

# The Outlook for Agriculture and Fertilizer Demand for Urea, Compound and Organic in Indonesia

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Presented in 2011 IFA Crossroads Asia-Pacific  
2 - 4 November 2011, Sanya, P.R. China



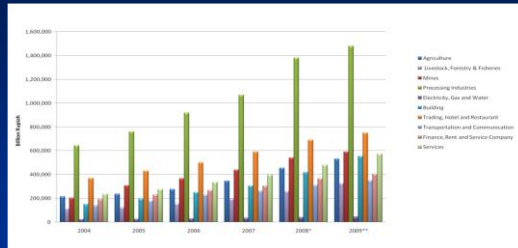
## I. Government Vision and Target of Agriculture Development

- Vision  
Towards an industrial agriculture system which are highly competitive, and sustainable to ensure food security, added value, export, and farmer's welfares
- Targets
  - Achieving self-sufficiency and sustainable self-sufficiency
  - Increasing food diversification
  - Enhancing added value and export competitiveness
  - Improving the farmer's welfare

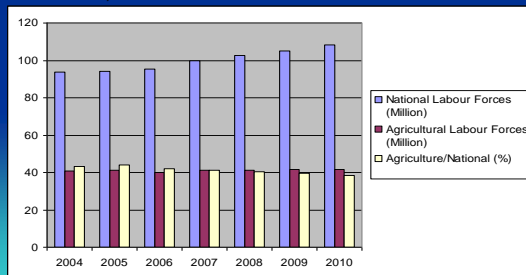
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## II. Current Status of Agriculture in Indonesia

### 1. Contribution of Agriculture to GDP and Employment



Source : CBS, 2011



Source : CBS, 2011

- Agriculture sector has been driving rural economy
- Agriculture sector has significant contribution to GDP (6<sup>th</sup> place after Processing Industry; Trading, Hotel and Restaurant; Mines; Service; Building)
- Agriculture sector provides big employment (38.3 % of total labor forces)

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### 2. Current Agriculture Policy in Indonesia

- Increasing production and productivity of food, agriculture, fishery and forestry.
- Enhancing the efficiency of food distribution to ensure whole households can receive food in adequate quantity, quality and low price.
- National usage of food comply with quality, diversity, nutrition, safety and "Halal".
- Improving capacity of agricultural, fishery, forestry community.
- Increasing sustainable production, productivity and quality of estate crops.

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### III. Prospect of Agriculture in Indonesia

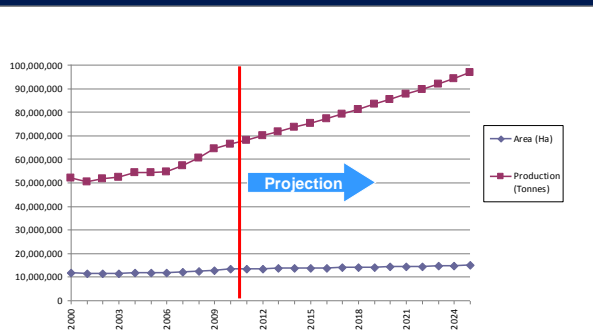
- Production and productivity of several commodities are increasing (Food Crops and Plantation)
- Natural resources have not been utilized optimally
- Supported by Government policies (Agriculture, Forestry and Plantation Revitalizing policy)

Support by Agriculture Inputs

Needs role of fertilizer industries

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### Dynamics of area and production of paddy 2000 -2010 and their projection for 2011 - 2025



Source : CBS, 2011 . Agriculture Ministry, and Trend Analysis Considered Government Policy in Agriculture

Rice yields in Indonesia compare to China (Tonnes/Ha)

Country	Year		Change
	2000	2009	
Indonesia	4.4	5.0	0.6
China	6.3	6.6	0.3
India	2.9	3.2	0.3

Source : FAO, 2011

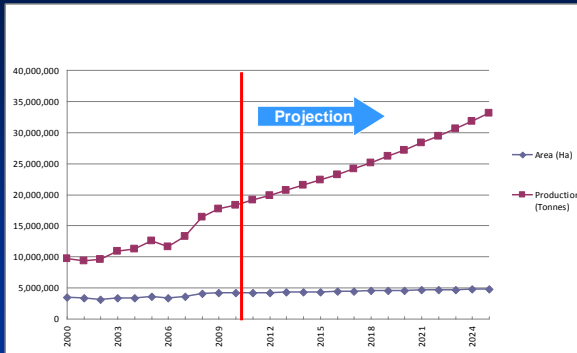
Projection of paddy area by 2025 is about 14.87 million hectares, increase 0.83% annually in average

Projection of paddy production by 2025 is about 96.65 million tonnes, increase 2.53% per annum

Improvement of paddy's production in Indonesia is supported by extension of agriculture area, cropping index, input technology such as high quality seeds, technical irrigation, fertilizer usage (type, composition and dosage) and post harvest technology.

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### Dynamics and production of maize 2000 -2010 and their projection for 2011 - 2025



Projection of Maize area by 2025 is about 4.80 million hectares, increase 0.98% annually.

Projection of Maize production by 2025 is about 33.06 million tonnes, increase 4.01% per annum

Increase in Maize production is stimulated by the increase in demand for livestock feeds as government needs to improve Indonesian health status by implementing 100 chicken eggs per capita per annum program.

Source : CBS, 2011 , Agriculture Ministry, and Trend Analysis Considered Government Policy in Agriculture

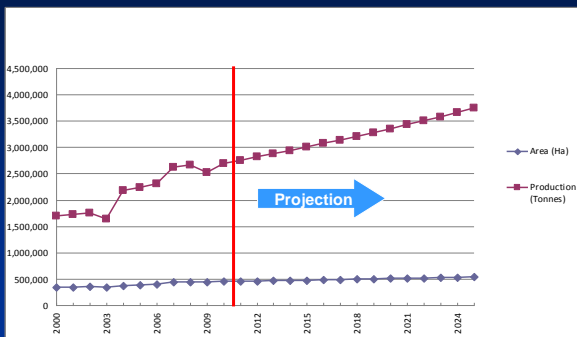
Maize yields in Indonesia compare to China (Tonnes/Ha)

Country	Year		Change
	2000	2009	
Indonesia	2.8	4.2	1.4
China	4.6	5.3	0.7
USA	8.6	10.3	1.7

Source : FAO, 2011

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### Dynamics and production of Sugar Cane 2000 -2010 and their projection for 2011 - 2025



Projection of Sugar Cane area by 2025 is about 0.54 million hectares, increase 1.20% annually.

Projection of Sugar Cane production by 2025 is about 3.74 million tonnes, increase 2.21% per annum

Increase of sugar cane's production in Indonesia is supported by government policy "dynamic self sufficiency of sugar"

Source : CBS, 2011 , Agriculture Ministry, and Trend Analysis Considered Government Policy in Agriculture

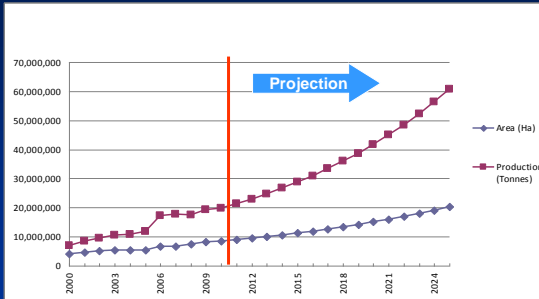
Sugar Cane yields in Indonesia compare to Brazil (Tonnes/Ha)

Country	Year		Change
	2000	2009	
Indonesia	5.0	5.7	0.7
China	5.8	6.8	1.0
Brazil	6.8	7.9	1.1

Source : FAO, 2011

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## Dynamics of area and production of Oil Palm 2000 - 2010 and their projection for 2011 - 2025



Source : CBS, 2011 , Agriculture Ministry, and Trend Analysis Considered Government Policy in Agriculture

Oil Palm yields in Indonesia compare to Malaysia (Tonnes/Ha)

Country	Year		Change
	2000	2009	
Indonesia	18.1	17.2	- 0.9
China	14.2	13.4	- 0.8
Malaysia	18.4	21.2	2.8

Source : FAO, 2011

Projection of Oil palm area by 2025 is about 20.20 million hectares, increase 6.00% annually.

Projection of Oil palm production by 2025 is about 60.62 million tonnes, increase 7.76% annually

To enhance production of Oil Palm Indonesia set a new Vision of "35-26", productivity 35 mt FFB (fresh fruit bunches)/Ha/year and 26% OER (oil extraction rate).

This mission requires Best Management Practices (BMP) such as : best nursery management, maintaining an optimum palm stand, adequate and timely fertilization, integrated pest management, good crop evacuation and transportation system.

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## IV. Government Policy and The Impact on Fertilizer Consumption

1. Indonesian government has pledged to revitalize agriculture, fisheries and forestry. It will be implemented by several measures such as increasing productivity, funding accessibilities and agrarian reform. **Hence, demand for fertilizer will increase gradually.**
2. The agrarian reform is targeted to extend agricultural areas up to 2.50 million hectares by 2014 where 70% of the total areas will be allocated to plantations and the rest for foods crops. Oil palm will be the prioritized commodity to develop as it complies with land suitability. Oil palm development is also intended to anticipate bio-fuel boom, as this commodity can be used to produce bio-diesel. **More fertilizers will be needed.**
3. Food Security Acceleration Program  
National target : Surplus 10 M ton RDM (Rice Dry Mill)  
Supporting Program
  - Improve Soil Fertility
  - **Intensify with balance fertilization** and superior variety
  - Rehabilitate irrigation facilities
  - Infrastructure constructions
  - Post-harvest integration

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#### 4. Efforts to improve NPK Fertilizer Consumption in Indonesia

##### ➤ Food Crops

Government provide subsidy for fertilizer usage on food crops  
Intensify socialization & promotion on the usage of NPK fertilizer in food crops.

##### ➤ Plantation

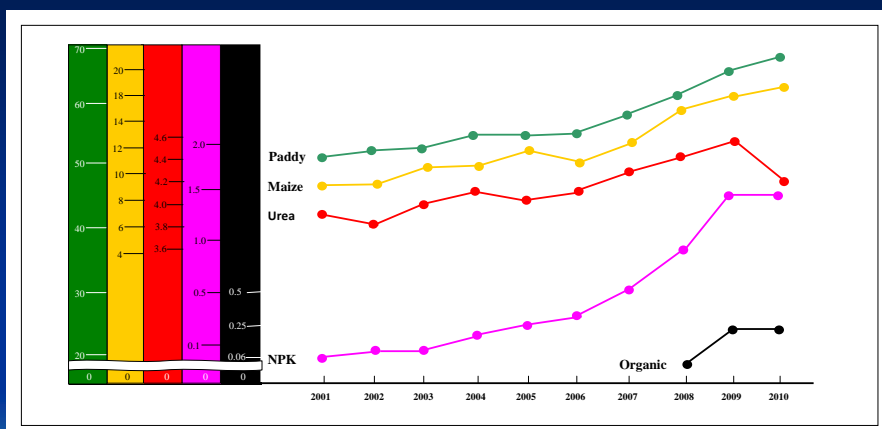
Promotion & market penetration in estate crops which have not been intensively taken care of.

#### 5. Organic Fertilizer

- The organic fertilizers are used for restoring and improving soil structures and this can be considered as complement to chemical fertilizer usages. Hence the demand for organic fertilizer increases as demand for chemical fertilizers raises.
- Government of Indonesia recently has started "Go Organic Program" and subsidize the organic fertilizer → The demand for organic fertilizer will increase significantly.

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### THE IMPACT OF FERTILIZER USAGE ON PRODUCTION



Majority Usage of Fertilizer

Urea

Urea + NPK

Urea + NPK + Organic

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## V. FERTILIZER CONSUMPTION ON UREA, COMPOUND & ORGANIC

### 1. Target of agriculture production (million tonnes)

Commodity	2010	2020
Paddy	66.41	85.28
Maize	18.33	27.16
Sugar Cane	2.69	3.35
Oil Palm	19.76	41.72
Rubber	2.59	4.53

2. To achieve production in 2020 the use of compound fertilizer should be increased in order to fulfill nutrition need. Meanwhile, the use of urea is stable. More nitrogen is supplied from compound fertilizers.

3. The change of use of straight and compound fertilizer is as follows:

Year	Straight	Compound
2008 – 2010	70 %	30%
2011 – 2015	60%	40%
2016 - 2020	50%	50%

Source : Agriculture Ministry, 2010

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### 4. Dosage of Compound fertilizer (NPK 15-15-15)

Crops	Urea	NPK	Organic
Paddy (Kg/Ha)	200	250	500
Maize (Kg/Ha)	200	250	500
Sugar Cane (Kg/Ha) *	-	480	1000
Oil Palm (Kg/Tree)*	-	5.5	-
Rubber (Kg/Ha)*	100	200	-

\*) still use AS / Kieserit as complement  
Source : Agriculture Ministry, 2010

### 5. Dosage of straight fertilizer

Crops	Urea	SP-36	KCl	Kieserit
Paddy (Kg/Ha)	300	125	75	-
Maize (Kg/Ha)	400	150	75	-
Sugar Cane (Kg/Ha)	800*	200	200	-
Oil Palm (Kg/Tree)	0.9	2.3	2.4	1
Rubber (Kg/Ha)	165	125	145	-

\*) Ammonium Sulphate

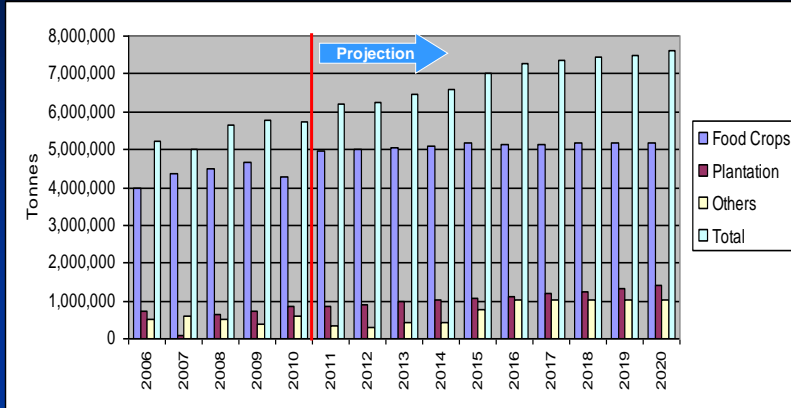
Source : Agriculture Ministry, 2010

Assumptions (Source: Agriculture Ministry)

- Dosages of fertilizer for oil palm and rubber are different by plants age. The number in the table is average.
- The use of fertilizers by smallholder estates : oil palm 80%, rubber 30%.
- 100 % of large scale estates (enterprises) use fertilizer.
- The use of organic fertilizer is 5 - 20 % of area.
- Method of projection is carried out by simulating number of government policy and trend analysis.

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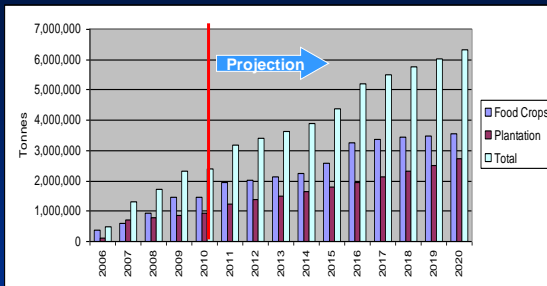
➤ Urea



Source: Processed by PUSRI

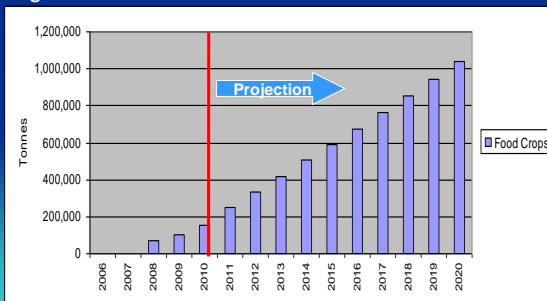
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➤ NPK



Source: Processed by PUSRI

➤ Organic Fertilizers



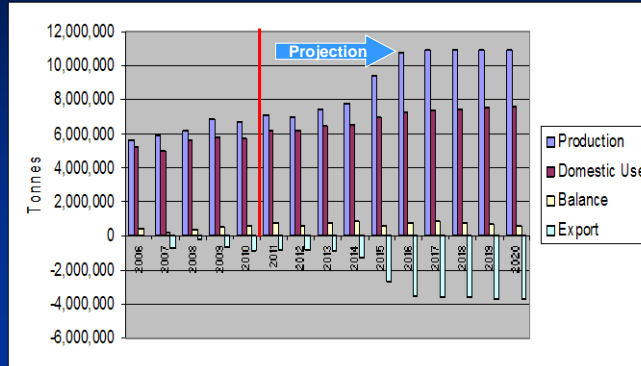
Source: Processed by PUSRI

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## VI. BALANCE FERTILIZER IN INDONESIA

### 1. UREA

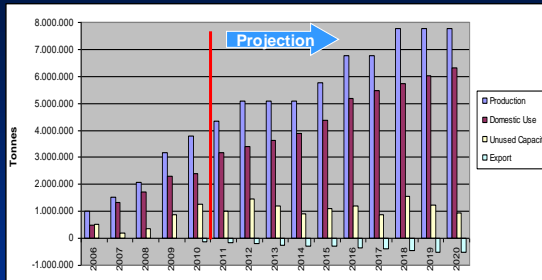


Production : PT PUSRI (Persero)  
 Domestic use : Food Crops, Plantations, Industries

Source : PT Pusri, Agriculture Ministry, CBS, Indonesia Fertilizer Producer Association

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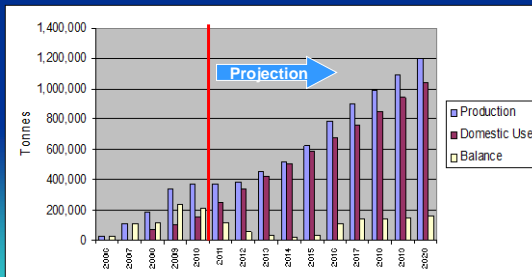
### 2. NPK



Production : PT PUSRI and Private Company  
 Domestic use : Food Crops and Plantations

Source : PT Pusri, Agriculture Ministry, CBS, Indonesia Fertilizer Producer Association

### 3. ORGANIC



Production : PT PUSRI and Private Company  
 Domestic use : Food Crops and Plantations

Source : PT Pusri, Agriculture Ministry, CBS, Indonesia Fertilizer Producer Association

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## VII. Strategy Pusri (Persero) to Fullfill Fertilizer Demand

### 1. SECURE RAW MATERIAL

- Setting long-term supply guarantee of Natural gas and Coals
- Establish new Phosphoric Acid Plant in Indonesia through Join Venture with owner of Phosphate Rock Mining Jordan
- Setting-up a long-term supply with the K producers

### 2. INCREASE PRODUCTION CAPACITY

Revitalize/develop new plants :

- Ammonia/Urea : Sumatera, Kalimantan, Java, Sulawesi, Papua
- NPK : Sumatera, Java, Kalimantan
- Organic Fertilizer : Co-operate with third party in Sumatera, Java, Kalimantan

### 3. TOTAL CAPACITIES IN 2020

- Urea : 11.050.250 MT
- NPK :
  - Pusri : 4.510.000 MT
  - Private : 1.950.000 MT
- Organic Fertilizer : 1.000.000 MT

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## VIII. CONCLUSION REMARKS

- Agricultural development in Indonesia has been growing impressively and can be represented by several improvements in agriculture areas and productions.
- In the future the demand for fertilizers in Indonesia will increase significantly, both subsidized and non subsidized.
- Indonesian Government encourage conversion of straight fertilizer to compound fertilizer.
- The use of compound fertilizer (NPK) and organic fertilizer in the future will increase dramatically, substituting straight fertilizer. However the use of urea will be stable.
- Indonesia will be a major exporting country for Urea and NPK in South East Asia.

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