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Bali cattle production systems in the collective housing system on Lombok

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Abstrak

Penelitian yang bertujuan untuk mengetehui jumlah, distribusi dan profil kandang kolektif di Pulau Lombok telah dilaksanakan pada bulan Oktober dan Nopember 2005. Penelitian dilaksanakan dengan metode survey dengan teknik "bola salju" yakni informasi dikumpulkan dari petugas desa, kemudian dilanjutkan dengan penelusuran sesuai dengan informasi yang diperoleh dari satu kandang ke kandang lain dan seterusnya. Hasil yang diperoleh menunjukkan bahwa terdapat 788 kandang kolektif yang tersebar di seluruh Pulau Lombok. Sebanyak 486 kelompok diantaranya fokus pada produksi pedet (pembibitan), 76 kelompok khusus melakukan penggemukan dan sisanya merupakan kelompok campuran pembibitan dan penggemukan. Hampir separuh dari kelompok pembibitan tidak memiliki pejantan sehingga diduga menjadi faktor utama penyebab panjangnya jarak beranak dan rendahnya angka kelahiran sapi Bali. Tujuan awal pembentukan kandang kolektif adalah untuk menjaga keamanan secara kolektif dan untuk memperbaiki sanitasi lingkungan desa. Peta lokasi dan profil kandang kolektif yang dihasilkan dari penelitian ini sangat bermanfaat bagi upaya penyebaran informasi dan teknologi pengembangan sapi Bali, karena memugkinkan interaksi dan koordinasi antar peternak secara lebih efektif dan efisien.

Abstract

A study to identify the number, distribution and profiles of cattle collective pens on Lombok Island has been carried out between October to November 2005. A "snow balling" survey technique was employed to start collecting collective pen data from village office then followed by tracing the next collective pens based on previous information. Results of the study show that there are 788 collective pens distributed all over the island. 486 of them focusing on calf production (breeding), 76 focusing on fattening and the rest are mix of breeding and fattening. Almost 50% of the breeding group do not have bulls and this is postulated to be an important factor contributes to the low calving rate and long inter-calving interval in Bali cattle on Lombok. The primary motivation to establish the collective pens was to collectively secure the cattle from theft (security purpose) and to improve village sanitation. The distribution and profile of the collective pens obtained from this study are very useful data for the dissemination of new technology on Bali cattle development because the collective systems allow for more intensive and effective interaction and coordination between farmers.

I. Introduction

One of the important aspects of Bali cattle development in Lombok is the role of collective housing system, which is unique to Lombok. This system is as an excellent entry point for technology adoption but has not been explored intensively. For this reason, it is necessary to map the existing collective system as a baseline for further development. There has been a preliminary survey (Dahlanuddin et al 2004, unpublished) on the profile of collective housing system in Lombok but the results are not sufficient to draw a location map and it did not count the total number of all existing housing system. Report on the number of the housing system has been variable. Puspadi et al (2003) suggested that the number on Lombok is 477 while some officials quote a number of up to more than 1000. A further survey was thus carried out simultaneously on this aspect for verification.

The objectives of this study are:

1. To identify the current number, location and profile of the collective system
2. To update available other information on Bali cattle production on Lombok
3. To incorporate more details from results of previous survey on collective housing system conducted in 2004, especially in relation to the use of the system for capacity building and technology transfer.
4. To establish a map showing locations of infrastructure available for Bali cattle development on Lombok, including collective cattle housing system, livestock market, abattoir, holding ground and quarantine.

II. Methodology

The study was carried out during October and November 2005, covering all areas of Lombok Island. To identify the number and location of existing cattle collective housing, the survey team gathered information by direct count (census) based on information from village or sub-village offices, wherever available, or otherwise by using “snow balling”

technique. The data obtained from the previous survey (Dahlanuddin et al, 2004) were used as the starting point.

Simple questionnaires were used as a guideline for the survey. Some interviews with relevant authorities, extension specialist and some extension officers were also carried out to gather specific information related to existence and role of the collective housing systems. Data were tabulated descriptively and non-scaled maps showing the number and location of extension officers, cattle collective housing, livestock market and other relevant infrastructure such as government service centers such as abattoir, were drawn based on the survey results.

III. Results

1. Farmer group

Farmers group is often considered the same as the collective housing system while they are in fact different. Collective housing system may be part of a farmers group but some may be run or organized independently. This is why there has been some inconsistency in the quoted number of existing collective housing system on Lombok. Some quoted less than 500 while others estimated more than 1000.

The number of farmer groups for each commodity registered by Dinas Peternakan NTB is presented in Table 1.

Table 1. Number of registered farmer group by district in Lombok.

Commodity	Mataram	West Lombok	Central Lombok	East Lombok	Total
Village chicken	28	48	100	104	280
Forage	0	7	4		11
Cattle	15	136	144	142	437
Buffalo	0	10	7	7	24
Goats	0	8	55	27	90
Duck	0	2	3	5	10
Total	43	211	313	285	852

They are classified into *Pemula* (beginners, 59.4%), *Lanjut* (pre-intermediate, 32.7%), *Madya* (intermediate, 6.7%) and *Utama* (advanced, 1.2%). However, no study has been carried out to evaluate whether all of them are still active or not.

2. Collective housing system

In addition of the 303 collective housing system surveyed in 2004, this survey identified another 475 units making the total number of 778 units distributed in most sub-districts on Lombok. Due to some difficulties to locate units in some remote areas or lack of information to start from, there may be a small number of collective housing were not identified. However, the team is confident that at least 90% of the collective housing units for cattle have been identified.

a. Number, classification and geographic distribution

The number and geographic distribution of collective housing system in Lombok is presented by district in Table 12 and by sub-district in map 1. Database on profile of all collective housing units are stored in excel files.

Size of the group (number of member) varies widely from 5 to more than 61 but the majority is in the range of 10-30 members (see Table 2). Dinas Peternakan informally define that a group should have at least 10 members but for future development consideration, groups with at least 5 members were identified in this survey.

Table 2. Collective housing units according to number of members in Lombok

District	Number of member				
	<10	10 -30	31- 60	>60	Total
West Lombok	24	235	60	5	324
Central Lombok	52	123	30	5	210
East Lombok	106	93	18	3	220
Total	182	451	108	13	754

Note: 24 groups with no information on number of members

Based on purpose of production, the collective housing units can be classified into mainly fattening, mainly breeding and mix of breeding and fattening.

Table 3. Number of collective housing system based on purpose of production on Lombok

Total number	**West Lombok**	**Central Lombok**	**East Lombok**	**Lombok**
Mainly breeding	165	194	127	486
Mainly fattening	27	10	39	76
Mix (breeding and fattening)	132	22	62	216
Total	324	226	228	778

b. Profiles

The profiles of collective housing system according to purpose of production are presented in Tables 4 and 5. Some groups, especially those specialized in fattening, are very dynamic, the number of cattle may change in a very short time due to a quick turn-over of cattle in the groups. This may be due to selling of finished fattening bulls or

necessity to sell any cattle for emergency, both for the owner's or the keeper's immediate needs.

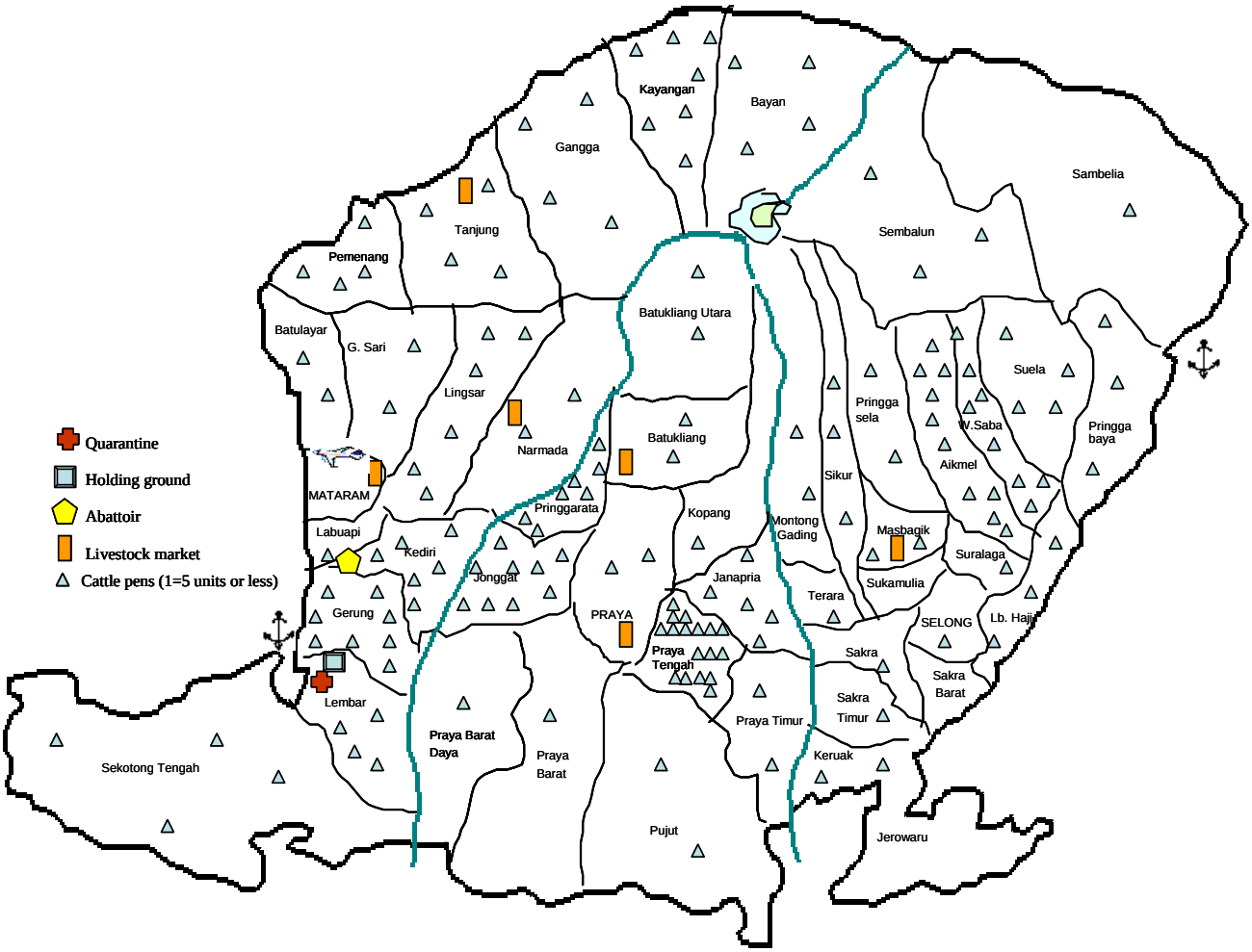
Table 4. Profile of collective housing with fattening as the main business

Fattening as the main business	**West Lombok**	**Central Lombok**	**East Lombok**	**Lombok**
Average number of member	21.2	19.5	10.1	16.9
Average number of bulls	22.7	43.0	14.1	26.6
Average number of young bulls	5.5	19.6	3.1	9.4
Average total number of cattle	29.8	66.1	17.8	37.9
Average ownership per farmer	1.4	3.4	1.8	2.2

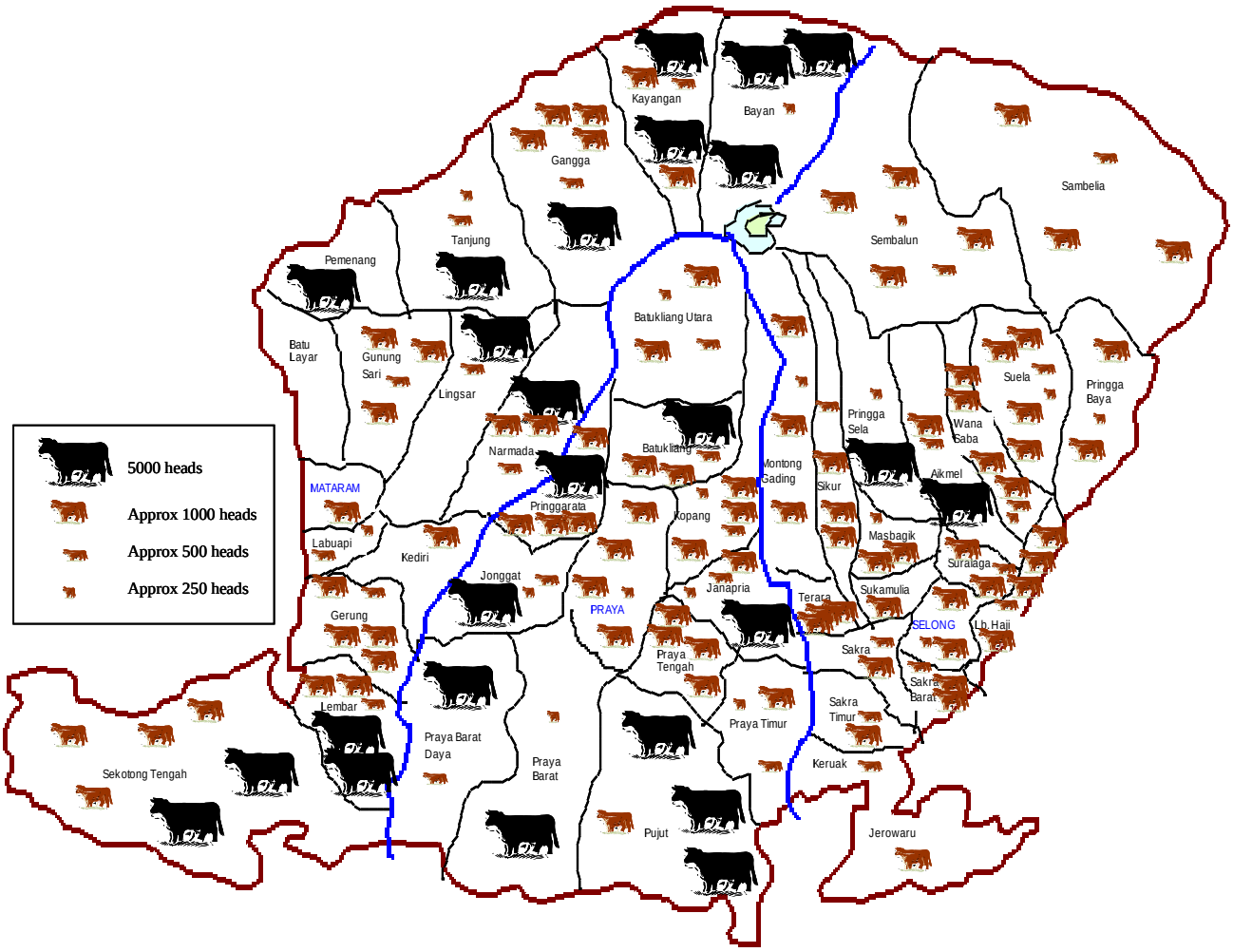
Table 5. Profile of collective housing with breeding as the main business

Breeding as the main business	**West Lombok**	**Central Lombok**	**East Lombok**	**Lombok**
Total groups with no bulls	59	90	51	200
Average number of member	19.9	19.7	14.4	18.0
Average number of bulls	1.3	1.0	1.2	1.1
Average number of cows	22.5	21.2	16.6	20.1
Average number of heifers	5.4	4.0	3.8	4.4
Average number of young bulls	3.5	2.5	1.6	2.5
Average number of male calves	4.8	5.0	3.4	4.4
Average number of female calves	5.5	6.9	3.8	5.4
Average total number of cattle	42.9	40.4	29.8	37.7
Average ownership per farmer	2.2	2.1	2.1	2.1

Figure 1. Distribution of cattle collective housing units by sub-districts in Lombok.



Map 2. Distribution of cattle population by sub-districts in Lombok



c. Role of collective housing system on Bali cattle development

In the previous survey covering 303 collective housing units in Lombok (Dahlanuddin et al., 2004), it was identified that the purpose of establishing collective pens are mainly for maintaining security and sanitation (Table 6), even though a limited number of groups are also use the system to facilitate group coordination. This group coordination is mainly for scheduling night guarding collective effort to maintain sanitary condition.

Table 6. The purpose of establishing the collective housing system in Lombok

Purpose	**Response**		
	Yes	**No**	**Total**
To maintain security	275	28	303
To improve sanitation	237	66	303
To facilitate livestock surveillance/ observation	53	250	303
To foster togetherness	9	294	303
To follow village custom/rule	8	295	303
To promote compos production	8	295	303
Due to government recommendation/assistance	7	296	303
To facilitate group coordination	5	298	303

Only few activities in the collective housing system are directed to improving farmers' awareness to improve productivity for example through technology adoption. Only 4 groups carry out regular meeting and only 4 are active in composting. These collective housing systems have not been used as a base for improving knowledge and skills of the farmers on Bali cattle production. Some groups have received external assistance from some relevant government departments, especially Dinas Peternakan (Table 7).

Table 7. Assistance from government and non-government organizations.

Source and type of assistance	**Yes**	**No**	**Total**
Source			
Dinas Peternakan	70	233	303
BPTP NTB	3	300	303
Social security department	5	298	303
NGO	1	302	303

Private company	1	302	303
Type			
Livestock	71	232	303
Pen renovation	14	289	303
Group development	13	290	303
Cash	6	297	303

However, the type of assistance is still limited to provision of shared cattle in the direct community loan assistance scheme (Table 8).

Table 8. Groups receiving direct community assistance (Bantuan Masyarakat Langsung, BLM)

District	**Group name**	**Year**	**Funding (IDR)**	**Type of loan**
West Lombok	* Punik Mekar	2000	300,000,000	Cattle
	* Giri Sasak	2001	300,000,000	Cattle
	* Serumbung	2001	30,000,000	Cattle
	* Mekar Kembali	2002	300,000,000	Cattle
	* Kebun Ree	2003	300,000,000	Cattle
	* Beriuk Maju	2003	300,000,000	Cattle
	* Wire Singe	2004	300,000,000	Cattle
	* Pelah Mandiri	2004	300,000,000	Cattle
	Tunas Bareng	2005	150,000,000	Cattle
	* Patung Angan	2005	300,000,000	Cattle
Central Lombok	* Gerak Maju	2001	300,000,000	Cattle
	* Pida Lestari	2001	300,000,000	Cattle
	* Nusa Indah	2002	300,000,000	Cattle
	* Beriuk Berajah	2002	300,000,000	Cattle
	* Makmur	2003	300,000,000	Cattle
	* Trasna	2003	300,000,000	Cattle
	* T o e s	2004	275,000,000	Cattle
	* Wire Karya	2004	275,000,000	Cattle
	* Anugrah	2005	300,000,000	Cattle
East Lombok	* Patuh Gati	2000	300,000,000	Cattle
	* Patuh Onangan	2001	305,000,000	Cattle
	* Bareng Mele	2001	305,000,000	Cattle
	* Giat Mule	2001	55,000,000	Cattle
	* Al-Muhajirin	2001	105,000,000	Cattle
	* Tembeng	2002	300,000,000	Cattle
	* Gema Angsa	2002	300,000,000	Cattle
	* Pade Pacu	2003	400,000,000	Cattle
	* Bunga Lestari	2004	400,000,000	Cattle

	TBA	2005	300,000,000	Cattle
	TBA	2005	100,000,000	Cattle
Mataram	* Patuh Pacu	2003	300,000,000	Cattle
	* Satria Gumi Sasak	2004	150,000,000	Goats
	* Suka Maju	2004	100,000,000	Duck

Source: NTB Livestock Service office (2005)

Mechanism of repayment and revolving:

In general, a member of selected group will receive loan (1- 3 cows per family) to be paid in 2, 3 or 5 year period. The loan repayment mechanism varies between districts. In West and East Lombok, there are two ways of repayment; a) to return the value of the cows in the agreed period at 3 to 10% interest p.a. and b) the family is entitled to have 50% of the calves and the other 50% is revolved to other member of the group. In central Lombok, a different scheme is applied. The selected farmer is entitled to receive the first weaned calf, and then the cow (once pregnant) should be revolved to another member of the group. In this scheme, the farmer pays a small amount of fee which will be used as operational funds and group saving.

IV. Discussion

The collective housing units distributed around all areas of Lombok island but do not always closely related to the number of cattle (compare map 1 and map 2). For example, Pujut sub-district in central Lombok has the highest cattle population, but number of collective housing unit is among the smallest. This is probably related to the availability of 'grazing' areas and long distance between households in this area that make it difficult to interact with each other in the collective system. On the other hand, Praya Tengah sub-district (central Lombok) has only about 4000 cattle but in this relatively small sub-district, the number of collective housing units is the highest. This indicates the necessity to collectively house the cattle due to pressure on security (cattle stealing) and limited land area for tethering in this sub-district.

The collective housing systems have long been established based on common interest by farmers to maintain security against cattle stealing and to maintain village sanitation. Government intervention to improve this excellent community-developed

production system so far is still limited to provision of shared cattle e.g. the BLM scheme (direct community loan assistance). With the increasing pressure on land use and security problem, the collective housing system will most likely to be a solution for smallholders in Lombok and other areas in Indonesia.

This successful community initiative has not been communicated and interpreted sufficiently to policy makers to form a profitable and sustainable development program to improve Bali cattle production in Lombok. A *Research – Program – Training Triangle* interaction described by Beaudry (1999) is recommended to make use of existing knowledge (e.g. ACIAR integrated management system demonstrated in Kelebuh) to improve the system and to develop additional knowledge to improve the impact of program on the community well being.

In the BLM scheme, the government provides technical assistance only in the first year to the selected group receiving BLM. The performance of the group from the second year onward may be affected due to lack of technical assistance. To overcome this problem, available extension officers should be further trained on Bali cattle production system and deployed to the BLM groups to do regular extension and group empowerment. This will ensure the success and sustainability of the scheme.

A significant number of collective breeding groups (200 groups) have no bulls. Farmers are reluctant to keep bulls, especially in dry areas where breeding is more prevalence, because it is less profitable than keeping cows. This is most likely to affect reproductive efficiency of the cows because farmers rely from bulls from other groups or even from other village for mating. The groups may benefit from AI service but provision of selected bulls to these groups will ensure high calf crop as has been demonstrated in the Kelebuh site of ACIAR 103 project (Poppi et al., 2004). The selected bull in this group is kept by a member who receives payment for every mating both from cows within and outside the group. It is recommended that the government provide selected bulls to these groups through a revolving fund projects such as BPLM project.

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