

# **A CASE STUDY OF INDIAN FERTILIZER SUBSIDY REGIME**



**Ola Marius Vinje (20073361k)**

**Eirik M. Walle (20073468d)**

**Christian Vatn (20073479b)**

**Thomas Wilhelmsen (20073415e)**

**April 2008**

**Nanyang Technological University – Nanyang Business School**

**Singapore**





## **ACKNOWLEDGEMENTS**

The outcome of this project would not have been possible without help from several people, and we would like to give our gratitude to everyone who has contributed. From the start in December 2007, to the end of April 2008, we have been working with a number of different people and we would like to mention the key person and organizations.

First we would like to give our gratitude to Yara International ASA, who commissioned us this project, and in a very fulfilling way helped us with any questions and information needed to do this project. We also like to thank Mrs. Tove Andersen, a member of Yara International ASA in UK, whom helped one of our team members to get in contact with the president of Yara international ASA division in Singapore, Mr. Terje Knutsen.

We would like to thank Ms. Balbindar Kaur Dhaliwal, a librarian at Nanyang Technological University, who introduced us to the usage of the databases at Nanyang Technological University. Our thanks are also for Associate Professor Sunanda Sangwan who supervised us throughout the project.

Ola Marius Vinje  
Eirik M Walle  
Christian Vatn  
Thomas Wilhelmsen

## EXECUTIVE SUMMARY

The project is to provide Yara International ASA with information regarding the Indian fertilizer subsidy policy.

The problem definition for the research part of the project is as follows:

***“How does the Indian fertilizer subsidy policy regime influence the Indian environment, and will there be any changes in the fertilizer subsidy policy in the future?”***

Yara International ASA operates worldwide, and their core business is to be a provider of fertilizers. Due to the present fertilizer subsidy policy in India, it is now crucial for Yara International ASA to predict possible future changes in India’s policy. Because the present policy is not making the profits needed for Yara International ASA to sustain their operations, they are now at a stage where strategic decisions to either leave India’s market or continue further operations is needed.

The report is divided into five parts; Part one is the introduction and covers the research details as well as information about Yara International ASA. Part two covers the literature review, where we inform about the social, political, environmental, technological and economical impact of subsidies. Part three covers our research methodology. Part four presents our case study about India, our analysis, and our findings. In part five, we present our recommendations for Yara International ASA. The recommendations are based on the findings from the literature review and the case study (secondary data) of India. Finally we present our conclusion.

Based on the findings in this study, we will recommend Yara International ASA to continue their operation in India, and keep on their joint venture with Kribcho.

Because it is likely that the fertilizer subsidy policy in India will in the future change.

## TABLE OF CONTENTS

<b>CHAPTER 1 - INTRODUCTION.....</b>	<b>1</b>
1.1 RESEARCH OBJECTIVES.....	1
1.2 A REVIEW ON YARA INTERNATIONAL ASA .....	2
1.3 YARA INTERNATIONAL ASA IN INDIA .....	2
<b>CHAPTER 2 - LITERATURE REVIEW.....</b>	<b>3</b>
2.1 SOCIO- ECONOMIC ARGUMENTS FOR AGRARIAN SUBSIDIES .....	3
2.2 POLITICAL AND ECONOMICAL ARGUMENTS FOR FERTILIZER SUBSIDIES .....	5
2.2.1 <i>Input subsidy as a means of countervailing distortion in output prices</i> .....	5
2.2.2 <i>Fertilizer subsidies as a means of encouraging new techniques of production</i> .....	6
2.2.3 <i>Counterbalance risk aversion</i> .....	7
2.2.4 <i>Effects resulting from the use of fertilizer subsidies</i> .....	8
2.3 POTENTIAL IMPACTS ON THE ECONOMIC, SOCIAL, AND POLITICAL ENVIRONMENT .....	8
2.4 EXAMPLES OF POLITICAL AND ECONOMIC IMPACTS OF SUBSIDY POLICIES .....	11
2.4.1 <i>Malaysia</i> .....	11
2.4.2 <i>Mexico</i> .....	13
2.4.3 <i>Indonesia</i> .....	14
2.4.4 <i>Malawi</i> .....	16
<b>CHAPTER 3 - RESEARCH METHODOLOGY.....</b>	<b>18</b>
<b>CHAPTER 4 - CASE STUDY: INDIA’S FERTILIZER SUBSIDIES.....</b>	<b>22</b>
4.1 FERTILISING SUBSIDIES IN INDIA .....	22
4.1.1 <i>Social cultural factors for fertilizing subsidies in India</i> .....	23
4.2 POLITICAL AND ECONOMICAL FACTORS .....	25
4.2.1 <i>Possible Political obstacles to changes in fertilizer subsidy</i> .....	25
4.2.2 <i>Left parties could threaten the liberation of the fertilizer subsidy policy</i> .....	26
4.2.6 <i>Could we expect any changes in the subsidy policy before the upcoming election?</i> .....	31
4.2.7 <i>Strengthening the rural economy</i> .....	31
4.3 TECHNOLOGICAL FACTORS .....	32
4.4 LEGAL FACTORS.....	33
4.5 ENVIRONMENTAL FACTORS.....	34
4.6 SWOT - ANALYSIS OF INDIA’S FERTILISER POLICY .....	34
4.7 MICHAEL PORTER’S FIVE FORCES ANALYSIS .....	36
<b>CHAPTER 5 – RECOMMENDATIONS AND CONCLUSION.....</b>	<b>38</b>
RECOMMENDATIONS BASED ON OUR PESTEL AND PORTER.....	38
<b>BIBLIOGRAPHY.....</b>	<b>40</b>





## Chapter 1 - Introduction

Yara International ASA has operated in the India fertilizer sector for more than a decade, and is now moving from being a strong supplier of certain key fertilizer products, to becoming a knowledge provider and a specialist in plant nutrition.

In 2007 Yara International ASA, agreed on a joint venture with the Indian fertilizer company Kribhco, with the purpose to produce and market fertilizers in the Indian market.

The President and CEO of Yara International ASA, Thorleif Enger, said that:  
*“Our new partnership with Kribhco is a strong fit between their distribution position in one of the world’s biggest and fastest growing fertilizer markets, and our global sourcing and leadership on NPKs”*

But, Yara International ASA’s market presence has not been stable and continuous, mainly because of India’s subsidy policy regime that exists today. The Indian government are only subsidizing the local producers, which make it difficult for Yara International ASA to compete with the local producer’s output-price to the farmers. Because of the subsidy regime, Yara International ASA is at a stage where strategic decisions to either leave India’s market or continue further operations is needed. Therefore it is crucial for Yara International ASA to understand the current subsidy regimes to help them in estimating possible changes to develop a better future strategy. More specifically, we seek to understand “how the Indian fertilizer subsidy policy regime influence the Indian environment, and if there will be any future changes in the policy”.

### ***1.1 Research Objectives***

We address this issue by first understanding why subsidies are needed in the first place? What affects the fertilizing subsidies has on the farmers and producers? How do other countries subsidize agriculture and what affects have there been when withdrawing the fertilizer subsidies? What is the context of fertilizer subsidies in India? What impacts the fertilizer subsidy policy has on India, at a



---

Macro level? Are there any differences in the opinions surrounding fertilizing policies within the Indian political environment?

### ***1.2 A review on Yara International ASA***

Yara International ASA is a global chemical company that converts energy and nitrogen from the air into essential products for farmers and industrial customers. As the number one global supplier of mineral fertilizers, Yara International ASA helps provide food and renewable energy for a growing world population. Yara International ASA's vision is to "aim for industry shaper performance". Yara International ASA is uniquely equipped and committed to driving industry-shaping performance through operational excellence, profitable growth and people development. Yara International ASA's safety and environmental record shall be of the highest standard. Yara International ASA's mission is to "Strive for better yield". Yara International ASA wants to deliver good returns for farmers and industrial customers, and returns that create satisfied owners.

Yara International ASA will strive to deliver on both short-term and long-term performance. Yara International ASA will never sacrifice long-term performance for short-term payoffs, and will never use long-term focus as an excuse for short-term performance. (Yara International ASA 2008)

### ***1.3 Yara International ASA in India***

Yara International ASA has during the past decade been exporting fertilizer to the Indian market. With more than 100 years experience in the fertilizer market, they are in a unique position to sell their products and succeed in India. And after joint venturing with Kribhco, which is the largest agriculture cooperative in India, their chances of success are strengthened.

This paper starts with an examination of the literature by using the PESTEL model to understand the rationale of why subsidies exist. In chapter three, we present our research method followed by our Case Study in chapter four. We present our recommendations and conclusion in the final section, chapter five.

## **Chapter 2 - Literature Review**

There are many factors in the macro-environment that will effect the decisions of managers in an organization. Tax barriers, new laws, trade barriers, demograpich change and government policy changes are all examples of macro change. To help analyze these factors managers can categorise them by looking at the Political factors, Economical factors, Social factors, Technological factors, Environmental factors, and Legal factors, which can be explained through the PESTEL model (Oxford University 2007).

Using the PESTEL model, we are able to explain the Political, Economical, Social, Technological, Environmental and the Legal impacts regarding subsidies in general and more in depth on fertilizer.

In economics, subsidies are defined as:

“Financial assistance from the government, such as a grant, tax break, or trade barrier, in order to 1: Encourage the production, or 2: To purchase of a good. The term subsidy may also refer to assistance granted by others, such as individuals or non-government institutions, although this is more commonly described as charity.” (Economist.com 2007)

### ***2.1 Socio- Economic argumets for agrarian subsidies***

To clarify the definition given above; when there is a positive or negative shift in demand and supply, the government uses subsidies to try and stabilize the changes in the market, so that the surrounding environment do not suffer from the shifts (Appendix 1). An example to better describe this is that a subsidy that increases production will result in a lower price, while a subsidy that increases demand will tend to result in an increase in price. The subsidies are often used as an important financial instrument for modifying market-determined outcomes. And while taxes reduce not reusable income, subsidies inject money into a circulation. In other words, taxes appear on the revenue side of government budgets, and subsidies, on the expenditure side (Samuelson 1983).

---

At Social level subsidies can have a major impact in helping the welfare of a society, as long as these are designed and administered efficiently to serve a clearly stated set of objectives (Abboushi 2007). Subsidies can also be very costly, if they are weakly designed and inefficiently administered. There are different types of subsidies, such as, in education, in health and in environment areas. These are introduced on such grounds that the benefits (economical and social) are spread well beyond the immediate recipients, and are shared by the population at large, present and future. Subsidies are also used with redistributive objectives, particularly for ensuring minimum consumption levels of food and other basic needs (Abboushi 2007).

The government can use subsidies, as actions, which limit competition or raise the prices at which producers could sell their products, for example, by means of tariff protection (Abboushi 2007). Even though many economists may think that subsidies may distort the market and produce inefficiencies, there are a number of recognized cases where subsidies may be the most efficient solution. As seen in Norway, the farmers annual receive subsidies for their meat, to be able to meet global market prices (Abboushi 2007). If not subsidized, markets would have been forced to set the prices higher and the distributors will import supply from other countries, eventually, this will press the Norwegian farmers out of the market, due their high production cost (Abboushi 2007).

At economical level, in many cases it is the economist, who suggest, that direct subsidies are the most preferable way to support, even though some argue that subsidies are inefficient, and they are often less inefficient than other policy tools used to benefit certain groups (Quibria 1987). Direct subsidies may also be more transparent, which may allow the political process to have more opportunity to eliminate wasteful hidden subsidies. The problem that hidden subsidies are more inefficient but often favoured precisely because they are non-transparent, is central to the political economy of subsidies (Quibria 1987). And Similar to the above arguments, fertilizer subsidies are said to exist if there is a difference between the cost (procurement and distribution cost) of fertilizer (to the government) and its sale price (to the farmers), if cost exceeds the price, the farmer receives a positive subsidy (Jebee 1996). If the price exceeds the cost, the farmer receives a negative subsidy. In estimating subsidies, two concepts are distinguished, namely, the financial (also called budgetary) subsidy and the

---

economic subsidy (Quibria 1987). The financial subsidy is calculated with reference to market prices while the economic subsidy is based on concepts of opportunity costs of fertilizers and associated factors. Thus, for calculating the economic subsidy, in the case of domestically supplied fertilizers, the appropriate price that should be charged to domestic users is the opportunity cost of fertilizer, which is equivalent to the f.o.b. (free on board) or c.i.f. (cost insurance freight) price plus the appropriate distribution costs. Evidently, the concept of economic subsidy is based on financial returns and costs. If the (resource) cost of production of domestic fertilizers is higher than its economic price, it is not the farmer but the industry, which is receiving subsidies (Quibria 1987).

## ***2.2 Political and economical arguments for fertilizer subsidies***

A number of arguments have been presented to justify fertilizer subsidies. While some are strictly economic in nature, others are somewhat politico-economic in character. The economic arguments are more often for reasons of economic efficiency than of income distribution (Quibria 1987). It is now well known that in a first-best world where everything is observable and contractible, there is no need for taxes or subsidies to promote efficiency. On the contrary, they lead to losses in economic welfare. However, only in the context of second-best world, which is characterized by distortions and market imperfections, there isn't any role for taxes and subsidies for promoting efficiency (Quibria 1987). In the following we spell out some arguments for fertilizer subsidies and the effect resulting from adoption of fertilizer subsidies (Quibria 1987, & Jeebe 1996).

### ***2.2.1 Input subsidy as a means of countervailing distortion in output prices***

Two types of price policies have been pursued in developing countries, namely, the protectionist and the provisionist. A country is said to be protectionist if it adopts measures, such as imports tariffs, that hold domestic prices above border prices. On the other hand, a country is said to be provisionist if it adopts measures to hold domestic prices below border prices (Quibria 1987). An abiding logic for maintaining a

provisionist price policy for food commodities has been largely politico-economic. It is part of an implicit social contract of every modern society to ensure food and other basic necessities to the masses at prices affordable to them so that they suffer no privations in elementary human necessities. For some export crops, it is uncommon that the producer prices are held below border prices (world prices). The export taxes are imposed principally to satisfy the revenue needs of government, but on occasions they may be imposed to exploit the monopolistic position of the country in a specific crop (Quibria 1987). In order to support the low-income population, food prices are often kept at a low level. To compensate for low food prices and to stimulate food production (self-sufficiency), agricultural inputs (fertilizers) are subsidized (Jeebe, 1996).

### ***2.2.2 Fertilizer subsidies as a means of encouraging new techniques of production***

It is widely accepted that new agricultural seed-fertilizer technologies are associated with high yields, intensive fertilizer application and a large yield response to increased fertilizer application. As all new innovations are fraught with inertia and uncertainties, so is the agricultural innovation of new seed-fertilizer technologies (Quibria 1987). Fertilizer subsidies are therefore advocated as a means to circumvent the fear and reluctance of the farmers in his switch from traditional to modern technologies.

However, as the farmers learn more and more about the new technologies, they become less and less inhibited; they gradually but finally shift completely from traditional to modern technologies.

The psychological reluctance of the farmers to adopt new technologies can be traced to a number of factors. First, lack of information creates a wide gap between the farmer`s subjective perception and objective reality with regard to the riskiness of the modern techniques of production. Second, modern techniques of production are more costly than traditional techniques as they involve purchases of new seeds and expensive chemical fertilizers (Jeebe, 1996). As capital constraints are widely pervasive in

developing countries, temporary subsidies can help ease credit constraints, promote the use of new techniques and induce the learning process.

The importance of fertilizer subsidies in promoting higher rates of adoption of new technology has been highlighted in a number of recent studies. A major implication of all the various models of adoption has been to establish the importance of temporary subsidies to overcome the problem of fixed costs related to the adoption of the innovation. While this emphasizes the role of subsidies to accelerate innovation, the need for improving quality of agricultural extension and information services must also be simultaneously stressed (Quibria 1987).

The adoption argument suggests that subsidies should possibly be adopted as a temporary measure to induce increasing adoption in those regions where adoption is still incomplete. One practical disadvantage of subsidies that can be stressed at this point is that subsidies once instituted are difficult to dismantle because of politico-economic reasons. Also difficult to implement in practice is distribution of subsidies only to the lagging areas to the exclusion of the more advanced region, which may have more clout in the political sphere.

### ***2.2.3 Counterbalance risk aversion***

Agriculture is a risky operation and is combined with high uncertainty. Assuming that traditional farmers are risk-averse, the use of fertilizer is not an optimal solution, as agricultural production in the tropics is highly uncertain, risk-averse farmers would be less inclined to make optimal use of fertilizer input (under-investment). It may be noted that the optimal allocation of resources that obtains in a risk-free, first-best world will not materialize in a risky world where farmers are risk-averse. To the extent that risk aversion leads to underinvestment and departure from optimal use of resources, the government should extend a subsidy to correct the situation (Jeebe, 1996).

---

#### ***2.2.4 Effects resulting from the use of fertilizer subsidies***

The effects from use of fertilizer subsidies can be that farm income will be improved, and the gap between the rural and the urban household can be decreased. Additional employment can also be created in rural areas, since intensification resulting from fertilizer can create more jobs (Jeebe 1996).

#### ***2.3 Potential impacts on the economic, social, and political environment***

It is certainly far too easy to state that fertilizer subsidies have to exist or be removed at any cost. For policy makers, it is very important to try to view the consequences of subsidy removal and measures, which facilitate such a decision, can have.

In general, the withdrawal of subsidies on chemical fertilizer would, of necessity, entail an increase in the price of fertilizer (Jeebe, 1996). This would essentially be the outcome because a farmer who maximizes profit would equate marginal value product of fertilizer with the price of fertilizer (or the expected utility of the marginal value of product of fertilizer with the price of fertilizer) (Quibria 1987). Consequently, the farmer will use less fertilizer; the extent of the decline being dependent on the elasticity of demand for fertilizer; after the withdrawal of the fertilizer subsidy (Quibria 1987). If use of other inputs remains the same, there would be a consequent fall in agricultural output. The next question is: how does this decline in output affect the price of agricultural output, more particularly rice, which is the main staple crop for most developing countries? The answer obviously depends on the particular price policy pursued by the government. If the government is pursuing an autarkic (no trade) policy, this decline in output would, of course be reflected in a higher price and lower availability of output for consumption (Quibria 1987). However, autarky is far from the reality of the situation, as most countries today are involved in some trade and also price involvement in the output market. If the country is committed to maintaining a given domestic price level, this reduces domestic output will translate itself into a higher import for a deficit country and a reduced supply for exports for the surplus country. In other words, the withdrawal of the fertilizer subsidy is likely to cause an adverse impact on the balance of payments of the country insofar as it

---

adversely affect the import/export of the agricultural output of the country (Quibria 1987). The withdrawal of the subsidy on fertilizer on the government budget is also transparent. In the case where the government withdraws the fertilizer subsidy but does not change the price policy with respect to output, there could be a reduction in government expenditures on account of fertilizer subsidies. However, this implied increase in government saving might be partially or totally offset by the extra import of grains, which will be required as output supply falls due to the withdrawal of fertilizer subsidies. In the case the country is an exporter but not a monopolistic supplier, the government can earn less revenue on exports taxes due to a fall in output supply. As regards the effects on rural and urban wages, it is very difficult to gauge their impact without further specifying the features of the labour market and further those of the wage setting process. However, to the extent the withdrawal of the fertilizer subsidy reduces the usage of fertilizer; this could bring a fall in the marginal productivity of other participating factors of production, including labour. Assuming output prices remain the same, and there is no change in the labour supply, with the decrease in the rural labour demand both the nominal and the real wage in agriculture could tend to decline. If rural wages are slow to adjust or inflexible for any non-economic reasons, this may, result in higher rural unemployment. The impact on the urban industrial wage cannot be traced in any meaningful sense without further articulation of the linkages between the rural and the urban sector and the precise wage-setting process. With the reduction of subsidies, if the price of agricultural output is allowed to rise, this will increase the cost-of-living of urban dwellers (Quibria 1987). If the urban wage is nominally fixed or the adjustment is rather sluggish, this will decrease the real wage of the urban sector. However, if there is a powerful, countervailing trade union, the urban sector might succeed in ensuring that the real wage remains unaffected at least in the short run, but that might on the other hand exacerbate the urban unemployment rate (Quibria 1987). When studying the case in Sri Lanka in 1990, where subsidies were withdrawn, fertilizer consumption declined by 15 per cent. Rice production, which had shown a considerable upward trend until 1990, decreased by six per cent and recovered only very slowly during the following years (Jeebe, 1996).

Impact on the social environment if there was to be a removal of the fertilizer subsidy; If the case where that the government withdrew the fertilizer subsidies



and also allowed the output prices to adjust in response to market forces, the withdrawal in subsidy could lead to a saving of revenue in the government coffers. (In many countries, because of either equity reasons or pressures from urban consumers, output prices adjustment may not be easily achievable.)

However, the actual position in a particular country will depend on the features of input and output prices prevailing in the country. To either withdraw or maintain the fertilizer subsidies satisfactorily, first one needs to specify the welfare function. One way to view the dilemma may be to look at the sum of the welfare of various segments of the society. A way to classify the various segments of the society can be in terms of access to and ownership of productive assets. Another way may be in terms of one's functional role in the society e.g. consumers, producers and the government. In light of the preceding discussion, it appears that both consumers and producers lose on account of the withdrawal of the fertilizer subsidy whereas there is a presumption that the opposite happens in the case of the government, as there is a decrease in the expenditure of the government. However, as the evidence from any developing countries suggests, the rising food price may force the government to pay higher cost-of-living allowances to its employees; and consequently, much of the government savings due to decreased subsidy may be dissipated by increases in wages and salaries to government employees (Quibria 1987).

To the extent that removal of the fertilizer subsidy has a positive impact on government savings, it may help reduce reliance on foreign savings for developmental purpose. Taking all this into account, whether there is a net gain in welfare depends on whether the losses to the consumers and the producers have been more than offset by the net gains accruing to the government. The final outcome cannot be predicted without further specification of the empirical features of the economy (Quibria 1987).

It is essential to consider elasticity when estimating the total costs of a planned subsidy (Samuelson 1983). This equals the subsidy per unit (difference between market price and subsidized price) times the new equilibrium quantity. One category of goods suffers less from this effect: Public goods are once created in ample supply and the total costs of subsidies remain constant regardless of the number of consumers; depending on the form of the subsidy, however, the

---

number of producers demanding their share of benefits may still rise and drive costs up.

However, subsidies need to be financed, either through additional taxation or lending. Whether a country is introducing a subsidy as a social measure or not, can only be judged in terms of additional inputs resulting from the subsidy against social loss from additional taxation.

The implications of additional inputs (economical, social and environmental) also need to be considered in a macro framework because of the pressure it may exert on interest rates and on crowding out of private investment.

#### ***2.4 Examples of political and economic impacts of Subsidy policies***

Governments all over the world provide subsidies to their industries, to protect critical industries against global competition. Therefore a study of fertilizer policies in countries such as: Indonesia, Mexico, Malawi and Malaysia, is of most relevance for this paper.

##### ***2.4.1 Malaysia***

Agriculture has played an important role in the development of modern Malaysia and continues to make a significant contribution to the national economy. The Malaysian policy for fertilizer imports, which is one of the main inputs in the production of crops, is not restricted and has no import licences required. A reason for this is mainly that the fertilizers can be imported free of tax. Malaysia today has no price control of the fertilizer sold domestically. Therefore the local prices of fertilizers are very sensitive to world market prices. The Malayan government operated a fertilizer subsidy scheme that was introduced in 1957, because they wanted to encourage the use of fertilizers among small farmers and paddy farmers. The objective for the subsidy scheme was mainly to help farmers realize the advantage of fertilizer use. But in 1971 the subsidy scheme was withdrawn because its objective failed and only a third of the area was provided with subsidized fertilizer. Instead they introduced a credit scheme in the irrigated paddy areas.

---

But in 1974 the government re-introduced the fertilizer subsidy programme for paddy farmers. The objective of the scheme was to encourage the optimum use of urea and thus prevent any fall in rice production and consequently deterioration in the standard of living of the paddy farmers. The subsidy scheme where depended on the price for urea if the price where limited to be over US\$ 330 per ton.

The National Farmers Association (NAFAS) in Malaysia is responsible for the distribution throughout the country of subsidized fertilizer for paddy farmers and for the administration of the subsidy scheme. There are two other aspects for withdrawing the fertilizer subsidy scheme; firstly by using a generalized fertilizer subsidy is likely to be an inefficient vehicle for raising the income for poor farmers. Reasons for this can be the marginal increase in yield through inefficient use of fertilizer. And second, there are some instances where paddy farmers have been selling their subsidized fertilizers to rubber estates and other smallholders.

(Talib, 1996)

The Malaysia's fertilizer sector will continue to rise, in the effort to revitalize agriculture and commercialize smallholders' production. Improving efficiency in fertilizer use may be a critical step in reducing the impact of fertilizer prices on agricultural production. This can be achieved through improvement in the usage of fertilizers, so that the total cost of fertilizer will be declined as a result of higher sold quantum of the crops. The fertilizer price can then be applied as an incentive that may help improve fertilizer use efficiency. Malaysia's agriculture sector needed to be renewed by the government after the economic crisis of 1997, with a particular drive to reduce the food importation bill. Meeting the challenge of enhanced and more efficient agricultural production was one of the primary objectives for increasing the exports and reducing the imports of agricultural commodities.

Malaysian politicians are at the present time, debating whether the government should continue subsidizing the cost of consumer goods and services, or start promoting competition. Second Finance Minister, Tan Sri Nor Mohamed Yakcop was in 2007 reported by the media stating "that the government is expected to spend RM81 billion on all forms of subsidies this year "to help Malaysians cope with the rising prices." Prof Ariff replies this by stating, "Instead of subsidizing food and other goods, the government should focus on promoting competition.

---

Maintaining that competition is the best antidote for high prices”, he explained that once there is competition, producers would strive to keep costs down. If production goes up and cost comes down, he said, adding that it is passable to consumers in the form of lower prices. (Ariff 2007)

### *2.4.2 Mexico*

Like Malaysia, the subsidy policy in Mexico is meant to push the prices down by subsidizing products and services. But the Mexican government is also currently trying to implement a free market style. The policymakers in Mexico have therefore now signed a free trade agreement.

To predict what will happen if subsidies are removed, there has been conducted a significant amount of research on the subjects; one of these is by Doroodian & Boyd (1999). They analyzed the impacts on the possible removal of corn subsidy, and how this could affect Mexico. The analysis showed that the corn-growing sector itself, would not suffer any adverse impact of a subsidy removal.

The article describes that the politicians in Mexico have had considerable discussions regarding the reduction of existing subsidies on corn, even though the result of their research suggests that such actions would be relatively painless.

While it is true that all classes of consumers would be affected and that the income changes could be somewhat regressive in nature, this was something that could increase government income, which then could be used to correct the distortion. These correction payments could for example be targeted to displaced workers as well as the working poor that face this opportunity to decrease the rate on the existing value-added tax, which also would have an effect of reducing economic distortions and improving the allocation of resources.

To implement changes like this over an extended period of time to avoid extraordinary gains or losses, care had to be taken, because decrease in the subsidy level would lead to a marked increase in saving and consequently have a bad effect in the economic investment. But the increase, if it could be maintained over a number of years, would positively affect the formation of capital and facilitates the type of growth currently favoured by organizations such as the World Bank and the International Monetary Fund.

---

### 2.4.3 Indonesia

The use of mineral fertilizer in Indonesia has had great inputs for the improvement of agriculture production. The first fertilizer industry began to bloom in 1963, when the first fertilizer plants were constructed. Indonesia has had for a long time, and continues today to have a major focus on the increased production of rice; Indonesia is the 3<sup>rd</sup> largest country in the world of production of rice. Indonesia has had significant success in expanding its rice production; this is a result of the combination of output and input price policy that have improved the profitability of rice cultivation.

Rice production doubled from 1970s from 20 million tonnes, to 51 million tons in 2002. This came as an effect from the remarkable increase in fertilizer use. The numbers of annual fertilizer use has increased from 635 to 5 931 thousand tons in 30 years, (www.fao.com 2005) as shown in the table below.

#### Development of the planted area, production and yield of lowland rice

Year	Planted area ( <sup>'000</sup> ha)	Production ( <sup>'000</sup> tonnes)	Yield (tonnes/ha)
1960	6 567	14 302	2.18
1975	8 532	23 443	2.75
1990	10 502	45 179	4.30
1998	10 681	46 291	4.33
1999	11 963	50 870	4.25
2000	11 794	51 900	4.41
2001	11 500	50 461	4.39
2002	11 521	51 490	4.47

Source: IFPA, 2004.

The Government of Indonesia used the fertilizers subsidy as an important instrument for managing fertilizer marketing and distribution. The domestic prices of fertilizer were lower than the world prices, on account of the subsidy. The outcome of the past policies of subsidizing domestic fertilizer prices became a heavily budgetary burden for Indonesia, because of inefficient use of fertilizers by the farmers. Relatively low domestic fertilizing prices also resulted in fertilizing

---

smuggling. To reduce the budgetary burden and improve the efficiency of fertilizer use, the government had to increase the retail price.

The removal of the subsidy on fertilizers from farmers has been considered as one of the most controversial policy issues in Indonesia's rural development today. (Firdausy 1997)

The heavily budgetary burden for Indonesia was also enhanced because most farmers were and are still living in poverty conditions. The removal of fertilizer subsidy contributes to increasing the incidence of poverty and income inequality, at least in the villages surveyed. Therefore, economic strategies such as a removal of fertilizer subsidy should be carefully implemented on a selective basis, especially to rural areas where economic infrastructure conducive to competition is still limited.

The most important factor for increasing fertilizer demand is the improvement in the profitability of its use. Other problems to include are low fertilizer quality, an inadequate choice of fertilizer types and inadequate access to credit, especially for smallholders. During the economic crisis, there was deterioration also in other farming practices.

According to the Food and Agriculture Organization of the United Nations ([www.fao.org](http://www.fao.org)), the best way to achieve efficient fertilization, the supply of fertilizers should be:

- Of the required type.
- In adequate amounts.
- Of guaranteed quality
- Available at the place required, village or farm level.
- Available at the time required, well before the peak-planting season.
- At an affordable price.

Asia Pulse (2007), states that Indonesia is going to cut its fertilizers subsidy for the year 2008. The government is planning to cut its urea and SP-36 fertilizer subsidy and raise subsidized NPK (nitrogen, phosphorus and potassium known as N-P-K, which is the better mix that will give the farmers better soil and growth) fertilizer production following an upward trend in the global fertilizer prices. The increase in the global prices of urea fertilizer and non-urea fertilizer such as SP-

---

36, KCL and ZA would have a direct impact on the amount of subsidy the government would allocate.

A proposal for a fertilizer subsidy of Rp7.5 trillion (US\$795 million) in 2008, of which Rp6.7 trillion would go to state-owned fertilizer companies assigned to produce subsidized fertilizer. With the increase in global fertilizer prices, the amount of fertilizer subsidy would increase in 2008 if the volume of subsidized fertilizer were the same as in 2007. The Agriculture Minister Anton Apriyantono made this statement regarding the proposal:

"We will make optimum use of the existing subsidy. To make it sufficient, we will encourage the use of NPK and organic fertilizer".

The government therefore decided to reduce the amount of subsidy for urea and SP-36 fertilizer whose price had almost doubled in the past few months. The global urea fertilizer price was US\$210 per ton at the start of 2007 and climbed to US\$350-400 per ton at the end of this year. The prices of non-urea fertilizer such as SP-36 doubled to US\$300 per ton from US\$150 per ton. (Asia Pulse 2007)

This article was published in December 2007, and a solution has been made. An article from 2008 has confirms that the government has now allocated Rp8.7 trillion (US\$922.2 million) this year for the procurement of subsidized fertilizers and direct assistance for food crop growers across Indonesia (Asian Pulse 2008).

#### ***2.4.4 Malawi***

A study conducted by Fisher and Shively (2007) has shown the environmental impact of the Starter Pack Scheme (SPS) in Malawi. The SPS consists of a free-inputs program aimed at promoting agricultural intensification. Increasingly, agricultural intensification interventions have dual purposes of agricultural development and environmental conservation. Their studies contain the impacts of the subsidy program on forest pressure in Malawi (Fisher & Shively 2007).

The study focuses on two distinct sources of forest degradation: forest clearing for agricultural expansion and forest product extraction for commercialization. Receipt of a free packet of hybrid maize seed and fertilizer (a "starter pack") had

no measurable effect on the forest clearing decision. In other words, inputs appear to have led to intensification of existing farmland, rather than area expansion. Results also show that households receiving a starter pack had lower levels of commercial forest product extraction than their cohorts who did not receive free inputs, all else equal. In tandem, findings suggest that the SPS may have had a small but beneficial impact on forests. A starter pack made a household's labour relatively more valuable in farming, leading to a reallocation of effort away from forest degrading activities. Alongside evaluation studies that document positive impacts of the SPS on agricultural output and food security, these findings indicate possible agriculture-environment complementarities in Malawi.

These are just a few examples of subsidies existing in the world today. Following is a list that displays the average subsidies expenditures that governments had in 1998 - 2002.

**AVERAGE SUBSIDIES AS A PERCENTAGE OF GOVERNMENT EXPENDITURES**

Region and Country	Subsidies as % of Government Expenditures
North America	
Highest: Canada	5.8
Lowest: USA	3.1
Average	4.06
Europe – all of Europe	
Highest: Switzerland	36.1
Lowest: Greece	0.9
Average	8.55
EU – European Union	6.8
Commonwealth of Independent States	
Highest: Belarus	28.1
Lowest: Kazakhstan	1.3
Average	10.32
Latin America	
Highest: Costa Rica	6.8
Lowest: El Salvador	0.2
Average	3.35
Africa	
Highest: Morocco	10.8
Lowest: Nigeria	0.2
Average	3.41
Middle East	
Highest: Iran, Islamic Republic of	11.7
Lowest: Qatar	0.4
Average	3.3
Asia and Australia	
Highest: India	21.0
Lowest: Mongolia	0.7
Average	5.76

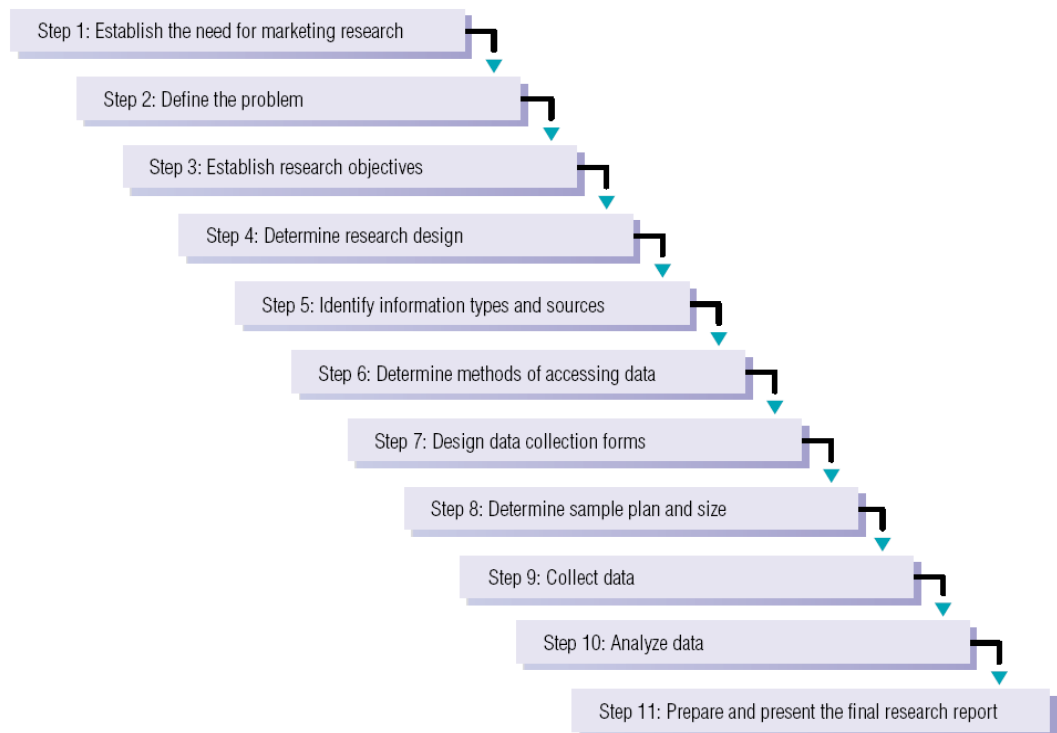
The WTO calculated subsidies as a percentage of government expenditures using data from OECO (Organisation for Economic Co-operation and Development) in the period between 1998 and 2002 (Abboushi 2007).



---

## Chapter 3 - Research methodology

### The Research process



(Bush, 2007)

#### Step 1 - Establish the need for research

Yara International ASA wants to succeed in India. But they are now in a position where they need to decide whether or not they should continue their operations in India. The reasoning for this is that the fertilizer subsidy policy that exists at the present time, are not enabling them to get the profit wanted. Yara International ASA therefore wanted a research on the subject, in order to predict the Indian fertilizer subsidy policies and its potential changes for the future.

#### Step 2 - Define the problem

The problem definition was first made by Mr. Terje Knutsen in Yara International ASA's division in Singapore. But through a process of discussion together with Mr. Knutsen and our supervisor Dr. Sunanda Sangwan we agreed on a problem definition that was manageable for us. This led to the following problem definition:

“How does the Indian fertilizer subsidy policy regime influence the Indian environment, and will there be any changes in the fertilizer subsidy policy in the future?”

### **Step 3 - Establish research objectives**

To gather the necessary information to solve our problem definition, we had to establish research objectives. These objectives are what we will be answering throughout our assignment.

Why subsidies are needed in the first place? What affects the fertilizing subsidies has on the farmers and producers? How do other countries subsidize agriculture and what affects have there been when withdrawing the fertilizer subsidies? What is the context of fertilizer subsidies in India? What impacts the fertilizer subsidy policy has on India, at a Macro level? Are there any differences in the opinions surrounding fertilizing policies within the Indian political environment?

If these objectives are achieved we would be more capable to answer our problem definition in step 2.

### **Step 4 - Determine research design**

In order to answer our objectives we used exploratory research with a case study method. Exploratory research is a design used to collect information in an unstructured and informal manner, to provide us with a broader understanding of the Indian fertilizer subsidy policy.

### **Step 5 - Identify information types and sources**

#### **Primary Data**

To obtain primary data, we contacted the Indian embassy and the SICCI in Singapore, in hope of them providing us with information regarding our objectives. Unfortunately we were not able to get response from proper authorities. They where however able to provide us with information on how to get in contact with, The Minister of Chemicals and Fertilizers in India, but we were not able to acquire any response from him. This shortened our options to gain primary data of the current situation in India.

### **Secondary Data**

For this assignment we used secondary data. Our data was collected from secondary data from the library and from academic sources, such as journals, books and reports. To compensate the loss of primary data, we gathered several news articles, which included the opinions of relevant authorities.

#### **Step 6 - Determine methods of accessing data**

To access data needed we relied basically on two methods, these were the library and the Internet. Through the Nanyang Technological University (NTU) library we were able to get in hold of academic books with references to our research. The NTU library is also accessible on the Internet where several refereed academic journals are available. In order to access more data, we also used publications from the National Library of Singapore.

#### **Step 7 & 8 – Design data collection forms & Determine sample Size**

Since we were not able to collect the primary data needed, these steps were not of any relevance for us.

#### **Step 9 - Collect data**

We collected data from various databases at the NTU library website. The collection of articles and literature books we used, were to understand the subsidy policy on fertilizers and why subsidies are needed. Further to understand the situation in India and to solve our problem definition of predicting the fertilizer subsidy policies.

#### **Step 10 - Analyze data**

We analyzed all the data we found of relevance for our research. We used the PESTEL framework, first to understand the background and the current conditions in India and further to understand the future in India. Our findings is summed up in a current SWOT analysis of India, were we list India's strengths, weaknesses, opportunities, and possible threats.

Further we analyzed the fertilizer market in India by using Porter's five forces model. This was done in order to strengthening our recommendations towards whether or not Yara International ASA should continue with their current operations.

**Step 11 – Prepare and present the final research report**

The deadline for the written report is on the 24th of April. The research findings and recommendations will be presented at NTU on the 6th of May.

---

## **Chapter 4 - Case study: India's Fertilizer subsidies**

This chapter investigate India's fertilizer subsidy policy in depth, using data from secondary sources. Our objective is to understand the existence of fertilizer subsidies in India from various perspectives, and try to revile any possible changes in the fertilizer subsidies.

### ***4.1 Fertilising subsidies in India***

The fertilizer subsidies policy in India, have developed over time as a result of starvation and unproductiveness in the fertilizing sector. In the early 1970s, the effectiveness in the fertilizing sector was so low, that the land they tilled where not delivering the revenue that the farmers needed to survive. This led to a massive growth in rural movement to the urban areas, so farmers could find work with better revenue to survive. The government and the farmers saw this happen, so, as a result, the farmers convinced the government to give fertilizer subsidies to stabilize the rural migration and to get a higher growth potential in the land the farmers tilled.

At present, the fertilizer subsidies, counts for the second highest, subsidized sector in India (Appendix 2). In particular, subsidies on power and fertilizer, has now proved to be a heavy burden on India's budget. Its beneficiaries are both the rich and the poor farmers, but the richer farmers are by far the bigger beneficiaries. This is because of the payment mechanism, that subsidies are paid directly to the producer of power and fertilizer rather than to the end-user. Hence, the larger the user of these inputs, the bigger the benefit.

By the year 2002, subsidies were to meet the cost of power supplied to rural areas were 1.1 percent of GDP, and subsidies for the cost of fertilizers were another 0.5 percent (Dossani 2008). On average, agriculturists today pay about a half cent per kilowatt hour of power, or less than a tenth of the real cost of power. For many states with large rural populations, such as Andhra Pradesh, rural subsidies for power and fertilizer account for more than a third of the states' budgets, leaving too little to support rural education and health services (Dossani 2008).

---

As the rich farmers have captured the most fertile land (and the benefits of subsidies), poorer farmers have been forced to the tilling of smaller lots and poorer-quality land. This has created a perverse situation: While rich farmers have used their clouts to ensure that subsidized inputs will continue (but just a few will survive if subsidies were reduced), the subsidies are crucial to the survival of the poor farmer. Urban analyst has long bemoaned the fact that the political power of rich farmers is stalling more rational pricing. This is true, but, if prices are raised, the poorer farmers will starve (Dossani 2008)

A solution to this problem could be to provide bigger subsidies to poor farmers than to rich ones. Unfortunately, this would require a change in how subsidies today are delivered, because fertilizer subsidies are being paid directly to the producer. This will have to change if subsidies are to benefit farmers with low incomes.

The poor farmers have to be identified. How will one do so, given that agriculturists are not required to pay taxes and keep no records of their income? So, even if politically possible, which is itself unlikely, it will be a far messier with significantly more room for corrupt practice than the current system (Dossani 2008).

#### ***4.1.1 Social cultural factors for fertilizing subsidies in India***

Bangalore 2008 and Dossani 2008 did a survey of land usage of more than 400 fertilizer farmers in the southern state of Andhra Pradesh in 2000. They found that on average, the revenue farmers earned from the land was so inadequate that, had they been asked to pay the true cost of power and fertilizers, these costs would exceed their revenue. The bleak fact was that, for the average farmer, the land they tilled was so unproductive that they could not afford to pay the full price of inputs. It was also found that the average annual revenue per acres was Rs.2, 300 (\$50). For the average farmer with eight acres of land, the annual revenue was Rs 18,400 (\$400) (Dossani 2008). The findings of the report clearly indicate that the need for fertilizer subsidies is still very vital for the farmers, and any removal of the subsidies would lead to starvation and bankruptcy for most farmers.

For the typical rural household of 5.5 persons, Rs. 18,400 is the equivalent of less than 25 U.S cents of revenue per person per day (note that this is revenue, not income) against this revenue, the farmer had to pay for fertilizer, seeds, and power which accounted for 30 percent of his revenue. For the average farmer, the true cost of electricity (not the subsidized cost, which, as noted, was below 10 percent of the real cost) alone was Rs.21, 000, that is, more than his income (Dossani 2008).

In India, the wealthiest 20 percent of fertilizer farmers are only earning revenue that would allow them to pay up to 1 cent per kilowatt-hour, or about a fifth of the true cost. None would be able to afford the real cost of power, which was about 5.5 cents per kilowatt-hour. In other words, if the government was to remove the subsidies, even the rich farmers would then no longer be rich, and the poor farmers would be much worse off (Dossani 2008).

This shows that even the twenty percent of the wealthiest farmers are so reliant of the subsidies that they cannot afford to continue production, if the subsidies were to be removed. If the wealthiest farmers cannot even afford to buy their own power without subsidies, one might ask if they are able then to buy the best fertilizers without these fertilizing products being subsidized.

#### ***4.1.2 A better policy than fertilizers subsidies for the Indian environment***

A better policy than just subsidizing the fertilizer producer would have been to spend more on rural health and education. This is also a fact that India, to some extent has now realized, but the information technologies on health and education, still have a long way to go. This might, slowly, create the capacity for more productive rural activity, including rural industry, which also is an opportunity for Yara International ASA because the farmers would then have the ability to gather information amongst different fertilizer products, which again, could lead to a more profound knowledge about Yara International ASA products. But still there is the fact that farmers today cannot afford these fertilizers without subsidies, a possibility though, is that they by the new knowledge provided can influence the subsidy policy that are in India today.

Current subsidy policy has led to an impossible social situation where the reduction of subsidies will lead to widespread bankruptcy (although this is not the right term, because the poor are not bankable), and so cannot be done (Dossani 2008). This is also reflected when reading the regular and disheartening news reports of farmers resorting to suicide whenever the states raised the price of subsidized inputs suddenly became explicable. These farmers were so poor that they existed only because of the subsidy. It would be cheaper for the state to force them to stop farming and receive a subsidy that fully compensated them for the loss of income. And there is no respite: In 2006, on average, four farmers committed suicide every day (Dossani 2008).

#### ***4.1.3 The power of the rural elite***

Since 1991, the rural elite have in later years become a powerful force, and is now supported by all the political parties, with the only exception of the Communist parties. In some future era, it will take a leader with the charisma of Mrs. Gandhi, the sincerity of Nehru, and a party with a deep interest in the rural poor to reduce the power of the rural elite. As said by Dossani (Dossani 2008) “*No such combination appears likely to emerge from the current set of parties, all of which have other, largely urban, agendas*”.

#### ***4.2 Political and economical factors***

India is a parliamentary federal democracy with an indirectly elected president, currently Abdul Kalam. The Prime Minister, Manmohan Singh, leads the United Progressive Alliance (UPA), a coalition dominated by the Congress party, which fell short of a majority in the May 2004 general election. The minority UPA government; is currently being supported by the Left Front, a group of left-wing parties dominated by the Communist Party of India (E.I.U 2007)

##### ***4.2.1 Possible Political obstacles to changes in fertilizer subsidy***



---

As the elections in 1996 resulted in what can be considered as a hung parliament, lasting for just thirteen days (E.I.U 2007), the need for a stronger governmental ruling in India was needed. The Hindu- nationalist Bharatiya Janata Party (BJP) formed in 1998 a governing coalition, the National Democratic Alliance (NDA), with twenty-two other parties under the leadership of Atal Behari Vajpayee (E.I.U 2007) In April 1999 the NDA government collapsed after narrowly losing a vote of confidence. It remained as a caretaker administration for six months before re-establishing itself in power following a general election held in September-October 1999. The alliance of more than twenty parties included a number of smaller regional and caste-based parties, which exercised disproportionate influence in government, often holding the administration to ransom in order gain concessions in their home states (E.I.U 2007). Today the ruling government, UPA, consist of fourteen parties and is supported by the Left Parties. (pmindia 2004) Coalition governance has become a continuing feature of Indian politics at the federal level and increasingly also at the state level, since 1996. On both levels it seems that coalition governments have found it hard to push through policies, particularly those requiring legislative action (E.I.U 2007). This might make any changes in the fertilizer subsidies policies, a long and slowly process, due to the many different standpoints from the respected parties of the government today. Even if there is to become a change in government at the May election in 2009, which is most likely, the new ruling government will in all likelihood also consist of coalition between several parties.

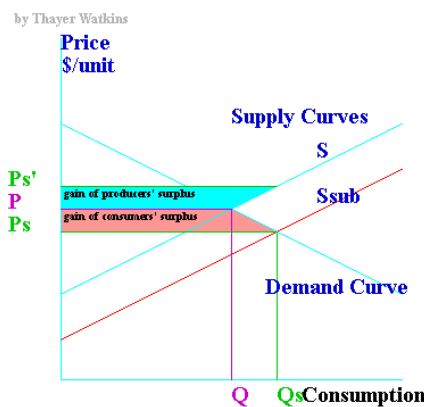
Another possible hinder to any change in the fertilizing subsidies could also come from the left side, mainly from the communist parties, whom gains supports from the farmers and fertilizer producers.

#### ***4.2.2 Left parties could threaten the liberation of the fertilizer subsidy policy***

The government faces no immediate threat to its survival and looks on course to last a full five-year term until 2009. However, it is severely hampered in its ability to formulate and implement policy. Politics remains centred more on tensions within the UPA coalition and between the UPA and its notional allies, than on competition from the BJP. The main tension is between the reformist economic

liberalism of several leading Congress figures, notably Mr Singh and the finance minister, P Chidambaram, and the leftist populism of many government supporters. These include members of Congress and of its coalition partners, and in particular the communist parties, which are not in the UPA but which lend parliamentary support to it. Curiously, the largest, the Communist Party of India (Marxist), or CPI (M), has come to resemble the official opposition (E.I.U 2007). It has so far stood in the way of economic liberalisation ranging from opening up India's vast retail sector to fast-tracking industrial development through the creation of special economic zones (E.I.U 2007), which could delay any economical liberalisation in the way that fertilizer subsidies are given. The party's strategy appears to be to use the leverage it now enjoys to expand its influence beyond those states where it is already a major forces, such as West Bengal, Tripura and Keralaóto, to the rest of India. To do this, it is relying on its supporters in the trade unions. This means that it has tried to block any reform seen as damaging to the interests of the workforce in the "organised" sectors, definition covering workplaces with more than ten employees. There are about 30 millions such workers out of a total labour force of more than 400 millions, but they have become disproportionately powerful (E.I.U 2007). At the present time it is the fertilizer producers, the "organised" sectors in India, whom are receiving the fertilizing subsidies, and not the farmers. Given that the CPI will continue to gain support from the workforce in the "organised" sectors, any change in how the fertilizer subsidies are given, seems to be distant. Reasoning for why the left are also gaining support from the farmers is described by Figure 1 a.

**Figure 1 a**

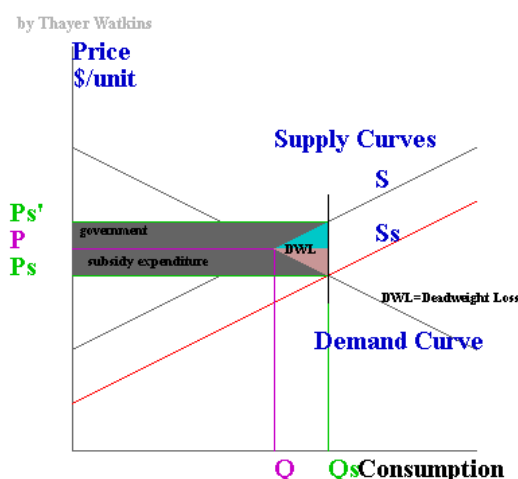


When the government gives a subsidy, producers (fertilizer producers) as well as consumers (farmers) are the ones who are positively affected. (See details in Appendix 1)

### 4.2.3 Fertilizing subsidies, an economical burden?

Even though the subsidies given by the government benefits the farmers and fertilizer producers in India, it does not benefit the population as a whole. This is reasoned by the fact that when subsidies are given, it creates a deadweight loss in the free market equilibrium,

**Figure 1 b**



which is a loss of economic efficiency in a market; the ones who are affected by the loss are the taxpayers that are not benefiting from the subsidy. The pressure for better usage of the fertilizer subsidies could then come from the thirty million taxpayers in India (Jagtiani, 2006). Though it must be emphasized that taxpayers only stand for roughly 3% of the total population in India today, and are such not substantial in the total amount of electors. If the change to the fertilizer subsidies would be based on a democratic voting, and in such, the taxpayers alone would most likely not be able to influence any political outcome. But the facts still remain, for every Rs. billion the Indian government spends on fertilizer subsidy, a significantly amount of taxpayers' money is lost. Given that it is reasonable to presume that an amount of the taxpayers today have more influence than just their vote, due to their positions in both the business landscape as well as the political landscape, they could influence the ruling government to make better use of their tax money, and in such refine the way fertilizer subsidies are given at the present time.

Another argument towards the economical inefficiency use of fertilizing subsidies are made by Ashok Gulati, the director of Asia International Food Policy

---

Research Institute (IFPRI), whom states that the government has so far disbursed Rs37, 451 crore as fertilizer subsidy for the year 2007-08 as against a budget allocation of Rs22, 451 crore. He concludes with that today India is paying out huge amounts in subsidy without a single unit of increase in productivity (MINT 2008) (Appendix 3). Given this statement and the deadweight loss India today has, it is clear that the fertilizing subsidy policy is becoming a major economical cost and burden for India. How long can India withstand this burden?

#### ***4.2.4 Political arguments towards a change in fertilizer subsidy***

There are today speculations towards a change in the subsidy policy, these speculations were strengthened after agricultural experts whom recently met with Finance Minister P. Chidambaram, they argued for a more direct subsidy regime (MINT 2008). The bases for this argument are that; if farmers were to collect the subsidies directly, they would be more able to buy the fertilizer that was customized to their soil' requirement, the argument was also supported by Mr. Chidambaram whom stated: "While fertilizers should indeed be subsidized, we must find an alternative method of delivering the subsidy directly to the farmer" (The Hindu 2007). Even though the Prime Minister sees the need to empower the farmers by giving them the opportunity, through direct subsidy, to select the best suited fertilizer for their specific soil, he rejected together with the Group of Ministers, which consists of minister P. Chidambaram, minister of Chemicals and Fertilizers, Ram Vilas Paswan and Planning commission deputy chairman, Montek Singh Ahluwalia, a proposal to provide direct subsidies to farmers in favour of the existing system of indirect subsidy payments (MINT 2007). Reasoning for this are the difficulties there is to implement new policies in such a huge and diversely country. Having that said, there are at the present time many forces that are suggesting a change in the way that the fertilizing subsidies policies are given. Even the fertilizer producers, whom are benefiting from today's policy, see the need for change. And a senior executive at a fertilizer firma who did not wish to be identified, said "The present subsidy system is damaging the soil and harming the farmer as well" (MINT 2007).

---

#### *4.2.5 Corruption interfering new policymaking*

India is the world's most populous democracy and has held regular and largely free elections since 1947. For members of parliament, the chances of re-election to the Lok Sabha are low because anti-incumbency is a key trend in Indian politics, the members therefore tend to maximise their personal gains rather than working for the welfare of their electorate (E.I.U 2007). The Election Commission of India (ECI) has wide powers to requisition the government machinery for elections and has ensured fairly orderly elections; in 2003 it won the right to make candidates disclose criminal records. However, there are occasional cases of poll rigging and intimidation; spending limits on candidates are poorly enforced and candidates with criminal records are often elected, particularly to the state assemblies. In the May 2007 Uttar Pradesh state assembly polls, one-third of all candidates had a criminal record. Generally, a high level of political awareness and the sheer size of the electorate nevertheless ensure that the final results reflect the wishes of the people, and the ousting of incumbent administrations has become increasingly frequent (E.I.U 2007).

Even though the results reflect the wishes of the people, a reflection is not considered to be a 100% reproduction of that what is reflected. Therefore it is arguable whether or not the opposition of the fertilizing subsidies policies today, are given their right to influence any future change in the matter. Having that in mind, it is most likely that the right given to the ECI will have most positively affected towards elections in the future. Hopefully the corruption landscape in India's politics will vanish in the future as an effect ECI surveillance, and politicians will be obliged to focus on the welfare of their electorates, rather than maximizing their own personal gains.

This could be of interest to Yara International ASA, seeing that the need for better fertilizers will become more and more crucial for the agricultural growth in India, as well as the rest of the world. The local and state politicians would then be compelled to focus on the best fertilizer products worldwide as well as in India, rather than just the best fertilizer products produced in their domestic area. This could then lead to a change in the way that fertilizing subsidies are granted today.

---

#### ***4.2.6 Could we expect any changes in the subsidy policy before the upcoming election?***

With just over a year of the United Progressive Alliance (UPA) coalition government five-year term remaining, India's political parties are gearing up for a parliamentary election, which will be held by May 2009. State elections are due in ten states before then. Congress should now be seen to be delivering on its promise of more equitable economic growth, as otherwise its prospects in the general election will be poor in spite of the record rates of economic growth that India has enjoyed under its stewardship. The agricultural sector, which is the country's largest employer, remains in distress despite large-scale government-sponsored programs targeting the rural sector (E.I.U 2007).

Attention was therefore on the budget for fiscal year 2008/09 (April-March), presented on February 29th. The budget, the UPA's last, was expected to channel as much money as possible into the agricultural sector and education (E.I.U 2007). On February 29th India's finance minister, P Chidambaram, presented his United Progressive Alliance government's budget for the 2008/09 fiscal year (April-March). The Congress-led government, which is supported by the Left Front parties, believes it was elected in 2004 with a mandate to focus more on social issues. The government is also preparing for general elections by May 2009. It was no surprise, then, that the Rs7.5trn (US\$187bn) budget played to the galleries, with heavy allocations for the rural economy and social sectors such as education and health, as well as income-tax concessions to gladden the middle class. Seeing the UPA's need to please electors in the rural areas, any change that could be seen as harmful towards the rural economy, such as a sudden change in the way that fertilizers are given, would not be expected before the election in May 2009.

#### ***4.2.7 Strengthening the rural economy***

The budget's big focus was on India's rural economy, which accounts for almost 70% of its 1.1bn people. According to government estimates, India's GDP grew at an impressive 9.6% in 2006/07 and is likely to clock an 8.7% rate in the current fiscal year, driven by services and manufacturing growth. But with agricultural growth rates slowing and rural indebtedness an increasing worry, the government

---

is concerned that the economic boom of recent years has left out large sections of the population. Therefore, in the single largest hand-out in Indian history, the budget promised to waive the outstanding debts of some 40 millions small farmers, worth Rs600bn. Agricultural loans given by banks and co-operative credit institutions up to March 31st 2007, and overdue as of December 31st 2007, are eligible. Farmers with land up to two hectares will have their debts completely waived, while the rest will participate in a one-time settlement scheme that will waive 25% of their debt (E.I.U 2007).

This will have a substantial effect on the farmer's economy, at least in the short run. The interesting question is whether or not the deletion of the farmer's debt, will encourage farmer's to invest more capital to better strengthening their agricultural growth and efficiency, and in such have an effect in the long run. If this would be the outcome, which is reasonable to presume, their investments could then lead to a higher income, and as a consequence of this, be more acceptable towards investing in better and more expensive fertilizers.

#### ***4.3 Technological factors***

Can Technology minimize the fertilizer subsidies?

To answer this question, we could take a look at the processing technology that exists within the fertilizing sector today and the information technology that are available to the farmers within the fertilizing sector. Since the farmers in India at present time are very poor and a sustainable amount of the farmers cannot afford investing in new technology to better process their land, measures by the government should be done. If the government of India could make this possible, a result could be that, instead of subsidies the fertilizer sector as much as they do today, they could rather invested in technology. As for today, the government of India has deleted the farmer's debt and we can conclude that India is taking the problem of poor farmers serious. The deletion of the farmer's debt can also be an opportunity for Yara International ASA, since the farmers could be better suited to invest in new technology. It is also important that India's information technology is sustainable enough to keep the farmers updated in form of agricultural innovations and fertilizers products that can help them get a higher return and growth from their crops. As a conclusion for the technology, the farmers now

---

have the opportunity to invest in new technology, but might not have the information needed to know what to invest in.

#### ***4.4 Legal factors***

Studying the legal environment in India, with focus on the legal regulation that is most important for fertilizer manufactures, the FCO was declared as an Essential Commodity and Fertilizer Control Order (FCO) and are promulgated under Section 3 of Essential Commodities Act, 1955, to regulate, trade, price, quality and distribution of fertilizers in the country. This is to ensure adequate availability of right quality of fertilizers at right time and at right price to farmers.

The FCO provides for compulsory registration of fertilizer manufacturers, importers and dealers, specification of all fertilizers manufactured/imported and sold in the country, regulation on manufacture of fertilizer mixtures, packing and marking on the fertilizer bags, appointment of enforcement agencies, setting up of quality control laboratories and prohibition on manufacture/import and sale of non-standard/spurious/adulterated fertilizers. Accordingly there are 67 Fertilizer Quality Control Laboratories in India, which includes 4 set up by Central Government as CFQC&TI, Faridabad and its three Regional Laboratories. The order also provides for cancellation of authorization letter/registration certificates of dealers and mixture manufacturers and also imprisonment from 3 months to 7 years with fine to offenders under ECA. The FCO offence has also been declared as knowable and non-bail able. (Dacnet, 2007)

In conclusions, the FCO has very strict rules, which makes importing any new fertilizing products a hard and time consuming process. See paragraph below:

***§ 29A. Qualifications for appointment of fertilizer analyst in the fertilizer control laboratories***

*Training in fertilizer quality control and analysis at Central Fertilizer Quality Control and Training Institute, Faridabad.*

*Provided that the fertilizer analysts appointed before the commencement of this Order, who do not possess the requisite training, shall undergo prescribed training, within a period of three years, in the Central Fertilizer Quality Control " and Training Institute, Faridabad from the date of commencement of this Order. (FCO, 1985)*



#### ***4.5 Environmental factors***

The environmental issues for fertilizer manufactures in India, is that the fertilizer sector (the farmers) are dependent on the monsoon to get a positive result of their production. As the monsoon shift from year to year and also affects the farmers economy as well as India's GDP (Bhattacharya & Kar 2006) it will also most likely affect fertilizer manufactures revenue and demand. The infrastructure especially in the rural sector India is at present very poor; this includes telecommunication, roads, irrigation, water supply and electricity. But now a plan for developing rural India has been made, were a budget of USD 40 Billion has been set up (Appendix 4). In conclusion, India seems to understand their weakness in infrastructure, and is spending a huge amount of their budget to build up their infrastructure, but the farmers, are still relying on the monsoon in order to grow their crops and achieve profit. Given that there is a good monsoon year, this will enable them to invest in innovative fertilizer products.

#### ***4.6 SWOT - analysis of India's fertiliser policy***

To summarize our PESTEL, we have listed India's strengths, weaknesses, opportunities and threats regarding the surroundings of current subsidy policies on fertilizers.

<b>Weaknesses</b>	<b>Strengths</b>
<ul style="list-style-type: none"> <li>- GDP is heavily dependent on the monsoon, which means that they need to invest further on resources to get a sustainable growth in their GDP</li> <li>- Political processes are time consuming. Collation makes it difficult for governments to implement new policies</li> <li>- Significant deadweight-loss in their usage of the subsidies</li> <li>- The present fertilizer subsidy policy is not efficient in terms of agricultural growth</li> <li>- High rate of poverty</li> <li>- Poor infrastructure nationwide</li> </ul>	<ul style="list-style-type: none"> <li>- India seems to take their environmental issues serious, and is spending a great amount of their budget to build up their infrastructure in the rural areas (Roads, telecommunication, water-supply, house-holdings)</li> <li>- India has a steady growth in their GDP (2006= 9.4%, 2007= 8.4%)</li> <li>- Focus on removing corruption</li> </ul>
<b>Opportunities</b>	<b>Threats</b>
<ul style="list-style-type: none"> <li>- India has a large budget and a high GDP growth. This could lead to investment in innovation technology to support the rural areas</li> <li>- Investing in new technology may give more job opportunities for the labour-poor-work force</li> <li>- Process more of their raw material themselves</li> <li>- Direct subsidy policies. Let the subsidies go straight to the farmer</li> <li>- Subsidy of better fertilizers mixes</li> <li>- A better foreign direct investment strategy. Do not make it so difficult and time-consuming to enter the Indian Market</li> <li>- Further growth in the rural area</li> </ul>	<ul style="list-style-type: none"> <li>- Monsoon → Climate change → Global warming</li> <li>- World prices on fertilizer</li> <li>- 70% of the Indian labour force is farmers, which means that they are heavily dependent on the outcome of the crops</li> <li>- Direct subsidies can fail because it's difficult to implement</li> </ul>

---

#### ***4.7 Michael Porter's Five Forces Analysis***

Porter's 5 forces analysis is a framework for the industry analysis and business strategy development developed by Michael E. Porter of Harvard Business School in 1979. It uses concepts developed in Industrial Organization (IO) economics to derive 5 forces that determine the competitive intensity and therefore attractiveness of a market. Porter referred to these forces as the microenvironment, to contrast it with the more general term macro environment. They consist of those forces close to a company that affect its ability to serve its customers and make a profit. A change in any of the forces normally requires a company to re-assess the marketplace. (Porter, 1979) (Appendix 5)

We used Porter's framework to develop the five forces to determine the attractiveness of the fertilizer market in India. Through our case study we have focused on answering Yara International ASA's question, regarding if there is to become any future changes to fertilizing policy in India. We will therefore not analyze the fertilizing market as deeply as if we were to make a marketing strategy for Yara International ASA.

#### **Buyer Power**

There is low product differentiation among the producers in India since the Indian government is just subsidizing the basic chemicals, and therefore buyers at the present time have some power towards the subsidised fertilizer producers. But buyers are low in their power to buy fertilizer that are not subsidised.

#### **Supplier Power**

The supplier power is high because the Indian industry relies heavily on import for its requirements of raw materials. (Equity Master 2005)

The supplier is often the main driver of what the producers production cost will be, and therefore also a main driver of the end price.

#### **Intensity of Competition**

There is an increasing competition amongst international companies in India at the present time. Attached in Appendix 6 there is a list of the seven largest companies

that are operating India at the present time and their performance on the stock exchange-market.

Seeing that the fertilizer market in India is of significant size, the intensity among international rivalry is at the present low, this is also strengthened by the fact that India is still covering their demand of fertilizers by importing.

#### **Threat of New Entrants**

The Indian agriculture-industry has a growing demand for fertilizers, and therefore threats of new entrants can be considered as high.

The legal factors for introducing new chemical products to the Indian fertilizer market can make any new entrance for fertilizer producers a slow and costly process. These two factors combined make the total threat of new entrant's medium high.

#### **Threat of Substitute Products**

Pro-biotic Fertilizers (Appendix 7), which is a substitute for chemical fertilizers is on its way up. But this product is expensive and could just appeal to the richer farmers. Therefore the threat of Substitute can be higher in the long run given that the farmer's economy will rise. However, at the present farmers are poor and the pro-biotic fertilizers are not subsidized. Hence the threat is low.

## **Chapter 5 – Recommendations and Conclusion**

### ***Recommendations based on our PESTEL and Porter***

Through our research we have gone more in-depth in the fertilizer subsidy situation in India and its surrounding impacts. And it seems to be clear that there will be no cut in the fertilizers subsidies in the short run. This is reasoned by any removal or a reduction of the subsidies in India would lead to a crisis in the rural sector, since most farmer's are at the present time living in poverty.

### ***Removal not an option***

Therefore any removal of fertilizer subsidies would not be a solution in the short run due to its major impact on farmer's economy. Through our analysis we can concluded that the present subsidy policy do not seem to contribute any positive effects for India. Even though India is injecting more money in fertilizer subsidies, there is no increase in the productivity and the farmers are still in a bad position.

### ***Direct subsidies?***

As a result there have been discussions concerning other methods, such as to give the subsidies directly to the farmers. As Ashok Gulati, the director of Asia's International Food Policy Research Institute, states: "there is representation from several members of the Parliament that is demanding a transfer to a direct subsidy regime".

### ***Possibilities for new entrants***

There has also been focus on subsidizing other and better types of fertilizer mixes. R.C. Gupta, deputy director general of industry body Fertilizer Association of India says that the focus is now on providing nutrient-based offsets, which would help in better targeting of the subsidies and ensure improved fertilizer mix that would contain the growing erosion in soil nutrients. Some of the new chemical that is going to be subsidizes is sulphur. As Gupta stated "*The situation is bound to improve now that sulphur will be subsidized.*"

This would give Yara International ASA and its joint venture partner Kribcho the opportunity to produce and sell better mixes.

**Buyer Power**

Furthermore there are also other changes that are planned from the Indian government. As mentioned their plans of investing in the rural areas standards, for example with better infrastructure such as roads, telecommunication, and water supply. This could remove the bottleneck for the fertilizers farmers, especially with new roads, as it would make it easier to reach and deliver fertilizer products to farmers throughout India.

**Results of government investments**

These investments and the planned/ possible future changes made by the government should help to increase the farmer's productivity, and along with the deletion of the farmer's debt, farmer's economy could a bright future. Given that these factors are accomplished it could lead to a possible positive circle (Appendix 7), which would lead to higher spending and the farmers risk appetite for investments will be heightened.

**Government will improve**

India is at the present time in a situation where changes in the way fertilizing subsidies are given, needs to be improved, so that the productivity in the agricultural sector will increase.

Our predictions are that India in the long run will improve their present fertilizer subsidy policy.

**Yara International ASA`s goal**

As Yara International ASA goal states: "will never sacrifice long-term performance for short-term payoffs, and will never use long-term focus as an excuse for short-term performance" (Yara International ASA 2008).

**Recommendation**

On the basis of above analysis we conclude that it is likely that the fertilizer policy regime in India will have a positive change in the future.

And therefore Yara International ASA should continue further operations in India.

## Bibliography

- Abboushi Suhali** Agriculture Subsidies - What Are They and Who Receives Them? // Indiana Competition Forum Vol 5. - 2007.
- Ariff Melati Mohd** Subsidy Policy: A Review Needed. - Kuala Lumpur : [http://www.bernama.com/bernama/v3/news\\_features.php?id=316749](http://www.bernama.com/bernama/v3/news_features.php?id=316749), 2007.
- B.B Bhattacharya Sabyasachi Kar** Shock and Long Run Growth in Agriculture; A makroeconomic analysis. - New Dehli : Academic Foundation, 2006. - Vol. I.
- Bush Burns And** Marketing Research. - 2007.
- Business Chemical** Conducive fertiliser policy urgently needed, say experts. - [s.l.] : Chemical Business, 2007. - 8 : Vol. 21.
- Division Agricultural Informatics** About India. // For globalizing Indian Agriculture. - 2007. - 11 4 2008. - <http://dacnet.nic.in/cfqcti/1st9.1fco.htm>.
- Doroodian K og Boyd Roy** The impact of removing corn subsidies in Mexico: A general equilibrium asses. - [s.l.] : Atlantic Economic Journal; , Jun 1999, 27/2. - ABI/INFORM Global.
- Dossani Rafiq** India Arriving. - New York : AMACOM, 2008. - 9780814474242.
- Economist.com** Economist.com // [www.economist.com](http://www.economist.com). - 2007. - <http://www.economist.com/research/Economics/searchActionTerms.cfm?query=s%20ubsidy>.
- Equitymaster** // Equitymaster. - Equitymaster, 1 1 2005. - 21 4 2008. - <http://www.equitymaster.com/research-it/sector-info/Fertilizer/>.
- FAO** [www.fao.org](http://www.fao.org). // <http://www.fao.org/docrep/008/y7063e/y7063e0a.htm>. - Natural Resources Management and Environment Department, 2005.
- Firdausy Carunia Mulya** Effects of the subsidy removal f fertilizer on rural poverty i Indonesia. - Bradford : Int Journal of Social Economics, 1997. - 1/2/3 pg. 207 : Vol. 24.
- Hindu The** Farmers to get fertilizer subsidy directly. - [s.l.] : Kasturi & Sons Ltd, 2007. - Vol. 14.
- Hindu The** No cut in fertilizer subsidys. - [s.l.] : Kasturi & Sons Ltd, 2004. - Vol. 11.
- <http://pmindia.nic.in/>** National Common Minimum Programme Of The Goverment Of India. // National Common Minimum Programme Of The Goverment Of India. - 2004. - s. 24.

- 
- India Government of** THE FERTILISER (CONTROL) ORDER 1985. - New Dehli : Ministry of Agriculture and Rural Development, 1985 (Last Updated On - 01 April, 2005). - Vol. No.11-3/83-STU.
- Jagtiani Sunil** For Indians, the tax man rarely cometh. - Bombay : The Christian Science Monitor, 2006. - march 06.
- Jeebe Manfred** Fertilizers Policies And Subsidies In Developing Asia. - Bali : Escap/FAO/Unido Fertilizers advisory, Development and Information Network For Asia And The Pacific (FADINAP), 1996.
- Ltd. ENAM Securities Pvt.** Indian Fertilizer Sector. - 109-112, Dalamal Tower, Free Press Journal Marg, Nariman Point, Mumbai - 400 021, India. : ENAM, 2007.
- Malang E Java** GOVT PREPARES RP10 TRILLION IN FERTILIZER SUBSIDY: VP. - Antara : Asia Pulse, 2008. - Vol. 6 April.
- Misra Udit** Reforms in fertilizer subsidy to cost an additional Rs 1, 200 crore. - Delhi : Mint, HT Media Ltd, 2007. - Vol. 4.
- Monica Fisher Gerald E Shively.** Agricultural Subsidies and Forest Pressure in Malawi's Miombo Woodlands. - [s.l.] : Journal of Agricultural and Resource Economics, 2008. - 2 : Vol. 32. - Document ID: 1325092291.
- Porter M.E.** How competitive forces shape strategy. - [s.l.] : Harvard Business Review, 1979.
- Pulse Asia** Indonesian gov't to cut fertilizer subsidy nex year. - [s.l.] : Asia Pulse Pty Limited, 20 dec/2007.
- Quibria M. G.** The role of fertilizer subsidies in agricultural production. - [s.l.] : Manila: Asian Development Bank, 1987.
- Samuelson Paul A.** Foundations of Economic Analysis. - [s.l.] : Harvard University, 1983.
- Shastri Paromita** Change unlikely in fertilizer subsidy regime. - Delhi : MINT, 2008. - Vol. 4.
- Suparmoko M.** The Impact Of The WTO Agreement On Agriculture In The Rice Sector. - Geneva : WTO, 2002.
- Talib Abdollah Ab** Fertilizer Policies And Subsidies In Developing Asia. - Bali : Escap/FAO/Unido Fertilizers advisory, Development and Information Network For Asia And The Pacific (FADINAP), 1996.



---

**The Fertilizer Association of India** The Fertilizer Association of India // The Fertilizer Association of India. - 10, Shaheed Jit Singh Marg, New Delhi - 110 067, INDIA, 16 April 2008. - 16 April 2008. - <http://www.faidelhi.org/>.

**Unit Economist Intelligence** Contry Report 2007 // India. - 2007. - s. 50.

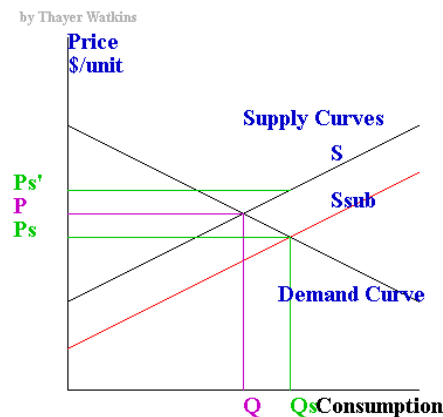
**Unit The Economist Intelligence** Contry Profile 2007 India // Contry Profil ISSN 1473-9127. - 2007. - s. 30.

**Yara** Yara International ASA. - Yara. - 17 April 2008. - [www.yara.com](http://www.yara.com).

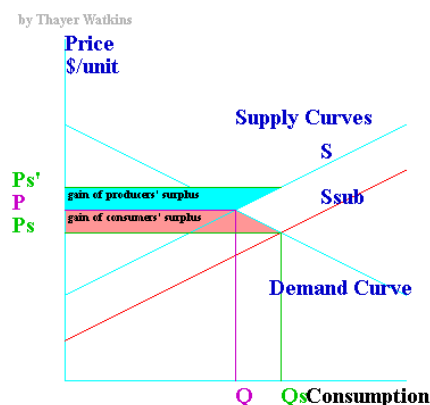
## Appendix 1

### The Impact of a Subsidy

Although the analysis of the impact of a tax is important the analysis of the impact of a subsidy is more interesting. The analysis is essentially the same, a subsidy merely being a negative tax. The effect of a subsidy is to shift the supply curve downward by the amount of the subsidy. Effectively this is an increase in supply. The graph below shows the results of a subsidy on a market.

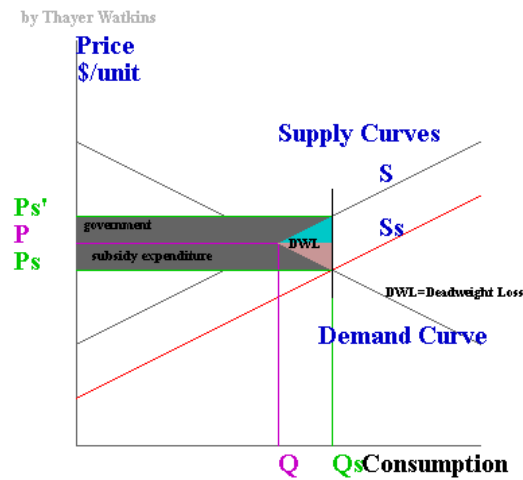


In the above graph (and following graphs)  $P_s$  represents the price paid to consumers after the subsidy is created.  $P_s'$  represents the price received by the producers, which is the price paid by consumers plus the subsidy. The impact of the subsidy is to lower prices for consumers but to increase the price received by producers. The benefit of the subsidy is shared by the consumers and producers in a proportion that depends upon the relative slopes of the demand and supply functions.



The above graph shows the gains in consumers' and producers' surpluses as a result of the subsidy. Although the effect of the subsidy seems beneficial the important question is the cost of the subsidy relative to the benefits. In the graph shown below the cost of the subsidy to the government is the gray rectangle

including the colour triangle. The graph shows the balance is negative; i.e., the cost of the subsidy is always greater than the benefits to consumers and producers. This is an important result of analysis.



The deadweight loss of the subsidy is the amount by which the cost of the subsidy exceeds the gains in consumers' and producers' surpluses, the triangles shown in pink and blue. The magnitude of the deadweight loss of a tax or subsidy depends upon the amount of the tax or subsidy and the change in production that results from the tax or subsidy. Specifically

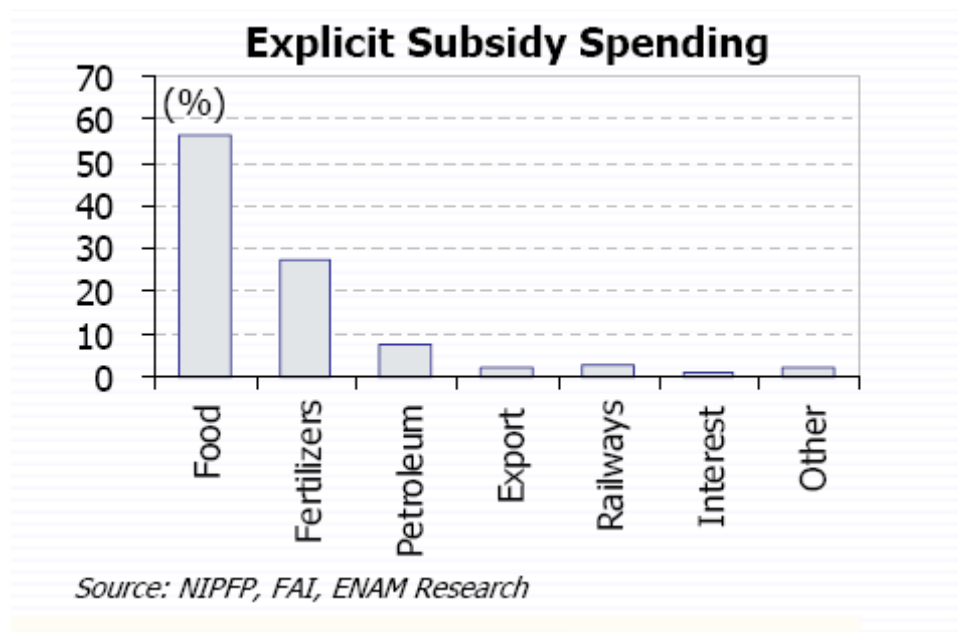
$$\text{Deadweight Loss} = (1/2)(\text{amount of tax or subsidy}) * \Delta Q$$

where  $\Delta Q$  is the change in output.

Since the change in output  $\Delta Q$  is proportional to the amount of the tax or subsidy the deadweight loss is proportional to the square of the tax or subsidy. This means that if the tax or subsidy is doubled the deadweight loss increases by a factor of four. If the tax or subsidy is tripled the deadweight loss increases by a factor of nine.

The relationship between the tax rate and the amount of tax revenue collected is a parabola, a form popularized by Art Laffer. The Laffer Curve shows that beyond a certain point an increase in the tax rate results in a decrease in tax revenue rather than an increase. This relationship was popularized as part of the *Supplyside Economics* of the Reagan Administration.

---

**Appendix 2**

**Appendix 3**

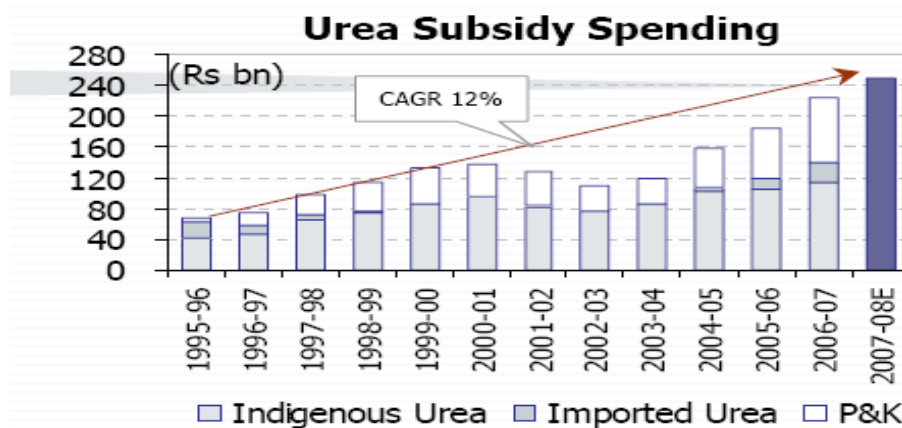
CENTRAL SUBSIDY ON FERTILISERS (1976-77 to 1991-92)					
Year	All Fertilisers				
	Imported	Indigenous	Total		
1976-77	N.A.	N.A.		60	
1977-78	241	25		266	
1978-79	171	172		343	
1979-80	283	321		604	
1980-81	335	170		505	
1981-82	100	275		375	
1982-83	55	550		605	
1983-84	142	900		1,042	
1984-85	727	1,200		1,927	
1985-86	324	1,600		1,924	
1986-87	197	1,700		1,897	
1987-88	114	2,050		2,164	
1988-89	201	3,000		3,201	
1989-90	771	3,771		4,542	
1990-91	659	3,730		4,389	
1991-92	1,300	3,500		4,800	

1 crore = 10 million.

CENTRAL SUBSIDY ON FERTILISERS (1992-93 to 2007-08)					
Year	Urea			Decontrolled P & K Fertilisers	Total subsidy on all fertilisers
	Imported	Indigenous	Total		
1992-93	996	4,800	5,796	340	6,136
1993-94	599	3,800	4,399	517	4,916
1994-95	1,166	4,075	5,241	528	5,769
1995-96	1,935	4,300	6,235	500	6,735
1996-97	1,163	4,743	5,906	1,672	7,578
1997-98	722	6,600	7,322	2,596	9,918
1998-99	333	7,473	7,806	3,790	11,596
1999-2000	74	8,670	8,744	4,500	13,244
2000-01	1	9,480	9,481	4,319	13,800
2001-02	47	8,044	8,091	4,504	12,595
2002-03	-	7,790	7,790	3,225	11,015
2003-04	-	8,521	8,521	3,326	11,847
2004-05	494	10,243	10,737	5,142	15,879
2005-06	1,211	10,653	11,864	6,596	18,460
2006-07 (RE)	2,704	11,400	14,104	8,348	22,452*
2007-08 (BE)	2,704	11,400	14,104	8,347	22,451**

\* = Plus an additional amount of Rs. 3,500 crore allocated by the Government in the third Supplementary Grant.  
 \*\* = Plus an additional amount of Rs. 14,050 crore has been allocated by the Government in the first Supplementary Grant, out of which Rs. 7,500 crore is proposed to be in the form of Special Securities to be issued by the Government. 1 crore = 10 million.  
 (RE) = Revised Estimate. (BE) = Budget Estimate. \$ = Assistance for fertiliser promotion.

(The Fertilizer Association of India, 2008)



Source: FAI, ENAM Research

## Appendix 4

### Amendments by the Government to give impetus to Agriculture & encourage trade in perishable goods

Act	Status	Benefits
APMC Act	14 States (Already Banned)	<ul style="list-style-type: none"> <li>No need for farmers to sell to registered intermediaries</li> <li>Farmers can sell to highest bidder</li> <li>Move towards Information Driven markets</li> </ul>
Integrated Food Law	Pan India	<ul style="list-style-type: none"> <li>Integrate 16 laws governing food industry into one.</li> <li>Remove conflicts between existing laws</li> </ul>
Warehouse Receipt Act	Pan India	<ul style="list-style-type: none"> <li>Allow warehouse receipts to become negotiable instruments</li> <li>Lead to greater banks lending due to mitigation of default risk</li> </ul>
VAT	Pan India	<ul style="list-style-type: none"> <li>Reduce tax evasion</li> <li>Increase tax/ GDP ratio</li> </ul>
Essential Commodities Act	Pan India (To Be Banned)	<ul style="list-style-type: none"> <li>Farmers will not need a license to hold commodities</li> <li>A free market for Essential commodities</li> </ul>
Minimum Support Price (MSP)	To be phased out	<ul style="list-style-type: none"> <li>Move from highly subsidised products to market demand</li> </ul>

(ENMA 2007)

#### **Bharat Nirman: The most ambitious rural plan in India (~USD40bn)**

- **Roads:** ~USD11bn for rural road connectivity
- **Telephony:** 67,000 villages to get phones by end-07
- **Irrigation & Water supply:** Addl. Irrigation of 10mn ha and clean water for 56,000 habitations (~USD21bn)
- **Rural Housing:** >1.5mn houses to be constructed every year for next 4 yrs (~USD3.2bn)
- **Electricity:** For >125,000 villages (USD3.8bn)

#### **Credit: Agri credit to double in next 3 yrs. Bank lending was up 35% in the last 2 yrs**

- ~2.2mn SHGs given credit link of ~USD2.5bn

#### **Corporate participation: RIL, ITC, & Bharti etc. giving a fillip to contract farming**

#### **Resurgence of rural India :**

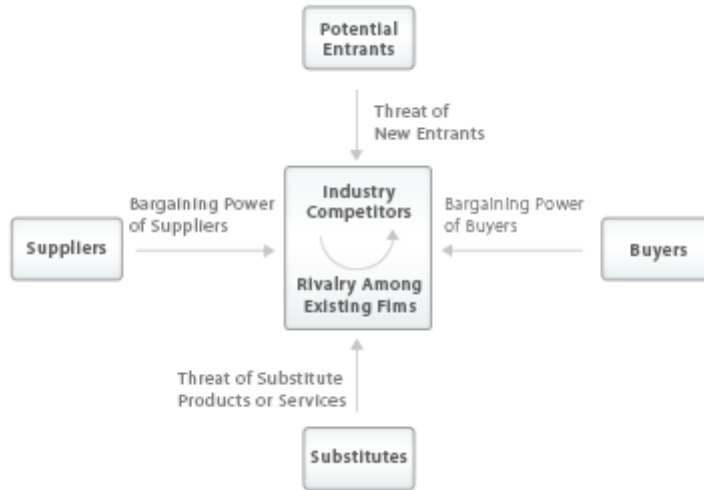
- Job growth in rural areas was higher at 3.3% v/s 1.7% for urban enterprises
- Rural enterprises grew 5.5%, i.e double the growth rate during last 2 decades

(ENMA 2007)

---

**Appendix 5**

## Michael Porter's Five Forces Analysis



## Appendix 6

International competitors in India and how they are doing on the stock exchange market.

Company	Country	Mkt. Cap (\$ bn)	1year	2year	ROE (%)	P/E (x)		EV/EBIDTA(x)	
			Ret. (%)	Ret. (%)		CY07E	CY08E	CY07E	CY08E
Yara	Norway	9.2	129	109	29.2	13.0	13.4	9.3	9.5
Mosaic	US	17.6	162	169	(3.9)	54.2	19.7	22.0	11.4
Potash Corp	Canada	24.6	177	195	25.7	27.0	23.4	15.8	14.1
Agrium	US	6.0	103	105	2.7	17.2	15.6	8.8	8.4
Terra	US	2.2	285	327	(0.2)	19.0	19.8	7.5	9.0
CF Industries	US	3.3	318	288	4.4	21.0	24.1	7.5	8.6
K+S AG	Germany	6.1	102	158	26.2	22.5	19.3	10.3	9.2

Source: Bloomberg, ENAM Research

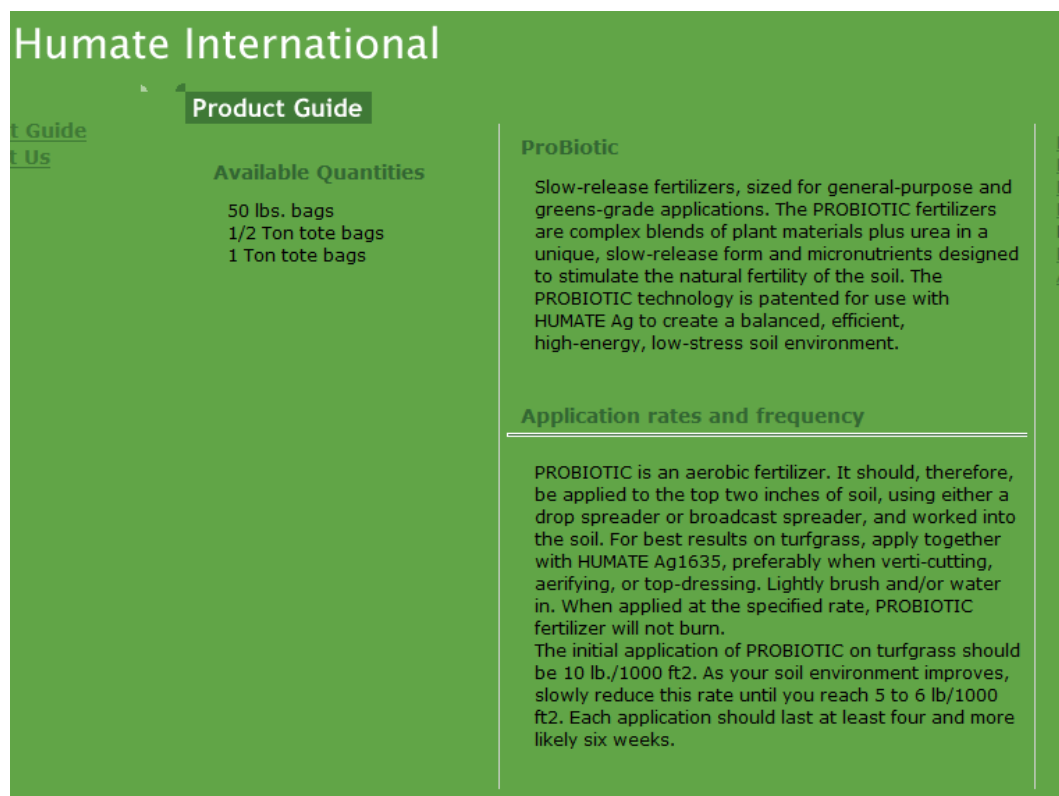
Here is a list of the private-sector producers in India.

Company	Period	Net Sales (Rs mn)	EBITDA (Rs mn)	Adj. PAT (Rs mn)	FDEPS (Rs)	ROCE (%)	RoE (%)	PE (x)	EV/ EBITDA (x)
<b>Chambal Fertilizers &amp; Chemicals Ltd</b> (CMP: 36) (MCap: USD337mn)	FY05	29,149	5,448	1,730	4	35	44	9.4	5.1
	FY06	28,652	5,783	2,237	5	20	27	6.8	4.1
	FY07E	29,470	4,601	1,158	3	16	13	12.5	4.8
<b>Coromandel Fertilisers</b> (CMP: 82) (MCap: USD232mn)	FY05	15,251	1,491	716	6	35	37	12.6	7.6
	FY06	18,469	1,807	878	7	19	21	11.9	8.0
	FY07E	20,655	2,181	1,007	8	21	21	9.1	5.6
<b>Gujarat Narmada Valley Fertilizers Co Ltd</b> (CMP: 112) (MCap: USD365mn)	FY05	18,226	4,035	2,267	15	26	26	6.5	4.7
	FY06	21,476	5,027	3,060	20	33	29	5.1	3.6
	FY07E	27,393	5,763	3,265	21	32	25	5.0	3.2
<b>Godavari Fertilisers &amp; Chemicals Ltd</b> (CMP: 105) (MCap: USD75mn)	FY05	11,936	503	171	5	26	42	15.3	10.0
	FY06	15,185	683	261	8	14	29	11.0	10.7
	FY07E	18,005	1,169	493	15	19	42	6.7	6.8
<b>Gujarat State Fertilisers</b> (CMP: 178) (MCap: USD316mn)	FY05	26,066	4,385	1,321	17	31	27	9.7	5.4
	FY06	28,307	5,520	2,644	33	20	23	5.4	4.5
	FY07E	33,187	4,869	2,803	35	18	20	4.9	4.2
<b>Nagarjuna Fertilizers &amp; Chemicals</b> (CMP: 24) (MCap: USD246mn)	FY05	12,664	3,027	128	0	11	1	-	-
	FY06	14,529	3,042	654	1	5	4	-	-
	FY07E	18,152	3,079	317	1	6	2	19.9	6.3
<b>Zuari Industries Ltd</b> (CMP: 167) (MCap: USD110mn)	FY05	28,816	1,027	(23)	(1)	14	(2)	NA	11.7
	FY06	35,690	1,450	495	17	10	17	13.3	13.4
	FY07E	36,132	2,456	1,216	41	13	24	3.4	NA

Source: Company, ENAM Research



## Appendix 7



The screenshot displays the Humate International website's product guide for ProBiotic. The page has a green background with white text. At the top left, the company name 'Humate International' is visible. Below it, there are navigation links for 'Product Guide' and 'About Us'. The 'Product Guide' section is highlighted. Underneath, there is a sub-section for 'Available Quantities' listing three options: '50 lbs. bags', '1/2 Ton tote bags', and '1 Ton tote bags'. To the right, the 'ProBiotic' section provides a detailed description of the fertilizer, highlighting its slow-release nature and unique formulation. Below this, the 'Application rates and frequency' section offers specific instructions on how to apply the fertilizer to turfgrass, including the initial application rate and how to adjust it over time.

# Humate International

[Product Guide](#)

[About Us](#)

## Available Quantities

- 50 lbs. bags
- 1/2 Ton tote bags
- 1 Ton tote bags

## ProBiotic

Slow-release fertilizers, sized for general-purpose and greens-grade applications. The PROBIOTIC fertilizers are complex blends of plant materials plus urea in a unique, slow-release form and micronutrients designed to stimulate the natural fertility of the soil. The PROBIOTIC technology is patented for use with HUMATE Ag to create a balanced, efficient, high-energy, low-stress soil environment.

### Application rates and frequency

PROBIOTIC is an aerobic fertilizer. It should, therefore, be applied to the top two inches of soil, using either a drop spreader or broadcast spreader, and worked into the soil. For best results on turfgrass, apply together with HUMATE Ag1635, preferably when verti-cutting, aerifying, or top-dressing. Lightly brush and/or water in. When applied at the specified rate, PROBIOTIC fertilizer will not burn.

The initial application of PROBIOTIC on turfgrass should be 10 lb./1000 ft<sup>2</sup>. As your soil environment improves, slowly reduce this rate until you reach 5 to 6 lb/1000 ft<sup>2</sup>. Each application should last at least four and more likely six weeks.

[http://www.humateintl.com/productdetail\\_ProBiotic.htm](http://www.humateintl.com/productdetail_ProBiotic.htm)

**Appendix 8**

