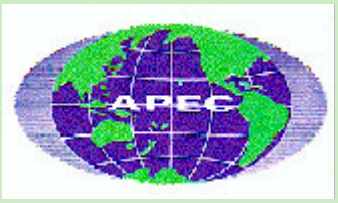
PASCN Philippine APEC Study Center Network

PASCN Discussion Paper No. 98-13

The Effects of the APEC Early Voluntary Sectoral Liberalization on the Fertilizer Sector

Marissa Macam et al.



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For comments, suggestions or further inquiries please contact:

The PASCN Secretariat
Philippine Institute for Development Studies
NEDA sa Makati Building, 106 Amorsolo Street
Legaspi Village, Makati City, Philippines
Tel Nos: 893-9588 and 892-5817

The Effects of the APEC Early Voluntary Sectoral Liberalization (EVSL) on the Fertilizer Sector*

Ms. Marissa M. P. Macam
Ms. Cristina M. Bautista
Dr. Leonardo Llanzona

Abstract

This paper examines the effects of EVSL on the fertilizer sector, including the problems that prevent it from benefitting fully from the proposal. The export competitiveness of manufactured fertilizers, as evident by the computed revealed comparative advantage, has been declining and will be vulnerable in the face of greater competition. Hence, existing tariffs on these products should be maintained, but the non-locally produced fertilizers (including urea) should be liberalized. The economic and technical cooperation measures to be advanced in APEC are also discussed.

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* The views expressed herein do not necessarily represent the official views of the Philippine government in general, and/or the WTO/AFTA Advisory Commission in particular. This industry paper was prepared to provide some basic or background information; hence, in no way it is exhaustive. The intent is to offer the initial set of information for discussion and in the process, elicit the ideas that could be helpful in formulating the appropriate strategies in the development of this industry sector.

This paper was prepared under the "APEC Early Voluntary Sectoral Liberalization" project which was jointly funded by the WTO/AFTA Commission and the Philippine APEC Study Center Network (PASCN) in furtherance of the general objective of undertaking consensus building activities and other necessary measures to promote the Philippines as a competitive player in the global economy

The Effects of the APEC Early Voluntary Sectoral Liberalization (EVSL) on the Fertilizer Sector

M.M.P.Macam, C.M. Bautista and L.A.Lanzona

The APEC Economic Leaders endorsed during their Fifth Meeting (AELM) in Canada in November 1997 the early voluntary sectoral liberalization of fifteen (15) sectors. These sectors were identified to have a positive likely impact to trade, investments and economic growth in the respective economies and the whole APEC region. These are: environmental goods, services, toys, fish and fish products, forest products, gems and jewelry, oilseeds and oilseed products, chemicals, telecommunications, mutual recognition arrangement, energy sector, food sector, natural and synthetic rubber, fertilizers, automotive, medical equipment and instruments, and civil aircraft.

This paper focuses on the fertilizer sector proposed to the EVSL. The objective of this paper is to determine the possible problems of this sector that prevent it from being able to benefit fully from the EVSL proposed by APEC. In general, sectors that are more protected, less competitive, and more inefficient are expected to experience adverse consequences from the EVSL. Given these problems, paper will submit an action plan for the proper implementation of trade liberalization to this sector.

The remaining parts of the paper consist of the following sections. Section 2 provides a brief background of the sector, particularly in terms of the EVSL. This discusses the nominations of the fertilizer sector for the EVSL and the coverage. Section 3 provides a situationer of the sector under study. This will suggest the extent of the possible effects that EVSL will have on the sector and serve as backdrop for the measures on competitiveness that will be discussed. Section 4 features these computed measures of competitiveness, and given these measures and other available data, discusses the implications of the EVSL to the sector. Section 5 provides the conclusion and recommendations on how to make these industries more competitive and efficient in an environment of lesser protection.

Nominations of Fertilizer Products for EVSL and Coverage

The fertilizers are among the fifteen sectors eyed for inclusion to the EVSL, as nominated by the member economy of Canada. This sector is made up of primary producers engaged in the mining and/or production of fertilizer raw materials and secondary manufacturers who produce various processed and semi-processed fertilizer products.

The Harmonized System (HS) product codes specified in the proposal are fertilizer products classified under Chapter 31:

* Faculty members of the Economics Department, Ateneo de Manila University. The research assistance of Jocelyn Hermoso is greatly appreciated. The useful comments of Ponciano Intal and Myrna Austria are gratefully acknowledged. The remaining errors are the authors' responsibility.

HS Code	Product Description
25.03	Sulfur of all kinds, other than sublimed sulfur and colloidal sulfur
2809.20	Phosphoric acid and polyphosphoric acids
2814.10	Anhydrous ammonia;
31.01	Animal or vegetable fertilizers, whether or not mixed together or chemically treated; fertilizers produced by the mixing or chemical treatment of animal or vegetable products;
31.02	Mineral or chemical fertilizers; nitrogenous;
31.03	Mineral or chemical fertilizers; phosphatic
31.04	Mineral or chemical fertilizers; potassic
31.05	Mineral or chemical fertilizer containing two or three of the fertilizing elements nitrogen, phosphorous, and potassium; other fertilizers; goods of Chapter 31 in tablets or similar forms or in packages of a gross weight not exceeding 10 kg.

The nomination was based on the important role the sector plays as it promotes food production to meet and sustain basic food demand from population growth. It represents a major global industry that accounts for a significant level of trade among APEC economies. Based on the nomination, the Asia-Pacific region is a significant user of fertilizers accounting for an estimated sixty-seven percent of total world consumption in 1996, with larger than average growth in Asia. Forecasts for world fertilizer use in the year 2000 are about one hundred fifty million tons per year, with a significant portion of demand coming from APEC economies. Changing agricultural practices, more intensive cropping and the introduction of higher-yielding plant varieties may further contribute to increase fertilizer requirements.

All Most Favored Nation (MFN) fertilizer tariffs identified in the proposal are to be eliminated by January 1, 2004 and subsequently bound in WTO Schedules at zero under the following tariff implementation schedules:

Uruguay Round supporters of the Chemical Tariff Harmonization Agreement (CTHA) would be expected to implement tariff reductions on an expedited basis in advance of developing economy members by 2001. Other members would generally remove tariffs by the same date, but could request in special circumstances and on a case by case basis, flexibility to delay the removal of tariffs on a limited number of products (defined on an HS 8 digit line basis) until January 1, 2004.

APEC economies that are not WTO members could implement the commitments on an autonomous basis until they have completed the WTO accession process and have bound the commitments in their new schedules.

Industry Background and Performance

This section provides a backdrop for the analysis of the effects of the EVSL. The main issue is to determine the key factors which can be influenced by trade liberalization. The strengths and weaknesses of the sector, based on the discussions with the sector representatives, are also presented here.

Structure. Currently, there are eleven (11) fertilizer manufacturers in the Philippines, producing organic and inorganic fertilizers (chemical fertilizers and phosphatic-based fertilizers). Of these, four are manufacturers of phosphatic-based fertilizers (NP/NPK compounds), with aggregate capacity of 1.69 million metric tons per year. The biggest company (Philippine Phosphate Fertilizer Corporation), partly owned by the Philippine government, takes up about 70 percent of the aggregate capacity and is the only one that has the capacity to export. The remaining 30 percent is shared between the other three privately-owned companies.

Four firms manufacture organic fertilizers; and there is only one firm that produces each of the chemical fertilizers and potassium sulfate.

Rivalry exists within the industry not only among the manufacturers but also between importers and handlers/blenders. This usually comes in the form of price competition, product quality, product positioning, production efficiency, extension services, marketing, technological differences, economy of scale, etc.

The industry's supporting and allied industries include transportation, distribution services, smelting and cement industry. The local shipping industry is pivotal to the distribution of fertilizers, so are other allied industries such as warehouse services, trucking services, stevedoring, etc. Sulfuric acid, a by-product of copper smelting, is used in fertilizer production. Moreover, the chemical industry provides other industrial and laboratory chemicals. At the tail-end of the production, a fertilizer processing by-product gypsum is utilized as a retarder by the cement industry.

With the sector's close link to agriculture, it becomes inevitable for a government body to regulate the industry. The Fertilizer and Pesticides Authority oversees the distribution of crop protection products through licensure. The industry boasts of a trade association, the Crop Protection Association of the Philippines (CPAP), which spearheads efforts to make available different types of crop protection products. Its mandate includes importation and sales of fertilizers and agricultural chemicals.

Strengths and Opportunities. The sources of the local industry's strength are in its (i) very role in the country's agricultural economy where a huge potential demand holds, (ii) proximity to the other Asian markets, and (iii) human resources composed of managerial experts and skilled and semi-skilled labor.

The fertilizer industry is a vital component of the agricultural economy. With the government's agricultural modernization plans, the fertilizer and agricultural chemicals industry is bound to adjust to these policy directions. However, with the current agricultural trend of veering away from chemical fertilizers, existing production modes could be altered, shifting the focus to organic fertilizer production.

Another industry strength is the large demand for the product. Local demand alone posted an average annual growth rate between 7 percent to 10 percent in the past twenty-five years. The Department of Agriculture's Gintong Ani program is also expected to spur fertilizer usage by 20-30 percent over the next two years. New government programs for the construction of additional infrastructure for irrigation and post-harvest facilities provides more opportunities for the fertilizer industry. Another advantage of the Philippines, relative to countries like Canada or US which have the indigenous raw materials, is that it is nearer to other agriculturally dependent economies like China, Vietnam, Indonesia, Malaysia to name a few of the export markets. Phosphate consumption in the Asian region is estimated to grow at 2.2 percent per year.

The industry development plan covered by a memorandum of agreement signed by the president calls for the adoption of a flexible pricing scheme. The plan focuses primarily on materials and handling costs reduction and the conduct of research and development for product diversification.

While the industry is heavily dependent from foreign sources for most of its raw materials, there are prospects for the future local development of some of those inputs. For instance, Palawan has the potential to produce natural gas which can be used to produce urea. Local petroleum companies have started recovering sulphur, a by-product of gas purification and fuel refineries, from their operations.

Significance to the economy. The fertilizer industry has played a key role in enhancing the productivity of the agricultural sector and increasing crop production. Industry representatives claim that in the Philippines, major crops like rice and sugarcane, are dependent on fertilizer for increased yields. Accordingly, these crops account for the major portion of total fertilizer consumption. Rice consumes 42 percent of total fertilizer supply, sugar consumes 37 percent, corn accounts for another percent 6, and vegetable and other crops, 1percent.

Table 1 indicates that from 1990 to 1993, the fertilizer industry provided direct employment to around 2,000 workers a year with an average annual growth rate of 1.5 percent. Average employment per establishment, however, posted a negative growth rate of 4.6 percent during the 1991-1993 period.

The industry's real census value added in the manufacturing had grew by 15.7 percent per year from 1990 to 1993. Labor productivity, measured here as real census value added per worker, likewise grew by 12.9 percent per year during the same period. This occurred in spite of declining flow of capital expenditures.

Fertilizer products. Fertilizers provide the primary nutrients such as potassium necessary for crop growth. These elements may be taken singly or in combination to produce fertilizers of various types and grades. Complex fertilizers refer to products containing two or all those primary plant nutrients, indicated as NP/NPK.

There are two distinct processing types being utilized by the local firms to manufacture the NP/NPK fertilizers. The biggest manufacturer utilizes the "chemical process" type of production using all imported raw materials such as phosphate rock, anhydrous ammonia, potash and sulfur. The rest of the manufacturers tagged as "blenders/granulators" apply the "steam granulation/compaction process" to produce

fertilizers using intermediate products like diammonium phosphate (DAP or 18-46-0), monoammonium phosphate (MAP or 11-52-0), superphosphate, urea (46-0-0), ammonium sulfate - "ammosul" or (21-0-0), muriate of potash (MOP or 0-0-60) or SOP (0-0-52) as their inputs to production.

Table 1. Performance Indicators for the Fertilizer Sector (Ten or more employees)

INDICATORS	1990	1991	1992	1993	Average Growth (%)
Number of establishments	10	9	10	12	7.0
Employment	1,951	1,657	2,210	1,907	1.5
Average employment per establishment	195	184	221	159	- 4.6
Capital expenditures During the year (P1,000)	232,496	104,225	161,098	58,886	- 21.4
Real capital expenditures (P1,000)	130,719	50,328	70,595	23,394	- 29.4
Census value added (P1,000)	1,706,822	2,084,923	3,675,911	3,328,840	29.7
Real census value added (P1,000)	959,644	1,006,771	1,610,829	1,322,490	15.7
Census value added per Worker (P1,000)	875	1,258	1,663	1,746	27.0
Real census value added per worker (P1,000)	492	608	729	693	12.9

Notes: Real values were obtained by deflating the original nominal values by the implicit price index for industrial chemicals, under which fertilizer manufacturing falls, for 1990 to 1993. No disaggregated data exist for firms with less than 10 employees.

Source of Data: Annual Survey of Establishments for the Manufacturing Sector (1990-1993), National Statistics Office.

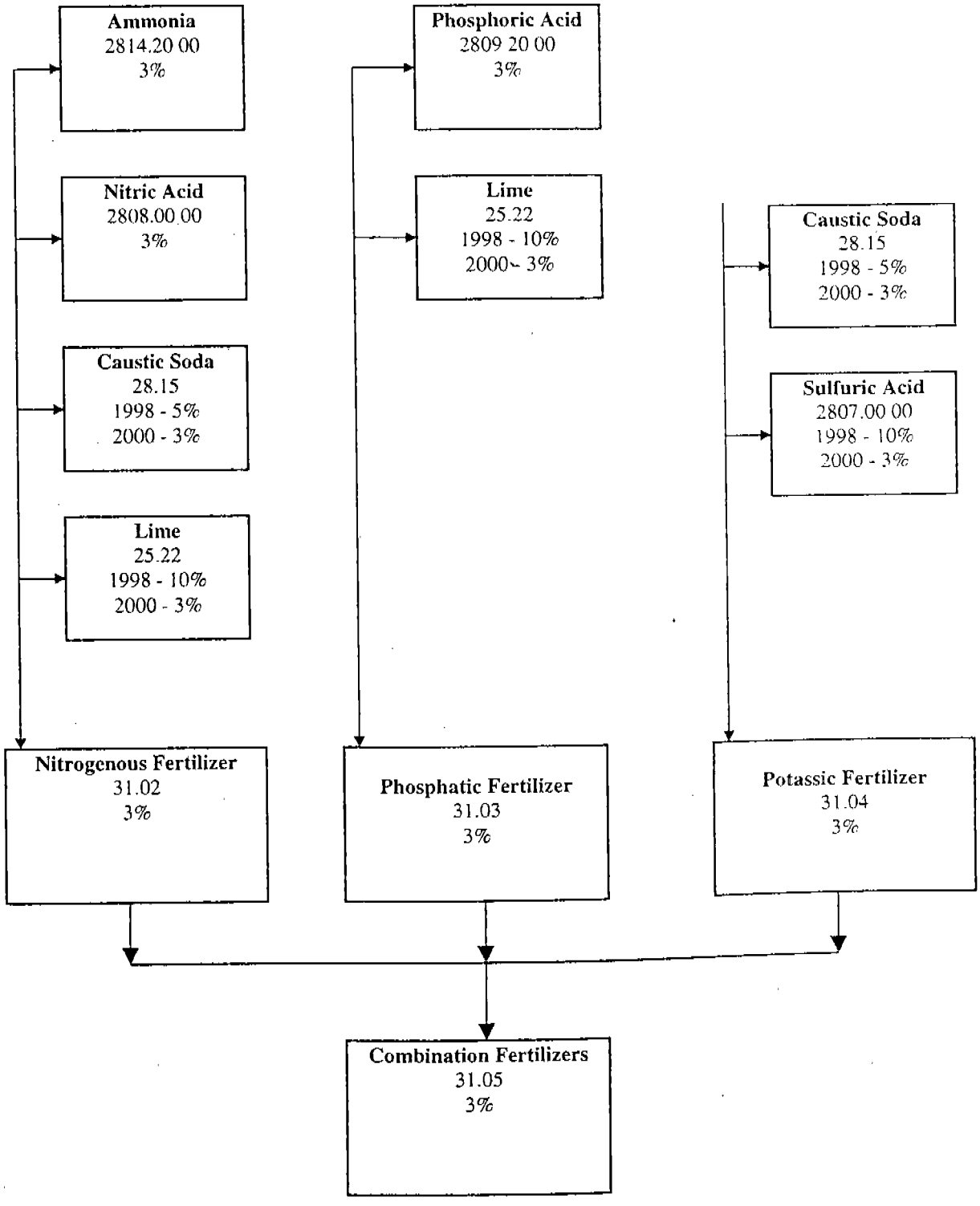
Locally manufactured fertilizers are NP/NPK (16-20-0, 18-46-0, 14-14-14, 16-16-8), ammosul (21-0-0) and merchant grade phosphoric acid (MGPA or 54% P_2O_5). Table 2 lists the complex fertilizers manufactured locally and its raw materials. Figure 1 shows the linkage chart of the fertilizer products. Note that only phosphoric acid and finished fertilizers indicated in the chart are nominated for EVSL. The rest of the raw materials used by the industry are excluded from the proposal.

Table 2. Raw materials, intermediate products and locally manufactured fertilizers.

HS CODE	DESCRIPTION
Raw Materials:	
2510.10 00)	Phosphate rock
2510.20 00)	
2814.10 00	Anhydrous ammonia
2807.00 00	Sulfur
31.03	Potash
Intermediate Products:	
3105.30 00	Diammonium phosphate (DAP)
3105.40 00	Monoammonium phosphate (MAP)
3104.90 00	Superphosphate (SOP)
	Muriate of potash (MOP)
3102.10 00	Urea
3102.21 00	Ammonium sulfate
Locally Manufactured Fertilizers	
3105.20 00	NPK fertilizers: 14-14-14; 16-16-8
3105.5100)	NP fertilizers: 16-20-0; 18-46-0
3105.59 00)	
2809.20 00	Merchant Grade Phosphoric Acid (MGPA)
3102.21 00	Ammonium Sulfate

Source of basic data: Fertilizer Industry Report, Tariff Commission and Board of Investments.

Linkag


Ammonia
2814.20 00
3%
Nitric Acid
2808.00 00
3%
Caustic Soda
28.15
1998 - 5%
2000 - 3%
Lime
25.22
1998 - 10%
2000 - 3%
Phosphoric Acid
2809 20 00
3%
Lime
25.22
1998 - 10%
2000 - 3%
Caustic Soda
28.15
1998 - 5%
2000 - 3%
Sulfuric Acid
2807.00 00
1998 - 10%
2000 - 3%
Nitrogenous Fertilizer
31.02
3%
Phosphatic Fertilizer
31.03
3%
Potassic Fertilizer
31.04
3%
Combination Fertilizers
31.05
3%

Demand and Supply. There are about 4.6 million Filipino farmers who use fertilizers as inputs in their farm production. These farmers predominantly use inorganic fertilizers -the nitrogen-based (urea and ammosul) and the phosphate-based (NP/NPK grades). Urea and potash are both imported while complex fertilizers (NP/NPK grades) are produced locally. Ammosul comes from both local production and importation (Table 3).

The local market demand for NP&P and NPK grades are sufficiently supplied by the industry. During the 1993-1996 period, the fertilizer industry supplied about 92 percent of the estimated local demand for NP/NPK fertilizers.

Estimated local consumption (production plus imports less exports) of complex fertilizers has been on an upward trend from 1993 to 1996. It grew at an annual average rate of 25 percent during the same period (Table 4). In 1996, estimated local consumption of NP/NPK fertilizer grades was 1.04 million metric tons.

Table 3. Philippine demand for fertilizers, by product (in '000 metric tons), 1990-96.

Year	Urea	Ammosul	NP&P	NPK	Potash	Others	Total
Local Production							
1990	0	0	475.8	453.5	5.0	n.a.	934.4
1991	0	0	363.0	636.2	7.6	1.0	1,007.7
1992	0	0	429.2	494.1	6.7	n.a.	930.1
1993	0	0	431.6	597.3	6.6	n.a.	1,035.5
1994	0	0	427.3	665.3	6.3	n.a.	1,098.9
1995	0	19.5	502.2	861.0	7.0	n.a.	1,389.7
1996	0	185.6	489.5	917.5	8.0	n.a.	1,600.6
Importation							
1990	607.8	289.7	46.3	34.4	129.4	10.8	1,118.4
1991	436.0	410.8	64.2	5.7	178.6	6.9	1,102.2
1992	567.4	389.0	72.9	7.4	114.2	12.4	1,163.3
1993	638.1	239.1	93.7	0	110.4	17.9	1,099.2
1994	672.0	253.5	99.3	2.0	59.9	44.0	1,130.7
1995	651.9	282.1	84.7	0	179.2	39.6	1,237.5
1996	660.1	166.3	143.4	0	205.5	15.0	1,190.3
Production as a Percentage of Local Demand							
1990	0	0	91.1	92.9	3.7	0.0	45.5
1991	0	0	85.0	99.1	4.1	12.7	47.8
1992	0	0	85.5	98.5	5.5	0	44.4
1993	0	0	82.2	100.0	5.6	0	48.5
1994	0	0	81.1	99.7	9.5	0	49.3
1995	0	6.5	85.6	100.0	3.8	0	52.9
1996	0	52.7	77.3	100.0	3.7	0	57.4

n.a. - no available data
Source of Data: Fertilizer and Pesticide Authority, as cited in the 1997 Philippine Statistical Yearbook.

Table 4. Estimated local consumption of NP/NPK fertilizer products (in '000 metric tons), 1993-1996.

Year	Local Production a/	Imports a/	Local Market Demand	Exports b/	Estimated Local Consumption c/
1993	1,028.9	93.7	1,122.6	580.0	542.6
1994	1,092.6	101.3	1,193.9	579.0	614.9
1995	1,363.2	84.7	1,447.9	677.0	770.9
1996	1,407.0	143.4	1,550.4	507.0	1,043.4

Sources of Data: a/ Fertilizer and Pesticide Authority, as cited in the 1997 Philippine Statistical Yearbook.
b/ Fertilizer Industry Report.
c/ Estimated as production plus imports less exports.

The fertilizer industry identifies the following production factors: human resources, natural resources (there is no local source for basic input raw materials for manufacturing such as phosphate rock, ammonia, potash, and sulfur), climate, knowledge resource (need for upgrading training and technical know-how) capital, power (cost of power), and infrastructure (need to develop irrigation and post-harvest facilities, farm to market roads, port facilities, and transportation systems).

Weaknesses and Problems. There are two major sources of weaknesses in the fertilizer industry. One emanates from the sectors to which it is linked: the agricultural sector and the transport sector. The other source of weakness is within the industry itself.

The fertilizer industry is closely tied with its market, the farming sector. Agricultural problems tend to weaken the fertilizer industry. In which case, the infrastructure needs of the farming group, such as better farm roads, irrigation and post-harvest facilities, also become the concerns of the fertilizer industry. To the extent that farmers suffer from low output and income, lacks low-interest credit access and adequate extension services, little is left to meet their fertilizer needs. Industry representatives, together with the Department of Agriculture, encourage farmers to use balanced fertilization to increase farm yield. An example they recommend is to use phosphatic-based compounds that have nitrogen, phosphate and potash. But farmers appear to stick with urea even if it is not a balanced fertilizer.

The country's poor transport and distribution facilities also weaken the industry. Fertilizer distribution involves substantial inter-island and intra-island handling. Considering the small number of fertilizer manufacturers and the relative distances their delivery vehicles travel to reach their farming clients, the state of transport facilities and infrastructure becomes another vital determinant of the industry's strength or weakness. For instance, the cost of chartering a shipping vessel can reach P50,000.00 a day. If the vessel gets stuck in the port due to delayed handling, the company will continue to incur that amount each day of the delay.

Internally, the industry has to contend with the fact that most of its raw materials are imported, making its member firms vulnerable to changes in trade conditions and policies. While the Philippines is expected to have enough local supplies of compound phosphatic (NP/NPK) fertilizers, the importation of nitrogenous (urea and ammonium sulfate) grades will continue until an adequate supply of natural gas deposit has been tapped and developed.

Furthermore, the industry sees trading malpractices resulting from the competitive rivalry among the industry players as one of the factors undermining the sector.

Investments. From 1990 to 1993, real capital expenditures were falling at an average rate of 29 percent (Table 1). However, the industry disclosed during the roundtable discussion of 6 April 1998 about new investment ventures which include renovations currently being undertaken on the existing facilities and the setting up of a new Sulfuric Acid Plant project by one of the big manufacturers.

Export Performance. Of the four manufacturers of phosphate-based fertilizers, it is PHILPHOS which has the capacity to export. The growth of exports was relatively erratic registering high growth rate in 1994 and negative growth rates in 1993 and 1996.

The deteriorating export performance is also evident by the declining contributions of the industry to the country's total exports (Table 5). From a mere 1.05 share to total exports in 1992, exports of fertilizer contributed even lesser than one percent in 1996.

Table 5. Philippine exports and imports of fertilizers, 1992-1996.

Year	Exports (US $ FOB Value)	Contribution to total exports (%)	Imports (US $ CIF Value)	Contribution to total imports (%)
1992	103,360,358	1.05	190,881,451	1.31
1993	97,484,342	0.85	168,407,999	0.96
1994	109,997,779	0.82	231,818,657	1.09
1995	120,011,144	0.69	287,248,076	1.08
1996	114,694,963	0.56	297,437,132	0.92

Source: Philippine Foreign Trade Statistics, 1992-1996, National Statistics Office.

- *Export Products.* The top exportable fertilizer products are the mineral or chemical fertilizers containing phosphorous and potassium (H.S. 3105.60), diammonium phosphate (H.S. 3105.30), ammonium nitrate (H.S. 3102.30) and monoammonium phosphate (H.S. 3105.40). The country, however, is losing its strength in the monoammonium phosphate and animal or vegetable fertilizers (H.S. 3101.00) as evident by the diminishing share of the products in the total fertilizer exports (Table 6). Phosphoric acid (HS2809.20 00) and mineral or chemical fertilizers containing N,P and K (HS3105.20 00) seem to be export potential products in the early 1990s but lost their strength in the world market by 1995. Note that the country is gaining strength in the export of ammonium sulfate (HS 3102.21 00) in the world market inspite of the fact that production of this product started only in 1995.

Table 6. Distribution of Philippine fertilizer exports by product, 1992-1996

H.S. Code	Fertilizer Product	1992	1993	1994	1995	1996
2809.20	Phosphoric acid & polyphosphoric acid	14.6	11.1	7.8	0.0	0.0
3101.00	Animal & vegetable fertilizer	0.1	1.2	0.1	0.1	0.1
3102.21	Ammonium sulphate	0.0	0.0	0.1	0.0	10.4
3102.30	Ammonium nitrate	4.9	7.7	7.9	7.3	10.1
3104.20	Potassium chloride	0.0	0.0	0.3	0.0	0.0
3104.30	Potassium sulphate	0.0	0.0	0.0	0.3	0.3
3105.20	Mineral or chemical fertilizers containing N,P,K	49.3	24.0	7.6	0.0	0.0
3105.30	Diammo-nium phosphate (18-14-0)	16.4	11.8	15.8	12.1	12.8
3105.40	Monoammonium phosphate	14.2	22.6	22.3	13.9	4.8
3105.51	Mineral or chemical fertilizers containing nitrates & phosphates	0.5	0.0	0.0	0.0	0.0
3105.60	Mineral, chemical fertilizers containing P & K	0.0	21.5	38.3	66.3	61.5
3105.90	Other fertilizers	0.0	0.1	0.0	0.0	0.0
	Total	100.0	100.0	100.0	100.0	100.0

Source of basic data: Philippine Foreign Trade Statistics, various years.

- ***Export Markets.***. The biggest market for fertilizers is the APEC economies comprising an average of 49.2 percent from 1992 to 1996 (Table 7). The share of the region however has continually slowed down starting in 1994. By 1996, it regained back its lost share and captured 30.6 percent of the country's total fertilizer exports.

Table 7. Philippine exports of fertilizers to APEC (FOB US$), 1992-1996.

Year	APEC	Rest of the World	Total	% Share of APEC
1992	72,186,204	31,174,154	103,360,358	69.75
1993	64,993,533	32,490,809	97,484,342	65.01
1994	58,164,462	51,833,317	109,997,779	52.86
1995	33,901,643	86,109,501	120,011,144	27.97
1996	35,191,782	79,503,181	114,694,963	30.68

Source of basic data : National Statistics Office

Vietnam, Indonesia, Thailand, and Australia have consistently been the four biggest markets of the Philippine fertilizer exports during the period. Based on Philippine trade data statistics, Vietnam captured about 49 percent of total fertilizers exported during the 1992-1996 period. Except for Indonesia, the three countries have contracted their demand in 1996 (Table 8). The country could be losing out with Korea, Mexico and with other major players in the market such as the United States and Canada, all of which are also APEC member countries (Table 9).

The U.S. and Canada considered as the country's major competitors ranked first and second respectively in world exports of manufactured fertilizers. Indonesia, Mexico and Korea ranked 15th, 17th and 18th , respectively, world exporters of manufactured fertilizers, while the Philippines followed Malaysia closely and ranked only 33rd in 1995.

Table 8. Market destination of exported fertilizer products (FOB Value in million US $), 1993-1996

Country	1993	1994	1995	1996	1997
Vietnam	24.12	27.94	51.18	84.71	79.34
Australia	1.21	0.99	1.22	2.47	1.14
Indonesia	10.81	10.67	15.24	7.76	23.71
Thailand	28.58	31.38	40.45	19.28	5.60
Japan	2.82	0.09	0.12	0.05	0.07
China	27.99	17.62	*	-	*
Korea	0.54	-	-	-	1.73
Hong Kong	*	0.95	0.07	-	1.31
Taiwan	*	1.61	0.01	0.01	-
USA	-	*	*	0.02	0.01
Papua New Guinea	0.54	-	0.98	0.59	1.25

Note: *less than one million
- zero exports
Source of basic data: Philippine Foreign Trade Statistics

Table 9. Percent share in world exports of manufactured fertilizer products of APEC economies, 1991-1995.

Country	1991	1992	1993	1994	1995
Canada	12.43	11.09	13.40	13.59	11.39
China	0.23	0.24	0.48	0.56	0.88
Indonesia	2.72	1.58	1.59	1.55	1.86
Japan	1.09	0.93	1.09	0.84	0.82
Korea, Rep. of	1.54	1.67	1.77	1.81	1.91
Malaysia	0.73	0.74	0.77	0.67	0.82
Mexico	1.06	0.68	0.55	0.97	1.78
Philippines	1.06	0.76	0.90	0.88	0.81
USA	n.a.	20.54	19.14	23.48	21.81
Other countries	79.15	61.79	60.32	55.66	57.91

n.a. - no available data
Source of basic data : United Nations International Trade Statistics, 1996.

Imports Performance. Around 45 percent of the country's supply of fertilizers is sourced from local production while the balance are imported. The country's importation of fertilizers followed an erratic trend from 1992 to 1996 (Table 10). On the average, it grew by 13.3 percent per year. Imports fell by 11.7 percent from US $190 million in 1992 to US $168 million in 1993, bringing down slightly the commodity's share to total Philippine imports from 1.3 percent to 0.96 percent (Refer back to Table 3). In 1996, imports contracted to only 3.5 percent growth rate relative to 23.9 percent growth rate during the previous year. The contraction in imports may be traced from the increase in local fertilizer production of about 210.9 metric tons from 1,389 metric tons in 1995 to 1,600.6 metric tons in 1996. Note that the increase in local fertilizer production was mainly due to the expanded production of the phosphate-based fertilizers (NP& P and NPK grades).

Table 10. Annual growth rates of fertilizer imports, 1992 – 1996.

Year	Imports (US $ CIF Value)	Growth Rate (%)
1992	190,881,451	-
1993	168,407,999	(11.77)
1994	231,818,657	37.65
1995	287,248,076	23.91
1996	297,437,132	3.55

Note: Figures in parentheses refer to negative figures.

- ***Import Products.*** The fertilizer products being imported and most widely-used by farmers are urea (H.S. 3102.10 00), ammonium sulfate (H.S. 3102.21 00), potassium chloride (H.S. 3104.20 00) and muriate of potash (H.S. 3104.90 00) (Table 11).

- ***Sources of imports.*** Of the country's total fertilizer importation, an average of 52.4 percent came from APEC member countries during the 1992-1996 period (Table 12). Major sources of fertilizers from APEC in descending order are Indonesia, Canada, Japan, USA, and Korea. The rest include Malaysia, Singapore, China, Australia, Hong Kong, Chile, and Thailand. Other sources of imports were the Middle East and European countries such as Saudi Arabia, Qatar, USSR, Romania, Kuwait, Belgium, and Jordan.

Indonesia and Canada have increased their shares in Philippine imports of fertilizers from 1992 to 1995. Both countries, however, slipped slightly in the preceding year. Japanese, American and Korean shares to Philippine imports were unstable during the 1992 to 1996 period. China has been significantly losing its share in Philippine imports from 1995 to 1996 following its greater share (ten percent) of the country's imports in 1994 (Figure 2). Canada, the nominating country for the EVSL of fertilizer supplied an average of 4.5 percent of the country's total importation of fertilizers.

Table 11. Distribution of fertilizer imports by product, 1992 - 1996

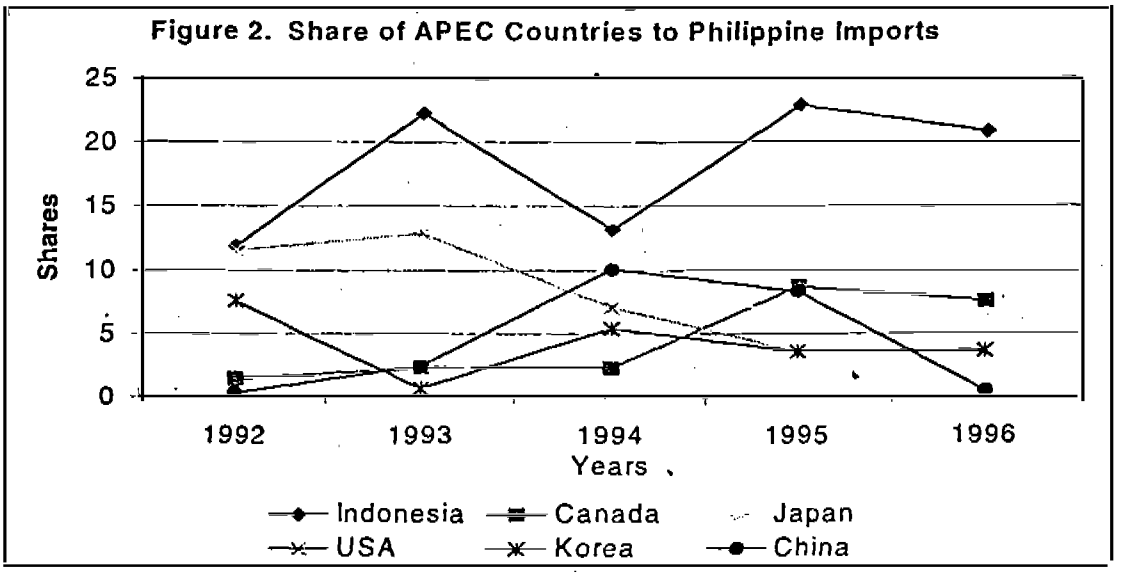
H.S. Code	Product	1992	1993	1994	1995	1996
25.03	Sulphur	1	1	2	8	9
2809.20 00	Phosphoric & polyphosphoric acid	1	1	1	1	1
2814.10 00	Anhydrous amonia	10	10	10	12	13
3101.00 00	Animal or vegetable fertilizers	0	0	0	0	0
3102.10 00	Urea	46	47	44	44	42
3102.21 00	Ammonium sulphate	13	13	15	11	10
3102.30 00	Ammonium nitrate	0	0	0	0	0
3102.40 00	Mixtures of ammonium nitrate	0	0	0	0	0
3102.50 00	Sodium nitrate	1	0	0	0	0
3102.60 00	Double salts and mixtures of calcium, nitrate and ammonium nitrate	0	0	0	0	0
3102.90 00	Calcium cyanide	0	0	0	0	0
3103.10 00	Superphosphate	0	0	0	0	0
3103.90 00	Other mineral or chemical fertilizers, phosphatic	1	1	0	0	0
3104.20 00	Potassium chloride	13	13	13	12	15
3104.30 00	Potassium sulphate	6	3	0	0	0
3104.90 00	Other (Mineral or chemical fertilizers, potassic)	0	0	0	0	0
3105.20 00	Mineral or chemical fertilizer with N,P,K	1	1	1	0	1
3105.30 00	Diammonium phosphate	7	9	10	11	6
3105.40 00	Monoammonium phosphate	1	1	3	0	1
3105.51 00	Other mineral & chemical fertilizers containing nitrates and phosphates	0	0	0	0	0
3105.59 00	Other mineral and chemical fertizers with N and P	0	0	1	1	0
3105.60 00	Mineral or chemical fertilizer w/ phosphorous & potassium	0	0	0	0	0
3105.90 00	Other (mineral or chemical fertilizers w/ N,P,K)	0	0	0	0	2
	Total	100	100	100	100	100

Source of basic data: Foreign Trade Statistics,(various years, National Statistics Office)

Table 12. Imports value of fertilizer from APEC, 1992-1996.

Year	APEC	Rest of the World	Total	% Share of APEC
1992	83,320,687	107,560,764	190,881,451	43.65
1993	94,573,653	73,834,346	168,407,999	56.16
1994	120,326,897	111,491,760	231,818,659	51.91
1995	162,610,681	124,637,395	287,248,076	56.61
1996	159,661,757	137,775,375	297,437,132	53.68

Source of basic data: Philippine Foreign Trade Statistics, various years.



Net Trade. The net trade in fertilizer industry is negative for the past five years. (Table 13). The sluggish performance of the sector during the past five years seems to indicate the greater dependence and usage of imported fertilizers by the farmers. Although some fertilizers were exported during the same period, imports still grew at a faster rate than those of exports.

Table 13. Net Trade of Fertilizers Sector, 1992-1996

YEAR	NET TRADE
1992	(87,521,093)
1993	(70,923,657)
1994	(121,820,878)
1995	(167,236,932)
1996	(182,742,169)

Source of basic data: Foreign Trade Statistics,various years.

Expected Impact of the EVSL

As shown in Table 14, the average nominal tariff on finished fertilizers included in the EVSL proposal was at 3 percent from the 5 percent level in 1990. For items classified as raw materials but not necessarily inputs to finished fertilizers considered in the study, average tariff declined from 11.25 in 1990 to 3 percent 1998. The tariffs were put in place by the Tariff Reform Program implemented under Executive Orders 470 (effective 24 August 1991), 264 (effective 15 January 1996) and 465 (effective 22 January 1998). The low tariff levels were provided to assist the local farmers access to cheaper inputs for their farm production.

Table 14. Nominal Tariffs of Fertilizer Product Sectors, 1991-98*

Hdg. No.	Description	Rate of Duty (%)										
		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Raw Material												
25.03	Sulphur of all kinds, other than sublimed sulphur, precipitated sulphur and colloidal sulphur.	10.00	10.00	6.50	6.50	6.50	6.50	6.50	6.50	3.00	3.00	3.00
2809.20 00	- Phosphoric acid and polyphosphoric acid	15.00	15.00	15.00	15.00	15.00	15.00	15.00	3.00	3.00	3.00	3.00
2814.10 00	- Anhydrous ammonia	10.00	10.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Finished Product												
31.01	Animal or vegetable fertilisers, whether or not mixed together or chemically treated; fertilisers produced by the mixing or chemical treatment of animal or vegetable products.	5.00	5.00	0.00	0.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
31.02	Mineral or chemical fertilisers, nitrogenous.	5.00	5.00	0.00	0.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
31.03	Mineral or chemical fertilisers, phosphatic.	5.00	5.00	0.00	0.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
31.04	Mineral or chemical fertilisers, potassic.	5.00	5.00	0.00	0.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
31.05	Mineral or chemical fertilisers containing two or three of the fertilising elements nitrogen, phosphorus and potassium; other fertilisers; goods of this Chapter in tablets or similar forms or in packages of a gross weight not exceeding 10 kg	5.00	5.00	5.00	5.00	5.00	3.00	3.00	3.00	3.00	3.00	3.00
Average tariff on raw materials		11.25	11.25	7.75	7.75	7.75	7.75	7.75	4.75	3.00	3.00	3.00
Average tariff on finished products		5.00	5.00	2.35	2.35	3.94	3.00	3.00	3.00	3.00	3.00	3.00

*Up to EO 465
Source of basic data: Tariff Commission

Since the industry does not have any substantial impact on labor market, cost minimization by the firms in this industry, and perfect competition in the rest of the world, will be compatible with efficiency and welfare. Distortions in the fertilizer prices relative to other commodities may worsen if protection is once again introduced.

EVSL can have two main effects. First, there are the standard gains from trade resulting from lower import prices from abroad, benefiting both consumers of agricultural products and direct users of fertilizers. Second, as the local markets are integrated with the rest of the world, local suppliers will be forced to compete with foreign suppliers, thereby enhancing efficiency. Moreover, as efficiency is improved, the steady supply of this commodity can be assured.

Increasing supply of inputs to farmers. The reduction of tariffs will substantially increase the availability of fertilizers for farmers. Given the significant transaction costs incurred in distribution of fertilizers, a lower basic price for fertilizers may be desired. This will guarantee that even with mark-up pricing, the price of fertilizers that reaches the farmers will still be low.

Export competitiveness. Exports of fertilizer products have been erratic from 1992 to 1996. The value of exports declined from 1992 to 1993, then increased from 1993 to 1995, and finally slumped again in 1996. The industry's contribution to total exports has also been decreasing steadily.

Table 15 presents the revealed comparative advantage (RCA) indices of Philippine exports of fertilizer products from 1992 to 1995. The RCA is a ratio of a commodity group's export share in the country's total exports to the commodity's group share in the total world exports. A country has revealed comparative advantage (disadvantage) in exporting the good if the index is higher (lower) than unity.

The greater than one estimated RCA indices show that the Philippines has a revealed comparative advantage for manufactured fertilizers (SITC 562). Clearly, these products are likely to be ready to face foreign competition. Note, however, that while potential export competitiveness is evident, the values of the indices have generally diminished during the 1992-1995 period (refer back to Table 15). The relative share of manufactured fertilizers to the country's total exports has diminished while world exports increased from 1992 to 1995. This means that these fertilizers became less competitive during the same period. Hence, the opening up of the Philippine market with its APEC trading partners would also mean this fertilizer subsector will be also be vulnerable in the face of greater competition with foreign goods which have the due advantage in terms of price. With a diminishing niche in the world market, the fertilizer industry likewise decreases its capacity to export and compete with foreign goods.

Table 15. Revealed comparative advantage (RCA) indices for fertilizer manufactures (SITC Code 562).

YEAR	Share of Fertilizers, Manufacture (SITC 562) to	
	Philippine Exports	World Exports
1992	0.0090	0.0032
1993	0.0075	0.0026
1994	0.0075	0.0028
1995	0.0069	0.0030

Source of basic data: 1995 United Nations International Trade Statistical Yearbook, Philippine Foreign Trade Statistics, various years

As for crude fertilizer (SITC 271) and sulfur, unroasted iron pyrite (SITC) 274), the Philippines do not have the relative comparative advantage (as indicated by their lower than one unity RCA) to export such products in the world market. That being the case, these fertilizer subsectors would be made even more vulnerable with the introduction of trade liberalization.

Clearly, the government through taxes and subsidies should reallocate its resources towards the efficient and potential sectors in order to improve and increase their efficiency and sustain their competitiveness in terms of price and quality

Promote Efficiency in Production. One way of measuring the social costs of production is through the so-called domestic resource costs (DRC) estimate. This measures the sector's allocative efficiency in the use of domestic resources. When divided by the shadow exchange rate (DRC/SER), it measures the social cost of domestic resources used per unit of net foreign exchange saved from the production of a tradable good.

Industries can respond to greater competition by improving their efficiency. Based on a study by Pineda (1997), the industry was inefficient (DRC/SER = 5.69) in 1988 prior to tariff reform program (TRP) -phase II. But when TRP was effected (EO 470), DRC/SER improved at 0.90 in 1992. Table 16 shows these findings of Pineda along with the computed RCA and EPR estimates. Note that with the given trend towards liberalization starting in 1981, a reduced EPR, a lower DRC/SER, and a relatively high RCA level were all observed. This suggests that tariff liberalization is a contributing factor to its present efficiency and export competitiveness.

Table 16. EPR, DRC/SER, RCA estimates for fertilizer manufactures (SITC Code 562).

Description	EPR			DRC/SER		RCA			
	1992	1996	1998	1988	1992	1992	1993	1994	1995
Fertilizer Manufacture	3.45	2.30	2.32	5.69	0.90	2.82	2.88	2.71	2.29

Notes: Criteria Used for DRC/SER: Efficient (0.0-1.20), Mildly Inefficient (1.21-150), Inefficient (1.51-2.00), Highly Inefficient (> 2.00).
Sources: Pineda (1997), Tariff Commission (EPR estimates up to EO 486- May, 1998)

From these figures, it seems that the industry may be able to manage competition. The request of the industry for an upward tariff modification as a protective measure may then be uncalled for as it will only deny the farmers access to cheaper inputs.

The expectation that a natural gas will be produced in Palawan in the near future suggests that some protection is necessary for urea that is a by-product. However, tariffs are not the appropriate policy in this case. Imposing tariffs and protection can result in the adoption of substandard technology, as well as rent-seeking behavior. For the project to be viable and to adopt the right technology, the proper environment should be place, such as that of worldwide competition and liberalization, conditions which protectionism cannot provide.

. *Possible Decline in Product Quality*. Nevertheless, it is quite probable that with freer trade, only cheaper types of fertilizer may enter the economy. In particular, because urea is less expensive, only this component may be imported, thus resulting to an unbalanced quality of fertilizer. In this case, the government may intervene, but not through trade restrictions. Farmer information and other incentives for the other types of fertilizers may therefore be encouraged.

Increasing vulnerability of uncompetitive industries. Trade liberalization may also result in increasing vulnerability of uncompetitive industries such as some fertilizer subsectors. Subsectors, SITC 271 and 274, are uncompetitive (with lower than 1 estimated RCA values), and will be more vulnerable when faced with greater competition. Should the Philippines therefore liberalize its market with the APEC trading partners, these subsectors will further increase their vulnerability.

Moreover, the additional capacities of APEC competitors (i.e., Indonesia, China and Malaysia) coupled with relative competitive advantage in terms of quality and price put the local fertilizer industry particularly the phosphate-based fertilizer group at a disadvantage (Table 17). It is important to note the new entrants in the world export market of fertilizers also include APEC economies such as Australia and Thailand.

Table 17. New NP/NPK Capacities in Other APEC Economies.

Country	Aggregate Additional Capacities	Completion Date
Australia	1,000,000 t/y, DAP/MAP	1999
China	240,000 t/y, DAP	1997
	600,000 t/y, P205	1997 – 2000
Indonesia	600,000 t/y, NPK	1999
Malaysia	200,000 t/y , NPK	1998-1999
Thailand	1,750,000 t/y, NPK	1998-2000
Vietnam	980,000 t/y, NPK	1998-2000

Source: Fertilizer Industry Report

Hence, trade liberalization may be pursued but at a gradual process to ensure that appropriate adjustment measures are in place to assist the local industry and at the same time benefiting the farmers and users.

Proposed Domestic Policies

The Tariff Commission conducted consultations on 13 November 1997 regarding the proposed liberalization of seven (7) sectors including the fertilizer. AFC Fertilizer and Chemicals, Inc. along with three other producers namely PHILPHOS, SOILTECH, and FARMIX objected to the inclusion of chemical phosphate fertilizer

in the early liberalization. They held that they had the capacity to produce some 1.6 million metric tons of phosphatic fertilizers with a plant investment value of over P14 million at today's value while directly employing about 3,000 people and indirectly affecting the livelihood of another 10,000 people. The producers, however, interposed no objection to the liberalization of raw materials for fertilizers.

Nevertheless, given the importance of the fertilizer sector to agriculture, the government will have to guarantee that the distribution of fertilizers, whether imported or domestically produced, is improved. This should entail a steady supply of this input and the reduction of transaction costs that farmers incur from purchasing it.

Domestic programs and strategies to be implemented by the Philippine fertilizer industry:

1. Investments in research and development to upgrade the level of science and technology
2. Improvement of existing port facilities and construction of new ports in strategic areas
3. Support the Gintong Ani program
4. Promote techno-demonstration farms conducted by Agricultural Technicians to be monitored and evaluated after one crop season
5. Continuously make available technology and farm input within reach of farmers, in cooperation with government
6. Ensure adequate supply of fertilizers through adequate production and an extensive distribution system
7. Coordinate closely with various government agencies to accelerate development or irrigation infrastructure
8. Introduce and promote for adoption of farmers the use of in-store dryers, outdoor storage and moisture meters, in cooperation with government.
9. Ensure adequate fertilizer inventory during cropping season
10. Advocate for government support by way of incentives

Domestic programs and strategies to be implemented by the government:

1. Providing farm-to-market roads
2. Implementation of farm irrigation facilities
3. Rationalization of energy costs
4. Review of tariff structure to provide incentives to locally manufactured fertilizers
5. Reduction and stabilization of interest rates to provide accessible credit financing to farmers, cooperatives, and fertilizer handlers
6. Providing strategic post-harvest facilities and warehousing through the National Food Authority (NFA) to minimize losses and stabilize prices of grains.
7. Encourage support for the Gintong Ani program
8. Conduct a nationwide mapping of the status of fertility in agricultural areas by the Bureau of Soils and Water Management & Bureau of Agricultural Research
9. Ensure stable food supply through higher domestic production and, whenever necessary, importation and countertrade
10. Enactment of the Irrigation Act
11. Prioritize construction of multi-purpose drying pavements.

12. Study further the possible complete privatization of PHILPHOS, a partly government-owned corporation, to improve the efficiency and eliminate whatever market power it presently enjoys. There are several reasons why semi-government corporations, like PHILPHOS, should be privatized. For one, such companies have constricted competition. Second, their losses, if any, contribute to the government's budget deficit, contributing to macroeconomic instability. Privatization would then do two things simultaneously, improving economic efficiency and reducing fiscal deficits. If property rights could be created, the profit-maximizing behavior of the owners would eliminate waste and inefficiency. Furthermore, the sale of the enterprises would raise government revenue.

Nevertheless, what is more beneficial is an orderly restructuring, and the establishment of an effective legal structure (e.g., covering contracts, bankruptcy, corporate governance, and competition laws) prior to or at least concurrent to privatization. It may be possible for the benefits of privatization to be overestimated and the cost be underestimated, especially the political costs of the process itself and the resulting impediments. For instance, if competition is missing and if the firm is insulated from the world market, a private, unregulated monopoly will likely result from privatization, leading to even higher prices for consumers. Some evidence indicates that, protected from competition, private monopolies may suffer from several forms of inefficiency and may not be highly innovative. In this case, trade liberalization should be pursued alongside this process of privatization.

Conclusion and Recommendations

This section summarizes the above findings and discusses the extent to which tariffs can be further reduced for fertilizer products taking into account the current state of the industry and the likely impact the EVSL initiative may give to the industry. This section also identifies the possible specific measures or programs that will maximize the country's participation in the EVSL initiative and hence enable the industry to compete in a more open trading environment. The proposed programs that can be advanced to APEC for economic and technical cooperation will also be enumerated.

(i) Tariff Reduction Program

Without trade, the fertilizer industry can be categorized mainly as an imperfectly competitive market since only four large companies control the industry. In this case, for efficiency purposes, trade liberalization is highly recommended. Nevertheless, since the industry is also shown to be export competitive, and can provide the domestic economy with a steady supply of fertilizers, it would not be beneficial to implement a total elimination of tariffs, as proposed in the EVSL. Moreover, the industry's export competitiveness has diminished for the last five years, indicating vulnerability in the face of greater competition. Hence, it is recommended to maintain the current MFN rates of 3 percent for all locally produced fertilizer products but to liberalize the non-locally produced fertilizers (including urea) covered by the proposal (Table 18).

(ii) Programs to Enhance the Competitiveness of the Philippine Fertilizer Industry

Economic and technical cooperation in APEC supports and complements trade and investment liberalization. It addresses structural, policy and administrative bottlenecks, and strengthens economic performance through accelerated technological development, training, sharing of "best practices", and other activities that promote the use of the region's resources and increase the effectiveness of policy measures. Even without trade liberalization, the fertilizer industry must be able to avail of Ecotech measures to increase its competitiveness and capacity to participate in the world market.

Economic and technical cooperation measures:

1. Production and manufacturing technology transfer to assist the local fertilizer industry in increasing its productivity and efficiency.
2. Research and development on the current state of the art on production of different fertilizer products.
3. Establishment of facilities for standard testing and training of personnel for standards testing and implementation.
4. Creation of a pool of internationally well-known experts in fertilizer processing and technology to assist APEC developing countries like the Philippines develop their fertilizer industry.

Table 18. EVSL Tariff Reduction Schedule

Sector: Fertilizer Products

HS NO.	HS HDG. NO.	DESCRIPTION	RATE OF DUTY(%)			
			1998	1999	2000	REMARKS/COMMENTS
25.03	2503.00	Sulphur of all kinds, other than sublimed sulphur, precipitated sulphur and colloidal sulphur.				
	2503.00 10	- - - Crude or unrefined sulphur	3	3	3	Zero duty starting 2004.
	2503.00 90	- - - Other	3	3	3	Zero duty starting 2004.
28.09		Diphosphorus pentaoxide; phosphoric acid and polyphosphoric acids.				
	2809.20 00	- Phosphoric acid and polyphosphoric acid	3	3	3	Follow TRP
28.14		Ammonia, anhydrous or in aqueous solution.				
	2814.10 00	- Anhydrous ammonia	3	3	3	Zero duty starting 2004.
						Not locally produced.
31.01	3101.00 00	Animal or vegetable fertilisers, whether or not mixed together or chemically treated; fertilisers produced by the mixing or chemical treatment of animal or vegetable products.	3	3	3	Follow TRP

31.02		Mineral or chemical fertilisers, nitrogenous.				
	3102.10 00	- Urea, whether or not in aqueous solution	3	3	3	Zero duty starting 2004. Not locally produced.
		- Ammonium sulphate; double salts and mixtures of ammonium sulphate and ammonium nitrate				
	3102.21 00	- - Ammonium sulphate	3	3	3	Follow TRP
	3102.29 00	- - Other	3	3	3	Follow TRP
	3102.30 00	- Ammonium nitrate, whether or not in aqueous solution	3	3	3	Follow TRP
	3102.40 00	- Mixtures of Ammonium nitrate with calcium carbonate or Other inorganic non-fertilising substances	3	3	3	Follow TRP
	3102.50 00	- Sodium nitrate	3	3	3	Follow TRP
	3102.60 00	- Double salts and Mixtures of calcium nitrate and Ammonium nitrate	3	3	3	Follow TRP
	3102.70 00	- Calcium cyanamide	3	3	3	Follow TRP
	3102.80 00	- Mixtures of Urea and Ammonium nitrate in aqueous or ammoniacal solution	3	3	3	Follow TRP
	3102.90 00	- Other, including Mixtures not specified in the foregoing sub- headings	3	3	3	Follow TRP
31.03		Mineral or chemical fertilisers, phosphatic.				
	3103.10 00	- Superphosphates	3	3	3	Follow TRP
	3103.20 00	- Basic slag	3	3	3	Follow TRP
	3103.90 00	- Other	3	3	3	Follow TRP

31.04		Mineral or chemical fertilisers, potassic.				
	3104.10 00	- Carnallite, sylvite and Other Crude natural potassium salts	3	3	3	Zero duty starting 2004.
						Not locally produced.
	3104.20 00	- Potassium chloride	3	3	3	Zero duty starting 2004.
						Not locally produced.
	3104.30 00	- Potassium sulphate	3	3	3	Follow TRP
	3104.90 00	- Other	3	3	3	Follow TRP
31.05		Mineral or chemical fertilisers containing two or three of the fertilising elements nitrogen, phosphorus and potassium; other fertilisers; goods of this Chapter in tablets or similar forms or in packages of a gross weight not exceeding 10 kg.				
	3105.10 00	- Goods of this Chapter in tablets or similar forms or in packages of a gross weight not exceeding 10 kg.	3	3	3	Follow TRP
	3105.20 00	- Mineral or chemical fertilisers containing the three fertilising elements nitrogen, phosphorus and potassium	3	3	3	Follow TRP
	3105.30 00	- Diammonium hydrogenorthophosphate (Diammonium phosphate)	3	3	3	Follow TRP
	3105.40 00	- Ammonium dihydrogenorthophosphate (monoammonium phosphate) and Mixtures thereof with Diammonium hydrogenorthophosphate (Diammonium phosphate)	3	3	3	Follow TRP
		- Other mineral or chemical fertiliserrs containing the two fertilising elements nitrogen and phosphorus:				
	3105.51 00	- - Containing nitrates and phosphates	3	3	3	Follow TRP
	3105.59 00	- - Other	3	3	3	Follow TRP
	3105.60 00	- Mineral or chemical fertilisers containing the two fertilising elements phosphorus and potassium	3	3	3	Follow TRP
	3105.90 00	- Other	3	3	3	Follow TRP

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