, ice cream</td>
</tr>
<tr>
<td>Nestle</td>
<td>East Java (Pasuruan)</td>
<td>Condensed Milk, Milk powder</td>
</tr>
<tr>
<td>Ultra Jaya</td>
<td>West Java (Bandung)</td>
<td>Liquid milk, SCM, Milk powder</td>
</tr>
<tr>
<td>Sari Husada (Danone)</td>
<td>Central Java (Yogyakarta)</td>
<td>Liquid milk, yogurt, Milk powder</td>
</tr>
<tr>
<td>Greenfields</td>
<td>East Java (Malang)</td>
<td>Liquid milk</td>
</tr>
<tr>
<td>Garuda Food</td>
<td>West Java (Bogor)</td>
<td>Liquid milk</td>
</tr>
<tr>
<td>Cimory</td>
<td>West Java (Bogor)</td>
<td>Liquid milk, Yogurt</td>
</tr>
<tr>
<td>Diamond</td>
<td>West Java (Bekasi)</td>
<td>Liquid milk, Ice cream</td>
</tr>
</tbody>
</table>

Source: Dairy Industry Development in Indonesia, IFC, 2011
Figure 2. Milk Export and Import in Indonesia

<table>
<thead>
<tr>
<th>Year</th>
<th>Export (Tones)</th>
<th>Import (Tones)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>55774</td>
<td>180933</td>
</tr>
<tr>
<td>2009</td>
<td>50190</td>
<td>211634</td>
</tr>
<tr>
<td>2010</td>
<td>47818</td>
<td>231396</td>
</tr>
<tr>
<td>2011</td>
<td>43123</td>
<td>247495</td>
</tr>
<tr>
<td>2012</td>
<td>52174</td>
<td>386116</td>
</tr>
</tbody>
</table>

Source: Livestock Statistics, 2013
Figure 3. Milk Importing and Exporting Countries

Source: Tetra Pak Dairy Index Issue 7, September (2014)
Key Driving Forces in the Dairy Transformation
Key Driving Forces in Dairy Transformation: Demand Drivers (1)

- Increased demand for agricultural (food) products ➔ Population growth, income growth, increasing middle class, urbanization, longer life span and ageing population

- Diversification toward higher valued food ➔ diet shift, changing consumer preferences (food quality, food safety and food attributes)

- Food spending is shifting from grains and staples to vegetables, fruits, meat, dairy, fish and processed foods
Key Driving Forces in Dairy Transformation: Demand Shifters(2)

- Demand for ready-to-cook and ready-to-eat foods is also rising, particularly in urban areas.
- More emphasis on food security and improved nutrition
Key Driving Forces in Dairy Transformation: Supply Shifters

- Investment in agricultural research
- Value chain development
- Increase in scale of production and processing
- More emphasis on food security and improved nutrition
- Water and land scarcity
- Climate change
- Less market protection (WTO, FTAs)
Challenges and Opportunities
Figure 4. Dairy Value Chain

Source: IFC, 2011
Figure 5. Main Dairy Value Chain Types

Source: van der Lee, 2014
Figure 6. Key sector constraints across the value chain

Inputs
- Low breeding and genetics potential of animals
- Lack of land for growing forage
- More disease incidence

Production
- Low productivity
- Low adoption of technology (such as milking equipment)
- Poor animal health & sanitation
- Lack of financial access

Collection
- Lack of infrastructure
- Asymmetric information
- Manipulation of the quality of milk
- Absence of quality standard

Processing
- Seasonality of production and fluctuating supply
- Availability of homogenous quality milk/highly fragmented supply
- Lack of logistics infrastructure (cold storage, cold chain and transport facilities)
- Lack of trained and skilled workers

Market/Consumer
- Market is still unorganized
- Heterogeneous consumer requirements
- Lack of robust food safety standards
Table 3. Common constraints and opportunities in in dairy sector development

<table>
<thead>
<tr>
<th>Constraints</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small farms and small volumes of raw milk supply</td>
<td>Strong market demand for milk: upscaling of farms</td>
</tr>
<tr>
<td>Underutilization of capacity of dairy plants</td>
<td>Start-up of professional processors</td>
</tr>
<tr>
<td>Inadequate transport facilities</td>
<td>Improve infrastructure: roads, transport and trade</td>
</tr>
<tr>
<td>Lack of testing facilities</td>
<td>Set up milk-testing laboratories</td>
</tr>
<tr>
<td>Insufficient cold-chain facilities</td>
<td>Investments in cold-chain equipment, storage and transport</td>
</tr>
<tr>
<td>Food safety and milk quality regulations absent or not enforced</td>
<td>Set up legislation and enforcement on food safety</td>
</tr>
<tr>
<td></td>
<td>Quality assurance and quality-based payment systems</td>
</tr>
<tr>
<td>Weak cooperation within dairy chain</td>
<td>Set up institutions for collective improvement of quality and</td>
</tr>
<tr>
<td></td>
<td>efficiency</td>
</tr>
<tr>
<td>Moderate technical and entrepreneurial skills</td>
<td>Training and education, Improve farmer entrepreneurship</td>
</tr>
<tr>
<td>Insufficient poor-quality fodder</td>
<td>Commercial feed and fodder supply with better inputs and services</td>
</tr>
<tr>
<td>Low reproduction rates</td>
<td>Improve young stock rearing</td>
</tr>
<tr>
<td></td>
<td>Improve animal feed and supplements</td>
</tr>
<tr>
<td></td>
<td>Improve animal health and veterinary services</td>
</tr>
<tr>
<td>Poor access to finance (&amp; other services)</td>
<td>Improve finance facilities</td>
</tr>
<tr>
<td></td>
<td>Improve regulations around collateral</td>
</tr>
<tr>
<td>Research and extension not tailored to needs of chain actors</td>
<td>Tailor-made practical training and extension</td>
</tr>
<tr>
<td></td>
<td>Research and development, Training of trainers</td>
</tr>
</tbody>
</table>

Source: van der Lee and Westenbrink, 2014
Dairy Industry Development Models

1. Cimory Model
2. Nestle Model
3. PisAgro Model
4. Gapoknak Sugih Mukti Mandiri Model
Figure 7. Cimory Business Model

END USERS

- Home Delivery
- Giant
- Indomaret
- Alfamart

Agen Cimory

Cimory Restaurant
- Yogurt
- Susu Segar

PT. Macrosentra Niagaboga
- Mayonaise
- Keju

CIMORY

Supplier
- Gula
- kemasan Yogurt
- kemasan Susu

Anggota Koperasi
- KUD Giri Tani
- KUD Cipanas
- KUD Sukabumi
- KUD Kiya Citra
- PT. Enopec
- PT. Piramid Mulya Pac
- PT. Christian Hansens

Supplier Bahan Pewarna

Source: IFC, 2011
Figure 8. Collaboration Nestle with Dairy Cooperatives

Support to improve the milk supply chain (milk collection and procurement activities), and to strengthen farmers viability (milk quality, feed & fodder, animal health, biogas)

Farmers organized in Dairy cooperatives.
Nestle support to Cooperatives through either technical or financial assistance
Figure 9. Nestlé Milk Sourcing

Third Party fresh milk supply = Dairy farmers + Dairy cooperatives + Dairy factory

- Cooperatives with >35K dairy farmers
- Commercial farms

Dairy Farmers
Loans & Training
(Dairy Development)

Dairy Cooperatives
Loans & Training & Control Payroll
(Milk Procurement)

- >510 collection points
- >250 cooling centers
- >375 cooling units
- >85% direct cooling
- 2x collection/day

- Cooperatives owned
- 20-300 km distance to factory

Source: Nestle, 2014
Figure 10. Nestlé Milk Sourcing

Milk Procurement & Dairy Development Department with Dual Functions

Milk Procurement Section

**SHORT TERM**
- Volumes
- Quality control
- Suppliers (Coops) operational set up
- Standards
- Commitments

Dairy Development Section

**LONG TERM**
- Sustainable growth
- Dairy farmers
- Productivity improvement
- Development projects
- Sustainability of dairy farming
- Commitments

Develop trust of Nestlé FM suppliers for a long-term sustainable business relationship

Source: Nestle, 2014
Figure 11. Nestlé Milk Sourcing: CSV in Indonesia

3 major focus areas for long-term development

Technical support through a team of Field professionals with relevant operational background: animal husbandry, veterinary sciences, agronomy

Variety of improvement programs aiming at increasing long-term sustainability performance of dairy Cooperatives & dairy farmers

<table>
<thead>
<tr>
<th>MILK PROCUREMENT</th>
<th>DAIRY DEVELOPMENT</th>
<th>ENVIRONMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>➔ Focus: milk collection operational set-up</td>
<td>➔ Focus: sustainability of dairy farming</td>
<td>➔ Focus: water protection &amp; renewable energy</td>
</tr>
<tr>
<td>➔ Objective: fresh milk quality</td>
<td>➔ Objective: cow productivity</td>
<td>➔ Objective: biogas</td>
</tr>
<tr>
<td>• Improving operational standards (Nestlé standards, SOPs)</td>
<td>• Feed &amp; fodder: cultivation of improved fodder, silage, cattle feed formulation</td>
<td>• Promotion of biogas</td>
</tr>
<tr>
<td>• Quality based payment system (TPC base)</td>
<td>• Animal health: mastitis prevention; deworming</td>
<td>• Joint project with HIVOS, set-up of units in large scale</td>
</tr>
<tr>
<td>• Investment programs (credits)</td>
<td>• Herd management: recording (to keep track of performance of dairy cattle population); water availability</td>
<td>• Improvement of cattle sheds</td>
</tr>
<tr>
<td>• Regular supplier operation audits (compliance with Nestlé standards &amp; requirements)</td>
<td>• Competitiveness: establish a network of dairy farmers for monitoring of cost of production (supporting pricing decision making process)</td>
<td>• Investment programs</td>
</tr>
<tr>
<td>• Facilitate import of critical equipment (cooling tanks)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Suppliers yearly competition</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Nestle, 2014
Figure 12. PisAgro Business Model

Source: WEF, 2014
Partners in Creating Shared Value

- East Java Government
- PT Nestlé Indonesia
- Dairy Cooperatives & Dairy Farmers
- Banking sector
- Cattle Feed Industry (Cargill Animal Nutrition Indonesia)
- Fodder Industry (DuPont Indonesia)
- Hivos
Products:  
1. Liquid Milk (Pasteurisasi)  
2. Yogurt & Yogurt Sticks  
3. Kerupuk Susu  
4. Puding  

Gapoknak is able to pay higher prices to dairy farmers as its business model is based on the production of higher value added dairy products.
Terimakasih
E-mail: adaryant@icloud.com