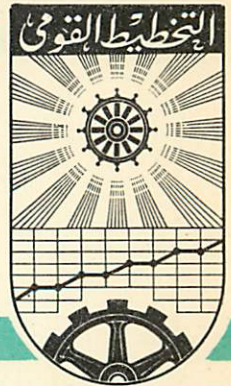


# UNITED ARAB REPUBLIC

## THE INSTITUTE OF NATIONAL PLANNING



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TOWARDS A SYSTEM FOR  
DETERMINING INDUSTRIAL  
DEVELOPMENT PRIORITIES

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### 1.1 Introductory not and intent:-

For those who are mainly concerned with the industrial development of the country and the choice of individual projects that are to be included in the industrial development programme we suggest the following investment priority system which is based on the experience of the philippines. It is our contention that the quantitative criteria of the system will help in the vital coordination of policies in such fields as foreign exchange allocations, financing, import licensing, admission of foreign investment, trade and tariff policy, etc.

Stricktly speaking the system is designed to achieve the optimum attainment of the following policy objectives:-

1. To direct scarce capital resources (medium and long-term credit including foreign exchange) towards the most productive uses.
2. To conserve foreign exchange.
3. To reduce unemployment.
4. To improve the distribution of real income.
5. To promote economic growth.

### 1.2 Guiding Principles of the System:-

The guiding principles of the system are:-

1. Other considerations being equal, preference will be given to an industrial project that will make per unit of scarce resources expended the highest contribution to the national income. As we shall see later on, this is represented by the some of earnings of the productive factors involved in the industrial project including those of land, labour, capital and entrepreneur.



2. Other considerations being equal, preference will be given to an industrial project that will give per unit of scarce resource expended the highest measure of improvement in the country's balance of payments position. This is to be measured by the annual foreign exchange value of the product minus the value of foreign exchange directly or indirectly used in production per unit of investment.
3. Other considerations being equal, preference will be given to an industrial project that will make the greatest use of domestically produced raw materials and operating supplies.
4. Other considerations being equal, priority will be assigned to an industrial project that will make the most use of domestic labour. This is to be measured by the annual value of such labour per unit of scarce resource expended.
- 5.. Other considerations being equal, preference will be given to an industrial project that will produce goods that meet the more basic needs of the people and will produce the greater effect on the external economics. The value of the essentiality factor is to be applied to the national income contribution in order to reflect the effect produced on the external economics to take into account other social benefit considerations such as the relative essentiality of the product for consumption purposes. This will encourage the production of goods consumed by the low-income groups in greater volume resulting in the improvement of real income distribution.



### 1.3 Quantitative Determination of the System:-

The preceding guiding principles outlined in section 1.2 are translated into quantitative terms and interwoven in an economic priority criterion to obtain the industrial priority rating of any project under test as follows:-

#### MATHEMATICAL EXPRESSION OF THE ECONOMIC PRIORITY FORMULA

$$= ( R_1 + R_2 + R_3 + R_4 ) \times 1000$$

(OR)

$$= \left[ \begin{array}{l} \frac{(R_1)}{e(w + r + i + p)} + \frac{(R_2)}{FE \text{ s/c} - FEc} \\ + \frac{(R_3)}{rmd \times (rmd/rmt) \&} + \frac{(R_4)}{Ld} \end{array} \right] \times 1000$$

### 1.4 Meaning of symbols and definition of terms:-

= industrial priority

$R_1$  = National income ratio. In other words the value added to the national income by the factors of production involved in the industrial project including labour, land, capital and entrepreneur, as corrected by an essentiality factor to account for the impact of the project on external economics and for other social benefit considerations, the whole per unit of capital resources utilised.



- $R_2$  = Balance of payments ratio. That is to say the impact of the operations of the project on the country's balance of payments position.
- $R_3$  = Domestic material utilization ratio. That is tantamount to saying additional economic benefits derived from the use of domestic raw materials and supplies.
- $R_4$  = Labour employment ratio. This equals the social value derived from employment of domestic labour.

Analysis of  $R_1$ :-

$$R_1 = \frac{e(w + r + i + p)}{k} \quad (1.1)$$

where

$R_1$  as above

$e$  = Essentiality factor determined according to (1) economic importance of the product either as a commodity for export or for domestic use, (2) source of raw materials and supplies used, (3) source of capital equipment, and (4) source and nationality of financing.

$w$  = Compensation of all officials, employees and labourers including salaries, wages, bonuses, commissions and others.

$r$  = Rent for the use of the land, buildings and other facilities.

$i$  = Interest paid for borrowed capital (Interest payments on foreign borrowing shall not be included).

$p$  = Actual or estimated returns on paid-up capital.

$k$  = Total investment (owned or rented fixed assets plus circulating capital).



Analysis of  $R_2$ :-

$$R_2 = \frac{F.E.s/e - F.E.c}{k} \quad (1.2)$$

where:

$R_2$  = as previously stated.

F.E. s/e = Foreign exchange earned or saved arising from the operation of the project. The foreign exchange earned is the national currency equivalent of the foreign exchange received by the country for the export product. The foreign exchange saved is the national currency equivalent of the foreign exchange value of the "import-substitute" product.

Import-substitute is defined as:

- 1) any product that was imported into the country at sometime in the past or is an acceptable substitute thereof,
- 2) any product which, although never imported, will serve a useful purpose or is otherwise necessary for economic development.

F.E.c = Actual foreign exchange cost incurred in production including that for imported raw materials and supplies, salaries of foreign personnel, profits and dividend remittances, interest payments, amortization of value of assets acquired with foreign exchange, royalty payments, technical and consulting services, business trips abroad, and all other foreign exchange outlays.



Analysis of  $R_3$  :-

$$R_3 = \frac{(rmd/rmt) \times rmd}{k} \quad (1.3)$$

where:-

rmd = Value of domestic materials and operating supplies used in production, exchanging the value of the imported component of domestically processed intermediate products whenever such imported component exceeds value-wise 50 per cent (or any percentage to be agreed upon) of the value of that intermediate product.

rmt = Value of the total raw materials and supplies used in production.  
= the coefficient represents a measure of the additional economic value generated by the utilization of the domestic materials and supplies.

Analysis of  $R_4$  :-

$$R_4 = \frac{Id \times B}{k} \quad (1.4)$$

where:

$R_4$  = as explained previously.

Id = Number of paid domestic workers (employees, officials and labourers employed during at least 300 days a year).

B = a coefficient representing a uniform average per annum corresponding to 300 working days to be used in determining the social benefit arising from the employment of domestic labour.



## 1.5 IMPLICATIONS OF SYSTEM:-

As it can be observed from the previous section, the formula accounts for the national income, the balance of payments, employment and domestic resources effects. The criterion as formulated in section (1.4) mean or imply the following:-

### a) With respect to national income contribution

1. The project (or firm) in which labour income as a contribution to national products is high in terms of capital investment will have a high priority. But a high labour income results from a highly labour-intensive industrial process; or within the same industry when higher wages are relatively paid. This does by no means imply that this criterion is unqualifiedly in favour of labour - intensive industrial projects in all cases. Exception may be made in cases where productive efficiency may become so reduced by a labour-intensive process as to impair the competitive prospects of the product if for export, or unduly raise its price to the prejudice of consumers if for domestic use.

Obviously a firm which pays relatively better wages than others in the same industry, if this factor will raise its priority rank above the rest, will deserve the preference since it satisfies one of the basic social objectives of the industrial programme - that of a more equitable distribution of income.

2. The prospective firm in which paid-up capital is high in terms of total capital investment shall have a high priority. This is because if equity capital is high in terms of total capital requirements, scarce credit resources will become available for other investment



purposes. Furthermore, this situation gives the investor a greater incentive to make a success of the industrial project than where a high percentage of the investment is borrowed capital.

3. The project or the industrial firm that would remit abroad a higher percentage of the income arising from the industry will have a correspondingly lower priority. This is because the income which is remitted abroad becomes a contribution to the national income of the country of destination of the foreign exchange remittance, whereas the income arising from the economic activity that accrues to the economy represents a contribution to the same extent to the national income.

As for the essentiality factor e; it is noted that the formula takes into consideration the effect of the establishment of the industrial project on the external economics. This is done by applying the essentiality factor on the measure of the direct contribution of the project to the national income.

Accordingly, the project that will export its product in finished form will have a higher priority than one that will export the same product in a lower state of manufacture.

4. The project that will export its product in finished form will have a higher priority than one that will export the same product in a lower state of manufacture. In general the productive project that would carry out a process to the highest state of industrialization of the product will account for a relatively higher contribution to the national income - the equivalent of the income of the various factors of production.



5. A project that will produce a producer good or service for the use of other industries will be given preference. This is because this project will assure the continued operations of industries using the product which is an important consideration in view of the scarcity of foreign exchange for the importation of the product if not domestically produced or not sufficiently produced locally. Such a project, therefore, will not only by itself contribute to increasing the national income but will also enable other industries to operate and contribute to the national income.
6. Among producers of consumer goods, an industrial firm that will produce essential consumer items or meet basic human needs will be given preference. The practical implication of this criterion is that essential consumer items become available in adequate quantities. This in turn would mean a reduction in prices and increased real income for the masses.
7. An industrial project utilizing material imported in finished or semi-finished form will be given less preference. In general, there is very little value that a project can add to a product used in manufacture as a contribution to the national income if the materials for that product are imported in finished or semi-finished form. This is best illustrated by the manufacture of drug tablets made out of drug powder. Packaging and assembly-type industries are considered less essential under the development programme.
8. An industrial project that will utilize a high percentage of its equipment out of locally fabricated equipment will be accorded preference given the assumption that no undue sacrifice of technological efficiency is made when locally fabricated equipment is used. Here again the



beneficial effect on another industry - in this case the manufacture of the equipment - is taken into consideration. This is the so-called induced effect of the industrial project on other industries or impact on the external economies.

9. An industrial project that is financed entirely or mostly by nationals (UAR citizens for example) will rank highly in terms of this criterion. In this connexion it should not be understood that this criterion bars foreign investment which would be contrary to the desire to attract foreign investment. It simply means that all other considerations being the same UAR nationals will enjoy preference in the allocation of scarce resources. This is justified by the fact that there is relatively greater stability in an enterprise or individual industrial project that is operated by Egyptians. Furthermore, the project would provide or expand better opportunities for training Egyptian labourers and technicians to acquire management skills and techniques. This is not to mention the fact that the earnings of citizens are likely to be plowed back into the national economy - something that cannot be granted in the case of the earnings of foreign investments. Having finished the impact on national income we shall turn now to the impact on the balance of payments positions.

b) With respect to the impact on the balance of payment positions:-

1. Industrial projects that will produce commodities with higher foreign exchange values for every unit of capital will be given preference assuming that the foreign exchange costs incurred in production are the same. To express the true measure of the impact on the balance of payment position, the foreign exchange cost of imports



or value of exports should, whenever possible, be verified from prevailing import or export prices for the same product.

2. Industrial projects that produce goods or services involving the least expenditure of foreign exchange will be preferred to others. The main items of foreign exchange costs include:-

- Value of imported raw materials and supplies;
- Amortization of value of assets acquired with foreign exchange;
- Profit, dividend and interest payment remittances;
- Salaries of alien personnel;
- Technical and consulting services and royalties,
- Business trips abroad;
- All other foreign exchange outlays.

It however should be noted that the smaller the cost of the above mentioned items are the higher will be the net foreign exchange saving or earning per unit of capital invested.

3. On a long range basis foreign loans are preferable to foreign direct investments. Rate of entrepreneurial returns are higher generally than interest rates charged by international financing institutions, and in most cases it will be more advantageous to the country's balance of payments position if foreign loans are used to finance local investment than if foreign investors come over with equity capital.

C) With respect to the utilization of domestic materials:-

1. Industrial projects using raw materials and supplies coming mainly from domestic sources will be given preference. This preference given to materials of local



origin and processing is based on the desire to stimulate the production of such materials or supplies.

2. Industrial projects which use raw materials of relatively higher value per unit of capital invested will have a higher priority. For consumer items the difference in value of raw materials per unit of capital invested is true generally as between basic consumption goods and luxury items. But the advantage in value will be offset by the fact that the essentiality factor for luxury items is lower than that for basic or essential consumer goods.
3. Industrial projects that employ more national workers per unit of capital invested will be given preference. But it should be stressed once again that this criterion does not necessarily reflect a method of production.

#### 1.6 QUALITATIVE CONSIDERATIONS AFFECTING INDUSTRIAL PRIORITIES:-

It should be understood that determination of industrial development priorities will not be solely governed by the quantitative method discussed in the foregoing sections. There are considerations that do not easily lend themselves to quantification or are difficult to reduce to a fixed measure but yet are pertinent to industrial priority determination. Among these considerations are the following:-

##### 1. Overcrowding of an industry:-

As a general principle a proposed industrial project should not be considered no matter how high its rates quantitatively in industrial priority if the industry to



which it belongs is relatively overcrowded as of the period of the proposed project. This will avoid the investment of scarce resources in industries where capital may be unnecessarily tied up to the relatively slow turnover of the products of such overcrowded industries. There are, however, other factors that may be considered such as the benefits that the establishment of the project will produce to the consumers as, for example, a distinctly superior process in producing a particular product which can result in reduced prices to the public.

For the purpose of the administration of this system of industrial priorities, the establishment of a new addition to an industry will be construed to result in uneconomic overcapacity of the industry if the aggregate productive capacity of all existing plants producing the commodity or practical substitute of the same, including the capacity of plants already approved for establishment or in process of being established, is in excess of the local effective demand for the product. Allowance should be made for additional potential demands in the country and export possibilities.

The productive capacity of an industrial plant shall be determined by ascertaining the quantity of the product in measurable units which the plant is producing consistently during one year, with the productive facilities readily available thereto and using those facilities during as many working shifts per day and as many days per year as its operating condition will permit without straining or over-loading the plant at the sacrifice of its overall efficiency.



As a general principle, with cost and quality considerations unchanged, the expansion of already operating industrial plants shall be given preference over new projects; save for the case in which the establishment of the latter will, with certainly, improve competition for the benefit of the public.

#### 1.7 PRICE CRITERIA:-

It should be pointed out that actual market prices are no longer a satisfactory signalling device for the distribution of investment or to measure accurately social costs and benefits. Current market prices are said to be in disequilibria because of market imperfections arising from taxes, tariffs monopolistic influences, indivisibilities, etc., and because of economic interdependancies. In labour rich countries for instance the market wage rate may not reflect the productivity of labour. To the extent that this is true, the market wage rate over rates the social value of labour.

Furthermore, the actual market rate of interest do not reflect the competitive equilibrium price of capital. Capital in turn may well be more valuable to the country than official interest rates indicates. Also, at official exchange rates there is usually no equilibrium and in most cases, if not in all cases, the demand for foreign exchange at this rate surpasses the supply of foreign exchange. Hence, capital costs will need an upward correction and labour cost will need a downward connection if actual market prices are to reflect the true economic value of the investment project whose costs and benefits are to be assessed.

It is therefore necessary in project appraisal to consider the question of prices. But what prices one have to use is still a question of great puzzelment. The use of "accounting" or "shadow" prices may provide a clue in so far as the application of these



prices is practically feasible. We shall consider this in detail in a separate memorandum where we are to discuss the role of accounting prices in project evaluation.

#### 1.8 MANAGEMENT ASPECTS OF THE SYSTEM :-

In order to facilitate the implementation of the system of determining industrial priorities, it is essential to create a central technical unit for project evaluation at the Ministry of industry with branches covering all the various industrial organisations in the United Arab Republic. The main function of the central project evaluation unit are the following:-

- (a) Re-examine the criteria which govern the quantitative aspect of priority determination and consideration;
- (b) Design the required project description charts containing basic information needed for criterial implementation;
- (c) Undertake studies to improve upon the methodological aspects, structure and application of the system;
- (d) Determine other areas or programmes where the system of industrial development priorities may be used as a basic for action;
- (e) To secure inter-departmental co-ordination among the various agencies that are required to take action in connection with the establishment expansion or operation of industries;
- (f) Conduct studies and make recommendations on matters that bear on the priority system.



1.9 TENTATIVE CONCLUSIONS & RECOMMENDATIONS:-

In summing-up the main economic values governing the industrial development priority system discussed in the earlier sections we cite the following guideposts:-

- (a) Value added to national product in the form of income and employment;
- (b) Extra values added due to and from external economies and production of basic and essential goods and services;
- (c) Alleviation of the unemployment situation and development of skills; and
- (d) Strengthening of the balance of payments position of the country.

The criteria for the first guidepost will therefore be:

- (a<sub>1</sub>) the greater the value added by domestic factors in production as distinguished from those added by foreign factors; the greater the domestic employment and the income which accrue to the nation.
- (a<sub>2</sub>) The higher the degree of processing export products have undergone domestically the greater the domestic employment and the income which accrue to the nation.

The criteria for the second guidepost will be:

- (b<sub>1</sub>) Industrial projects or firms producing, as their principal output or as an important by-product, commodities or services essential to the productive activity of other industries already existing will take precedence over industrial projects or firms producing only for direct consumption.



The reason for assigning high priority is that aside from the value the industrial firm or project creates on its own, the activities of this firm induce reactions in the economy as a whole and the other sectors within the economy. In this case the firm is linked with the other sectors of the economy through the nature of its outputs and inputs. The output of the industry may be an intermediate product or service necessary for the operation of other producers either as a raw material, or chemical agent, or source of power.

On the other hand, the preferred firm recommended above may require intermediate products or services (input-external economies) in the production process which can be supplied by domestic resources.

In general, an industry that will add extra values to the economy will occupy a more vital position in the country's industrial development programme than another industry producing solely for direct consumption and using imported intermediate products or services.

- (b<sub>2</sub>) Industrial projects or firms whose inputs can be supplied by local industries already existing or capable of being called into existence in the proximate future, will take precedence over industrial projects or firms whose inputs must be supplied by foreign sources either premanently or for a long time to come.
- (b<sub>3</sub>) Industrial projects or firms producing commodities which satisfy more basic human needs will take precedence over those which produce for less basic needs.
- (b<sub>4</sub>) In order to maintain the stability of domestic prices; industrial projects or firms which produce goods the demand for which is greater than the supply will take priority.



The criteria for the third guidepost will be:

- (C<sub>1</sub>) In this connection one has to remember that output may be taken as the product of the quantity (input) of labour and the productivity of labour and the productivity of labour is positively correlated with the productivity of the equipment it uses. Furthermore, the quantity of labour used depends on the nature of the other factors of production (i.e., capital), specifically, on their flexibility and the more productive types of equipment are highly specialized and require skilled labour which is a scarce factor in most of the less-developed but developing countries.

It is therefore necessary to develop skills and employ the redundant unskilled labour. In so doing two economic advantages may be achieved. Firstly, the improvement of the skill of labour and thereby its productivity. Secondly, the increase in the volume of products resulting from its employment adds to the national productivity of the economy provided that it exceeds the consumption of that labour if it is to be left idle.

- (C<sub>2</sub>) Projects which utilize and combine most efficiently the available labour skills and the scarce capital should be selected. The technology that is to be chosen should also make as much use of skilled labour as possible and economize on capital except where the greater position of the capital equipment is produced locally.

The criteria for the fourth guidepost will be:-

- (d<sub>1</sub>) In a growing economy one expects that the demands of industries and consumers for foreign exchange greatly exceed the normal foreign exchange resources of the country. This imbalance between foreign exchange requirements and availabilities creates an extra value or premium on the foreign



exchange earnings and/or savings of a production unit.

Therefore, industrial firms or projects which will realize greater foreign exchange earnings and/or savings will take precedence over industrial firms or products which will realize less. Furthermore the higher the degree of processing undergone by an export product, the greater the foreign exchange earning; and conversely, the lesser the degree of processing of the imported materials and supplies used in domestic production, the more the foreign exchange savings.

- (d<sub>2</sub>) Aside from the above mentioned considerations, it is necessary to distinguish foreign exchange - earnings from foreign exchange - savings firms or projects. Restricting the area within the balance of payments position, the net effect would be the same when an industrial firm earns or saves foreign exchange, provided the same quantities of foreign exchange are involved. But in the early stages of industrial development, widening the range of perspective would show that foreign exchange saving is more necessary to development than foreign exchange earning, with the amount of domestic value added as the deciding consideration.
- (d<sub>3</sub>) The financial structure of the industry is also pertinent to the balance of payments position. Accordingly industrial projects financed by foreign loan capital will take priority over those financed by direct foreign investment and investment financed by domestic savings shall have priority over all.



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