

**2001 IFA REGIONAL CONFERENCE  
FOR ASIA AND THE PACIFIC  
Hà Nội, Viet Nam, 10-13 December 2001**

**CURRENT FERTILIZER SITUATION IN INDONESIA**

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**IFA REGIONAL CONFERENCE FOR ASIA AND THE PACIFIC**  
**Ha Noi, Viet Nam**

**“Current Fertilizer Situation in Indonesia”**

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## **I. Introduction**

The Green Revolution (GR) in 1960's, with the improvement of utilization of Seed, Pesticide, Irrigation, Planting technology and Fertilizers, has resulted in an improvement of the food crop production significantly, especially in Indonesia.

Since the “GR”, world food crops production's growth was not less than 2% per year. Between 1969 and 1986, Indonesian paddy production increased by 13% per year. While between 1986 and 1996, the growth was around 2.9% per year. This was attributable to the utilization of fertilizers, especially Urea. Since then, the Government of Indonesia treated urea fertilizer as a strategic commodity.

GR has contributed significantly to the improvement of the farmer productivity in the developed countries compared with the developing countries due to:

- Number of farmer is comparatively less, while the plantation area is big
- Ability to utilize fertilizers and mechanization in the agricultural sector is high; in addition, the prices of the agricultural equipment/machineries are low.

Subsequently, these factors lower the price of world's agriculture product.

In the developing countries, where more than 50% of the population living in this sector, the improvement of the food crops production is not parallel with the income of the farmer. The farmer's buying power has never improved.

## **II. Current Economic Development**

Indonesian economic growth resumed at a rate of 4.8% in 2000 after a sharp recession in 1998 when GDP contracted by 13.7%, and 0.8% growth in 1999. GDP growth is expected to slow down from 4.8% in 2000 to 3.5% in 2001. There is a tendency that the economic recovery is constrained by a less favourable domestic and external environment. Domestic demand will remain relatively weak because of low disposable incomes, sluggish credit growth, and relatively high interest rates, especially if civil unrest continues. On the external front, export growth will be adversely affected by the slowdown in the global economy.

The inflation rate in 2001 will be more than one digit, ranging between 11.5% and 12.8% compared with 3.7% in 2000. Although the predicted performance of year 2001 is lower

compared with the year 2000, economists have expressed optimism that the upward trend of the Indonesia's GDP will continue and they believe that the GDP growth for 2001 will easily reach 3.5%.

The House of Representative on October 9, 2001 has approved Government proposed revised assumptions for 2002 draft state budget in a move to take account of the heightened uncertainty surrounding the global economy next year. Under the new assumption, GDP growth for 2002 has been lowered to 4% from 5% previously. The Rupiah exchange rate against US dollar has been lowered to 9,000 from 8,500 while forecast inflation has been increased to 9% from 8%. The Bank of Indonesia's interest rate is maintained at 14%, while the original assumed crude oil price of US\$ 22.00 per barrel has also maintained. At the same time oil production target has been raised to 1.32 million barrel per day (bpd) from 1.23 million bpd. In the original draft budget, the government assumed a deficit of 2.5% of GDP. The revised version sees a deficit of 2.7% of GDP. The most important element of the package was a 40% cut to fuel subsidies, which will cause price hike for consumers. The budget gap would largely be financed through the privatisation of state- owned firms, expected to raise IDR 6.5 trillion in total next year, coupled with asset sales worth IDR 35.30 trillion undertaken by IBRA (Indonesian Banking Restructuring agency).

Investment and construction businesses are expected to strengthen gradually, partly on export gains. Investment, however, is likely to continue to be narrowly based and construction is unlikely to reach its pre-crisis robustness. Household spending will increase with improved income and employment opportunities. However, continued weakness in the banking sector, the debt overhang in both the private and public sectors, and political factors limit a faster pace of recovery. The Government projects a declining fiscal deficit trajectory from 4.8% of GDP in 2000 to a near balanced budget in 2004 is based on the relatively optimistic assumptions. The recently revised budget for 2001, projecting a deficit of 3.7% of GDP, is consistent with this plan.

**Table 1: Major Economy Indicators 1996-2001**

	1996	1997	1998	1999	2000	2001*)
GDP Growth (%)	7.3	4.7	(13.7)	0.7	4.8	3.37
Agricultural Sector Growth (%)	3.0	0.6	0.3	0.3	1.7	1.46
Industrial Sector Growth (%)	9.3	5.2	(11.4)	2.6	6.2	4.18
Inflation rate (%)	6.5	11.1	77.6	20.5	4.65	7.48
Unemployment rate (%)	4.9	4.7	5.5	6.4	6.1	
Exchange rate Rp. to US\$	2,383	4,650	8,025	7,100	9,385	9,045
Population (million)	197	201	203	208	212	216
*) Jan-Agt						
Source: BPS						

### **III. Agricultural Sector Development**

In the last five years the development of the agricultural sector was not too significant to be recorded.

However this sector plays a strategic and critical role in driving the Indonesian economic development, especially when the economic crisis hit the country in mid-1997.

It is due to following factors:

- Agriculture plays a major role in producing sufficient food for more than 200 million people who have increasing "demand characteristics" concerning quantity, quality as well as variety.
- Agriculture contributes to foreign exchange earnings from export of its various commodities such as palm oil, rubber, coffee, tea, cocoa, fruits, vegetables, and through the supply of raw materials, contributes to the rapid development of the agro-business and non-agricultural sector.
- Agriculture remains one of the largest sectors in the Indonesian economy, contributing about 17% of the GDP.
- It also employs more than half of the total labour force of the country.

In 1984, Indonesian has successfully achieved a rice self-sufficiency country. However, since the growth of the population was not par with the acreage growth of the paddy field, then in 1992 Indonesia re-in-state as the net imported rice country.

Over the past decades, the economic structure of Indonesia has changed from domination by the agricultural sector to domination by the industrial sector. The share of agriculture in the national GDP continued to decline, but still has a significant role.

Since Pelita VI (the 6th. Five Years Development Programme) 1995, agricultural policies and programs have shifted from a "production oriented approach" towards a "resource-based and agribusiness- oriented approach", applying the following strategies:

- Improvement in the quality of human resources
- Increasing self-reliance, and
- Development of agricultural production towards agro-industry and farmers' participation.

**Table 2: Major Food crop Development in 1996-2001**

	1996	1997	1998	1999	2000	2001*)
<b>Paddy</b>						
Acreage, mill.Ha	11.6	11.1	11.7	12.0	11.6	11.41
Production, mill Mt	51.1	49.4	49.2	50.9	51.2	50.1
Yield, Mt/Ha	4.42	4.43	4.20	4.25	4.41	4.39
<b>Maize</b>						
Acreage, mill.Ha	3.7	3.4	3.8	3.5	3.5	3.30
Production, mill Mt	9.3	8.8	10.1	9.2	9.3	9.12
Yield, Mt/Ha	2.19	2.61	2.64	2.66	2.70	2.76
<b>Soybean</b>						
Acreage, mill.Ha	1.3	1.1	1.1	1.1	0.8	0.72
Production, mill Mt	1.5	1.4	1.3	1.4	1.0	0.86
Yield, Mt/Ha	1.19	1.21	1.19	1.20	1.22	1.19

\*) Jan-Sept

Source: BPS

The agricultural sector recorded its highest growth rates of 6.1% between the late 1970's and early 1980's as a result of the successful implementation of a special intensification program based on a Mass Guidance Scheme for Food Crop Production (BIMAS). This was supported by:

- The introduction of high yielding varieties,
- New farming technology,
- Fertilizers and plant protection measures,
- Improved irrigation and,
- Provision of farm credit.

**Table 3: Selected Estate Crop Development 1996 –2001**

	1996	1997	1998	1999	2000	2001*)
<b>Oil Palm</b>						
Acreage, mill.Ha	1.24	1.30	1.88	1.99	2.12	n.a
Production, mill Mt	3.20	5.01	4.92	4.94	5.21	6.69
<b>Sugarcane</b>						
Acreage, mill.Ha	0.40	0.38	0.35	0.40	0.41	n.a
Production, mill Mt	2.16	2.19	1.93	1.91	2.09	1.64
<b>Hevea Rubber</b>						
Acreage, mill.Ha	0.54	0.57	0.55	0.54	0.54	n.a
Production, mill Mt	0.33	0.31	0.33	0.30	0.33	1.79

\*) Jan-Sept  
Source: BPS

Agricultural growth, however, slowed down throughout the 1980's to an average of 3.5%. This downward trend continued into the 1990's, recording the lowest growth rate of only 0.3% in 1998/1999. In contrast, the GDP throughout the 1990's recorded fairly stable growth rates averaging 7.4% in 1996 before contracted to 13.7% in 1998.

**Table 4: Share of Agricultural and Industrial Sectors to GDP  
1996-2000 (in %)**

	1996	1997	1998	1999	2000	2001*)
Agricultural Sector	15.4	16.1	17.6	19.5	16.9	15.67
Industrial Sector	25.0	26.8	24.1	25.4	26.0	26.41

\*) Jan-Agt  
Source: BPS

The share of agriculture in the GDP during 1970s declined by 20%, following the steep increase in mining and oil. In 1980s, with the fall of oil and gas prices and the decline in the mining sector, agriculture retained a fair share, but declined from 24% (1981) to 21% (1989). In the 1990s, with the gains in the non-oil industrial sector, the share of agriculture declined even further to 15% in 1996 but it increased again to above 16% since 1997 amid other sectors collapsed.

## IV. Fertilizer Situation

### IV.1. Fertilizer Consumption

Fertilizer consumption in agricultural sector reached 5 times the level of 1975 in 1990 and increased slightly afterwards before fertilizer subsidy lifted on December 1998. Fertilizer consumption dropped in 1999 as temporary resistance from farmers and it started to recover in 2000. Consumption trends during the last five years were summarized as follows:

#### *Urea*

Having peaked to 4.3 Mt/year in 1998 due to additional requirement for the crash program of food crop cultivation, urea consumption decreased slightly from 3.9 Mt/year in 1996 to 3.8 Mt/year in 1999. Declining of consumption in 1999 was understood as the effect of fertilizer subsidy removal in December 1998. Urea consumption, however, started to recover to 4.0 Mt/year in 2000.

#### *Amsul*

Consumption of Amsul decreased from 589,000 t/year in 1996 to 542,000 t/year in 1999 to 507,000 t in 2000 due to farmer switched the utilization to urea as substitution.

#### *SP-36*

Consumption of SP-36 decreased from 900,000 t/year in 1996 to 762,000 t/year in 1999 and estimated to 623,000 t/year in 2000 due to the price increase in Rupiah (depreciating of Rupiah against US Dollar).

**Table 5: Fertilizer Consumption in Agriculture Sector 1991-2001**

(’000 t)

Year	Urea	TSP/SP-36	AS	MOP	Total
1991	3 097	1 256	606	444	5 403
1992	3 410	1 290	608	482	5 790
1993	3 095	1 173	639	366	5 273
1994	3 288	1 125	615	302	5 330
1995	3 710	1 070	653	404	5 837
1996	3 918	900	588	375	5 781
1997	3 324	663	351	350	4 688
1998	4 290	869	408	179	5 746
1999	3 808	762	542	295	5 407
2000	3 960	623	507	359	5 449
2001*)	3 178	420	360	180	4 138

\*) Jan-Sept

Source: APPI/PUSRI

## ***IV.2. Fertilizer Production***

Committed to boost agricultural development, especially in food crop production, the government continued to increase local capacity of fertilizer production. Urea production capacity increased about five times in 1990 compared to 1975.

The increasing demand for fertilizer led to the successive construction of additional fertilizer plants.

### ***Urea***

Urea production capacity reached almost 7.0 Mt/year in 1999, when the first granular urea plant (Kaltim POPKA) came on-stream. It is increase 14 times compared to 1975 and 40% over the capacity of 1990. In the past 25 years, urea production has continued to increase from 402,000 t/year in 1975 to 5.0 Mt/year in 1990 and 6.3 Mt/year in 2000.

**Table 6: Fertilizer Capacity and Production 1991-2001**  
(‘000t)

Year	Urea		SP-36/TS P		Amsul	
	Capacity	Prod.	Capacity	Prod.	Capacity	Prod.
1991	4 997	4 973	1 200	1 087	650	575
1992	4 997	4 950	1 200	1 298	650	614
1993	4 997	5 133	1 200	1 140	650	526
1994	4 997	5 289	1 200	1 177	650	612
1995	6 396	5 895	1 200	867	650	679
1996	6 396	6 200	1 200	986	650	657
1997	6 396	5 454	1 200	789	650	438
1998	6 396	6 155	1 200	650	650	324
1999	6 966	5 946	1 200	849	650	461
2000	6 966	6 334	1 200	511	650	491
2001*)	6 966	4 074	1 200	488	650	336

\*) Jan-Sept

Source: APPI/PUSRI

### ***Amsul***

Amsul was started to produce in 1972, with plant capacity of 200,000 t/year. The capacity had increased to 650,000 t/year in 1986. Amsul production increased from 122,000 t/year in 1975 to 660,000 t/year in 1990 and 491,000 t/year in 2000, as it was substituted by urea.

### ***SP-36***

TSP has been produced locally since 1980 with the production capacity of 500,000 t/year. The TSP production capacity had increased to 1 Mt/year in 1983 and 1.2 Mt/year in 1986. Since 1994, TSP down graded to SP-36 to avoid an excessive application, which affects soil quality. TSP production increased from 469,000 t/year in 1980 to 1.3 Mt/year, slightly above the installed capacity in 1990. It began to decrease below 1 Mt/year since 1995. SP-36 production in 2000 was 511,000 t only.

### ***IV.3. New Projects***

In anticipating the future requirement and to replace inefficient old plants (which to be scraped soon), the Government had decided to build three additional urea plants with the total capacity of 1.8 Mt/year. These three plants were originally planned to be on-stream by 2003.

Those three additional plants are:

- a. Pupuk Iskandar Muda 2, located at North-Aceh, Sumatra: Integrated Ammonia and urea project, with the plant capacity of 570,000 t/y granule urea. This project is suspended at around 50% completions due to lack of fund and instability of the local political situation. However this project is expected to be on-stream by early 2003.
- b. KALTIM 4, located at Bontang, East Kalimantan: Urea plant, with the capacity 726,000 t/y of granular urea. This project is expected to be on-stream by mid 2002.
- c. Pupuk Kujang 1B, Located at Cikampek, West Jawa: Integrated Ammonia and Urea project, with the capacity of 570,000 t/y prill urea. This project is suspended temporarily due to lack of fund, but is expected to start again in 2002.

## **V. Government Policies**

The Government has always regarded rice self-sufficiency and food security as strategically important, as any shortages of this staple food could easily become a national socio-political issue, if not also a major security problem.

After several years of experimenting with different intensification programs for rice production in the late 1950's and early 1960's, Indonesia devised an appropriate scheme to increase food production, called "Mass Guidance Scheme for Food Crop Production" (BIMAS). Coinciding with the introduction of modern high yielding varieties (HYV) between 1965-1967, government initiative as well as economic incentives encouraged farmers to actively participate in BIMAS, thereby creating a sharply increased demand for improved seeds, fertilizers, pesticides, credit and food processing facilities, and improving irrigation and transportation.

The Government of Indonesia implemented the food production system in 1970 with four separate support institutions:

- Agricultural extension,
- Inputs distribution,
- Village unit banks (BPR), and
- Village unit cooperatives (KUD)

The four institutions, which are operated by BIMAS, were coordinated by the heads of local administration at provincial, district and sub-district level. Farmers' participation in the early BIMAS scheme was voluntary and on an individual basis.

In 1979, BIMAS introduced a special crop intensification scheme (farmer groups) called INSUS, which is a type of farm management system, covering a block of farms, comprising a number of individual farm units, under the leadership of an elected Key Farm Operator, called "kontak tani"

Introduction of improved high yielding varieties requires modern inputs such as mineral fertilizers, pesticides and irrigation. The government promulgated support policies, including provisions for supply of subsidized fertilizer to the farmers.

- The government maintained favourable value/cost ratios in order to encourage balanced fertilizer use.
- The government stimulated the use of fertilizer, maintained a favourable paddy/fertilizer price ratio.

As an emergency measure and in order to stimulate rice production, the paddy floor price was almost doubled in 1998, while the urea ceiling price was raised by only 12%.

Fertilizer policy in Indonesia is directed at five distinct but closely interrelated components/features, namely:

- Domestic fertilizer production,
- Fertilizer importation,
- Distribution,
- Farm-gate price,
- On-farm technology to improve fertilizer use efficiency

## VI. Fertilizer Subsidy

Indonesia started to subsidize fertilizers in 1971 at the time of the implementation of the Green Revolution. The fertilizer subsidy in Indonesia was mainly aimed to secure food crops production.

Indonesia's fertilizer subsidy covers three levels of support:

- a. Producer subsidy (natural gas price) to guarantee fertilizer producers to have a reasonable return over investment.
- b. Distribution subsidy to cover transport costs from factory gate to farm-gate.
- c. Farm-Level subsidy to guarantee lower fertilizer retail prices to the farmers.

**Table 7: Fertilizer Subsidy development 1987-1998,  
in billions of Rupiah**

Year	Billion Rp.
1987/88	756
1991/92	301
1992/93	175
1993/94	265
1994/95	457
1995/96	143
1996/97	137
1997/98	137
1998/99	2,120

The subsidy scheme requires the setting of paddy's price against urea's price, which ratios should be within 1.30-1.50. Exemption was in 1998, during which the paddy's price was increased by 90%, while major fertilizer prices increased were only 12%, resulting to a ratio of 2.22.

**Table 8: Prices: Fertilizer vs Paddy 1993-2001, Rp/kg**

	1995	1996	1997	1998	1999	2000	2001*)
<b>Paddy</b>	400	450	525	1,000	1,500	1,400	1,500
<b>Urea</b>	260	330	400	450	1,115	1,050	1,050
<b>SP-36/TSP</b>	480	525	600	675	1,600	1,300	1,600
<b>Amsul</b>	295	355	450	506	1,000	900	1,100
<b>KCI</b>		480	480	850	1,650	1,500	1,700
<b>Price ratio Paddy to Urea</b>	1.54	1.36	1.31	2.22	1.35	1.33	1.43

\*) Jan-Sept

Source: BPS

In October 1993 subsidies for imported fertilizers (such as MOP, SOP, Ca-Nitrate, K-Nitrate and NPK) were abolished. Subsequently the distribution and price of the unsubsidized fertilizers were decontrolled. One year later, in October 1994 subsidies for TSP and Amsul were also abolished but the government maintained control on their distribution.

In June 1998, as an emergency measure amid the economic crisis and shortage of food grain supply, all fertilizers for food crops purpose were subsidized in line with the implementation of a crash program to increase local production of rice, maize and soybean. This step was taken by the government to stop rising of fertilizer prices and prevent falling of agricultural production and ultimately to increase the farmers' purchasing power. After few months, the government reviewed the subsidy program and found that it had not improved the purchasing power of the farmers.

With sharp devaluation of the Rupiah, the subsidy could have reached Rp 5 trillion for whole fiscal year of 1998/1999. Mindful of the bulging subsidy burden and the adverse effect of subsidy to economic recovery, on December 1, 1998, the Government decided to remove all subsidies for fertilizer. To ease the burden of the farmers, the government provided farm credits at a reduced interest rate of 10.5% p.a. from 14% p.a.

## **II. Holding Company**

Since the Government withdraws all subsidies for fertilizer and release the control of the fertilizer trade, then it will be a free trade for the fertilizer all over the country. On the other hand the Government very much concerned on the food security program.

So that the Government appointed P.T. PUSRI as the Operating Holding Company to coordinate all fertilizer companies in managing fertilizer requirement in the Country. In other words, the holding company is given the task to provide good quality, adequate quantity and affordable fertilizers to the farmers.

## **VIII. Concluding Remarks**

- 1) There are many arguments to justify the government intervention in agricultural sector development in Indonesia, namely:
  - a. To secure food crop supply for more than 200 million population,
  - b. To provide work opportunities for about 50% of workforce,
  - c. Most of the farmers own less than 0.5 hectare of land, which is very uneconomical in view of business scale or even to provide sufficient income for the farmers.
- 2) Government policies in the agriculture sector development had increased fertilizer demand;
- 3) Fertilizer subsidy has been successfully increased agriculture products however, maintaining the policy for longer time is very costly;
- 4) The initial impact of phasing out the subsidy is reduced fertilizer consumption. Consumption will recover eventually as farmers/ consumers get over the 'shock' reaction;
- 5) The fertilizer consumption was back to normal and expected to increase as the government pushes for increased food production; and,
- 6) The Government intervention to boost agricultural sector development should be reviewed periodically to create a sound climate and sustainable growth for this sector.