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Expert Group Meeting on Fertiliser Plant Cost  
Reduction and Ways to Mobilise Sufficient  
Financing

Vienna, Austria, 11 - 14 April 1978

**INCREASE IN COST OF BUILDING AN AMMONIA PLANT SINCE 1970 \***

Prepared by

A group of experts from  
Centre d'Etude de l'Azote (C.E.A.), Strich

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Experts from different member companies of our organisation have carefully studied the case of ammonia plants built or to be built for their own company in their respective countries. All of these cases are located in developed countries of Western Europe : Italy, Netherlands, Portugal, United Kingdom. Six "work-sheets" are attached to the present paper, each of them concerning one ammonia plant and giving specifications as well as information on the cost of building.

Further on, these experts have drawn up indices of the increase in cost since 1970 of building an ammonia plant in their respective countries. For this purpose, they have based their calculations on existing indices and they have taken into account the specific importance of licensing, engineering, steel works, electrical equipment, instruments and other factors involved in the construction of an ammonia plant. These indices have of course been calculated in local currency but for the sake of comparison they have also been converted in US \$ by using the rate of exchange prevailing on or about the 1st July of each year.

No specific case of building an ammonia plant in the Federal Republic of Germany has been studied but nevertheless it has seemed interesting to calculate indices for this country also.

For Portugal, although one case is reported in an attached work-sheet, it has not been possible to draw up an indice due to the lack of adequate statistical information.

The national indices ( calculated in local currency ) and the converted indices ( i. e. converted in US \$ ) are given in the following table.

Indices showing the increase in cost of building an ammonia factory since 1970								
Year :	1970	1971	1972	1973	1974	1975	1976	1977
<b>Germany(F. l. .)</b>								
a) in DM	100	105	111	116	123	135	157	166
b) in US \$	100	109	127	178	171	203	219	255
<b>Italy</b>								
a) in lira	100	104	109	135	177	205	248	298
b) in US \$	100	104	116	143	177	205	186	205
<b>Netherlands</b>								
a) in guildens	100	113	123	142	165	184	197	203
b) in US \$	100	113	136	198	224	269	260	290
<b>United Kingdom</b>								
a) in pounds	100	110	117	131	163	208	241	277
b) in US \$	100	111	119	139	163	191	179	199

- The first conclusions to be drawn from this table are the following :
- expressed in local currency, the cost has been multiplied by a factor varying from country to country between 1,66 and 2,98 ( increase of cost between 66% and 198% );
  - converted into US \$, the cost has been multiplied by a factor varying from country to country between 1,99 and 2,90 ( increase of cost between 99% and 190% ).

The very strong influence of the different rates of inflation is clearly reflected in the discrepancy of the national indices in local currency and also in the converted indices. The two graphs annexed to this paper are very interesting in this respect.

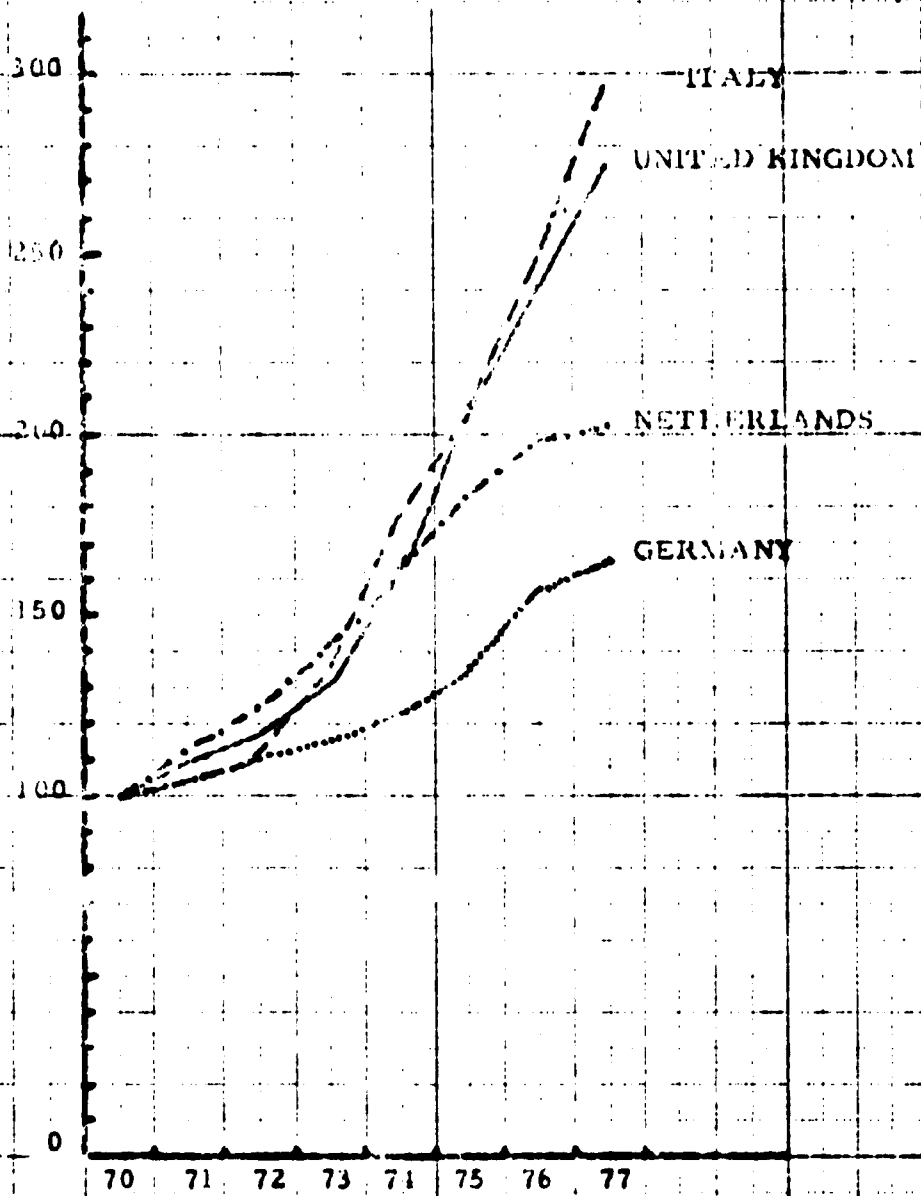
- The experts have discussed together the results of these calculations and they believe that the following remarks should be emphasized :
1. it is not possible to calculate an average indice taking into consideration the various national indices : this average indice would have no meaning at all;
  2. indices only reflect a general trend and they should by no means be used to calculate the price of a factory which would have been built in another year in the same country;
  3. the price of a plant largely depends on the general economic situation : a plant built in a depression period could be much cheaper than what is suggested by the indice as well as the price of a plant built in a boom period could be much more expensive;

4. the price of a plant is a price for a particular plant built at a particular place and at a particular period of time; the actual cost largely depends on how long the period of completion will be and the total cost can only be calculated with a certain accuracy when all bids for the major pieces of equipment are at hand;
5. comparisons between factories built in different countries are not quite relevant because the main factors influencing the total cost can differ considerably : level of labour costs, rate of inflation, laws on environment, additional expenses accepted to make the plant more efficient ( using less energy ), etc...

Conclusion : one can fairly assume that in the Western European countries concerned, the cost of building an ammonia plant has increased between 1970 and 1977 by the percentages indicated in this paper but all considerations to be drawn from this should be considered very carefully.

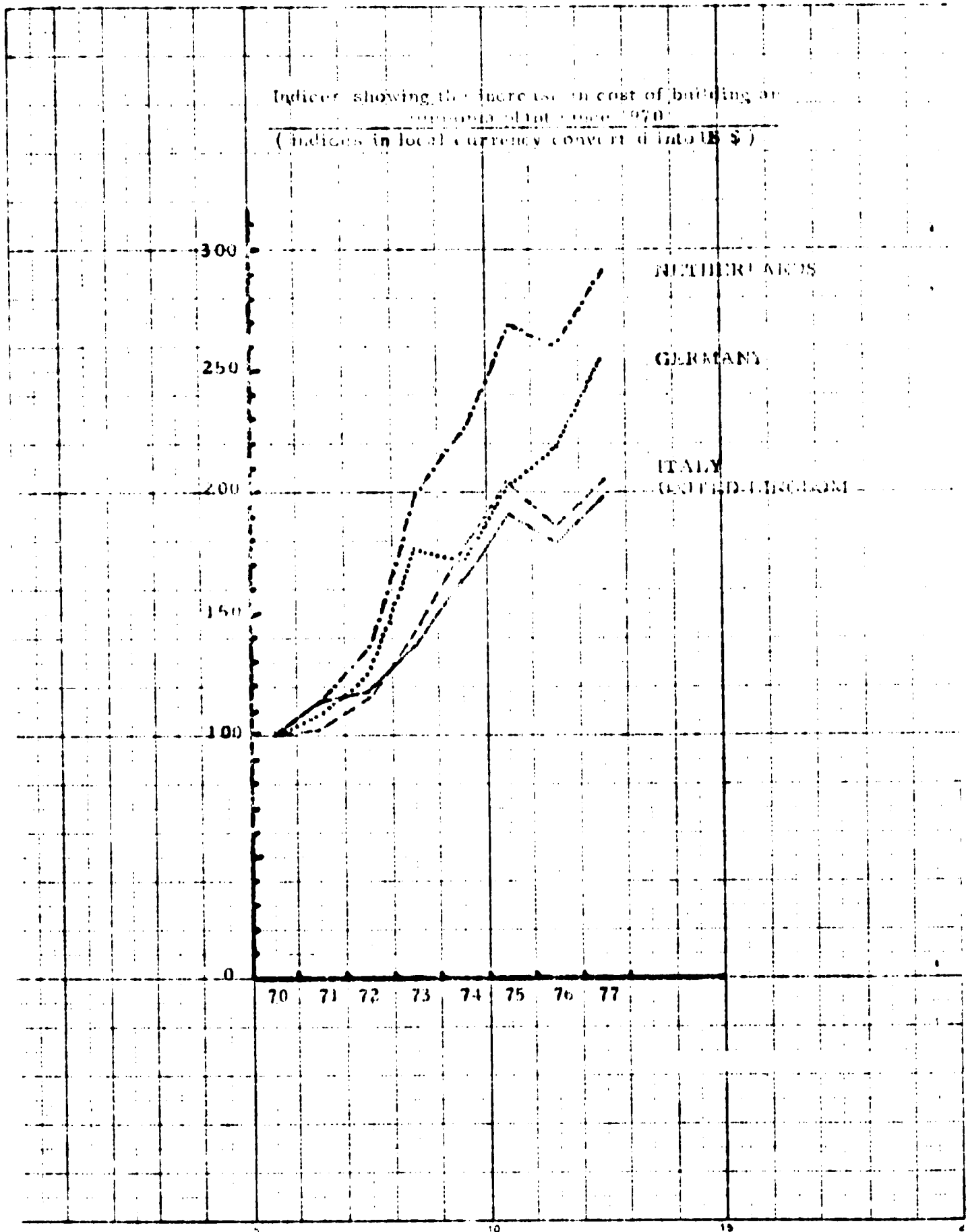
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Indices showing the increase in cost of building an  
average plant since 1970  
( indices in local currency )



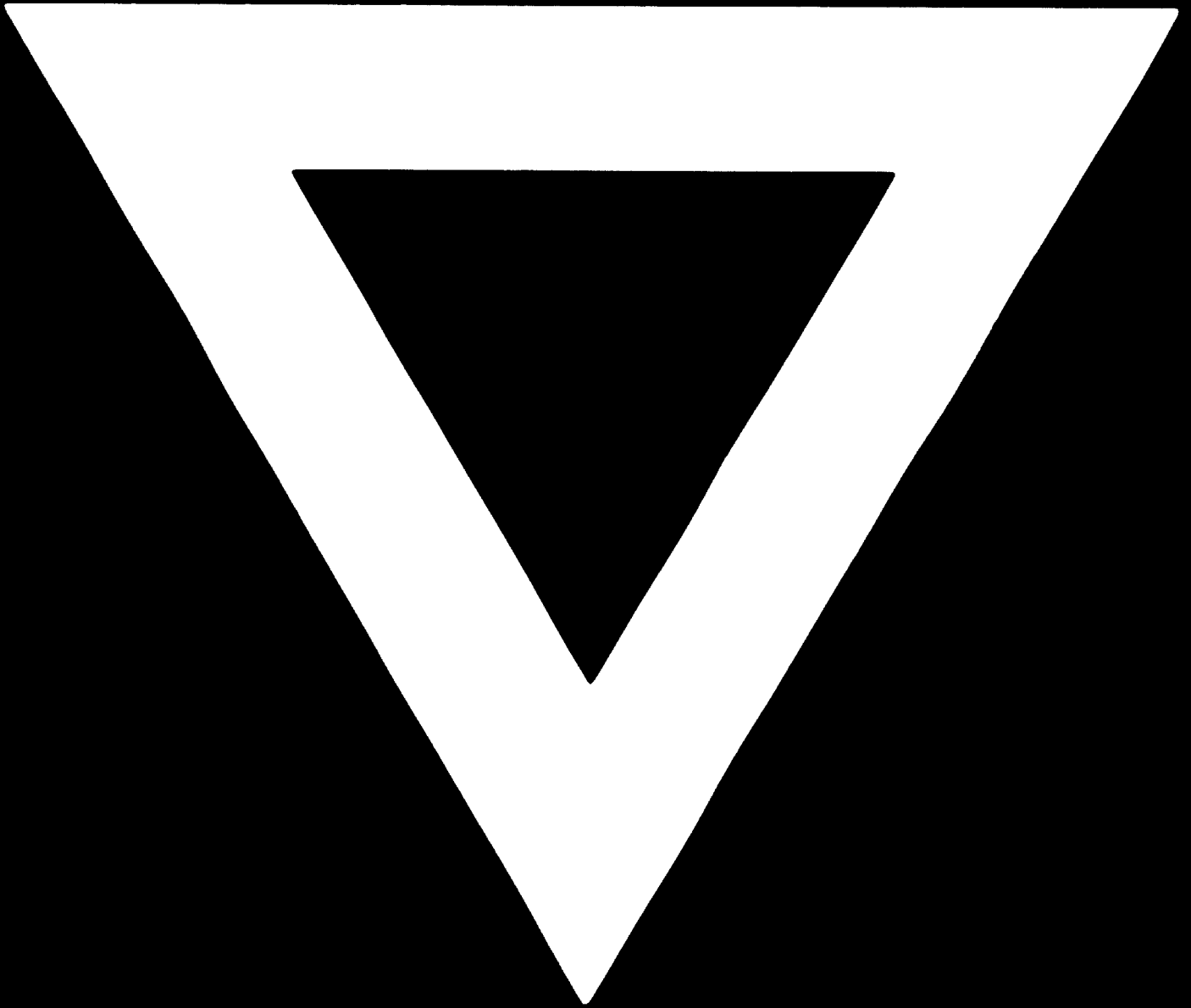
C. E. A. March 1978

Indices showing the increase in cost of building an  
apartment flat since 1970  
(Indices in local currency converted into US \$)





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