

# DAIRY COOPERATIVES IN INDONESIA AND THEIR ROLES IN RURAL AND AGRICULTURAL DEVELOPMENT

Saptati, R.A.<sup>1</sup> and E.T. Castillo<sup>2</sup>

## OUTLINE



### INTRODUCTION

THE DAIRY INDUSTRY IN INDONESIA: AN OVERVIEW

THE DAIRY COOPERATIVES IN INDONESIA

THE ROLES OF DAIRY COOPERATIVES IN RURAL DEVELOPMENT

SUMMARY AND CONCLUSION

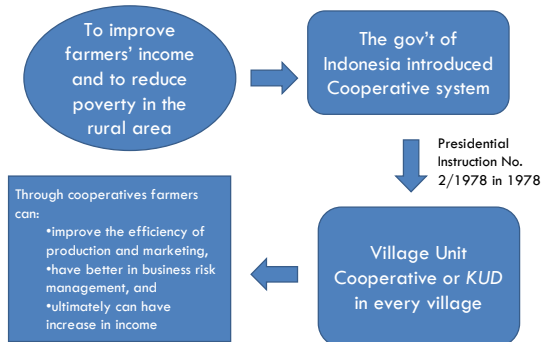
REFERENCES

## INTRODUCTION



- A. THE COOPERATIVE SYSTEM
- B. OBJECTIVE OF THE PAPER
- C. SOURCE OF DATA
- D. METHOD OF ANALYSIS
- E. LIMITATIONS

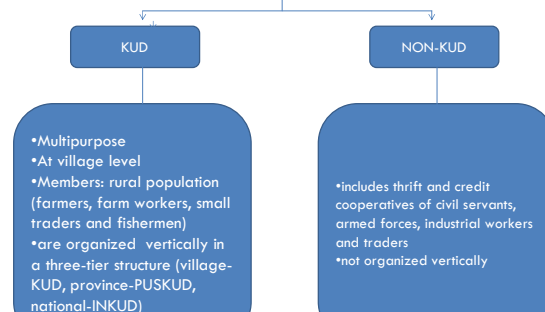
### a. The Cooperative System



KUDs

- deliver farm credit,
- deliver agriculture inputs,
- marketing of farm commodities, and
- other economic activities to rural and agricultural sectors

#### THE COOPERATIVE MOVEMENT (POST 1945)



- KUD has been a pillar of agricultural development
- By 2011, more than 188,181 cooperatives have been organized → 133,666 units of which are active cooperatives and 7931 units of them are active KUD
- Milk cooperative is one of the success stories of the development of agricultural cooperative in Indonesia.
- Dairy cooperative is closely associated with the development of dairy industry and farmers' development in Indonesia

## b. Objective of the Paper

- This paper describes the state of dairy industry and dairy cooperative and their roles in the rural development in Indonesia.

## c. Source of Data

- Information and data used in this paper were obtained from various secondary sources and published articles on dairy cooperatives.

## d. Method of Analysis

- The methods of information and data analysis were descriptive

## e. Limitations

- This paper only used various secondary sources and published articles.



# THE DAIRY INDUSTRY IN INDONESIA: AN OVERVIEW

- A. STAGES OF DEVELOPMENT
- B. MAJOR PRODUCING AREA & PRODUCTIVITY
- C. GROWTH AND DEVELOPMENT
- D. ENTERPRISES UNDERTAKEN

## a. Stages of Development

- Dairy industry in Indonesia has long been developed since the 19th century
- The phases of dairy development in Indonesia can be divided into three:
  - (1) Phase I, before 1980;
  - (2) Phase II, 1980-1997; and
  - (3) Phase III, 1997-present.
- Phase II appears an important stage of dairy development. It was the stage where the government began to import a large number of dairy cattle in order to encourage increases in production and productivity of dairy industry

Table 1. The progress of dairy industry development in Indonesia

Description	1980	1985	1990	1995	2000	2005	2009	2011
Fresh milk production (000 tons)	78.4	191.9	345.6	433.4	495.6	536	827	926
Number of dairy cattle (000 heads)	103	208	294	341	354	361	557	597
Number of dairy farmers (000 person)	12.8	59.5	74	86.1	n.a	118.7	120	125
Number of cooperative	50	173	190	207	210	210	n.a	95

Source: Inouu et al., (2003), GKS and statistical book various issues  
 Note: \*) temporary data  
 n.a: not available information

## b. Major Producing Area and Productivity

Table 2. Dairy population in Indonesia 2009-2011

Island/Province	Population (heads)					%
	2007	2008	2009	2010	2011 <sup>a</sup>	
Java						
- East Java	139,277	212,322	221,743	231,408	296,262	49.614
- West Java	103,489	111,250	117,337	120,475	139,973	23.441
- Central Java	116,250	118,424	120,677	122,489	149,931	25.109
- DI Yogyakarta	5,811	5,652	5,495	3,466	3,522	0.590
- DKI Jakarta	3,685	3,355	2,920	3,238	2,728	0.457
- Banten	7	14	15	28	19	0.003
Subtotal	368,519	451,017	468,187	481,108	592,435	99.212
% of total	98.5	98.6	98.6	98.5	99.2	
Other Islands	5,548	6,560	6,514	7,340	4,694	0.788
Total	374,067	457,577	474,701	488,448	597,129	100

Note: <sup>a</sup> preliminary figure  
Source: Ministry of Agriculture (2011), modified.

- The province of East Java had shown the largest dairy population accounting for 49.6% and had the largest growth rate over the last five years with an annual average rate of 22.5%.
- Central Java and West Java were in second and third position with dairy population of 25.1% and 23.4%, respectively

## c. Growth and Development

- Dairy industry is a source of income and employment for 192,142 households of marginal/small farmers and landless laborers
  - 80% are owned by smallholder - farmers with dairy cattle ownership less than 4 cows per farmer.
  - 17% owned by farmers with 4-7 cows/farmer, and
  - 3% by large - scale farmers, those with more than 10 cows per farmer.

Table 3. Milk Production in Indonesia 2007-2011

Island/Province	Milk production (tons)					%
	2007	2008	2009	2010	2011 <sup>a</sup>	
Java						
- East Java	249,275	312,270	461,880	528,100	536,458	57.95
- West Java	225,212	225,212	255,348	262,177	268,042	28.95
- Central Java	70,419	89,748	91,262	100,150	100,350	10.84
- DI Yogyakarta	6,994	7,083	5,038	4,989	5,138	0.55
- DKI Jakarta	7,061	6,388	5,723	6,346	6,384	0.69
- Banten	0	0	0	0	0	0
Subtotal	558,961	640,701	819,751	901,762	916,372	98.98
% of total	98.5	99.0	99.1	99.1	99.0	
Other Islands	8,721	6,252	7,498	7,771	9,403	1.02
Total	567,682	646,953	827,249	909,533	925,775	100

Note: <sup>a</sup> preliminary figure  
Source: Ministry of Agriculture (2011), modified

- The average annual rate of increase in Indonesia's milk production in the last five years was 12.6%.
- East Java was the largest milk producer accounting for 58% of the national milk production, followed by West Java and Central Java with 29% and 11%, respectively.
- Over 85% of domestic milk production were marketed to IPS
- The total domestic milk production contributed less than 30% of domestic milk requirement

- The average milk production of 3,069 liters of milk/cow/year (<10 liters of milk/cow/day).
- West Java had the highest productivity at 3,891 liters/cow/year.
- Milk availability was 13.36 kilograms per year in 2010
- Annual per capita milk consumption stands at 16.41 kg/capita (2010) → lower among ASEAN countries

- There are over 30 companies involved in milk processing in Indonesia with a combined output of 870,000 tons of milk products (2009)
- Five major companies absorb about 85% Indonesia's milk production
- in 2008 the consumer milk market in Indonesia was worth more than US\$2.6 billion:
  - ▣ 60% milk powders (US\$1.5 billion)
  - ▣ sweetened condensed milk (US\$760 million) and
  - ▣ liquid milk (US\$400 million)

Table 4. Export and import of milk and milk products in quantity and value terms for Indonesia 2009-2011

Year	Export		Import	
	Volume (kg)	Value (USD)	Volume (kg)	Value (USD)
2009	50,190,121	90,799,838	211,633,795	569,597,268
2010	47,818,308	88,508,714	231,396,006	815,508,015
2011 <sup>1)</sup>	28,692,067	55,529,157	164,568,554	658,640,569

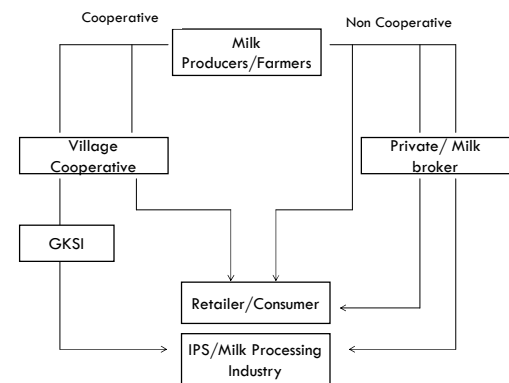
Note: <sup>1)</sup> preliminary figure

Source: Ministry of Agriculture (2011)

#### d. Enterprises Undertaken

- The main players in the dairy supply chain in Indonesia are dairy farmers (smallholders), primary and secondary dairy cooperatives, milk processors, government, and private service and input suppliers.
- Fresh milk is marketed through cooperative to the milk processors or direct with some large dairy farmers/milk brokers (Figure 1).

Figure 1. Organization on Dairy Marketing in Indonesia



Price of fresh milk in Indonesia is the cheapest compared with other countries in Southeast Asia

Table 5. Indonesian fresh milk buying prices 2011 (IPS price)

Product	Price	
	(IDR)	(USD)
Local fresh milk Grade 1 (farm gate – 12% TS, 0 – 250,000/ml TPC)	3,850/kg	433/ton
Local fresh milk Grade 2 (farm gate – 12%TS, 250,000 – 500,000/ml TPC)	3,750/kg	422/ton
Local fresh milk Grade 3 (farm gate – 12% TS, 500,000 – 1 million/ml TPC)	3,650/kg	411/ton

Source: Union of Dairy Cooperatives (GKSI) in USDA (2011)



## THE DAIRY COOPERATIVES IN INDONESIA

- A. BEGINNING
- B. CATEGORIES
- C. GROWTH AND DEVELOPMENT
- D. BUSINESS UNDERTAKING

## a. Beginning

- Historically, milk cooperatives first appeared in Pengalengan Bandung, West Java in 1948, and at Pujon Malang, East Java in 1962.
- there are two types of dairy cooperative:
  1. Koperasi Unit Desa (KUD), the primary cooperative at the village level and
    - The major roles are collecting and selling milk to the IPS or to the market, providing fodder for livestock, veterinary service, the health of members and families service, loan services, etc
  2. the Indonesian Association of Dairy Cooperatives (GKSI), the secondary cooperative (since 1979)
    - does various economics activities which primary cooperative cannot economically do
    - developed and maintains a number of its milk processing units and dairy cattle breeding stations.

## b. Categories

- Dairy cooperatives are classified into three categories based on the criteria of GKSI:
  1. small cooperative: milk production <10 tons/day;
  2. medium cooperatives: milk production is 10 - 30 tons /day, and
  3. large cooperative: milk production > 30 tons/day
- 60% of milk cooperatives in Indonesia fall under the medium to large cooperative categories

Table 6. Number of cooperatives by group and their respective milk production, Indonesia, 2009

Province	Group of Cooperative			Milk production (liters/day)
	Small (%)	Medium (%)	Large (%)	
West Java	44.4	33.3	22.2	521,075
East Java	5.6	61.1	33.3	609,810
DIY + Central Java	80.0	13.3	6.7	123,000
National	41.2	37.2	21.6	1,253,885

Source: ICARD (2009), modified

## c. Growth and Development

- The development of the milk cooperative is relatively stagnant in the last 10 years (Table 8). The number of cooperatives decline sharply after 1999.
- Some cooperatives were not able to survive when an economic crisis hit Indonesia and others opted to merging.
- However the number of farmers and milk production had continuous significant increase in the last 12 years (1999-2007).

Table 7. Selected key indicators of growth and development of Indonesia dairy cooperative, Indonesia, 1979-2011

Key indicators	1979	1989	1999	2009	2011
Number of primary dairy cooperatives	27	198	213	n.a	95
Number of farmers cooperative member	1,497	58,797	80,931	120,000	127,000
Dairy cattle population	5,988	235,188	324,719	557	597
Milk production (million liters)	12.48	278.76	378.86	827	926
Fresh milk consumed by IPS (million liters)	10.40	232.30	335.39	661 <sup>a</sup>	740 <sup>a</sup>
Fresh milk ratio	1.20	1:3.5	-	-	-
Milk price at IPS (IDR/liter)	194	440	1,255	3,500	3,800
Value of fresh milk (million IDR)	2.04	102.35	420.91	2,313.5	2,812

Note: na= not available

<sup>a</sup> = estimated

Since Feb'98, no import ratio, IPS free to import milk

Source: various statistical books

- In 2011, there were 95 dairy KUDs in Java, of which 22 cooperatives were of GKSI West Java, 23 cooperatives of GKSI Central Java and Yogyakarta, and 50 cooperatives of GKSI East Java.
- Some KUDs have exclusive arrangements to supply milk with 13 IPS and have established their own milk products and brands for the local market.
- The number of farmer - members of primary cooperatives was about 127 thousand people in 2011.
- Notable large cooperatives are SAE Pujon (East Java), KPSBU Lembang and KPBS Pengalengan (West Java) and KUD Musuk (Central Java).

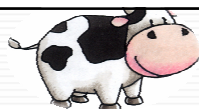
## d. Business Undertaking

- Some cooperatives have businesses other than dairy farm business such as cigarette business units, maternity hospital, building rental, gas stations, public service, among others.
- However, the efficiency of these businesses may not have been desirable due to high cost of loans and credit facilities from banks and other financial institutions.
- The number of business handled by cooperatives is ranges from 3-9 units.
- The large cooperatives have amount more businesses that the small ones due to the of asset and capital owned.
- Ideally the dairy cooperative should focus on business associated with the dairy business, integrating systems from downstream subsystem to upstream subsystem.

Table 9. Types of business undertaking of dairy cooperatives, Indonesia, 2009.

Type of business (%)	Group of cooperative		
	Small	Medium	Large
Cattle Feedmill	9.1	49.0	100.0
Saving and loan	29.2	100.0	100.0
Milk processing	18.2	100.0	100.0
Rearing	1.8	0.0	50.0
Supermarket/Minimarket	5.5	17.3	43.8
Veterinary service	5.5	18.5	100.0
Services: electricity, telephone, water, rental business	30.7	15.2	6.2

Source: ICARD (2009)



## THE ROLES OF DAIRY COOPERATIVES IN RURAL DEVELOPMENT

- A. ROLES ON ECONOMIC DEVELOPMENT
- B. ROLES ON SOCIAL AND HUMAN DEVELOPMENT

## a. Roles on Economic Development

- Dairy cooperatives have important roles in economic and social development of rural people especially in dairy center area.
- Cooperatives have shown impacts in increasing milk production, price of milk, and income of farmers.
- Cooperatives help farmers improve the quality of milk so that they can obtain higher milk prices
- Martindah and Saptati (2008)'s study showed that farmer-members of KPSBU Lembang obtain highest milk prices than farmers from other cooperatives in West Java (IDR 2,527/liter vs IDR 2,410/liter in 2006) as well as the milk production (13 liters/cow/day vs 10 liters/cow/day). This due to the success of KSPBU Lembang in encouraging their farmer-members to do good dairy farming practice

- Hariyanti (2007) stated that dairy farmer-members of KUD Turen, East Java earn 16.61% increase in income compared to the previous income as a cattle farmers. There are very few in number of farmer-members who are fall in the pre prosperous category, only about 1.2% of the total farmer-members
- The result of other study by Asmaul (2009) showed that the Cooperative Agro Commerce (KAN) Jabung in improving the welfare of its members, give 14 free services, and scholarships to the children of dairy farmers.

- Cooperatives have been also effective in reducing the cost of production, accessing to technology, and in accessing to government support and services.
- Dairy cooperatives employ thousand people, contribute to increased dairy productivity, and expand farmers' access to financial services.
- Dairy cooperatives help create growth in the rural areas. Dairy cooperatives help make markets work better for poor people, create economies of scale of operation, increase access to information, and improve farmers bargaining power.

## b. Roles on Social and Human Development

- On social and human development, dairy cooperatives have been instrumental in:
  - ▢ improving of the knowledge of farmers in dairy farming,
  - ▢ improving in the knowledge and skills of farmers in cooperative enterprise management,
  - ▢ improving the education of family members and
  - ▢ preserving the culture and tradition of the villagers

- Cooperative extension and training program improve the knowledge of farmers in dairy farming.
- The extension program provides services on animal health (preventive vaccination, pregnancy diagnosis and treatment of infertility), milk yield (improving the productivity and maintaining high yielding cow), feeding practices, propagation of fodder materials, and breeding cow breed improvement.
- 88% of farmer-members of the Warga Mulya dairy cooperative in Yogyakarta mentioned that the training has helped them to get new information related with their dairy activities (Sulastri and Maharjan, 2001)



## SUMMARY AND CONCLUSION

## SUMMARY AND CONCLUSION

- There are about 95 dairy cooperatives in Indonesia with about 100,000 dairy farmer-members.
- more than 85% of them are members of the Union of Indonesia Dairy Cooperative (GKSI) which are mainly handled by branches in East Java, Central Java and West Java
- Dairy cooperatives have significant contribution in dairy farming development and have important roles in economic and social development of rural people especially in dairy center area

- Dairy cooperatives have shown impacts in increasing milk production, price of milk, and income of farmers.
- Cooperatives have been also effective in reducing the cost of production, accessing to technology, and in accessing to government support and services.
- Cooperative extension and training program improve the knowledge of farmers in dairy farming

## REFERENCES

- Anggraeni, A. K. Diwyanto, L. Praharani, A. Saleh dan C. Thalib, 2001. Evaluation of Genetic quality of Friesian Holland cow in milk production center areas. Prosiding Hasil Penelitian Bagian Proyek " Rekayasa Teknologi Pertanian/ARMP – II " Puslit. Peternakan, Bogor.
- Baga, L. M. 2004. The effectiveness of the cooperatives organization and agribusiness development. Paper presented at the limited discussion: Institutional and Cooperative in the Rural Agricultural Restructuring organized by PERHEPI in Jakarta, Indonesia, September 30, 2004. [http://www.perhepi.org/images/stories/publikasi/konpernas\\_lukman.pdf](http://www.perhepi.org/images/stories/publikasi/konpernas_lukman.pdf).
- ICARD. 2009. Dairy Consortium 2009. Report. Indonesian Center for Animal Research and Development. Ministry of Agriculture. (unpublished).
- IFC. 2011. Dairy Industry Development in Indonesia. Final Report, May 2011. International Finance Corporation. World Bank Group. <http://www.lifc.org/wps/wcm/connect/93f48d00470e3bf883ffd7b2572104ea/Dairy+Industry+Development-2011.pdf?MOD=AJPERES>
- Inouu, I, T.D. Soedjana and A. Priyanti. Market Opportunity for Milk in Indonesia. <http://www.fao.org/ag/againfo/programmes/en/pplpi/docarc/LAX13.pdf>
- Luthan, F. 2012. The development of Dairy Agribusiness in Indonesia. Director of Livestock of Ruminant, Directorate General Livestock Services, Ministry of Agricultural, Jakarta Indonesia.

- Mahyuddin, P., S. B. Siregar, N. Hidayati dan T. Sugiarti . 1997. The Production Performance of Holstein Friesian Dairy Cattle in West Java. Ilmu dan Peternakan, 2(3) : 145-151.
- Ministry of Agriculture. 2011. Livestock and Animal Health Statistics. Directorate General Livestock and Animal Health. Ministry of Agriculture. Jakarta. ISBN 978-979-628-019-3.
- Octaviani, R. 2004. Economic rationale, challenges for and future development of cooperatives in Indonesia. Cooperatives: Issues and trends in developing countries. Edited by Ray Trewin. ACIAR Technical Report No. 53. (printed version published in 2004). <http://aclar.gov.au/files/node/530/tr53.pdf>
- Pallawarukka, C. Thalib, K. Achyadj, K. dan Diwyanto. 2005. Productivity of Cow producing calves in national progeny test program. (Unpublished).
- Sulastri, E. and K.L. Maharjan. 2001. Role of Dairy Cooperative Services on Dairy Development in Indonesia: A Case Study of Daerah Istimewa Yogyakarta Province. Journal of International Development and Cooperation, Vol.9, No.1, 2002, pp. 17–39.
- Talib, C., A. Anggraeni, K. Diwyanto dan E. Kurniatin. 2001. Factors that influencing FH dairy cow productivity under commercial corporation management. Gakuryoku, Jurnal Ilmiah Pertanian. Vol : VII (1): 81-87. Persatuan Alumni dari Jepang, Bogor.

- USDA. 2011. Indonesia Dairy and Product Annual Report 2011. Global Agricultural Information Network (GAIN). USDA Foreign Agricultural Service. [http://gain.fas.usda.gov/Recent%20GAIN%20Publications/Dairy%20and%20Products%20Annual\\_Jakarta\\_Indonesia\\_10-28-2011.pdf](http://gain.fas.usda.gov/Recent%20GAIN%20Publications/Dairy%20and%20Products%20Annual_Jakarta_Indonesia_10-28-2011.pdf)
- Yusdja dan M. Iqbal. 1998. Analysis of the Policy of Increasing the Competitiveness of Cow's Milk after the Monetary Crisis. Internal report, PSE (not published). Bogor