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16491-E

DP/ID/SER.A/881
31 July 1987
ENGLISH
Original: FRENCH

REGIONAL ARAB PROGRAMME FOR THE
DEVELOPMENT OF SUB-CONTRACTING

DP/RAB/86/001

Technical Report: The subcontracting economy -
principles and rationalization *

Prepared for the Governments of Algeria, Egypt,
Iraq, Jordan, Morocco and Tunisia
by the United Nations Industrial Development Organization,
acting as executing agency for the United Nations Development Programme

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Vienna

* This document is a translation of an unedited original.

V.87-88186 (EX)

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I. GENERAL CONSIDERATIONS

A. THE CONCEPT OF SUBCONTRACTING

The search for a control of production in the metals industry sector is one of the keys to economic development. In such an important field as capital goods, an appropriate policy on the part of Government or the manufacturers associations which takes specific account of the characteristics of subcontracting and tries to facilitate it and improve its operation can effectively contribute to economic growth.

As an example of government intervention properly understood, the United States has long pursued an active policy of encouraging more profitable inter-industrial relations. There is accordingly a law which requires, in the case of government orders, that a certain percentage of purchases be reserved for small and medium-scale enterprises.

The clearest illustration of the beneficial results of such a policy is the success of the APOLLO programme, in which no less than 20,000 enterprises working as subcontractors contributed to the success of the first flight of American astronauts to the moon. It is thus clear that the industry of an entire nation can be mobilized to work according to a complex programme scheduled down to the last detail in carrying out a highly technical collective project.

Since then, the in-depth study of subcontracting, the elucidation of the laws which govern it, and the definition of the ways and means by which it may be developed, whether technical, financial, economic, public or private, form a natural and necessary part of the processes which determine economic expansion.

To take one example of initiatives from the private sector, we can mention (comments will be found later in the text) the fact that in France, since 1959, professional organizations or provincial development institutions have established bodies of a novel type called "Subcontracting Exchanges" which, by means of mechanisms which will be described in detail, have conspicuously improved inter-industrial relations wherever it has been possible to set them up in an appropriate fashion.

The movement to establish Subcontracting Exchanges has since expanded. One after another, Spain, Belgium, Italy, the United Kingdom, Turkey, the Scandinavian countries, Asia, Latin America, etc. have established subcontracting networks of a more or less comprehensive kind.

The success of these organizations is such that the public sector, mainly at international level, itself responds, and that the international organizations incorporate in their programme studies and missions dealing with subcontracting problems and approaches which may succeed in rationalizing the organization of subcontracting.

B. DEFINITION

Subcontracting covers many sectors of activity, including transport and services, but the processing of metals remains its preferred field. Among the branches in which the largest numbers of main contractors are to be found we may mention the following: motor vehicles manufacturing, ship-building and the aeronautics, electrical and electronics industries. The products manufactured by these industries are complex and represent the result of assembling a large number of parts⁽¹⁾ whose production involves the widest variety of techniques. A single firm, even a very large one, cannot undertake the entire manufacturing process. It must rely on the assistance of enterprises which deliver parts made to order.

The subcontractor is thus an industrialist or craftsman who carries out a specific order on behalf of a colleague, the order consisting of a part, component or sub-assembly which will be incorporated in the finished product.

If subcontracting is to take place, the supplier (or subcontractor) must:

- Act as a substitute, either partially or wholly, for the party placing the order by carrying out on his behalf an industrial operation whose technical and financial risks he accepts;
- Subordinate himself to the technical specifications of the party placing the order.

Subcontracting therefore implies both substitution and subordination. Accordingly, subcontracting can take two main forms:

- Capacity subcontracting: a main contractor has recourse to one or more outside enterprises in order to compensate for the permanent or temporary inadequacy of his production capacity;
- Specialized subcontracting: the main contractor entrusts to the outside party work which does not fall within his competence.

The latter form of subcontracting seems, from all points of view, to be the more interesting. This is the form which is best suited to the rational organization of work in an enterprise, thus ensuring that the available machinery is not wrongly or under-utilized. On a broader scale, the problem relates to the optimal use of a country's available equipment.

Be that as it may, subcontracted production plays a considerable role. In France it represents more than 10 to 15 per cent of turnover in the engineering and electrical industry.

The use of subcontracting, which to some extent reflects a country's degree of "industrial maturity", is unfortunately held back by many factors. There is the obstacle of a past history of habits, a desire for independence

(1) A motor vehicle consists of between 1,200 and 1,500 parts.

on the part of small enterprises, and in the case of large firms a power complex which hinders the changeover from a situation of ineffective and sterile antagonisms to one of necessary co-operation in which everyone can achieve his own expansion. Reference is often made to the example of Louis Renault, who believed that everything involved in the production of the motor vehicle should be manufactured in his factories. Technical developments and increased production rates have rapidly rendered this practice unprofitable.

Industrial self-sufficiency is no longer viable in the modern world. Subcontracting makes it possible, through collaboration with other enterprises, to optimize industrial output.

C. JUSTIFICATION FOR SUBCONTRACTING

Several factors determine the satisfactory operation of subcontracting: these affect both the subcontractor and the main contractor. They are technical, economic and tax-related in nature.

1. Technical factors

The larger an enterprise grows, the more cumbersome its administrative and technical organization becomes. The enterprise then looks for products or services which complement its own. It confines itself to certain operations, following the principle of not doing itself what others can do in better conditions. Ultimately, the large firm may concern itself only with research, the final stage of production and marketing.

For his part, the subcontractor specializes in manufacturing a specific product, and he tries to expand as much as possible his opportunities by equipping himself, for example, with the most up-to-date plant.

2. Economic factors

An enterprise may not be able to find the capital needed for the acquisition of new machinery essential for increasing its production. Accordingly, it subcontracts on a large scale all the aspects of manufacturing which would require new plant.

This approach may become more systematic. Thus, the Dupont de Nemours company only authorizes outlay if the branch concerned has shown that it is impossible to replace the proposed investment by a subcontract.

An enterprise may have the prospect of a contract worth 20 million, for example, but its capacity may accommodate only to 7 million. Rather than turn down the contract, the firm will set up a temporary consortium of three or four enterprises among which it will share the remaining 13 million. In the aeronautics sector in France, the Government authorizes contracts with large firms on the condition that they subcontract a minimum percentage of their turnover to specialized enterprises.

Another case may arise: an enterprise has to acquire a press. It discovers that another firm also wishes to acquire one. Rather than own two presses which are not functioning at full capacity, the two enterprises agree that one will buy the press and subcontract the work of the other which, for its part, will acquire a milling machine which both of them need.

Nowadays the old concept of subcontracting in the event of emergency is tending to give way to "complementary" subcontracting, in which the subcontractor is involved in production in order to achieve a common goal. New links are developing which arise directly from the actual conditions of sub-contracting. There are good main contractors and good subcontractors, and the main point is that they should work together in an atmosphere of confidence.

The subcontractor may use the surplus capacity of his own plant to carry out subcontracting work and thus find the extra work needed to ensure that his plant is fully utilized. There are many cases in which subcontracting arises almost automatically: a lack of staff needed for a possible extension of the enterprise services, a lack of space (urban regulations), seasonal business activity which may be inherently highly variable, or acceptance of contracts which go beyond the normal scope of the enterprise.

3. The tax-related factor

The Value Added Tax (VAT) system is perfectly suited to subcontracting relationships in that the main contractor may deduct the VAT as invoiced by the subcontractor from the amount of tax he has to pay.

D. CONDITIONS FOR GOOD SUBCONTRACTING RELATIONSHIPS

Because of the differences of scale between the main contractor's enterprise and that of the subcontractor, the latter sometimes cannot avoid a sense of inferiority. Most frequently the cause is a lack of information, which means that the subcontractor operates somewhat "by instinct" and that the main contractor himself pursues his production policy unaware of the opportunities and standards of quality offered by the subcontractor.

1. Finding the right price

The first step is to compare the cost price fixed by the subcontractor and the price as itemized by the technical branches of the main contractor. Adjustments can then be made up to the moment at which agreement is reached; the price can be quoted with a clause for possible amendment.

It is also necessary to follow price trends over time. A continuing update enables the subcontractor to determine his business policy with full awareness of the facts and without the risk of compromising the future of his enterprise.

2. Adherence to time-limits

The main contractor is entitled to seek security of supply. Accordingly, he draws up a schedule to be adhered to. For his part, the subcontractor often reduces the stipulated time-limits in order to secure the order.

Finally, the client must specify his requirements, and the subcontractor his capabilities, and the contact between them must be continuous. Stringent prospective management is therefore essential both for the main contractor and the subcontractor.

3. Research and quality control

The question must be raised unequivocally right from the start, and the quality-control requirements precisely determined. The main contractor must provide all the necessary details about the work to be carried out and the quality required.

The subcontractor should have at his disposal all the technical assistance of the main contractor, with the option of calling upon the assistance of the firm's methods department when required. It is best if quality control can be entrusted solely to the subcontractor, thus avoiding a duplication of control which is sometimes burdensome and paralysing.

4. A policy of good faith

For a small subcontracting enterprise, any initiative to acquire new equipment, to specialize, to grow, or even to survive, is often in the hands of the firm's clients. As a set-off to the advantages he provides, the subcontractor expects that there should be a certain degree of regularity in orders and that he should not only be called upon during peak periods.

Once the subcontractors have been chosen, they should be regarded as an extension of the client enterprise.

The subcontractor must have a comprehensive understanding of the status of the market and, in particular, he should be able to identify operations which it would be in the interests of the main contractor to subcontract, even if the latter has not yet planned to do so.

Besides, in the interests of prudence, the subcontractor should balance his risks, and should not exceed a certain volume of production for a single client and in one particular area of activity. Some subcontractors have established 20 per cent as the acceptable ceiling for operations on behalf of one client.

In many cases, however, subcontracting is still too much on a contingency basis. Enterprises subcontract when they are obliged to do so or when they find it profitable. The result is that the subcontractor operates in conditions of chronic instability. This is a fundamental problem. It has even led a number of professional organizations to try to put together a sort of code of ethics which would be binding on the parties.

These are the difficulties which lie behind the search for alternative solutions which could introduce a spirit of co-operation and rationalization into inter-industrial relations. Whether the subcontracting is on a competitive, complementary or joint basis, there is always an underlying idea of collaboration and co-operation.

II. THE ORGANIZED FORMS OF SUBCONTRACTING

A. PROCEDURES WHICH DO NOT RELY ON THE RATIONAL ORGANIZATION OF SUBCONTRACTING (ROSC)

1. Quasi-integration

"Quasi-integration" consists of the technical integration of the subcontractor within the consortium established by the large firm: the resulting collaboration operates at various levels of production.

This has many advantages for the subcontractor: first of all, stability is guaranteed, since part of the production is definitively allocated to him. Similarly, if the firm to which he is affiliated is well established, he benefits from its prestige in the market. However, this quasi-integration only seems feasible for the very limited number of cases of enterprises which have sufficient weight to negotiate on favourable terms.

With this arrangement the small and medium-scale industrialist may be apprehensive of losing his independence, or rather of being excessively dependent on the firm. He will prefer to turn to other types of consortia in order to protect his interests and to share the subcontracting market with enterprises of the same kind as his own.

2. Collective agreements (associations)

Subcontractors may organize themselves, either on the initiative of those among them who are particularly go-ahead, or with the assistance of chambers of commerce and industry, professional associations or federations or even the State.

They can then benefit from various kinds of privileged status designed to further their interests without at the same time coming under the law on trusts. As a case in point, independent subcontractors may conclude "specialization agreements" between themselves. They agree to share between them all or part of the manufacturing operations.

3. Engineering companies (general contractors)

Some large firms may decide to establish a joint subsidiary responsible for engineering and project-study. This subsidiary will co-ordinate the work of the subcontractors. It will itself have the status of subcontractor vis-à-vis the parent enterprises.

B. THE RATIONAL ORGANIZATION OF SUBCONTRACTING (ROSC)

1. Subcontracting Exchanges

The concept of common services available to enterprises at local or provincial levels has taken shape in the form of Subcontracting Exchanges. The basic idea was to try to introduce an element of rationalization into provincial (or local) subcontracting relations, which had hitherto been left to chance.

The term "exchange" generally denotes a body which centralizes supply and demand. It seemed appropriate to use it in order to indicate that what is involved is a centralizing body for the supply and demand of available capacity of plant in enterprises.

The first Subcontracting Exchange (SE) was established at Bordeaux in France in 1959. In the following years the number of such bodies established in France reached 20. Now, after the necessary period of settling down, 10 still remain in France.

Other countries, such as Spain, Belgium, the Scandinavian countries and the United Kingdom have taken an interest in the experiment, as, subsequently, have developing countries such as India, Greece, Argentina, Brazil, Chile, etc. The current figure for Subcontracting Exchanges worldwide can be estimated at between 200 and 250.

It soon became apparent that Subcontracting Exchanges could play a two-fold role.

(a) The Subcontracting Exchange as an instrument of technical harmonization

The basic aim of Subcontracting Exchanges is to introduce, as efficiently as possible, the party offering work to be subcontracted to the party capable of carrying out that work. In order to do so, the Subcontracting Exchange uses at least two filing systems, consisting of a file of enterprises and a file of plant. Each enterprise must supply an exact list, with specifications, of the machines it owns.

As an instrument of rationalization, the Subcontracting Exchange may also become an advisory body with respect to equipment and investment policy. Since the Exchange has the list of plant in a particular area, it can very easily detect under- or over-endowment in metalworking machinery and give appropriate guidance either to an enterprise or to public development bodies.

It should, however, be emphasized that Subcontracting Exchanges are simply bodies which make the supply and the demand known to each other. In no way are they the extension of the marketing department of the enterprise even if they are called upon to provide technical or legal advice in order to facilitate negotiations between the parties concerned.

(b) The Subcontracting Exchange as an instrument of economic development

Various earlier studies, including studies carried out by UNIDO in 1967 and in 1975 (1), indicate that one of the essential elements in economic development is the density of the fabric of inter-enterprises relations in a region.

The more dense the fabric of inter-firm relations, the more favourable the conditions for economic development. This contribution of the Subcontracting Exchanges to industrial growth operates at several levels:

- The opportunity for small and medium industries (SMI) to make use of the subcontracting exchange strengthens their economic position by widening their range of clients;
- They are no longer so dependent on large enterprises which may previously have been their principal, and sometimes sole, client.

In addition, the surveys undertaken in various regions in order to ascertain the volume and direction of the subcontracting flows which may exist between the different cities in a province have been carried out. These surveys have made it possible to collate a large amount of information, which may be used in formulating policy decisions to be taken concerning plant and economic development.

The surveys can also contribute to provide a better definition of the elements of national re-structuring measures by identifying the factors which determine the relocation options of enterprises which have to carry out operations, either in industrial areas or in decentralized areas. We can mention, for example, the survey carried out at one time in France in the south-east quarter of the Paris region. This study revealed, inter alia, new factors to be brought to the attention of enterprises which found themselves obliged to opt either for decongestion relocation in the outskirts of the Paris district or for decentralization relocation in a more distant province.

Experience in the industrialized countries also shows that it is difficult to organize a Subcontracting Exchange at national level whose function it is to centralize all the supply and demand capacity available from all points in the territory. On the other hand, it is much easier to establish links between regional Subcontracting Exchanges, including Subcontracting Exchanges on both sides of a frontier.

In this connection, Luxembourg, on the initiative of the High Authority of the ECSC, established a Subcontracting Exchange whose function is to organize subcontracting relations between the neighbouring provinces of Trier and Saarbrücken in Germany, Lorraine in France and of the Belgian Luxembourg. On a more elaborate scale, mention should be made of the four Scandinavian countries which have evolved permanent subcontracting relations between themselves, thus providing a model for international subcontracting.

(1) "Subcontracting for Modernizing Economies", UNIDO, 1975, ID/129

One can even conceive of organizing the subcontracting of "software" intellectual services, i.e. software deriving from the research and design activities of highly-qualified laboratories with an abundance of intellectual resources, thus encouraging the emergence of a genuine international subcontracting operation entailing a considerable input of intellectual labour.

2. Industrial "photographs" (Survey of industrial capacities)

This study can be carried out on the basis of relatively modest materials. In most countries the national bodies responsible for industrial promotion, such as chambers of commerce and industry and productivity centres, have at their disposal a certain amount of information relating to the engineering industry.

Lists will have to be drawn up of existing enterprises based on questionnaires to be used for the census of industrial capacities, according to categories of metalworking, showing the plant machinery, the specific operation, the technical know-how and the number of staff involved per category. It will then be possible to prepare a map showing the engineering industry configuration in the area concerned. This study will make it possible to present what is virtually an "industrial photograph" which can be used as a basis for issuing annual subcontracting directories.

3. Study on subcontracting flows

A much more complex sample study consists of preparing diagrams showing the subcontracting flows which may exist between enterprises in the region. A questionnaire should be drawn up so as to give a precise idea of the operations of each enterprise and to estimate the volume of work received or given out for subcontracting by the firms in the city concerned or another city in the province.

This estimate of the volume of work given and received is expressed in terms of turnover. The analysis of the questionnaires, which should be filled out with care, can be used in drawing up tables showing, by city and category of metalwork, the turnover of subcontracting work given out or received. These tables can subsequently provide a basis for preparing maps of subcontracting flows in the area concerned. We should point out in this connection that it is essential to send to the enterprises a previously trained team of interviewers, generally consisting of final year students from a third cycle teaching institution, such as the university-level engineering school type.

III. CONCLUSION AND FINAL REMARKS

This is a brief outline of the main aspects of the problem of subcontracting. As a topic which has resulted from the advent of the industry of which it constitutes a natural feature, it was appropriate to define it more closely before dealing with the elements of the improved inter-industrial relations which it implies.

Subcontracting Exchanges have been mentioned as one feasible means of rationalization. They can be excellent instruments for economic promotion, provided they are not called upon to deliver more than they can offer. They are basically "lightweight" bodies whose success depends primarily on the promoter who runs them and the resources placed at his disposal.

In both the industrialized European countries and the developing countries it has been seen that subcontracting relations do not automatically follow the practice prevailing in the United States, where the subcontractor is regarded by the main contractor as his most valued associate. A new spirit, founded in a genuine code of ethics for subcontracting, must accordingly be introduced. That is the first point.

A second point should also be mentioned. While the idea might have seemed utopian 25 years ago, when the first Subcontracting Exchanges were established, the current manufacture of third-generation computers and the design of softwares specially adapted to the needs of small and medium-scale enterprises make it possible to computerize the various kinds of data gathered by the Subcontracting Exchanges. It is thus possible to create a computerized data bank which will register the capacity of all the plant in all the enterprises of a zone: this data can then be captured, filed and sent out to the workshops which can meet the terms of the tender.

Then, the era of optimal utilization of the plant available in a given province or country, irrespective of its level of economic development, is thus at hand. This will provide an initial remedy for the modern world's distressing lack of machinery.