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Expert Group Meeting on Regional  
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CO-OPERATION IN THE FERTILIZER INDUSTRY:  
THE EXPERIENCE OF THE ARAB FEDERATION OF  
CHEMICAL FERTILIZER PRODUCERS \*

by

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## I- Historical Review of Fertilizer Industry in the Arab States

It is now 70 years since the fertilizer plant began production in the Arab World. In 1906 a single superphosphate plant was commissioned at Bone owned by "Societe Algerienne des produits chimique". Early developments in North Africa were inspired by the desires of the French Colonial Authority to meet the requirements of settlers and to supply the West European fertilizer industry with phosphate rock. Six single superphosphate plants in French controlled TUNISIA, ALGERIA and MOROCCO were built before World War II and the production was 160 000 t.p.a. In the Arab Region outside North Africa, the only other pre World War II development was in Egypt where a 25 000 t.p.a. single superphosphate plant at Kafir El-zayat was commissioned in 1936, though commercial production did not commence until 1937. By 1939, production exceeded 20,000 tonnes, all of which was consumed locally.

It is only recently that phosphate rock producers in North Africa started to utilize this valuable raw material to produce fertilizers. In 1952, SIAPE of TUNISIA commissioned a triple super-Phosphate plant at SFAX.

Further Units followed in 1965, when NPK Engrais Commenced production of triple superphosphate at SFAX and MAROC chimie at Safi Came on stream. The first ammonium phosphate unit in Arab States came on stream in 1972 at Annaba, Algeria.

The nitrogen fertilizer industry in the Arab States is very much a post - World War II development. The first unit in the region was completed in 1951 at Suez and produced calcium nitrate. In 1960, the Egyptian Chemical Industrial Co. brought on stream its calcium ammonium nitrate at Aswan. The plant utilized the power produced by the Aswan Dam to produce electrolytic hydrogen necessary for the manufacture of ammonia. Whilst the Egyptian fertilizer plants were designed to serve domestic market, the Petrochemical Industries Co. ammonia / ammonium sulphate / Urea complex at Shuaiba, Kuwait, which came on stream in 1966 was an export - orientated venture aimed at the utilization of large reserves of hydrocarbons similar developments followed in Qatar and Saudi Arabia.

The overall development of the fertilizer industry in the Arab States is described in the following chronological listing. The company names refer to existing ownership rather than the original founders. Plants producing intermediates such as Ammonia and phosphoric acid, but with no downstream facilities are excluded.

Development of the Fertilizer Industry in the Arab States

<u>Year</u>	<u>Country</u>	<u>Company</u>	<u>Plant Location</u>	<u>Fertilizer Product</u>
1917	Tunisia	Societe Tunisienne d'engrais Chimiques	El-Afran	SSP
1924	Morocco	Societe Cherifienne des Engrais	Casablanca	SSP
1936	Egypt	Financial and Industrial Co.	Kafr Elsyat	SSP
1946	Egypt	Abu Zabal Co.	Abu Zaabal	SSP
1951	Egypt	Elnasr Co. for Fertilizers & Chemical Industry	Suez	CN
1952	Tunisia	Societe Tunisienne d' Engrais Chimique	Al Afrane	SSP
1952	Tunisia	SIAPF	Sfax	TSP
1958	Lebanon	Lebanon Chemical Co.	Selata	SSP , TSP
1960	Egypt	Egyptian Chemical Industrial Co.	Aswan	CAN
1963	Egypt	El Nasr Co. for Fertilizers & Chemical Industry	Suez	AS
1963	Morocco	Societe Cherifienne des Engrais	Casablanca	Compound
1964	Jordan	Jordanian Phosphate Mines Co. ltd.	Ruseifa	SSP
1964	Egypt	Nasr Co. for Coke & Main Chemicals	Helwan	AS
1965	Tunisia	NPK Engrais	Sfax	TSP
1965	Morocco	Maroc Chimie	Safi	TSP
1968	Kuwait	Petrochemical Industries Co.	Shuaiba	AS , Urea
1969	Saudi Arabia	Saudi Arabian Fertilizer Co.	Dammam	Urea
1970	Egypt	Financial & Industrial Aayout Co.		SSP
1970	Algeria	Sonatrach	Arzew	AN, Urea
1971	Iraq	State Co. for Fertilizers	Abu flus	AS, Urea
1971	Kuwait	Petrochemical Industries Co.	Shuaiba	Urea
1971	Egypt	Nasr Co. for Coke & Main Chemicals	Helwan	AN

<u>Year</u>	<u>Country</u>	<u>Company</u>	<u>Plant Location</u>	<u>Fertiliser Product</u>
1972	Syria	General Company for Fertilizers	Homs	CAN
1972	Algeria	Sonatrach	Annaba	Compound, TSP, DAP
1973	Morocco	Maroc Chimie	Safi	Compound
1974	Tunisia	Industrie Chimique Magrebines	Gabes	TSP
1974	Qatar	Qatar Fertilizer Co.	Umm Said	Urea
1975	Egypt	Nasr Co. for Fertilizers & Chemical Industries	Talkha	CAN
1976	Iraq	State Co. for fertilizers	Abu Flus	Urea
1976	Tunisia	Resource Tunisienne	Gabes	NAP
1976	Morocco	Maroc Phosphore	Safi	NAP

**Future Prospects of the Fertilizer Industry in Arab States:**

The next ten years, will be a period of great expansion in fertilizer industry in the Arab States as shown by the following figures:-

**Present & Future Design Capacities of Fertilizers and Intermediates  
(Million Tons Nutrient)**

	<u>1977</u>	<u>1986</u>
Ammonia	1.857	6.350
Nitrogen Fertilizers	1.184	5.086
Phosphoric Acid	1.504	5.786
Phosphatic Fertilizers	1.249	3.648
Potassic Fertilizer	Nil	0.600

According to recent surveys for the period 1972 - 1976, capacity utilization of phosphate fertilizer plants was much better than those of the nitrogen fertilizers. On the other hand, fertilizer consumption forecasts for the Arab Region show an annual average rate of 9%, 12.5% and 15% for nitrogen, phosphate and potassic fertilizers respectively. However, export availability of fertilizers for 1986 is as shown below:

**Export availability (million tons Nutrient)**

Urea	1.47
Ammonia	0.73
T.S.P.	0.86
Ammonium Phosphates (P <sub>2</sub> O <sub>5</sub> )	1.09
Phosphoric Acid	0.79

The Arab World contribution to the world fertilizer supply will be much improved by 1986 in accordance with Lima Declaration as shown by the following figures:

**Arab States to World supply  
(million tons nutrient)**

	<u>N</u>	<u>P<sub>2</sub>O<sub>5</sub></u>
Arab States	0.702	0.720
1976 World	44.37	31.33
%	1.64	2.3
1986 Arab States	4.02	2.83
World	73.03	38.53
%	5.50	7.35

**II - The establishment of the "Arab Federation of Chemical Fertilizer Producers".**

On March, 1975 representatives of companies and corporations operating in the chemical fertilizer industries have agreed to announce the establishment of the federation and in the same time they extended their thanks and gratitude to the council of Arab Economic unity and the Industrial Development Centre for the Arab States, for their good efforts in promoting the Federation. The Secretariat General of the Federation started its activities in Kuwait on the beginning of April 1976 to achieve the objects of the Federation as included in the Articles of Association (Articles No. 4 & 5) Annex No. 1.

The membership of the Federation is under one of the following categories.

1. Active membership:

Open to Arab Companies and firms engaged in the manufacture of chemical fertilizers and their raw materials.

2. Associate membership:

Open to Arab companies and firms as well as Arab industry chambers, unions and organizations engaged in the field of chemical fertilizers and their raw materials.

3. Observer membership:

Open to foreign companies and firms as well as foreign industry chambers, unions and organization, and to Arab and foreign engineering companies engaged in the field of chemical fertilizers and their raw materials.

The Federation members were only 6 at the beginning of the activities of the secretariat General. It is now 26 active members plus 7 observers as given in the list of "our members" (Annex 2). On the other hand the federation has been granted a consultative status in the UNIDO on 26/4/76 and the liaison status in FAO on 1/4/1977 and have been accepted as affiliate member in ISMA (International Superphosphate and Compounds Manufacturers Association) on 3/12/1976. The Federation looking to cooperate with national fertilizer associations has exchanged observer membership with the Fertilizer Association of India and the Fertilizer Manufacturers Association of England.

III - Survey on the Federation Activities:

III -1- Resolving production problems:

1-a- A questionnaire on "Investigation of Technical Problems" has been circulated to all members. The replies on this questionnaire were analysed and views exchanged among members.

1-b- The technical staff of the Federation replied on many specific problems through his own experience, contacts with Arab and foreign experts, then circulated these specific problems to all the member to permit exchange of ideas and informations

1-c- More than 50 technical papers & bullitens have been circulated to all our members covering all important topics in operation, safety, new technology, and new equipments in fertilizer industry. Conclusions & Recommendations of all the important technical seminars and symposia has been obtained, studied and circulated among the members. Many of these seminars have been attended by a federation representative.

1-d- Successful efforts have been made to exchange Arab experts between member companies to solve specific problems especially between the plant of similar process desire and semi'ar equipment suppliers.

1-e- The Federation was one on the members of the joint exploration mission on regional development of fertilizer industry in Arab States (UNDP project No. REM/75/O18). The other team members were UNDP, IDCAS and UNIDO the mission team visited Tunisia, Algeria Morocco, Jordan, Syria, Iraq, Kuwait & Egypt which were the member "countries" in the



Federation at the time of project study. The mission duration was from 1st of April to June 13, 1977 and has investigated:

1- Causes of low capacity utilization in all the fertilizer plants in the countries visited.

11- Factors influencing increase of fertilizer consumption and ways to overcome.

It is hoped that the findings of this mission and the recommendations based upon will be implemented by the joint efforts of the all the concerned parties.

1-f- During the period from 25-28 March 1978 a Seminar on "Raising Productivity in Fertilizer Plants in the Arab States" will be held in Baghdad organized by the Federation in co-operation with UNIDO / IDCAS and the state organization of chemical industries of IRAQ. The papers presented to this Seminar will discuss in deep the main operation problems.

1-g- Directory of the "Arab Technical expertise in fertilizer industry" is now under preparation by the Federation.

### III- 2 - Circulation of Information and Statistics about the Fertilizer Industry in Arab and Foreign Countries

2-a- The secretariat General has made available to all member Companies the up-to-date Arab and World wide technical economic and commercial information and advances in the field of chemical fertilizers.

2-b- A library and documentation center has been established in the federation Headquarters.

2-c- The Federation in cooperation with the Industrial Development Center for Arab States is preparing a detailed study on establishing the "Arab Fertilizer Industry Information Center" in response to recommendations of the 2nd meeting of Arab Ministers of Industry which was held in Tunis, 8-10 Nov. 1977.

2-d- The Federation has published " the Statistical Year Book", 1976 for the first time which included the production data of the existing fertilizer plants, future projects, consumption and trade in all Arab States. The 2nd statistical year book for 1977 is now under preparation.

### III - 3 - Technical and Commercial Studies

3-a- The secretariat General Staff has issued many studies covering some technical and commercial fields of interest to the federation members e.g. "phosphate rock and phosphate fertilizer industry in Arab States" "pollution in fertilizer industry with special reference to Kuwait experience" "The future of agriculture and fertilizer demand in Arab States" "Future of fertilizer markets in India, China, South West Asia". Also, the federation staff has participated in the preparation of the papers presented in Arab - European Dialogue in fertilizer committee.

3-b- The Federation secretariat General has participated in the data collection & evaluation of the study on "Development of fertilizer industry in Arab States" which is IDCAS/UNIDO/ECWA project done by the British Sulphur Corp. This study in its final shape has been circulated to all federation members and the concerned parties in the Arab States.

IDCAS and AFCFP are following up the ways and means of implementation of the fields of cooperation & coordination in all aspects as proposed by this valuable study.

III - 4 - Assistance in fostering the professional and technical making of the personnel in member companies:-

4-a- Many training programmes have been circulated to all Federation member companies covering all aspects of fertilizer industry (operation, maintenance, instrumentation, inspection marketing, distribution, training etc..) these programmes were available to the federation through its relation with Arab, international, regional and national organizations. Many of the fertilizer member companies have get use of these programmes.

4-b- A programme of "Exchange of Training" has been initiated arranged and followed up by the Federation. In the frame of this programme trainees from member company attain a training course in a special field of fertilizer industry in another member company in which the donor company has achieved a good experience & have all the facilities of good training in this field.

4-c- Literature on training policy, establishing of training centers, manpower requirements in fertilizer industry & proposal for a unified job description and classification, and training of trainers, training course for fertilizer plant operators and short guide notes in training in fertilizer production marketing and use have been circulated to all federation member companies.

4-d- For Achieving the recommendations of:-

- The study on Development of fertilizer industry in Arab States
- The fertilizer exploratory mission UNDP/AFCFP/IDCAS/UNIDO
- The 2nd meeting of Arab ministers of industry, Tunis 8-10 Nov. 1977

IDCAS and AFCFP is now undergoing to prepare a detailed project on the establishment of the "Arab Fertilizer Development Centre" to cater the technical manpower requirements for the development of fertilizer industry in the Arab States.

III- 5 - Cooperation with Arab, regional, national & International bodies and organizations of similar activity:-

The federation has achieved a successful and constructive cooperation with the following organization:-

- 5-a- Arab league: Participation in the Arab - European Dialogue cooperation in the studies of the economic dept.
- 5-b- Arab Economic Unity Council:- Attendance of the half yearly meetings of the Arab Federations and joint Arab Companies
  - Cooperation in the studies done by the Economic & Agricultural Dept.
- 5-c- Industrial Development Center of Arab States (IDCAS):-
  - Complete cooperation & coordination in every work done for the development of fertilizer industry in Arab States as per the Protocol signed between AFCFP/IDCAS on 25 Dec. 1976.
- 5-d- Organization of Arab Petroleum Exporting Countries (OAPEC):
  - Cooperation in preparing studies of common interest e.g. the use of natural gas, catalyst manufacture project, central services company project.

- Exchange of Attendance of seminars arranged by AFCFP/ OAPEC.
- Exchange of information and Bulltens.

5-e- Other Arab orgainzations;- The federation has continious and close contacts with many other Arab orgainzations, federations associations and professional unions. The fields of cooperation are exchange of informations, data and statistics, sepcific inquirsirs on certain projects and attendance of meetings, seminars and symposias

5-f- United Nations Industrial Development Organization (UNIDO)

- Since the federation granted consultative status with UNIDO on May 1976, the Federation has been invited in almost all the UNIDO activities especially those related to fertilizer industry e.g. World Wide Study on fertilizer industry up to the year 2000, Federation has attended the panel meeting, first consultation meeting and some of the working group meetings.
- UNIDO has contributed to the seminar on Raising Productivity in Fertilizer Plants in Arab States arranged by the Federation and which will be held in Baghdad 25-28 March 1978
- Arrangments between UNIDO /AFCFP for training opportunities in Romania on fertilizer technology for trainees from the fertilizer plants of the Federation member companies. It is expected that this programme will took place during 1978
- United Nations Development Programe UNDP/UNIDO/IDCAS AFCFP Exploratory mission on regional development of fertilizer industry in Arab States and the joint efforts for the implentation of the recommendations of the mission report.

5-g- Food and Agriculture Organization of the United Nations (FAO) . The Federation has been granted the Liaison status

- The Federation has participated in the 22nd session of the FAO/FIAC Committe in 1977 and the sub committee desived from.
- Arrangments with FAO started for a seminar on Raising fertilizer consumption in Arab States
- FAO has been consulted on revising he data on fertilizer consumption in the Arab States in the preparation of the Federation "statistical year book"
- FAO was consulted on the use of phosphogypsum in Agriculture. Federation will continue cooperation with FAO in following up the technical problems of fertilizer use especially these raised to the Federation by the member companies e.g. (effect of biuret on crop response, the use of ammonium nitrate against urea, the preference of potassium sulphate against potassium chloride .....etc.)

5-h- International Superphosphate and Compound Manufacturers Association (ISMA). The federation has been gransted the affiliate membership status by the end of 1976. Since this date a continious flow of infomation from ISMA to the Federation has been achieved which was of great help to the Federation in preparing many reports & studies. Federation has attended the ISMA annual meeting of 1977.

5-f- The Fertilizer Association of INDIA (F.A.I) . The FAI and AFCFP exchanged observer membership to the general assembly of each other shortly after the secretariat General of the federation has started its activity in 1976. The more than 25 years experience of FAI were of great

help to the federation activities in all fields. Many of the technical papers, bullitens, periodicals, training courses and seminar were all made available to the federation and its member companies

5-k- Other associations and organisations:- The Federation has exchanged observer membership with the British Fertilizer Manufacturer Association, (BFMA). The Federation has attended the BFMA annual meeting of 1977. Generally all the Federation observer members were consulted on the Federation projects of 1977. Valuable advice and assistance were given to the Federation. The Federation is in close contact with TVA (Tennsic Valley authority), International Fertilizer Development Centre, Sulphur Institute and many other organisations.

III -6 - Publish Journals, magazines and periodicals

6-a- Shortly after the starting of Federation Activities on April 1976, the secretariat general issued the Federation bulliten in Arabic which aim to strengthening the ties among the Federation members and acquaint them with the aspects of the Federation's activities and include the technical, commercial, agricultural informations and statistics of interest to the members and the concerned parties by the fertilizer industry and use in the Arab States.

III - 7- Provision of advice on mangement, operation & Maintenance

- 7- a- Technical sub-committee may be invited by the federation board of directors to discuss technical studies raised to the board by the secretariat general on projects of common interest to the members.
- 7-b- Collection of studies and papers on the mangement and programing of maintanance in fertilizer plants have been disseminated to federation members.
- 7-c- The Directory of Arab Expertise in fertilizer industry is now under preparation by the Federation to be in hand of all the members to get use of Arab Consultants in all aspects of the industry.
- 7-d- The Raising Productivity Seminar in Baghdad 25-28 March 1978 is expected to be a proper occassion for vast exchange of Views on the maintsnance and operation of fertilizer plants

III - 8 - Assist and encourage the establishment of joint companies:

- 8-a- Study of establishing catalyst and Auxiliary Chemicals Manufacturing plant was one of the recommendations of the UNIDO/IDCAS, National Organization for Industrialization of Libya in Tripoli Conference Dec. 1975. The catalyst bank was recommended to be studied by the Arab Fertilizer Development Centre proposed by the UNDP/AFICFP/IDCAS/UNIDO Exploratory mission on regional development of Fertilizer Industry. The Federation Board of Directors has also requested the general secretariat of the Federation to prepare preliminary outline of the study on the catalyst & auxiliary chemicals manufacture to serve the member companies. The secretariat prepared the preliminary study and circulated it to all members to investigate their views upon which further steps has been taken by contacting same catalyst manufacturers and observer members for consultation, coordination with the refinery and petrochemical sector took place through Federation contact with Organization of Arab Petroleum exporting countries (OAPEC). It is expected that more clear picture on this project to be developed during this year.
- 8-b- Study on central services company to be established to serve as a trouble shooting group and to examine the feasibility of manufacturing important common spares was the recommendations of the 2nd meeting of the Arab ministers of industry, Tunis, 8-10 Nov. 1977, also it was recommended by the Federation Board of Directors to the general secretariat also by the study on development of Fertilizer industry in Arab States. (UNIDO / IDCAS / ECWA). Similar steps to the catalyst & auxiliary chemicals project has been taken by the Federation and both projects are now under through investigation by complete cooperation & coordination with IDCAS.

III - 9 - Promote awareness on Fertilizer use:-

- 9-a- Many of literature on fertilizer use has been disseminated by the general secretariat of the Federation to all active members. Examples of this literature are: crop response to biuret effect on crops with relation to soils, new fertilizer containing potassium and Magnesium, Potassium Chloride and Potassium Sulphate, etc...
- 9-b- The general secretariat has prepared many reports in agriculture and fertilizer e.g. the future of agriculture and fertilizer demands in Arab States, Agriculture in Sudan, protected cultivation, Soilless cultivation, new application of fertilizers to certain crops etc....
- 9-c- The Federation monthly bulletin contain section on fertilizer use in which the proper application of each type of chemical Fertilizer is discussed in detail to the crop and the soil.

- 9-d- "Guide to fertilizer use" in Arabic its as now in the press, it hoped to be released to all the extension services people by March 1978.
- 9-e- Seminar on Raising Fertilizer consumption in Arab States to be held in Khartoum is now under consideration by the Federation/FAO Arab Organization for agricultural Development & the ministry of Agriculture of Sudan.

#### IV - Future Cooperation among Arab Countries

As previously mentioned the following projects are now under Consideration by the Federation.

- 1- Study on the establishment of central services company (ies) (Central trouble shooting, inspection and consultation services).
- 2- Study on the establishment of catalysts and auxiliary chemicals manufacturing company (ies) taking the possibility of establishing catalyst bank" to serve a group of ammonia plants in certain area of the arab region as a preliminary step.
- 3- Study on the establishment of information & documentation center for fertilizer industry, technology, investments, capacities and production.
- 4- Study on the establishment of the "Arab Fertilizer Development center which may have three main function, namely
  - a- Studies on some special problems of the industry.
  - b- Undertake specialized training programmes.
  - c- Undertake R & D work on problems of common interest of the industry.
- 5- Coordination of marketing fertilizer within the Arab Region by the continuous exchange of information on supply and demand of each Arab Country through the federation secretariat in attempt to consume more of the Arab Fertilizer within the area.
- 6- The Federation secretariat will continue its efforts to achieve close contacts and cooperation within the member companies through exchange of information, exchange of training, exchange of technical expertise & exchange of views through meetings, at all levels (Sub Committees, board of directors, general assembly).
- 7- The issuing of the "Technical commercial, Agricultural Dictionary for fertilizer industry (Arabic English-French) is one of the main projects undertaken by the Federation Secretariat to create a common language for the workers in this field in the Arab Region. The monthly bulletin of the federation serving this goal now.
- 8- Efforts will be done to issue the unified Arab standard specifications of chemical fertilizers for each type of chemical fertilizer producer in the region. This will be done by coordination and cooperation with the member companies and the Arab Organization for measures & specifications.

**V Cooperation of Arab Countries with other developing countries:**

The following is a brief outline of some of the fields of cooperation between the Arab and non Arab Developing Countries:

- 1- The observer membership of the Arab Federation of Chemical Fertilizer producers is open to any national, sub regional, regional association for any developing countries. If these associations are non profit organization they will be accepted without any participation fees & on the basis that the AFCFP is accepted to have a similar status in the other organization. Both parties should have the right to attend the general assembly meeting of each other. The Fertilizer Association of India membership in the AFCFP and Vice Versa is a good example for this type of cooperation.
- 2- The continuous exchange of information represents one of the fields of cooperation and a key for possible coordination among developing countries. These information may include
  - a - Supply / Demand situation
  - b - Technical, specially those related to solving operation problems
  - d - Other items of common interest
- 3- The financing of agriculture & industry infrastructure projects in the Developing countries is already done by the Arab funds for both Arab and non Arab countries, and we are ready to play any role in this direction.
- 4- Cooperation in the transport & distribution of fertilizers, intermediates and raw materials.

There is a large possibility in achieving cooperation between developing countries on national or regional basis in this field. Joint studies may be done on the following topics:-

- a - Participation in terminaling operations to develop a trans-shipment trade and to open market for a product requiring special technology. Trans-shipment will give the two regions under consideration 3 benefits (i) trade of large tonnages of fertilizers in bulk which can then be loaded on smaller vessels for nearby markets, (ii) the import of a wide range of products from different countries in the exporting region, the importing region terminal acts as a collection point for delivery to markets where the requirement of each product does not justify a separate shipment (iii) the use of cheap labour for bagging.  
The joint terminaling operations may also include the establishment of the right equipments of liquid intermediates and the installation of bulk handling and storage facilities.
- b - Joint cooperation & investment in specialized shipping for the transport of hygroscopic fertilizers in the tropical climates in bulk, the transport of ammonia and phosphoric acid in stainless steel tankers.

- c- Joint studies on the Bulck, semibulck and bagged shipments of fertilizers.
- 5- Cooperation in the construction and operation of fertilizer plants. Many of the developing countries including arab states has gained a vast experience in the construction, local manufacture of some of the units and equipments of fertilizer plants and the operation of these plants of normal and sophisticated technology and design. Evenmore some of the developing countries has developed their own technoligy and know how to suit their industrial progress and the quality of their raw materials. The SIAPE process of Tunisia for the manufacture of phpsphoric acid from low grade phosphate rock & the recent achievements in the purification of acid is one of several examples. It is the time that a very successful approach of each developing country in these fields to be reported and mode available to all the family.
- 6- The AFCFP is ready to evaluate any feasibilty study on fertilizer projects for any developing countries on their request.

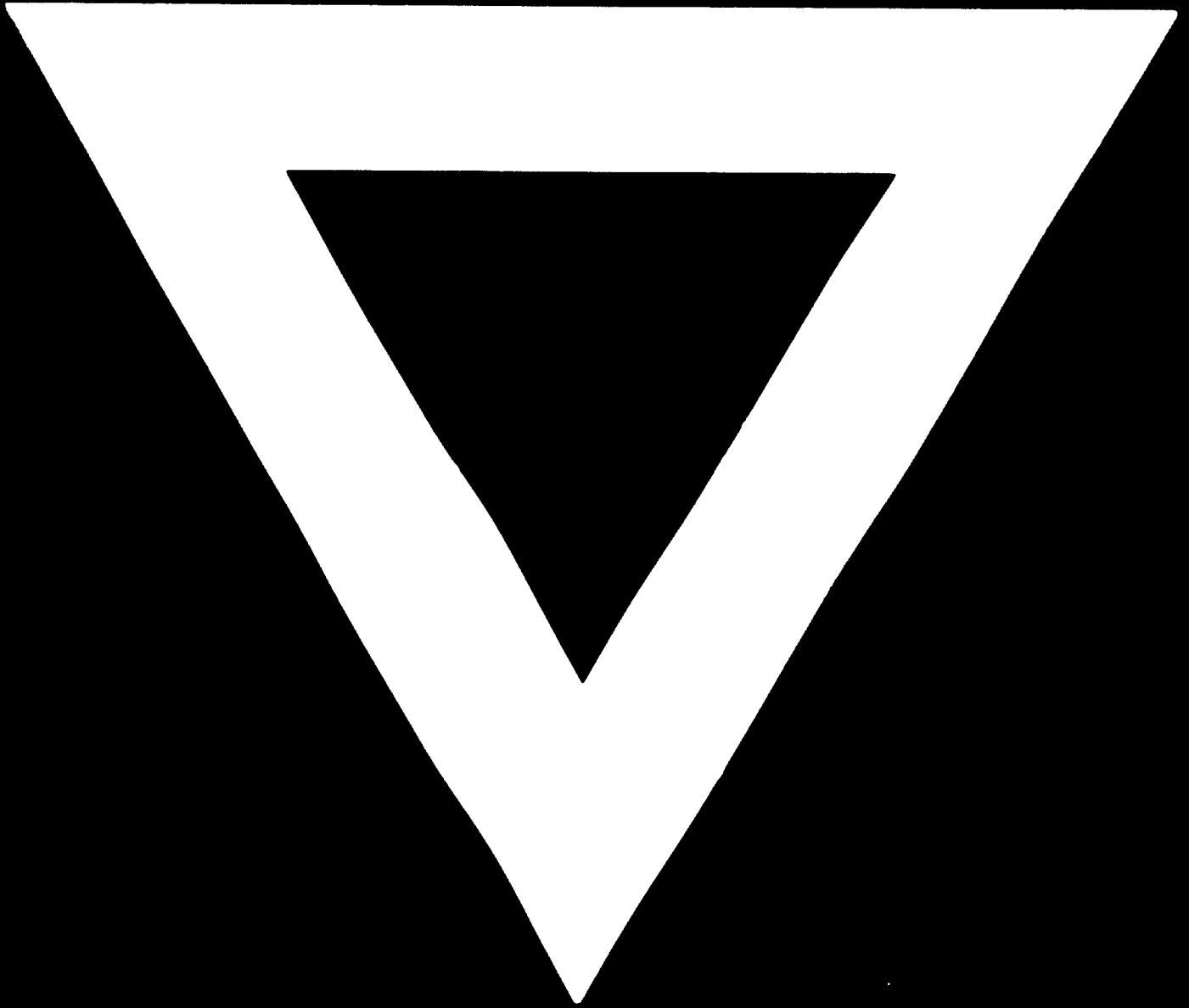
VI - Institutional Arrangements needed to implement co-operation among developing Countries.

- 1- UNIDO is requested to issue the "Fortilizer & their raw materials Newsletter" the material is to be submitted by the national, sub regional, regional federations and associations of fertilizers in the devloping countries this news letter may be issued quarterly and should be in the main languages used in UNIDO. UNIDO should add comments, Views explanations on the materials of this news letter and highlights the possible fields of cooperation,
- 2- UNODO is requested to call for annual meeting of fertilizer industry in developing countries and to be then devided during the metting into sub committees on operation, maintanance, manpower and trade.
- 3- UNIDO may study the po sibility of establishment of subregional & regional joint ventures in services activities to fertilizer industry e.g. catalysts, chemical, R & D, training centers and maintanance.
- 4- INODO is requested to cooperate with the world Bank in the adoption of a model for fertilizer industry development in each region in the developing countries to suit those have raw materials enough for large fertilizer complexes and satellite bulck blending plants for group of countries whcih have not raw material or enough frinancial resaurces and encourage the establishment of joint ventures between developing countries.
- 5- UNIDO is requested to contact the regional federation's to ask for technical experts for solving the management and production problems in developing countries.





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