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# The Role of Chemicals in the Third World

by Dr Josef Péron, Recklinghausen

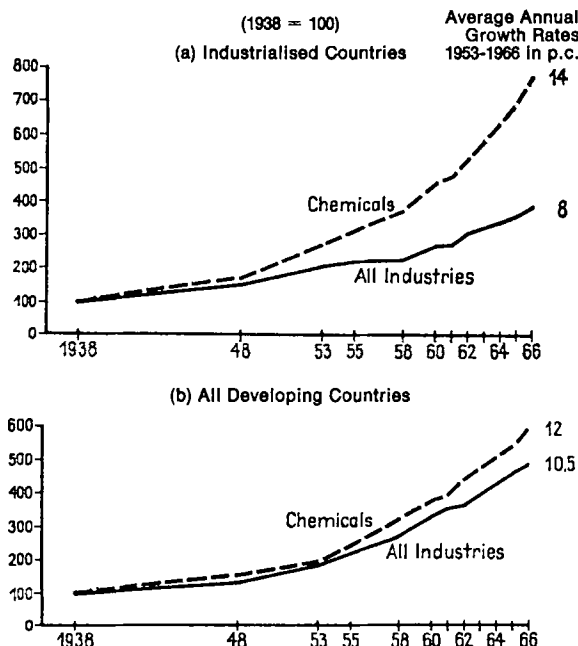
There is a widespread belief that chemicals, a traditional product of highly industrialised countries, can only be manufactured there, whilst developing countries will produce, in the main, farming produce and raw materials for export, buying their requirements of chemicals from the proceeds in foreign currencies from the industrialised countries. For many decades, less-developed countries, in fact, did follow this policy. But, except for the mineral oil exporting countries, this policy has been proved unrealistic: commodity prices have shown a long-term declining trend, natural raw materials are being progressively replaced by synthetics, and more economic uses of natural raw materials by the industrial nations have all tended to prevent a satisfactory expansion of export income for the developing or mainly agricultural countries. An additional problem has been the fact that the raw material-producing countries are compelled to use a large proportion of their scarce foreign currency earnings for interest and redemption payments on the large credit sums which they have been taking up in the form of development aid. Conversely, they are forced to cut down on their exports of manufactured finished products. Moreover, exporting commodities is probably the most inefficient form of creating new employment for the vast population of developing countries, which is also growing at an above-average rate. Industrialisation of the so-called Third World is an indispensable requirement, but will developing countries be, in fact, capable of setting up, among other branches of a modern economy, an efficient chemical production? It appears that a number of factors may make this impossible.

## Deceptive Growth Comparisons

From 1963, chemicals have outpaced general overall industrial growth rates conspicuously, by an average annual expansion of about 14 p.c.<sup>1</sup>, in all industrialised nations taken together (see Diagram a), the same branch of industry, in the developing countries, achieves only a slightly higher growth rate than industry as a whole (see

Diagram b). This statistical comparison, however, with which people frequently believe that they can prove that chemicals cannot be produced in developing countries as profitably and satisfactorily as in highly developed industrial countries, is deceptive.

## Production Indices: All Industries, and Chemicals



The comparative figures are not of equal value and meaning: the yardstick of comparison used, which is the overall growth rate (average) of all industries taken together, is not the same in the two graphs. In the industrialised countries, its average for all industries was 8.0 p.c., but in developing areas, taken together, it amounted to 10.5 p.c. This upward deviation alone, of 2.5 p.c., explains, in part, why chemicals do not in fact show such a profoundly different picture of growth, as against all the industries taken together, as in industrialised countries.

Placing the two growth rates for chemicals, both in the industrialised and in the developing countries, against each other, it turns out that their annual average of 12 p.c. in developing areas is

<sup>1</sup> All the figures quoted in the article have been taken from United Nations publications.

almost as high as in the industrialised parts of the world.

But there is an even more fundamental objection to be raised against the method used for comparing growth rates, as above. The Third World is not a structural unit. It consists of more than eighty countries, whose levels of industrialisation reached show vast differences, whose economic structures are far from similar, and whose economic growth rates, consequently, are also marked by big differentials. As it is well known that in some of these countries economic growth has hitherto been feeble, other developing countries must have shown exceedingly high growth rates in their chemical output for an overall average rate of increase of annually 12 p.c. being at all possible. Even in Latin America, a continent where the known differences in economic growth are considerable between countries, chemical output grew in the period 1953-1964 by an annual average of 13 p.c., against 9.5 p.c. for all industries. In Asia (without counting Japan), a tremendous number of new chemical plants has recently been installed, which makes us surmise that on this continent, too, chemicals are facing a highly prosperous future.

#### **High Capital Requirements**

Chemicals are what is called capital-intensive, which means that their unit costs of capital installation for a given capacity are higher than in most other industries. Now, it is difficult for developing countries to accumulate investment capital, and also this fact is used for arguing against the chances of success for setting up chemicals production there. It is true that the savings rate per head is much lower in the Third World, as against industrialised countries. But those who argue like that tend to overlook certain arguments as well, e.g.:

☐ There is a small number of countries in the Third World which have been saving at a high rate for many years now; however, all these are countries under strong political leadership.

☐ Development aid is channelling investment capital to developing countries, not only for improving their agriculture and infrastructure, but also for financing industrial projects.

☐ As a third source of investment capital, there is private capital export from industrialised into developing countries, and this is capable of flowing into industrial projects exclusively. Developments in recent years suggest that this source of capital may be most susceptible of all to expansion in the future, in a number of cases.

Assessing these three possibilities together as to their overall capital accumulation capacity it can be safely assumed that a number of developing countries enjoy the chance to accumulate

investment funds almost as rapidly as some industrialised countries.

Some observers opine that chemical processing is too difficult a technology for nations with only the briefest of industrial experience being capable of operating it. It is undoubtedly true that certain very difficult technological tasks in chemical production will remain in the hands of highly industrialised nations, at least for the time being. But there are, on the other hand, ample signs that many countries in the Third World will acquire the skills and knowhow for successfully applying almost all known technological processing methods of industrial chemistry, sooner or later. By taking up foreign licence rights, by employing foreign specialists, or—what will be even more effective—by agreements with companies from the industrialised countries on cooperation this sort of progress will be speeded up. More and more oil refineries are being set up in the Third World every year. Among these countries, over fifty are already now processing crude. There is a number of developing countries which succeeded in expanding their own production especially of fertilisers, plastics, and pharmaceutical products, to the point where they can supply virtually all their requirements themselves. In some cases, they have started exports of such products, even to industrialised countries. Another sign for, among other things, the potential technological skill of a number of developing nations has been the strikingly frequent creation of new establishments there operating in the fields of automotive assembly and/or construction and of electrical engineering, which have come along very recently. There is every chance, no doubt, for other, highly sophisticated technologies being introduced into developing countries in the future, and it is certain that chemicals will play a big part in this advance.

#### **Cost Advantages of Developing Countries**

To several branches of chemical production, certain developing countries even offer definite cost advantages, relatively to the industrialised part of the world:

☐ cheap building sites;

☐ a favourable cost structure of energy supplies: both Latin America and Central Africa have ample hydroelectrical resources;

☐ cheap labour on the lower echelons of the industrial hierarchy, and in some countries even among middle management personnel: unemployment is widespread, peasant masses have only begun to invade the cities in their search for alternative work, and the rapid growth of the population will exert pressure on wages levels for a long time to come, in certain less developed countries;

☐ long sea coasts, which means that ocean shipping can reach the coastal industrial centres cheaply and easily;

☐ finished products with a high incidence of transport costs are being manufactured, by preference, in close proximity to the big mass markets. As the World Bank intends to lend its financial support, on the one hand, especially to underdeveloped agriculture, on the other hand, to increase financial development aid strongly, this will probably push up the Third World's consumption of heavy chemicals vigorously.

Many nations of the Third World, in their ardent desire to industrialise their economies, also introduce artificial advantages for the working of a nascent chemical industry: they issue cheap building land, they impose only lenient clean air and anti-water pollution regulations, they issue credits at low interest rate, they operate high tariff protection, they grant low income taxation rates, etc. There are also some industrialised countries, e.g. the Federal Republic of Germany, which grant financial aid to national investors upon their opening production subsidiaries in developing countries.

But even in those developing countries which lack most of these natural and artificially-created advantages, or whose inland markets are too small for earning the economies of scale enjoyed by large-scale production, it is to be expected that a chemical industry will soon grow up. This is because developing countries which are short of foreign currency cannot otherwise supply their potentially large demand but by setting up their own chemical manufacture.

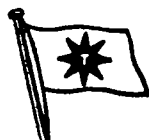
Branches of chemical industry whose growth rates will be exceptionally high in these countries are fertilisers, plastics, pharmaceutical compounds, detergents, and cosmetics, as well as all chemicals required by the textile industry. Over and above these, the spreading desire to process raw materials at least up to a certain level of base-

stock and intermediate production in the country of origin, partly in order to reduce heavy transport charges, partly in order to create additional employment for the indigenous population, by request of the governments of developing countries, will lead to the migration of other forms of chemical production, especially of inorganic chemicals, to developing areas.

### **Industrial Nations Acquiring an Interest**

Should the chemical concerns of industrialised countries take a financial interest in setting up chemical manufacture in less developed countries? The question can, on grounds of principle, not be answered unambiguously. Whether the answer ought to be Yes or No, depends always on the given product, the country where, and the time when, it is to be manufactured. There may be a certain product which would be saleable at a high profit in a given country, but the same product might be unsaleable, or saleable only at a loss, in a different country, but at the same time. There are some countries where the general climate is favourable to investment, others are full of risks for new ventures. By far not all countries—or companies, for that matter—enjoy the same favourable reputation. There has been recently a strong revulsion against capital investment from the US in some South-Eastern Asian countries, which, at the same time, welcome European investors. But, in general, the question posed at the beginning of this paragraph might be answered about as follows:

☐ Investments in developing countries contribute to reducing the currency risks, as all foreign investments do, of companies that operate exclusively in a domestic market. The recent past has demonstrated how little safety or certainty is in the exchange rates of even widely-used or very hard currencies. Revaluation of the German DM would set up obstacles in the path of German chemical exports, and on the other hand it would



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favour correspondingly chemical imports into the Federal Republic of Germany. Companies that are operating internationally, or at least on the territory of several nations, are much better defensible against such fluctuations in exchange rates.

☐ Foreign investments often enable companies to outpace the export efforts of competitors, especially in countries which intend to protect their own nascent industries, as developing countries usually do.

☐ Advantages of locating industries in industrialised countries may be progressively eroded by, on the one hand, increasingly favourable raw material sources being opened up or made accessible in developing countries, and on the other hand, by the pressure of rising costs, bottlenecks in the availability of means of production, and the increasing burden of taxation and social security payments in the industrialised regions. Conversely, some developing countries may be able to offer geographically better locations for sending supplies to all potential markets, including the investor's own domestic market.

☐ Obsolescent but still operable equipment which, in the industrialised countries would have to be scrapped for reasons of competition, because new equipment which has a higher labour-saving effect must needs be installed there, may be still used profitably in developing countries with their low wage levels and high protective tariffs.

☐ Most less developed countries are bound to increase their tariff protection further, in order to shield their nascent chemical industries. This means that industrialised countries, which hitherto have sent exports to such countries but did not want to set up their own production in them, will lose such export business. The formation of regional economic unions will enlarge local markets and thus increase the possibilities of creating industrial self-sufficiency, which means that,

at least for the time being, some developing countries will be outside world markets for a period.

Some less developed countries are now on the threshold of highly dynamic developments. In, at least, ten of the developing countries, industrial output has shown overall rises, in real terms, of at least 8 p.c. annually, on average, between 1960 and 1966. National economies with high growth rates usually offer high profit margins, but even national economies whose speed of expansion is less spectacular still show gaps in their markets which have not been filled yet, and thus enable newcomers to earn a high income. Companies which direct their foreign investments to selling in fast-growing markets are thereby picking out the plums for themselves from the world markets.

It is only a recent development that chemical companies from industrialised countries have been investing in countries of the Third World. The pioneer with the highest investment of this kind has been the United States, followed, in this order, by the UK and France—and with a great gap in between—Italy, Germany, Japan, the Benelux Area, Canada, and Sweden.

Companies which have been investing in developing countries have hitherto been, by and large, big groups. It is, however, an error to believe that big companies are better suited for foreign investments than medium-sized or smaller firms. How big the risk involved by foreign investments will be depends mainly on two things: firstly on the amount of care and diligence which has been applied to scrutinising and selecting the investment opportunity and preparing the actual sinking of funds, and it is not a convincing argument to state that a small firm should be in a less favourable position, in this respect, than a big concern. Secondly, the risk, of course, also depends on the share which all foreign investments of a given company represent of the entire investment volume of the same firm. But the same is true of investments in the domestic market, how they are spread and mixed.

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