

# EXPANSION OF FOOD AND AGRIBUSINESS IN RELATION TO THE LOCAL AUTONOMY POLICY IN BALI <sup>\*)</sup>

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## ABSTRAK

Di Mancanegara, Bali terkenal karena seni budayanya. Namun yang belum terkenal adalah produk-produk agribisnis khas Bali, seperti Salak Bali, Jeruk Bali, Sapi Bali, dan Kopi Bali.

Walaupun kontribusi sektor pertanian terhadap Produk Domestik Regional Bruto Bali menurun dari 22,4 persen tahun 1994 menjadi 19,1 persen tahun 1998, tetapi peranannya masih penting dalam memproduksi pangan bagi penduduk Bali yang terus meningkat, penyediaan bahan baku industri agribisnis (agroindustri), dan penghasil devisa dari ekspor berbagai produk agribisnis.

Menyongsong era otonomi daerah tahun 2001, maka diperlukan penyesuaian kebijakan pembangunan pertanian nasional. Termasuk di dalamnya panajaman strategi pembangunan pertanian yang berorientasi diversifikasi regional untuk memenuhi permintaan pasar regional, nasional, dan global.

*Keywords: Balinese Agriculture Products, Food and Agribusiness, Agriculture Policies, Autonomy Policy.*

## INTRODUCTION

As you may have already aware that Bali is only a small part of the Republic of Indonesia, but it has significant share to the economy of the country, especially from tourism and small industries. If we speak of Bali, one would automatically think first of its famous arts and culture, handicrafts, and not less important, of the Balinese panorama and its holy thousands temples. Then one may also think of its famous brand for its agricultural products such as "Salak", Balinese Citrus (jeruk Bali), Balinese cattle (sapi Bali), and Balinese coffee (kopi Bali).

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<sup>\*)</sup> Paper has been presented on the occasion of Indonesia and Food Agribusiness Initiative (INDOFA) Business Forum of the Indonesia-Australia Working Group on Agriculture and Food Cooperation (WGAF), held in Denpasar-Bali, July 10, 2000.

Agriculture in Bali has been for decades an integral part of its culture since it develops gradually from the famous 'subak' organization. The term 'Subak' refers to traditional-autonomous farmer organization in managing irrigation water among its members. At present, the number of this organization reach over 1,600 subak covering an area ranging from 60 to 150 hectares of irrigated rice-land per 'subak'. The organizations strictly organize its activities on the basis of written (the so-called 'awig-awig') as well as unwritten laws agreed upon by all its members.

In Bali 70.6 percent of the total land area (of 563, 286 hectares) is used for agriculture, 22.5 percent is forested, and another 6.9 percent serves other purposes such as settlement, roads, rivers, lakes, etc. (Table-1). Agricultural land includes all land belonging to the small farm holders as well as the area of estates. Considering all types of farms, excluding estate farms, the overall size of a farm in Bali is about 0.75 hectares in 1993.

Although the share of agriculture in the Gross Regional Domestic Product of Bali has been declining from 22.4 percent in 1994 to 19.1 percent in 1998 (Bappeda-BPS, 1999), its role however still considered important in producing food for its population and supplying raw materials for agribusiness industries as well as for export purposes. Bali is usually considered as one of the 13 rice-producing provinces in Indonesia. Although it is still below international standard of productivity, its rice productivity reaches above the national average (5.3 tons vs. 4.8 tons per hectare). Furthermore, Bali has always been producing more rice than the amount needed to feed its population.

Some of the traditional export of agricultural product of Bali include Tuna and other canned fish products, lobster, seaweed, coffee, vanilla, and other agricultural commodities. Total export of agricultural products in 1998 reached US\$ 107.2 million as compared to US\$ 63.9 million in 1994 (Bappeda, 1999).

## GENERAL DESCRIPTION OF THE MAIN AGRICULTURE PRODUCTS OF BALI

### Crops

**Rice, maize, and Soybeans** are the three main agricultural commodities, which are under the national priority for fulfilling national self-sufficiency. Vigorous governmental efforts has long been undertaken to stimulate production. Bali fortunately has been self-sufficient in rice since 1980. It has even produced an average of 40.000 tons of rice per year on top of the consumption level of its population. Meanwhile, main agriculture production by main producing regencies in Bali presented in Table 2.

**Rice** is the most important staple food and is grown as wetland as well as dry land rice. The bulk of rice production comes from 'sawah' either semi-technically irrigated, simply and traditionally irrigated or wholly rained. Bali does not have sawah with full-technical irrigation.

High yielding varieties and chemicals such as fertilizers and pesticides are used on about 80 percent of the total rice production areas. The three main producing areas of rice are commonly Tabanan Regency, Gianyar Regency and Badung Regency. Since 1998, Badung regency becomes the fourth instead of third rice producing areas in Bali (in terms of area harvested). Buleleng Regency becomes the third producing areas since then. This shift due to the fast rate of 'sawah' land conversion to non-agricultural purposes in Badung.

Rice yields vary among regencies, but the overall rice yields reach an average of 5.3 tons of dry 'gabah' (dry unhooked rice) per hectare. Dry land rice has lower yield than wetland rice, i.e., 2.0 tons of dry 'gabah' per hectare.

**Maize** is the second important food crops and is widely cultivated as dry land crop or as the second crops after rice on sawah land. It can also be planted on sawah area under rain-fed condition. The regencies of Buleleng, Karangasem, and Klungkung are the three main maize producers. The average yield per hectare reach about 2.5 of dry corn (ear) which is well below research results of 5 to 9 tons.

**Soybeans** are used in a number of traditional ways for consumption of the people, among others to produce beancurds ('tahu'), fermented bean cakes ('tempe'), and the 'kecap' sauce. The regencies of Badung, Jembrana, Gianyar, and Klungkung accounted for about 78% of the total area of soybeans in Bali. A yield obtained from these regencies varies from 1.2 to 1.6 tons of dry beans per hectare. This is well below research result of about 3 tons per hectare.

With the advent of autonomy policies, many efforts can be undertaken by each regencies of Bali to develop potential food and horticultural crops such as salak, mango, mangosteen, grapes, and citrus/tangerine either for domestic consumption or for export purposes. Table-1 gives an idea of the main agricultural commodities by three to six main producing regencies in Bali.

**Coconuts, coffee, cloves, vanilla, cashew, and cocoa** are the six main industrial crops in Bali. Except for coconuts, all the other products are mainly for export purposes. Smallholders almost exclusively cultivate the industrial crops. Coconuts are especially important as domestic source of the consumed vegetable oils in rural areas. A significant portion of the crop is consumed for preparation of 'santan', or consumed as fresh fruit. Coconuts and coconut leaves are of important crops for the Balinese due to its significant role in preparing offerings for the Gods and ancestors.

The main areas for coconuts can be found in the Regencies of Jembrana, Karangasem and Tabanan. Coffee and cloves are mostly located in the Regencies of Buleleng and Tabanan. Vanilla develops mostly in Buleleng and Jembrana. Cashew in Karangasem, Klungkung and Buleleng. Cocoa in Jembrana and Tabanan.

## **Fisheries**

The current fish catch is estimated at over 158,000 a ton of which 98 percent comes from marine fishery. Seaweed, lemuru, tuna, and tongkol account for about 94% of marine catch. Most of the seaweed for export originated from marine culture, which is located primarily in the Regency of Klungkung. Regencies of Klungkung, Jembrana and Municipality of Denpasar are the three producers of marine fishery.

Inland fishing includes open-water fishing and various forms of aquaculture such as brackish water ponds, fresh water ponds, and irrigated sawah field. Buleleng, Tabanan, and Jembrana Regencies are the three main inland-fish producers. Prawn, gold fish, and tilapia are the main products of these regencies. Bandeng (silver) however has at present being an increasing important farm business in Buleleng.

## **Livestock**

Cows, pigs, native chickens, goats, and ducks are the main livestock husbandry, which are basically based on local natural resources within which purposive production of feed is rare. These animals are usually fed from natural grazing either at roadsides or in tegalan, waste ground, fallow cropland, bushes and forest. Feed for the animals are also provided from crop residues and cut-and-carry system in case of movement of cattle is restricted.

**The Bali cows** are descended from wild 'Banteng' and are reputed for their good response to fattening and reproductive performances as well as their capability in doing draught work. About 29,000 cattle-keeping households mostly keep cows as household commercial herds. Each cattle-keeping household raise an average of 2,6 animals. Most of cow's population (77%) is found in the Regencies of Karangasem, Bangli, and Buleleng.

**Pigs** are mostly kept as household stock, with over 96,000 animals kept by 25,000 families giving an average of about 3,8 animals per family. Pig's population is mostly found (77%) in the Regencies of Badung, Buleleng, and Karangasem.

**Goats** are frequently kept by rural landless people or small-scale farmers and are usually housed in pens or stables close to their dwellings. The number of goats recently reaches over 163,000 heads kept by about 21,000 families, giving an average herd size of about 7.7 heads per family. About 88% of goat's populations are found in the Regencies of Karangasem, Buleleng, and Jembrana.

**Native chickens** are widely distributed as about 300,000 families, giving and average of about 25.7 birds per family keep household stocks with over 7.7

million birds. Most of the native chickens (94%) are kept in the Regencies of Badung, Jembrana, Buleleng, Karangasem, Gianyar and Klungkung.

**Ducks** are kept almost the same way as native chickens. About 82% of Bali ducks are found in the Regencies of Tabanan, Badung, Gianyar, Buleleng, and Jembrana.

Figure-1 gives an overview of the top agricultural commodities produce in each regency of Bali.

### **AJUSTMENT OF NATIONAL AGRICULTURE POLICIES IN AUTONOMY ERA**

The current investments in agriculture are made by eleven national private enterprises with an investment value of over Rp. 169 billion. This is only 1.4 % of the total investment made in Bali during the last 31 years of economic development. The agricultural investment covers mostly livestock husbandry especially in raising pigs and chickens, in fishery especially in Tuna fish catching, and in industrial crops especially in distribution of cashew seedlings.

With the advent of autonomous policies, the bulk of planning, resource allocation, mobilization, management, and implementation of agricultural development becomes the responsibility of Provincial and District/Regency levels. This would mean that selection and design of agricultural investment programs and projects is exercised and pushed at Regency level. The existing District Planning Agency and Agricultural Services are given greater authority and technical competence to design and carry out development plans consistent with the overall national development policies adapted to heterogeneous local agriculture resources, culture, and institutions.

As you may have already aware, the current national policies in agriculture has been set out to cover two main areas (Departemen Pertanian RI., 2000) namely:

1. To develop food security system which is based on production capacities and heterogeneous local food resources, culture, and institutions.

2. To develop agribusiness with global orientation by developing competitive advantage of local commodities based on competency and comparative advantage of local human and natural resources.

At present, Bali is in a transitional phase of completing the shift in decision making from national to province and district levels so that adjustment of national policies into location specific measures and development plans can be made appropriately to succeed reforms in expanding food and agribusiness. This would include the shaping up agricultural development strategy, which is oriented toward regional diversification to meet regional, national, and global demand for agricultural commodities.

In shaping up agricultural strategy, reference would be made to the fact that the economy of Bali has been structurally changed from mainly agricultural dominated economy to the services dominated economy, which is one of the characteristics of global economy. A tourism industry is of course the main factor of the shift. It has many implications to agricultural sector, among others part-time farming is increasing, urbanization to larger cities especially to Denpasar, high rate of conversion of sawah land for non-agricultural purposes (estimated at about 1,000 hectares per year), the pressing need of farm mechanization, and all other implications of the structural changes of the economy.

### **CONCLUDING REMARK**

To the agricultural sector, tourism should become the pull factor for agricultural development. If this were the case then, the question of ensuring quality products from agriculture would be one of the serious questions. Agriculture should be able to cope with competitive advantage if reforms were made to meet the need of the challenging global economy.

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Table 1. Land Use in Bali, 1993 and 1998 (In Hectares)

No.	Land Use	1993	1998	Percent of Total Land in 1998	Average Change (1993 to 1998) per Year (%)
1	Agriculture Land	400.943	397.590	70,6	-0,17
2	Forested Land	123.787	126.719	22,5	0,47
3	Other Land	38.558	38.977	6,9	0,22
	Total Land	563.286	563.286	100,0	-

Sources: Statistical Office of Bali

Notes: - Agriculture land includes land for food crops, industrial crops, Fisheries, dry land, swamps, pond, and community forest  
- Forested land comes under the state-managed forest.



Table 2. Main Agriculture Commodities by Main Producing Regencies in Bali, 1998

No	Commodities	Regencies									Percent of Total a)	Total Bali
		Buleleng	Jembrana	Tabanan	Badung	Gianyar	Bangli	Klung-Klung	Karan Asem	Denpasar		
	<b>Food Crops (Hectares):</b>											
1	Rice*	21429 (3)**	-	48769 (1)**	19657 (4)**	29423 (2)**	-	-	-	-	77	155304
2	Maize*	18359 (1)**	-	-	-	-	3049 (4)	5120 (3)**	15079 (2)**	-	90	46013
3	Soybeans*	-	4155 (2)**	-	4886 (1)**	2063 (3)**	-	1376 (4)	-	-	78	15924
4	Penauts	1931 (3)**	-	-	1761 (4)	-	-	3372 (2)**	5502 (1)**	-	79	15954
5	Mung beans	1456 (1)	-	-	-	-	-	375 (3)	683 (2)	-	87	2874
6	Cassava	2019 (3)	-	-	-	-	-	2801 (2)	10900 (1)	-	88	17910
7	Sweet Potatoes	-	-	-	-	582 (3)	4182 (1)	-	2478 (2)	-	89	8154
	<b>Horticultural Crops:</b>											
1	Mango (trees)	685673 (1)**	-	-	-	-	-	128887 (4)	362992 (2)**	-	80	1651722
2	Rambutan (Trees)	301616 (1)**	139760 (3)**	62406 (3)**	50806 (4)	-	-	-	50554 (5)	-	90	59373
3	Salak (trees)	107114 (3)**	71744 (2)**	-	-	-	872612 (2)**	-	8250457 (1)**	-	98	9416558
4	Grapes (Trees)	546385 (1)**	-	-	-	-	-	-	-	-	100	546385
5	Manggis/Mango steen (trees)	20932 (2)**	-	21063 (1)**	9235 (3)**	-	-	-	-	-	77	66907
6	Durian (trees)	42904 (1)**	-	25997 (4)	33998 (2)**	20305 (5)	-	-	31099 (3)**	-	85	181234
7	Sawo/Sapodilla (Trees)	19764 (1)	14676 (3)	13808 (4)	-	-	-	-	19665 (2)	-	79	85435
8	Citrus (Trees)	342193 (4)	-	-	903856 (2)**	-	4361000 (1)**	-	364647 (3)	-	92	6473065

Notes: Number between brackets rank among regencies in the related commodity

\* = National priority for expansion of production

\*\* = Regencies priority for expansion of production

a) = Total area/tree/head in producing regencies divided by total area/tree/head in Bali

Table 2. Main Agriculture Commodities by Main Producing Regencies in Bali, 1998 (Continued)

No	Commodities	Regencies									Percent of Total a)	Total Bali
		Buleleng	Jembrana	Tabanan	Badung	Gianyar	Bangli	Klung-Klung	Karan Asem	Den-Pasar		
	<b>Horticultural Crops (Continued):</b>											
9	Papaya (trees)	93352 (2)	62709 (6)	72461 (3)	62946 (5)	-	65084 (4)	-	99385 (1)	-	81	562059
10	Bananas (trees)	1315490 (3)	1477530 (4)	1025126 (4)	-	-	3013082 (1)	-	-	-	78	8706120
11	Pineples (trees)	-	299099 (2)	-	-	-	170090 (3)	-	610226 (1)	-	71	1521566
12	Melinjo (trees)	-	-	11288 (3)	11051 (4)	-	-	14152 (2)	21809 (1)	-	80	72999
13	Shallots/red Onion (Ha)	-	-	-	-	-	611 (2)**	97 (3)	427 (1)	-	92	1239
14	Garlic/White Onion (Ha)	209 (3)**	-	325 (1)**	-	-	310 (2)**	-	-	-	88	10233
15	Potatos (Ha)	115 (1)	-	115 (1)	-	-	88 (2)**	-	26 (3)	-	100	344
16	Chili/Red paper (Ha)	994 (4)	-	-	-	2878 (2)**	-	3167 (1)**	1342 (3)**	-	82	10233
17	Watermelon/Melon (Ha)	-	1084 (1)	-	-	719 (2)	-	-	-	124 (3)	89	2163
	<b>Industrial Crops (Hectares):</b>											
1	Coconuts	9358 (4)	17463 (1)**	15087 (3)**	-	-	-	-	16683 (2)**	-	81	72265
2	Arabica Coffee	4602 (2)**	-	-	996 (3)**	-	8911 (1)**	-	-	-	93	15657
3	Robusta Coffee	13011 (1)**	1535 (3)**	6905 (2)**	-	-	-	-	-	-	90	23764
4	Cloves	7673 (2)**	4413 (3)**	9725 (1)**	-	-	-	-	-	-	82	26475
5	Vanila	208 (2)**	242 (1)**	-	187 (3)	148 (4)	-	-	124 (5)	-	90	1008
6	Cashew	3373 (3)**	-	-	-	-	-	3416 (2)**	8473 (1)**	-	98	15496
7	Cocoa	476 (3)**	2174 (1)**	1825 (2)**	-	-	-	-	-	-	84	5337

Notes: Number between brackets rank among regencies in the related commodity

\* = National priority for expansion of production

\*\* = Regencies priority for expansion of production

a) = Total area/tree/head in producing regencies divided by total area/tree/head in Bali

Table 2. Main Agriculture Commodities by Main Producing Regencies in Bali, 1998 (Continued)

No	Commodities	Regencies									Percent of Total a)	Total Bali
		Buleleng	Jembrana	Tabanan	Badung	Gianyar	Bangli	Klung-Klung	Karan Asem	Denpasar		
	<b>Livestock Population (Head or Bird):</b>											
1	Cows	98316 (2)**	-	63061 (4)**	-	52256 (5)**	72769 (3)**	-	119318 (1)**	-	77	524615
2	Goats	34651 (2)**	41343 (1)**	-	-	-	-	-	20894 (3)**	-	88	110350
3	Pigs	186557 (2)**	-	120368 (5)	187458 (1)**	122954 (4)	-	-	131450 (3)	-	77	967402
4	Native Chickens	895591 (3)	934558 (2)	60920	986597 (1)**	534804 (5)	-	503120 (6)	848328 (4)	-	94	5672902
5	Broilers	107650 (5)	-	260203 (1)**	233877 (2)	151081 (4)	20910 (3)	-	-	-	83	1159607
6	Layers	-	-	500988 (1)**	-	-	188055 (2)	-	173250 (3)	-	93	924605
7	Ducks	78467 (4)	60323 (5)	114268 (1)**	92708 (2)	90376 (3)	-	-	-	-	82	534181
	<b>Fishery Production (Tonnes)</b>	8098 (5)	35865 (2)	-	10696 (4)	-	-	82090 (1)	5518	14324 (3)	-	158435
	<b>Marine Fishery</b>	6989 (5)	35288 (2)	-	10696 (4)	-	-	82090 (1)	5306 (6)	14324 (3)	100	155302
1	Tuna (Tuna)	191 (2)**	-	-	116 (3)**	-	-	-	-	14324 (3)	99	14538
2	Lemuru (Oil Sardinella)	994 (3)**	31555 (1)**	-	2553 (2)**	-	-	-	-	-	100	35218
3	Cakalang (Skipjack)	807 (1)**	-	-	53 (3)**	-	-	-	519 (2)**	-	100	1379
4	Tongkol (Eastern Little Tuna)	1224 (4)**	2095 (2)**	-	-	-	-	1876 (3)**	3993 (1)**	-	93	9846
5	Terbang/Layang (Flying fish)	1735 (1)	88 (2)	-	-	-	-	-	-	-	100	1825
6	Rumput Laut (Seaweeds)	-	-	-	8077 (2)**	-	-	80020 (1)**	-	-	100	86190

Notes: Number between brackets rank among regencies in the related commodity

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a) = Total area/tree/head in producing regencies divided by total area/tree/head in Bali

Table 2. Main Agriculture Commodities by Main Producing Regencies in Bali, 1998 (Continued)

No	Commodities	Regencies									Percent of Total a)	Total Bali
		Buleleng	Jembrana	Tabanan	Badung	Gianyar	Bangli	Klung-Klung	Karan Asem	Denpasar		
	<b>Inland Fishery</b>	1100 (1)	577 (3)	502 (2)	-	-	260 (4)	-	212 (5)	-	88	3133
7	Karper/Mas Carps/Goldfish)	157 (2)**	-	186 (1)**	-	58 (3)**	57 (4)**	-	54 (5)	-	87	591
8	Nila/Mujair (Tilapia)	186 (1)**	-	178 (1)**	-	-	161 (3)**	-	-	-	81	652
9	Udang Windu (Tiger prawn)	617 (1)**	181 (2)**	-	24 (3)**	-	-	-	-	-	100	825
10	Udang Putih (Banana prawn)	50	205	-	-	-	-	-	-	-	100	255
11	Gurami (Gouramy)	5 (5)	-	51 (1)*	-	6 (4)	-	-	10 (3)	11 (2)**	95	87
12	Lele (Cat fish)	-	149 (1)**	60 (2)**	-	-	-	-	-	12 (3)**	92	241

Notes: Number between brackets rank among regencies in the related commodity

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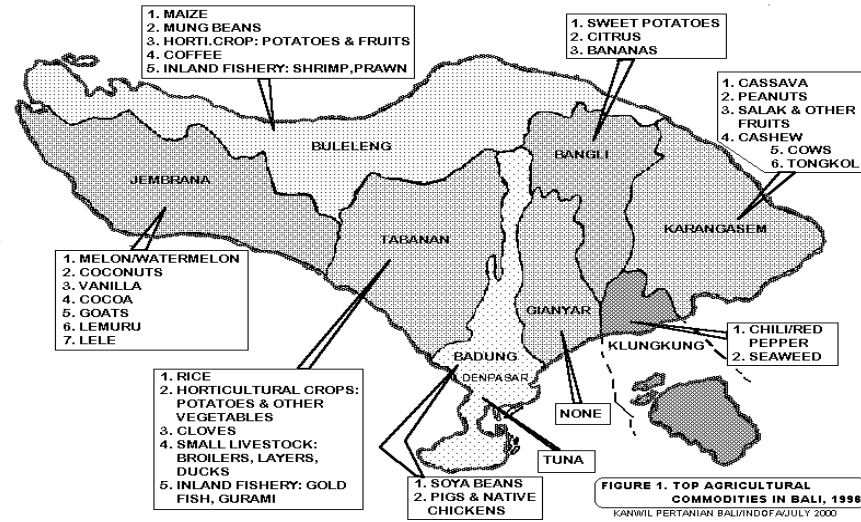


Figure-1. Overview of the top Agricultural Commodities Produce in each Regency of Bali.