OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.

DISCLAIMER

FAIR USE POLICY

CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org

D00041

ID

Distr.
LIMITED

ID/WG.29/10
24 January 1969

ORIGINAL: ENGLISH

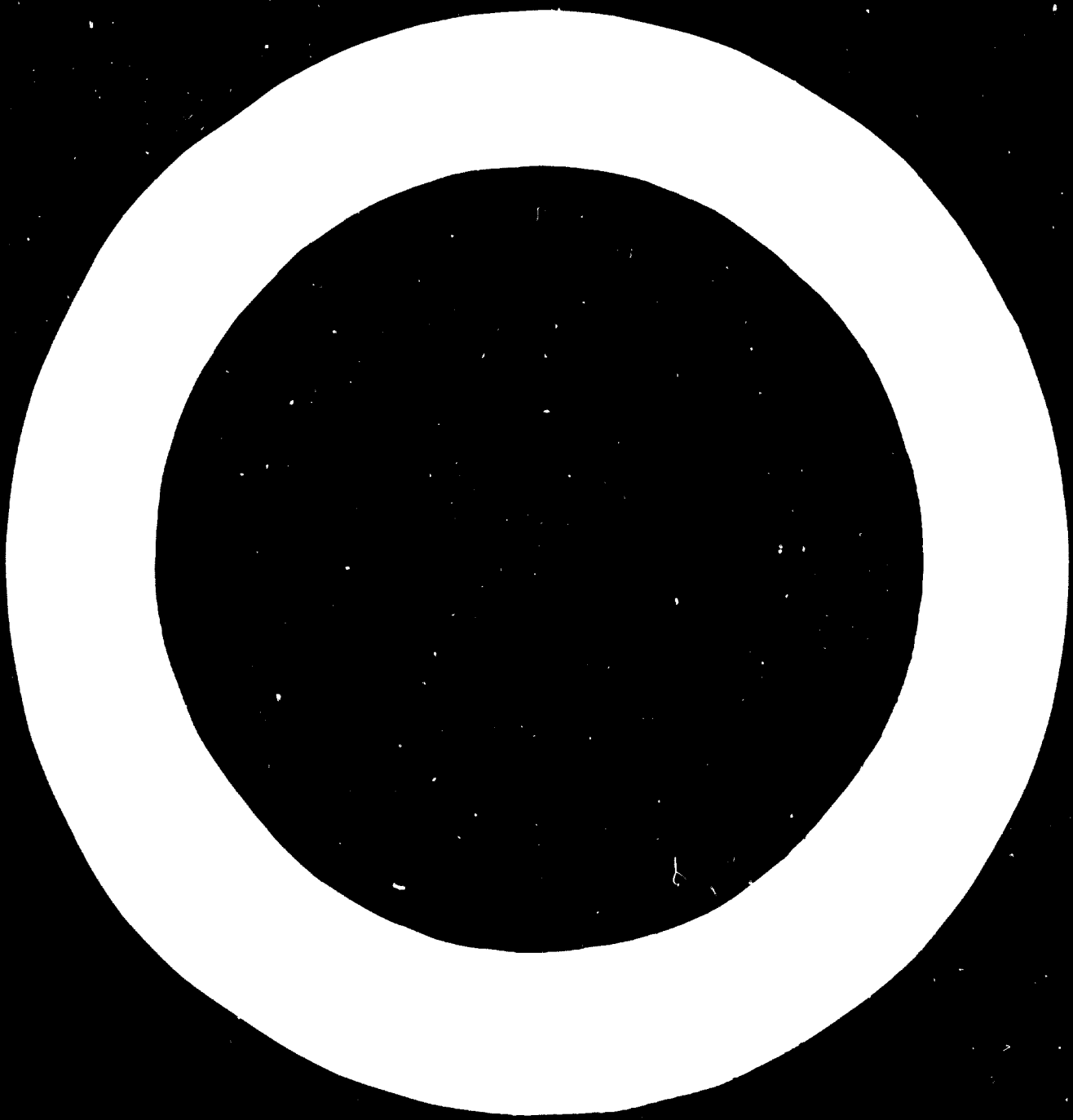
...ed Nations Industrial Development Organization

...rt Group Meeting on Utilization of
...ess Capacity for Export

...de Janeiro, Brazil
... March 1969

THE CAUSES OF EXCESS CAPACITY IN THE MANUFACTURING INDUSTRY[1/]

1/ This document has been reproduced without formal editing.



The present background document aims at producing an extensive, but non-exhaustive, survey of the factors limiting the utilization of full capacity in manufacturing industries. A clear determination of the causes is a first step towards the establishment of appropriate remedial policies and the identification of the areas where the Export Industries Section of UNIDO can grant technical assistance. This survey is also intended to provide a systematic classification of material to devise a meaningful and practical questionnaire.

The controversy between the technical and economic approach in defining excess capacity is of minor relevance in assessing its causes. Nevertheless, full capacity for an individual firm will here be determined on a technical basis as the maximum output obtainable from the installed mechanical facilities provided all co-operative production factors are in adequate supply. This last provision implies that the operating time is only conditioned by the running capacity of the equipment and that reasonable allowance is made for repairs, servicing and breakdowns. 2/

The technical definition is considered more operational and less subjectively biased than the economist's approach which casts the full capacity concept in terms of the optimum output at minimum average financial costs. Apart from the virtually complete absence of consistent application of cost calculation techniques in the enterprises of developing countries, the private assessment of the average financial costs may widely differ from the macro-economic or welfare theoretic costs curve. Since those discrepancies will generate different minimum average cost levels the

---

2/ Aggregate full capacity for an industrial sector could be defined as the optimum level associated with full competitive equilibrium.

economist's measurement rod is not suitable for time series data or for cross-firm, cross-sector or cross-country comparisons.

Excess capacity can be caused by one or a number of factors which frequently occur together. These factors differ from one firm or industry to another. To analytically distinguish:

A. Under-utilization due to demand and market limitations;
B. Inadequate infrastructure and shortage of complementary inputs;
C. Inadequate output and distribution;
D. Planning errors and operational limitations.

In some cases plant surplus to current requirements is installed to improve the cost structure, to match long term increases in demand or in anticipation of obtaining a larger share of the market or also for reserve or emergency purposes. This unutilized production potential is not a matter of concern in the analysis of the causes. It does offer however temporary surpluses which may be exportable. Incidental, seasonal and cyclical factors affecting capacity utilization will not be considered either.

As will be seen, not all bottlenecks can be eliminated by efforts to increase the exportability of the surplus potential. Solutions will also have to be found for structural factors that are of different nature. A survey covering the whole gamut of causes will nevertheless prove most useful.

A. UNDER-UTILIZATION DUE TO DEMAND AND MARKET LIMITATIONS

Inadequate demand and market imperfections are often a prime reason for the existing idle capacities in most manufacturing industries of developing countries and yet these limiting factors are usually given minor credit in the available excess capacity

/

surveys. It is obvious that if insufficient domestic or foreign markets exist for the manufactured output neither greater availability of required inputs, improved planning, better quality and distribution of the products nor the elimination of the operational bottlenecks will substantially increase the capacity utilization. The order backlog is a sensitive barometer of the production activity in any company.

The demand and market restrictions may have the following features:

1. Application/consumption opportunities limited:

   a) the range of production processes where the product in excess supply could be used as input may be extremely restricted;
   b) insufficient private/public buying power;
   c) product with low price elasticity (i. e. a decrease in price does not generate any worthwhile increase in demand) and/or low or negative income elasticity (increased income and purchasing power do not significantly enhance the sales opportunities);
   d) inefficient advertising;
   e) insufficient research to find new uses.

2. Buyers market:

   Although demand may be abundant, aggregate excess capacity in the sector may generate an uneconomic and unrewarding market price. The trade limiting and profit reducing effects of a buyers market situation will hit harder those companies that have to face excessive competition from plants using better processes or operating at lower costs. Suppliers that sell a major part of their production abroad will be more affected by a buyers market situation than those [illegible] local outlets which provide a protection [illegible] ease the strain of foreign competitors.

3. Imperfect Competition:

a) monopolistic and oligopolistic market structures;
b) freedom of entry into the market is limited or made prohibitive;
c) competition with privileged or subsidized suppliers - this protection may be direct or straightforward and ranges from subsidies on the input factors (capital, labour raw material, and intermediate products) to straight subsidies on output and distribution of output. Privileged access to the agents of production is another feature of imperfect competition.

4. Un-coordinated Imports:

Lack of consistent import policies may fail to avoid large imports of competing manufactured goods despite the existence of substantial idle capacities within the country.

5. Government Rules and Regulations Limiting Demand:

Here the policy makers may maintain a strict priority schedule for the allocation of national resources and may therefore curb the demand for certain products.

6. The product in excess supply may face decreasing domestic and/or world demand because of:

a) changes in income and wealth level and distribution;
b) changes in the value of the money which may generate alterations in the relative prices of the different products;
c) changes in taste, habits and preferences;
d) changes in outlays, taxes, subsidies and bounties;
e) changes in competitive substitutes which unfavourably affect the comparative advantage position of the product in excess supply;

f) changes in related products;

g) changes in methods of production and the problem of alternative uses;

h) changes in laws or regulations affecting the volume of consumption or imports.

7. Barriers limiting Access to Foreign Markets:

These national or regional barriers may convey a major obstacle to gear the existing surpluses towards export markets and offer less scope for technical assistance.

a) Tariff barriers:
The trade reducing effect of tariff barriers is less determined by the nominal rate of the tariff than by its effective rate, i. e. the extent to which the added value is assessed.

b) Non-tariff barriers: 3/

- foreign trade policies
as licencing requirements, quota restrictions, anti-dumping regulations, foreign exchange restrictions, etc.

- administrative practices
as documentary, marking and packaging requirements, classification of goods for certain purposes, incomplete or delayed publication of custom information, etc.

- internal economic policies affecting imports
as taxes applied to imports to compensate for indirect taxes borne by comparable domestic goods, price policies and price control regulations, restrictions and advertizing of goods, internal taxes for revenue purposes, etc.

- internal health and safety regulations affecting imports such as sanitary regulations, technical specification requirements, regulations applied for national security purposes, etc.

3/ See UNCTAD Elements for a Trade Policy for Development (E. Conf. 46/6)

B. INADEQUATE INFRASTRUCTURE AND RESTRICTIONS ON THE AVAILABILITY OF COMPLEMENTARY INPUTS

The various limiting circumstances that are grouped under this heading are of a more familiar nature. Their restrictive impact is less critical in a situation of installed and actual capacity in excess of market demand than when actual capacity utilization is short of the market potential.

Shortage of complementary inputs can partly be solved by combining other economic resources in even greater quantities with the scarce agent of production. However, in practice, the nature of the production function is mostly such that the possibilities of factor substitution are technically or economically limited.

8. Infrastructure requirements:

Insufficient factory sites, buildings, port facilities, roads, etc. may seriously hamper the full capacity operation of a production unit.

9. Capital:

a) Lack of working capital for different purposes such as
- to extend credit to customers on the domestic but mainly on the international market
- to build up an adequate stock of raw materials and intermediate products;
- to keep an optimum stock of the final product so as to be in a position to meet the demand in the shortest time;
- to maintain consignment stocks or local warehouses in the main selling areas;
- the continued production during the low selling period, etc.

b) Insufficient funds available for defensive and innovative investment purposes -
When firms operate under reduced profits or enduring losses they nevertheless be induced to invest in order to rationalize or modernize some aspects of their operations for

maintaining their relative position even if the absolute position as a whole does not improve. These defensive investments, which normally carry considerable technical progress embodied in capital, mostly have cost reducing effects.

c) Balance of payment difficulties with accompanying shortage in foreign exchange and import restrictions. The wider variety of goods and services which can be bought by savings in foreign exchange gives these funds a value exceeding their nominal amount.

d) Insufficient banking and credit institutions.

10. Labour:

Technical skills are mostly in very inelastic supply and can only be obtained at very high cost. This introduces an unstable element into the labour situation. Companies operating at infra-optimum conditions are often deprived of such skills. This labour shortage situation will seriously affect those industries selling on an international market where the performance requirements are normally set on a higher level.

a) Shortage of skilled and unskilled manpower - this may be due to many reasons such as inadequate educational and training opportunities, slow geographic and occupational mobility of labour, instability of the workers, etc.

b) Lack of good operational staff and supervisory personnel

c) Lack of good maintenance staff

d) Instability because of strikes, work stoppages and absenteeism

e) Unwillingness or legal restrictions to work in particular circumstances.

11. Management:

Managerial talent is a crucial commodity in very short supply, also in developed countries. It requires a basic understanding of the production process and techniques, the elements of business finance and the social environment in which an enterprise operates. It also demands initiative, ingenuity and competence to cope with the many unforeseen problems which arise in any business enterprise.

Underutilization of existing production capacities may in this respect be due to:

a) shortage of capable and dynamic enterpreneurs
b) lack of incentive to increase production
c) inadequate training and/or experience.

12. Natural resources, raw material and other inputs to be used in the manufacturing process:

a) Shortage of raw material is caused by a number of different reasons -
   - high cost of raw materials
   - local unavailability of certain materials which cannot be imported
   - insufficient and irregular supply of local materials
   - inferior quality
   - variations of quality and lack of standardization
   - shortage of imported raw material because of the lack of foreign exchange and the ensuring import restrictions
   - inefficient raw material allocation system
   - preventive high cost of raw material transportation
b) Shortage of intermediate goods
c) Lack of spare parts.

13. Utilities:

Insufficient or irregular supply of power, electricity and steam.

C. INADEQUATE OUTPUT AND DISTRIBUTION

The causes of underutilization of existing manufacturing capacity elaborated under this heading are all related to the product as it is made and offered to the potential buyers. It is being assumed for this exercise that sufficient outlets are available but that the product, as distributed, fails to meet the conditions of the market. Here again, dependence on the international market will normally require higher standards of performance. This degree of export dependence directly determines the extent to which the above bottlenecks affect the rate of underutilized productive potential.

14. Product not geared to the market:

The output may not be suited to match the existing demand because of the selling price, the design, the quality, the diversifications conditions, standardization and continuity of quality, packaging, etc. All this is normally related to lack of export know-how and insufficient marketing which can be defined as looking at products and problems from the customer's point of view and the carrying out of all appropriate adjustments to satisfy customers needs.

15. Limitations inherent to small scale:

The small size of the production potential may restrict access to mass consumption outlets or to customers with a good credit standing. It may also be liable for a too long gestation period between ordering and delivering.

16. Lack of adequate publicity

To make the product known to the market and to create demand.

17. Insufficient distribution facilities

This includes the entire operation ensuring that the products reach the right customer at the right place at the right time. The efficiency and reliability of the distribution network is related to the number of selling outlets, sales staff, distribution techniques, delivery and transportation facilities, warehouses near the market, etc.

18. Inadequate or lacking technical services

This bottleneck refers to technical assistance, after-sales service, availability of spare parts, etc.

19. Inadequate export incentives or overvalued currency

Most countries grant, under one form or another, incentives to assist the competitive position of their exports and to overcome the tariff barriers in foreign markets. Failure to extend similar advantages may seriously curb the ability to compete although one should bear in mind that the incentive policy is basically a matter of national priorities.

A similar non-competitive situation may develop if the export price is systematically inflated by the maintenance of overvalued exchange rates without granting compensatory adjustments that would take the effective rate down to its equilibrium or shadow price level.

D. PLANNING ERRORS AND OPERATIONAL LIMITATIONS

This fourth category of limiting factors deals either with the errors committed in the planning steps of the production unit

or with the various operative bottlenecks. 1/ Technical assistance in this field would be of great value.

20. Incorrect Planning

a) Wrong location - the production centre may be too far from the source of input supply or from the market.

b) Over-estimation of demand on the enterprise level and/or the national level (indeterminate licensing of additions to capacity) - this may be conceals a lack of accurate market studies.

c) Erroneous assessment of competitive potential and anticipated changes in circumstances such as expansions, modernization, new plants, new competing products, etc.

d) Over-estimation of prospective selling price in the domestic and/or export markets.

e) Under-estimation of relative costs.

f) Faulty appraisal of availability of co-operative factors of production.

g) Inaccurate timing of investment - most projects are, as far as their profitability is concerned, subject to a live cycle of increasing returns - investing at the wrong moment may imply unnecessary capacity.

h) Errors in product design and development which prevent it to match the market requirements.

21. Choice of technology

a) Problem of indivisibility - not all production facilities and processes can be tailored to the size of the market. There is a certain minimum technical and also economical scale of operations. For more capital intensive & certain production process is the size scope is generally left for adjustment of the run volume.

1/ [illegible] have been deliberately [illegible], but still a matter of [illegible].

b) Applied techniques and methods may not be suited to the limited size of the market so that excess capacity cannot be avoided. This situation mostly features with an inflated cost structure.

22. Inadequate implementation of the investment:

Although the planning is correct and sufficient outlets are available the project may have been implemented in the wrong way so that the output turns out to be substandard or fails to meet the customer requirements.

23. Operational problems:

Operational bottlenecks relate to -

a) unfavourable climatic conditions
b) close-downs in input supply units
c) insufficient use of installed capacity

CONCLUSION

As any survey of the actual causes of non-utilized capacity in a particular firm or industry will give evidence, the excess is never caused by one single factor. The listed bottlenecks will mostly appear in a certain mixture. The remedial policies will have to be adjusted to each case.

The four categories of factors limiting full utilization of existing capacity do not offer equal scope for technical assistance by UNIDO, whose task it is, among others, to assist developing countries in increasing their exportability and export potential. Extension of assistance may be more appropriate in such fields as [illegible], the upgrading of the output, the development of the distribution system, the improvement of the planning of additional productive capacities and the elimination of the operational bottlenecks.

The present classification of causes may serve as a basis to establish a questionnaire for fact finding purposes and to diagnose industry-wise and country-wise. The findings that will be collected by such investigation may provide guidance to identify the areas where technical assistance is most needed.

21.1.72