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# **Practical Case Studies on Industrial Subcontracting and Partnership**

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with the assistance of  
Ernesto Sarrión, UNIDO Intern  
under the guidance and supervision of  
André de Crombrugghe, Programme Coordinator*

**Case-Study**

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**UNIDO Programme for the  
Promotion of Industrial Subcontracting and Partnership  
Small and Medium Industries Branch**

*This document has not been officially edited*

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## **Introduction**

### **What is Industrial Subcontracting?**

Industrial subcontracting and out-sourcing are modern and efficient ways to organise industrial production, through co-operation between various complementary production units, in this case a main contractor and various suppliers and subcontractors.

This concept consists of an agreement between two parties - the main contractor and the subcontractor. The main contractor entrusts one or several enterprises with the production of parts, components or sub-assemblies and/or provision of industrial services necessary for the manufacture of its final product. The subcontractor executes the work as per the specifications provided by the main contractor. There is thus a division of labour within the industrial sector and the subcontractors become increasingly specialised in one or more technological fields.

### **What are the principal forms of subcontracting?**

Subcontracting of industrial production is generally based, among others, on two important criteria - one based on production capacity and the other on the technical specialisation of the enterprise.

*Subcontracting based on capacity* - When the capacity of production available with a main contractor is not sufficient to cope with the total volume of production necessary to execute an order and when further creation of an in-house capacity is neither feasible nor desirable, the main contractor has to depend on a subcontractor to manufacture the balance quantity of the order. This form of subcontracting takes place when the quantity of orders received by a main contractor fluctuates.

*Subcontracting based on specialisation* - This occurs when the main contractor desires to obtain the services of subcontractors who have specialised equipment or machinery and skilled labour to undertake complex and precision jobs. Such subcontractors have specialised technical skill/know-how for specific production processes/items and the main contractors prefer to utilise their services. This relationship is not associated with fluctuations of orders and hence tends to be on a long-term basis. In view of its specialised knowledge of production facilities, sometimes these subcontractors may be in a controlling position.

### **Who are the main contractors?**

The main contractors are generally, though not necessarily, large industries engaged in industrial manufacturing, which require a large amount of parts and components for final assembly. All these parts and components are not generally manufactured in-house in an integrated way either for reasons of economy or for specialisation.

Though subcontracting relationship can exist in various sectors of activity, it is most prominent in the engineering sector in industries like automobiles, railways, aeronautics, electrical equipment, electronics, domestic electrical appliances, precision equipment, surface treatment, and also in plastic and basic metal work industries like foundry, forge, general mechanical or precision mechanical works.

### **Who are the subcontractors?**

The subcontractors are generally, although not necessarily, the small and medium industries which, having specialised in certain processes and operations, are capable of supplying quality goods as per specifications of the main contractor and at the same time offer advantageous economic terms. Sometimes large industries having available extra capacity may also act as subcontractors. It may also be the case that small and medium industries require the services of other enterprises for the manufacture of parts and components in order to fulfil large orders, thus acting as main contractors.

The various linkages that **Small and Medium Sized Industries (SMIs)** can establish among themselves and with large and state-owned enterprises are essential factors for their growth and competitiveness. The organisation of these linkages is crucial both upstream with suppliers and subcontractors and down-stream with distribution and marketing channels. Industrial subcontracting between industries of various types and sizes, especially between large and small enterprises, is a feature of a modern industrial economy. In industrialised countries, an intricate network of complementary inter-industrial relationships exists, in which large corporations rely on smaller enterprises for the manufacture of parts, components and sub-assemblies, or for certain processing, transforming and finishing operations, which they incorporate into their own product.

As this **analysis of practical Case Studies** will demonstrate, subcontracting is recognised as an efficient tool to increase the rate of utilisation of installed industrial capacities, to increase both industrial production and employment in the SMI sector, to produce better quality products at a reduced cost, to contribute to a reallocation of industrial resources, and thus to national industrial growth and integration.

## **Trends in Industrial Subcontracting towards Partnership**

The concept of subcontracting registered major changes in the last 30 years. A definition of the traditional concept was made in early 1960s defining subcontracting as the "execution of a client order under the client specification" where the subcontractor substitutes the contractor partially or totally while respecting completely the contractor's technical specifications. Subcontracting differs from the normal supply because the latter offers standard products, identifiable in a catalogue and available stock.

Since the 1980s firms in developed countries, irrespective of their size, have tended to carry out directly only those activities which are considered critical and crucial for the pursuing of their business strategy. The assets linked with non-critical processes are often laid off or scrapped. Those non-critical activities, which are still needed for business, are given to subcontractors. In this new scenario subcontracting lost most of its "temporary" nature and became a much more stable aspect of the modern industry. Both main contracting and subcontracting sectors increased their competitiveness. Subcontracting has become increasingly based on long lasting "partnership" relations between subcontracting and contracting companies. In this context, the Japanese experience became the reference model world-wide.

New forms of industrial subcontracting have appeared in the last decades, based on the complementarity between the large contracting/assembling enterprises and the various specialised SMI subcontractors and suppliers, and on the necessity of involving them from the very early stages of production (design, testing and prototype) down to the final stages of production. These new forms tend to become more stable and more lasting with a more equitable distribution of responsibilities, including risks and profits, between the various partners. This is particularly true in the case of SMIs that are specialised or have adopted lean production principles. In fact, such subcontracting and partnership linkages enable SMIs to focus on their field of specialisation.

Because of increased competition based on product quality requirements, shortening of product life cycle, and pressure on costs, several **trends** which have transformed the classical subcontracting relation in a more deep linkage can be mentioned, such as:

- A growing entrepreneurial commitment to "total quality management" both by the main contractor and subcontractor, and often jointly;
- An increased flexibility in the production process;
- An increasing amount of information and technology is exchanged between the subcontractors and the contractors and among subcontractors themselves, thus the rate of innovation is speeded up;

- Subcontractors are involved from the early stages of product design;
- Delivery time is reduced ("just-in-time");
- More services are delivered with the product;
- Reduction of production defects and lead time is a must;
- Cost reduction has become a common task of subcontractors and main contractors.
- An increased trend towards the formation of industrial clusters, or groups of firms, which rely on the same or complementary business;
- A reduced number of suppliers of each main contractor. Subcontracting systems, particularly in certain industries such as the automotive sector are often based on a pyramidal structure where the car manufacturers rely on a small number of first tier subcontractors, who in turn rely on a large number of second tier subcontractors, and so on. It is also important to note that in sectors such the electronic sector where the market is booming, and many sophisticated and specialised subcontractors exist, many of them are still unable to find orders and risk failure. The reason for this apparent contradiction is that main contractors require less and less suppliers or subcontractors capable of realising only one activity. They are looking for suppliers that are capable of working at all levels of the production chain: at the planning stage, manufacturing prototypes, working with just-in-time methods, etc. All this with the appropriate quality assurance, reliability and minimal cost;
- An ever increasing search for long lasting reliable partners.

This new type of relations could be described more precisely with the use of the word "co-makership" or as is the case within UNIDO, as "**partnership**", in place of the traditional "subcontracting". Subcontractors in the last two decades have become co-manufacturers or have entered into partnerships with their clients for two reasons: the main contractor retains the product concept, its marketing and after-sales service, in order to lighten the business structure, and subsequently its costs; the subcontractor specialises in the manufacturing process and its structure (capacity and flexibility) which enables it to assure maximum quality at a minimum price. Thus the subcontractor is no longer exposed to lack of orders from the main contractor. They both rely and are loyal to each other, and the only danger remaining is the fluctuation in business activity.



## **UNIDO's Programme for the Promotion of Industrial Subcontracting and Partnership**

As the practice of industrial subcontracting has developed and become more widespread, the need gradually arose for the establishment of a more permanent and evenly balanced relationship between two or more industrial partners that was more in line with market requirements. In order to meet that need, UNIDO has since 1985 been advocating the concept of "industrial partnership" under its **Programme for the Promotion of Industrial Subcontracting and Partnership**. This concept refers to a modern form of industrial subcontracting that is based on subcontractor's specialisation and technological expertise and can lead to long-standing, stable and horizontal inter-enterprise relationships, with equitable sharing of responsibilities among the industrial partners concerned. In order to increase the chances of success, these new forms of more stable subcontracting and supply linkages often call for other complementary forms of linkages, as can be seen in some of the Case Studies, such as provision by the main contractor of special raw materials, sophisticated equipment, moulds, technical assistance, training, know-how and licence agreements and even, in some cases, equity participation or joint investments. Here, the traditional subcontracting relationship has become a full-fledged partnership.

In view of the importance and complexity of industrial subcontracting, UNIDO has encouraged developing countries and economies in transition to devote special attention to this particular type of partnership agreement between small and large industries, by launching special programmes for the promotion of industrial subcontracting and partnership through specific projects and mechanisms. UNIDO's aim with this unique and specialised programme is to reinforce the capacity of SMIs in developing countries to:

- increase their production and employment
- upgrade their manufacturing processes and products
- improve their productivity and international competitiveness
- encourage import substitution and to promote the export of manufactured products from the SMI sector
- contribute to the international redeployment of manufacturing facilities and the transfer of industrial technology and know-how to the SMI sector in developing countries.

As recognised in the Evaluation Report of this UNIDO Programme, industrial subcontracting at national and international level plays an indisputable role in industrial development. However, minimum conditions should exist in the country to sustain viable subcontracting arrangements. Subcontracting does not occur naturally to the intensity desired. Therefore, promotion of the subcontracting concept needs to be undertaken. The establishment of an agency to undertake this promotion sometimes together with other functions is the instrument utilised by developed countries. In developing countries UNIDO's experience has shown the **best institutional approach** to promote subcontracting is the establishment of a Subcontracting and Partnership Exchange (SPX).

## **What is a Subcontracting and Partnership Exchange (SPX)?**

To meet the growing needs of both the large undertakings looking for subcontractors and suppliers and of small units desiring to secure orders from large undertakings or co-operating with other small industries in the production of a finished product, a clearing house for providing desired information on subcontracting capacities is necessary. The Subcontracting and Partnership Exchange satisfies this requirement. The mechanism makes industrial subcontracting possible by gathering and centralising on the one hand the needs of the main contracting enterprises and on the other hand the possibilities offered by the various subcontracting industries.

The Subcontracting and Partnership Exchange (SPX) starts by setting up a comprehensive roster of subcontractors, suppliers and main-contractors and operates a computerised databank with detailed information on manufacturing capacities and capabilities, equipment with technical specifications and technical characteristics, quality of production, spare capacities available for subcontracting works and the type of products and services offered by the subcontractors in order to satisfy the manufacturing needs of main contractors. SPXs act as centres for technical information, match-making and promotion as well as clearing-houses for industrial subcontracting and partnership enquiries and opportunities aiming at the optimal utilisation (i.e. the most complete, most rational and most productive) of the manufacturing capacities of the member enterprises. Thus, the SPX appears not only as the meeting point and the instrument of regulation between the supply and the demand of industrial subcontracting orders, but also as an instrument of selection of optimal utilisation of the machinery available within the enterprises and of assistance to both partners. This assistance may cover a wide range of areas: technical support (product design, technology, equipment, innovation); quality management, standards and certification; marketing strategies and analysis (including participation in international fairs and business promotion forums); access to credit, financial facilities and incentives; management (rehabilitation, financial management, stock control); legal advice (legal contracts, codes of conduct, reconciliation or settlement of disputes); human resource management (training).

### **Advantages of industrial subcontracting for economic development**

The advantages of subcontracting activities, both for developed and developing economies, are extensive and numerous and pervade all aspects of industrial development.

The development of subcontracting in a country can give a boost to the industrialisation process of that country and can achieve the following:

- Identification of available capacity in the industrial sector and fuller utilisation of the production equipment within the factory
- Increase national participation in production activities
- Employment creation or increase
- Decentralisation of industrial activities and the development of regional industrial centres
- Flexibility of industrial production with greater possibilities of diversification
- Access to international subcontracting, which may start with regional co-operation and will help boosting export activities
- Increased specialisation of small and medium industries which will mean improved production equipment and technology
- Less fluctuations in employment opportunities with factories
- Increase in total industrial production and productivity
- Increase in "indigenisation" of manufactured products and savings in foreign exchange (through import substitution).

In this paper, a series of **Case Studies** regarding practical examples of industrial subcontracting operations at both national and international level are analysed. These Case Studies were reported by SPXs in countries covered by UNIDO's Programme on Industrial Subcontracting and Partnership, including countries from Latin America and the Arab Mediterranean area. The analysis pretends to demonstrate the positive effects of industrial subcontracting and the importance of the role of the SPXs in this field, as outlined above. It will thus confirm the importance of industrial subcontracting by using a series of criteria as a checklist to evaluate the benefits of specific and successful subcontracting operations described in the Case Studies submitted by certain SPXs of a series of countries participating in UNIDO's Programme.

### **Submission of Case Studies based on a standard questionnaire**

As a first step to this on-going study, a letter was sent by UNIDO to a selected number of SPXs asking for detailed examples of successful cases of industrial subcontracting both at national and international level. The initial rate of response to this request was not sufficient, and a second request for information was sent to the SPXs<sup>1</sup> with a questionnaire (attached as an annex), often complemented with telephone interviews.

The present list of countries that have submitted information on examples of successful subcontracting operations is as follows:

- Argentina (BSC de Buenos Aires)
- Brazil (BSC de Sao Paolo)
- Chile (BSC de Santiago)
- Colombia (BSC de Medellin)
- Cuba (BSC de la Habana)
- Guatemala (BSC de Guatemala)
- Mexico (BSC de Mexico D.F.; BSC de Queretaro A.C.;BSC de Monterrey)
- Morocco (BSTP de Casablanca)
- Paraguay (BSC de Asuncion)
- Peru (BSC de Lima)
- Slovakia (Bratislava SPX)
- Turkey (Istanbul SPX)
- Tunisia (BSTP de Tunis)
- Uruguay (BSC de Montevideo)

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<sup>1</sup> Bourse de Sous-Traitance Industrielle et de Partenariat (BSTP)  
Bolsa de Subcontratación y de Cooperación Industrial (BSC)

### **Criteria used for the analysis of Case Studies**

The criteria or variables chosen for the analysis and comparison of the various Case Studies submitted is as follows:

- 1. Employment creation
- 2. Increased production/improved process
- 3. Improved quality
- 4. Improved technology/ technological transfer
- 5. Improved competitiveness (reduced costs, improved productivity, etc.)
- 6. Improved market share/ access to new markets
- 7. Increased investment/ improved access to credit
- 8. Continuity of orders/ potential partnership link

A note of caution must be drawn to the fact that several of the Cases submitted contained very little information that could be used and classified in such a way as to fit these criteria. Some of them only described the role of the particular SPX (i.e. the process by which the SPX analysed the request of a main contractor and identified the appropriate subcontractors or suppliers who can match the contractor's requirements and assisted in the successful conclusion of an industrial subcontracting operation), rather than specifically revealing the benefits (in terms of the criteria listed) which the actual subcontracting operation brought to the parties concerned. In some cases, the SPXs were unable to provide the information requested for reasons of confidentiality, because firms are often not willing to reveal certain aspects of their business activities or those of their clients. It should also be noted that it takes a relatively long time for a subcontracting project to mature (one to three years) and it is not easy to find information on the most recent projects or some projects may have not even reached a final conclusion. Also, the proportion of subcontracting projects that are actually concluded is rather small. For example, the results after six years of experiences in UNIDO's Franco-Arab<sup>2</sup> project reveal that only 9% of subcontracting projects already under advance negotiation are in fact finally concluded.

Bearing this in mind, it was not always possible to extract the relevant data that fits into the chosen variables, except in some cases where the information submitted was complete, concise and relevant. The following Case Studies analysed are those which contained the most relevant information for this paper.

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<sup>2</sup> "Promotion of International Subcontracting and Partnership between France and Arab countries"

## Specific Case Studies of Industrial Subcontracting

### ARGENTINA:

#### Successful linkage through International Subcontracting Fairs

The information submitted by the SPX in Buenos Aires described a national case of industrial subcontracting between a telecommunications main contractor, *Pouyet Tecsel S.A. de Comunicaciones*, and a subcontracting firm, *Metalúrgica Stecconi*. In this particular case, the main contractor was itself a subcontracted client firm of two major firms, *Telefónica de Argentina* and *Telecom de Argentina*. The main contractor, *Pouyet*, required a very specific task to be subcontracted to a specialist firm, namely the piercing, cutting, folding and welding of stainless steel planks for metallic racks and cabinets used for electronic instrumentation. The SPXs of Buenos Aires and Cordoba assisted in identifying potential subcontracting firms. After initial contacts at the “I Salón de Compradores”<sup>3</sup> (during the “VI Feria Latinoamericana de Subcontratación Industrial”<sup>4</sup> in Cordoba in Sept. 1994), the firm *Metalúrgica Stecconi*, with 25 employees, was selected as the most suitable specialist in metal work.

In order to evaluate the results achieved a questionnaire was sent by the SPX to both main contractor and subcontractor involved in the subcontracting operation. Neither of the two companies had any type of commercial relationship before the “Salón de Compradores” took place. The first order required 8 months of work and amounted to USD 170,000. After the completion of this task, *Metalúrgica Stecconi* remained a supplier for *Pouyet*, thus leading to the **establishment of a longer-term commercial link** between the two. For the subcontractor, the incidence of this subcontracting operation meant a **15.1% increase in its turnover** and a **16% increase in workforce employment** (4 new skilled workers, from 25 to 29 workers). There was no transfer of technology involved, since the subcontractor was already a highly specialised and skilled firm. For the main contractor, the change from a previous supplier to a more specialised subcontractor meant **lower costs** due to a more sophisticated and **technologically advanced process, improved quality, improved productivity** and delivery deadlines, thus an overall **improvement in the firm’s competitive position**.

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<sup>3</sup> “I Fair for Contracting Firms” (Reverse Fair)

<sup>4</sup> “VI Latin American Fair for Industrial Subcontracting”

## **BRAZIL:**

### **One subcontractor supplying many main contractors**

The information submitted by the SPX in Sao Paulo outlined two Cases of successful industrial subcontracting operations, one at national level and one at international level.

#### **(a) Example of subcontracting at national level:**

This Case was original in the sense that it involved one subcontractor which faced a combined offer from a series of medium-sized and large main contractors from different sectors, such as: *Gavisa* (heavy trucks), *Gilbarco* (compressors), *Aracruz* (paper and cellulose), *Brindes Pombos*, *Unitec* and *Stromag* (mechanical transmissions), *Mobilight* (television sets), *Atos* (electrical-electronic), and *Termotron* (computers). The national subcontractor was *Tecnicema Industria e Comércio Ltda*, and the operation involved the manufacture of specific parts, pieces and sets of photochemical equipment, according to the needs, moulds and quality requested by the various clients.

There were several benefits resulting from this operation for both the subcontractor and for the main contractors. In terms of **employment generation** for the subcontractor, there was an increase of 41.66% (from 5 workers to 12). In terms of **production**, the subcontractor was able to **increase** its production by 30%, particularly in supplying those contracting firms involved in the paper and cellulose and mechanical transmission sectors. The subcontracting firm **improved the quality** of its products significantly as a result of the training in quality control, particularly in ISO 9000, offered by the main contractors. It also **reduced costs** and thus optimised its pricing policy, **reduced its idle capacity**, and increased its turnover by 30%; all these factors contributed to an **increase in its competitiveness**.

In turn, the main contractors reduced their production costs as a result of subcontracting since they minimised their investment, and were able to concentrate resources in areas such as marketing and R&D. With respect to **accessing new markets**, the subcontractor entered new markets nationally and also world-wide as a result of subcontracting to large multinationals such as *Gevisa* and *Volkswagen*, as well as significantly increasing its profits and promoting a positive image of the firm across borders. There was also a technological gain as a result of the **new technology transferred** by the main contractors and assimilated by the subcontractor, with particular emphasis on quality improving technology in the production of parts and sets. A **future commercial link** was established after the initial subcontracting operation began in August 1996, with potential future orders expected to amount to USD 500,000.

(b) Example of subcontracting at international level:

This Case also referred to one subcontracting firm supplying a number of main contractors: two Brazilian firms, *HVR Equipamentos Industriais*, a producer of metal bodies for buses from Blumenau in Santa Caterina, and *Fiat Allis Latino Americana*, a producer of road machinery and agricultural tractors from Contagem in Minas Gerais, and three Chilean firms, *Extintores Rally*, manufacturing fire extinguishers, and two shipyards, *Vignola* and *Marco Chilena*. The subcontractor selected was a metalwork firm, *Metalúrgica Golin S.A.* The subcontracting operation involved the manufacture of carbonated steel tubes and bars according to the specified requirements and quality required by the various clients, and on the whole it amounted to USD 800,000 during a period between November 1995 and October 1996.

There were several benefits resulting from this operation for both the subcontractor and the main contractor. In terms of **employment generation** for the subcontractor, there was an increase of 20% (80 workers to 100), and **production increased** by 25%. The subcontractor **minimised spare capacity** in its production and established more **regular and long lasting business links** by signing new subcontracting contracts. **Quality was improved** significantly as a result of the training in quality control offered by the main contractors. In turn, the main contractors reduced their production costs as a result of subcontracting and became more flexible in order to respond more rapidly to changes in demand in the marketplace. All these factors contributed to the firms' **increased competitiveness**. In terms of **access to new markets**, the subcontractor entered new markets in Brazil (Minas Gerais, Santa Caterina and Rio Grande do Sul), and abroad (Argentina, Bolivia, Chile and Mexico), in various sectors: agricultural, automotive, mineral, naval and furniture. A medium-term goal that the subcontractor set itself was to export 30% of its production. There was also an improvement as a result of the **new technology transferred** by the main contractors and assimilated by the subcontractor, with particular interest on quality improving technology in the production of parts and sets.



## CHILE:

### Exploiting the benefits of Regional Networks of SPXs

The information submitted by the SPX in Santiago outlined two Cases of successful international industrial subcontracting.

Case 1 involved a foreign main contractor of the metal-mechanic and wood processing sector, *Integrar – Soluciones Laborales Rosarinas*, from Argentina, and a cluster of 12 Chilean subcontracting firms from different sectors. The main contractor was searching on behalf of an important Argentine construction group for suppliers of various components (doors, carpets, tiles, wooden plates, frames, kitchen and bathroom equipment, heaters, etc) for a building complex of 1500 apartments and for several other buildings under construction. The request was received by the Santiago SPX through the **ALABSUB<sup>5</sup>** (*Asociación Latinoamericana de Bolsas de Subcontratación*), which links more than 14 regional SPXs. Twelve positive replies were received, and at the time of writing of this report, they are in the process of being evaluated by the main contractor. This potential subcontracting agreement would allow local SMEs to enter the Argentine market for the first time, thus confirming the beneficial impact of a subcontracting operation in terms of **access to new markets**. A certain degree of **technology transfer** is expected in order to satisfy the requirements, specifications and norms of the main contractor. There is also an opportunity for **future long-term business links** between some of the subcontracting firms and the main contractor.

Case 2 is interesting because, rather than a national subcontractor, it involved a Chilean industrial firm of the metal-mechanic sector as the main contractor, *Comercio Exterior Chile Ltda.*, and a foreign subcontractor, *Extal Aluminio e Comercio Ltda* from Brazil. The main contractor was searching for contacts with suppliers of aluminium tubes of reduced diameter and thickness for use in walls linking telescopic antennas to radio and television receptors, which are not manufactured in Chile. The request was sent out recently (April 1997) by the Santiago SPX through the ALABSUB network. Of the 24 responses received from various SPXs in the region, the main contractor chose a Brazilian firm and initiated contacts soon after, signing a subcontracting agreement in July 1997. Only the supply of raw materials has been assured so far, but it has been established in the agreement that the main contractor would assume the commercial representation of *Extal* in Chile, so there is clearly a desire to establish a continuous link between the two firms. As a result of the **partnership**, there is a strong probability of **future employment generation**. **Production** of the final product (in this case, telescopic antennas) **improved** considerably with the use of the subcontracted parts (tubes), since several tedious production processes are now avoided. In turn, this translates into a **reduction of costs and improved productivity** levels, but these have not been measured yet. The Brazilian firm has **entered** the Chilean market, and by being represented locally it can aim to capture a potential **market share** which has not fully developed locally.

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<sup>5</sup> "Latin American Association of Subcontracting and Partnership Exchanges"

## COLOMBIA:

### Technology transfer through local subcontracting of industrial processes

The SPX in Medellin outlined a successful Case of industrial subcontracting. The main contractor was *Compañía de Servicios Cooservicios*, dealing in the manufacture and maintenance of vertically-oriented transport systems, and the subcontractor was the firm *Disgrabin*, specialised in the design and photo-printing of metallic pieces through a corrosion process. Before the subcontracting operation was initiated in 1988, the main contractor had to import the photo-printed metallic pieces. Since the subcontractor had experience in this process and had the skilled labour and adequate machinery required, both firms managed to develop the pieces that the contractor demanded (mainly, printing on metallic elevator doors and button panels). As part of a combined effort and team work, both firms developed the sets and designs and the contractor provided the subcontractor with the technical assistance necessary to be able to apply the process to large metallic sheets (prior to this, the subcontractor only processed smaller aluminium pieces).

A series of benefits resulted from this industrial partnership. In terms of **employment generation** for the subcontractor, there was an increase of 200% (from 4 to 12 workers) as a result of the commercial link with the main contractor. For the subcontractor, there was a significant **increase in production** (70-80%) since it now had accessed a larger market which it had previously not explored and at the same time it developed new products which diversified its offer of industrial services. In terms of **improved competitiveness**, there were advantages for both firms. As a result of the operation, the main contractor was able to **substitute an imported product** by one locally produced, which translated into **reduced costs, lower supply lead times, and improved quality**, as well as greater flexibility and delivery capacity in terms of new designs and products as a result of technical co-operation. In turn, due to the demands and requirements of the main contractor, the subcontractor achieved a more optimal utilisation of its production line and equipment, improved its quality standards due to the feedback received from the contractor, and **developed new products** which it could not previously manufacture. Due to the above mentioned increased flexibility and supply capacity, the main contractor was able to **develop new designs** which allowed it to better serve the needs of the market, and thus **increase its market share (20%)** and even **enter into new markets**. As a result of the new products developed and the standards of quality reached, the subcontractor was also able to enlarge its portfolio of subcontracting links with other firms, which in turn meant an important increase in its market activity (30%). In terms of **technology transfer**, the subcontractor gained knowledge in quality management and processing (ISO 9000 certification) due to the assistance provided by the main contractor. The subcontractor also **increased its investments** in machinery in order to meet the requirements of the subcontracting operation, and due to its business relationship with the main contractor it has been able to have **better access to credits**. The commercial link, although not a legally formalised partnership as such, continues still and shows all the positive signs of a **successful industrial partnership**.

## **GUATEMALA:**

### **SPXs are instrumental in promoting domestic industries**

The information submitted by the SPX in Guatemala listed two Cases of successful industrial subcontracting operations, one at national level, the other at international level.

#### **(a) Example of subcontracting at national level:**

This involved a rubber tires and wheels' manufacturing multinational company (with 400 employees), *Gran Industria de Neumáticos S.A.- GIMSA*, and a SME (4 employees) as the subcontractor, *Servicios Industriales y Mercantiles S.A- SIMSA*, which specialises in the production of metal spare parts, pieces and accessories.

A series of obstacles for the promotion of industrial subcontracting at national level were outlined in the information received, namely the fact that in Guatemala, as in other Latin American countries, there seems to be a certain anti-nationalistic attitude towards the acquisition of industrial spare parts and components from domestic firms, due to:

- a lack of confidence in the quality level of home products
- a lack of commitment regarding supply-lead times
- a lack of competitiveness in terms of costs.

Above all though, the main problem is in fact the lack of knowledge by domestic clients of the existence of home-based firms that can provide these parts locally. Hence, there are a large number of firms that continue to import industrial components from abroad, thus contributing negatively to:

- a lack of technological competitive improvement at national level
- a lack of new investments
- a lack of national employment generation.
- outward going capital flows

It is indeed in the face of this lack of knowledge of national firms' production capabilities where the SPXs play their most important role as providers of information. In this particular case, the SPX in Guatemala also confirmed the essential role of match-making conducted by SPXs. It went about bringing together the main contractor and the subcontractor, from an initial contact between *GINSA* and *SIMSA* to the actual signing of a contract. From five potential candidates pre-selected that could meet the needs of *GINSA*, *SIMSA* was finally chosen as the subcontractor, due to its past record of good quality and timed supply of orders.

After an initial transfer of technology (*SIMSA* employed an Italian technician and received training from a German technician to adapt production processes to meet *GINSA*'s order), and the successful completion of three consecutive orders, a three-month contract worth USD 25,000 was signed.

The benefits from this subcontracting operation reached both main and subcontractors. The main contractor managed to **reduce its stock levels** of spare parts and is seriously considering the **introduction of just-in-time (JIT)** production techniques with the use of industrial subcontracting. Due to its **continuing commercial links** with the main contractor, *SIMSA* has become a much sought-after firm in terms of subcontracting, and has had to **acquire more industrial machinery**. Its **number of employees increased** to 7 highly qualified workers. It has gained **access to new markets**, received further **transfers of technology** and undertaken **new investments**, and **increased its production** considerably. Indirectly, this industrial subcontracting operation has contributed to reducing some of the negative aspects outlined above, such as **avoiding unnecessary imports** and thus **reducing capital flows abroad**, and has contributed to **producing high value-added products at home**.

(b) Example of subcontracting at international level:

This involved a main contractor from Honduras, *Distribuidora e Importadora La Colmena S.A.*, a small (18 employees) industrial distributing and importing firm catering to co-operatives and industrial guilds, and a larger (30 employees) local subcontractor, *Aluminios Duraderos S.A.- ALDURA*, a producer of aluminium products and utensils. When the SPX in Guatemala was approached by the Honduran firm, it was determined that *ALDURA* was the most suitable candidate for the subcontracting operation for a series of reasons: it was a home leader in its area of activity, it had the technology and the production capacity to match complex technical specifications and strict quality requirements, and its production plant could respond to and supply large orders in time.

There were benefits for both parties resulting from this subcontracting operation. For the main contractor, the pieces are now bought from Guatemala rather than China as previously, thus considerably **reducing supply lead-times and problems of stock**. For the subcontractor, **new employment opportunities** were created, since *ALDURA* had itself subcontracted operations to three other local SMEs in the sector, which in turn duplicated their workforce as a result. *ALDURA* also benefited from **new market openings** and from the opportunity of producing parts divergent from its usual range of products. The Honduran main contractor has placed new orders with *ALDURA*, thus **establishing a longer-term commercial link**. Furthermore, there is the overall benefit to the domestic economy, as a result of **new exports and inflow of foreign capital**.

## **MEXICO:**

### **I. The SPX in Mexico D.F.: Strategic alliances between subcontractors**

CANACINTRA (Cámara Nacional de la Industria de la transformación) in Mexico DF provided two Cases of industrial subcontracting at national and international level.

#### **(a) Example of subcontracting at national level:**

This Case involved a main contracting firm from the metal-mechanic sector, *Industria de Asientos Superior S.A (IASA)*, itself a supplier of car seats for *Nissan Mexicana*. The subcontractor was *FINAMET S.A.*, a manufacturer of special pieces for the automotive industry. The subcontracting operation required the manufacture under technical specifications of printed pieces for sets of car seats.

This operation resulted in an **increase of installed capacity** and an **8% rise in the total production level**. *IASA* had previously imported these pieces, and by acquiring them locally it managed to **reduce costs and delivery times** as a supplier to a multinational. *FINAMET*, in turn, was able to **enter into new markets** through the main contractor, since most of the production of *Nissan Mexicana* is exported. *FINAMET* received **technical support** from *IASA* over a period of six months. This was aimed primarily to developing new tools, **improving the production process** and establishing a **Just-in time** method. During the first six months, the subcontractor produced only one specific piece for the main contractor. From then on, and with the changes and **quality improvements** suggested by the contractor already assimilated, a new contract was signed for the manufacture of 25 pieces, and more contracts are expected. The link between main contractor and subcontractor has entered its consolidation phase.

#### **(b) Example of subcontracting at international level:**

This Case involved the multinational *NISSAN* as the main contractor, and *Grupo Ferrao* as the subcontractor. The latter, established in Guadalajara, required technological transfers from the main contractor in order to begin production of the required parts by *NISSAN*.

Another of *NISSAN*'s suppliers in Japan became interested in a **joint-investment** operation for the supply of parts by *Grupo Ferrao*, which has begun in February 1996. The amount of the order reached USD 3 million for the first year. *NISSAN* also recommended *Grupo Ferrao* to another of its suppliers in Mexico, *Industria de Asientos Superior*, a firm with Japanese capital manufacturing car seats, for the subcontracting of parts and patterns for car seats. This allowed for a **large expansion of production into a new market area**. Other benefits were the following: **technical assistance and technology transfer** from the foreign main contractor to the domestic subcontracting firm, **new joint and direct investments**, as well as the above mentioned increase in production and access to a new market area.

## II. The SPX in Monterrey: Clusters of micro-subcontractors

Two Cases of successful industrial subcontracting at national level and one at international level were submitted.

### (a) Example of subcontracting at national level:

Case 1 involved a main contractor and plastic manufacturer from the State of Chiapas, *DIF*, who entered into subcontracting agreements with several micro and small firms: *Vitro Plásticos Industriales*; *Industrias Prico*, *Inad* and *Mexicana*; *Poli*, *Multi* and *Vitrofibras*; and *Poliformas Plásticas* as a provider of raw materials. The subcontracting operation involved the manufacture of 16,000 glass fibre bases for public lavatories to be placed in the more marginal areas of Chiapas. The operation gave rise to an **employment increase** of 15 new workers and a **production increase** of 30%. Both the **competitiveness** of the main contractor and of the subcontractors increased as a result of the **training** that workers underwent in the latter, which in turn led to an **increase in productivity** and a **reduction in costs**. Since most of the subcontracting firms were micro-enterprises, **technology was transferred** from the most specialised to the least advanced in order to standardise the product and move away from manual processes. In turn, the **improved quality** of production helped gain **new market shares** at home.

Case 2 involved a main contractor, *Acero Porcelanizado S.A.*, of the metal-mechanic sector, and a specialised subcontractor, *Articulos Troquelados Monterrey, S.A.* The subcontracting operation involved the manufacturing of a metal coffee maker from steel pieces provided by the contractor. The operation resulted in an **employment increase** of 40% (four new workers) and a **production increase** of also 40%. With the added advantage of a **technological transfer** and a control / support team from the main contractor, the **quality of the product** increased. There was also an **increase in productivity** and a **reduction in costs** as a result of investments undertaken by the subcontractor in order to adapt to the new production process. This led to clear gains in **competitiveness** and helped in gaining **new market shares**. The reliability of the subcontractor has led to a **long-term business link** that continues since February 1996.

### (b) Example of subcontracting at international level:

This case involved an American company dealing in the metal-mechanic sector, who subcontracted to a Mexican medium-sized firm, *Maquinados Programados S.A.*, who in turn subcontracted several activities to another 17 local small firms. The operation required the manufacture of machines for bending, rolling and cutting metal sheets and tubes. The **generation of employment** spread out among the firms, with ten new jobs in the major subcontractor and another eight jobs in the several smaller firms. There was also a **4% increase in production**, with a significant **quality improvement**. **Access to new markets** as a result of the product being exported by the contractor was another positive factor and a solid basis for securing **future contracts**, which are set to persist within the next five years.

This case illustrates the fact that with this type of subcontracting link it is possible to deliver a competitive product which helps the integration of smaller subcontractors into the export market through long-term commitments. This not only generates stability and reliability in the client-supplier relationship, but also indirectly has a beneficial effect on the economy as a whole.

### III. The SPX in Queretaro: Turning a crisis into a business opportunity

Two Cases of successful industrial subcontracting at international level were submitted.

Case 1 involved a world leader in its sector, *Black & Decker*, and *Maquilas Save*, as the subcontractor specialised in the metal surface processing of electric irons.

In the face of the drastic fall in the domestic market as a result of the 1994 crisis, the subcontractor was forced to double the level of utilisation of its installed capacity in order to survive, but without undergoing new investments, so as to try and compensate through an increase in productivity the sharp rise in interest rates affecting its financial position. The firm was thus forced to more than double its workforce and working hours. Nevertheless, there was an opportunity to be exploited, namely the fact that, due to the drastic devaluation of the currency, the competitive position of the Mexican producer on foreign markets had increased dramatically.

During the period between 1994 and 1997, the subcontractor registered an **increase in employment** of 135%, with 23 new workers employed (from 17 to 40). Not only **production** levels **increased** by over 100%, but also **productivity rose** by over 25% (the percentage of rejections, re-processing and waste parts decreased from 7% to 0.6%), thus **increasing competitiveness** in both firms. As a direct consequence of its supplier development policy, the main contractor managed to significantly increase its level of exports, and to reach a level of leadership in its sector. In turn, the subcontractor benefited beyond the initial operation from the fact that *Black & Decker* decided to relocate several of its international production lines (hand tools, blenders, coffee machines, ovens, and vacuum cleaners) to its plant in Queretaro, thus increasing the number of potential subcontracting orders. There was an **increase in the market share** for the subcontractor through the Queretaro plant as a result of a rise in exported products (95% of total production) and the extension of product lines and diversification of product ranges.

The subcontracting requirements of *Black & Decker* have implied for the subcontractor the need to achieve ISO 9000 quality certification, which occurred in August 1996 as the firm won the **quality prize** granted by the state of Queretaro to local small and medium sized firms. Although as mentioned before, there was little room for investment in fixed assets in a time of economic crisis, there were some investment made in those aspects related to ISO 9000, such as a quality control support unit within the firm. This quality achievement was partly reached as a result of the **transfer of technology** between the main contractor and subcontractor.

Both these factors, an increase in the level of exports and the achievement of quality certification by the subcontractor, translated into an **increase in its turnover** volume and sales revenue and a more optimal utilisation of its installed capacity as it acquired new orders. This in turn helped in confronting and reducing its financial obligations encountered as a result of high interest rates. The multiple and mutual benefits of the healthy subcontracting link between these two industrial firms serve as a solid foundation for **further co-operation** and business in the future.

As in the case of Brazil, Case 2 involved several large main contractors approaching one local subcontractor. The contractors were large multinationals such as *Black & Decker*, *Mabe*, *Vistar Moulinex* and others of the metal-mechanic sector, and the local subcontracting firm was *Arnaíz y Bauer*. As in the previous case, in the light of a drastic fall of the home market following the 1994 economic crisis, the subcontractor was forced to alter its activities and abandon the production of automatic winches and drums due to excessive competition on exports markets and low profits. In this case, the entrepreneur needed to identify an opportunity niche for a more attractive alternative. Since the Mexican peso had devalued more than a 100% against the US dollar, it was realised that the situation could be greatly exploited by **import substitution** (i.e. local supplies instead of imported ones). Efforts were focused on planning the manufacture of screws and small rivets provided that the required technology patents and quality standards could be obtained. During the MIDEST 1995 International Subcontracting Fair in Paris, the entrepreneur asked the Queretaro Subcontracting Exchange to identify European firms manufacturing screws which had patented technology and which were interested in co-operating with Mexican firms. As a result of contacts made, a Spanish firm, *Fixtor S.A.*, expressed an interest in establishing a firm in Queretaro, and six months later, *Fixtor de Mexico S.A.* was set up with 49% Mexican capital and 51% Spanish capital and all internationally recognised technology licenses required.

Since the **joint-venture** was set up, the subcontracting firm increased its volume of subcontracted operations, particularly from large firms such as *Black & Decker*, which generated an **expansion of market share** locally and also in the North American market, and significantly increased the size of the firm. In terms of **employment creation**, the firm started off with 3 machines and 4 workers, and today has 20 machines and 30 workers employed. In terms of **production**, the subcontractor has increased output by five (500% increase) since the start of the joint-venture, as a result of both orders placed by local manufacturers of home appliances and the large volume of exports achieved. The **acquired new technology** and **improved quality** (again the main contractors imposed and provided training in ISO 9000 certification standards) have meant an improvement in productivity and thus in **increased competitiveness**. They have also meant an **increase in investments** as new machinery has been acquired from Europe and a new quality control department has been set up. **Future links** between the subcontractor and main contractors is practically assured by the excellent results of previous subcontracting operations which have demonstrated a win-win situation for both parties.



## **PARAGUAY:**

### **Subcontractors searching for clients through the SPX**

The information submitted by the SPX in Asuncion outlined a Case of successful international industrial subcontracting operation. This case is interesting in the sense that it illustrates an inverse role played by the SPX. In this particular case, it was the subcontractor who gained access to new international clients in the Mercosur region through the SPX.

It involved an Argentine main contractor and manufacturer of sportswear (shoes, garments, etc.) and a Paraguayan subcontractor (the name of the firms were omitted for reasons of confidentiality). The local footwear manufacturer was subcontracted to provide 100,000 pairs of sport shoes according to the models and designs specified by the main contractor.

One of the major areas of difficulty with regards to footwear is the manufacture of the sole or base of the shoe, since it must satisfy requirements related to quality, colour, design and resistance. Local shoe manufacturers are not willing or able to deliver such small orders. For this reason, the local subcontractor tried to locate manufacturers and providers of sport shoes both at local and international level, to whom it could subcontract. The local SME approached the SPX in Asuncion requesting such information for the Mercosur region. After an initial contact was established with an Argentine contractor, a subsequent order was placed and delivery of goods was to the satisfaction of the main contractor. The subcontracting firm has also been approached by Brazilian companies, with a **possibility of future contracts** been signed. These new opportunities have in turn allowed the subcontractor to have **access to new lines of credit** destined for the acquisition of new machinery and equipment, as well as to **operating capital** for future growth.

**PERU:**

**Many small successes add up to an overall large and sound subcontracting activity**

The information submitted by the SPX in Lima outlined six Cases of successful industrial subcontracting operations, three at national level and three at international level.

**(a) Examples of subcontracting at national level:**

Case 1 involved a metal and aluminium manufacturer (stainless steel cutlery, pots and pans and other metal equipment for domestic and office use) as the main contractor, *Record Peru*, and a manufacturer of steel bolts, screws and handles for equipment and machinery in general, *Tecnitormetal S.R.L.*, as the subcontractor. The contract covered the manufacture of stainless steel handles for pressure cookers for home use, and it amounted to USD 18,000 for 6 months. The main benefits extracted from this operation for the subcontractor were an **increase in direct employment** by two workers (from 8 to 10, workforce up by 25%), and an **increase in production** of 20% (turnover increase: USD 90,000/semester + 18,000/ semester)

Case 2 involved a manufacturer of electrical components (switches, plugs, etc.) both for household and industrial use as the main contractor, *Productos REMA S.A.*, and a manufacturer of electrical isolators specialising in chromium and nickel-plating and galvanisation processes, *Amauta Industrial S.A.*, as the subcontracting firm. The contract involved the undertaking and completion of such processes for household and industrial electrical components, and it amounted to USD 20,000 for one year. The main benefits extracted from this operation for the subcontractor were an **increase in direct employment** by one worker (from 21 to 22, workforce up by 4.7%), and an **increase in production** of 3.07% (turnover increase: USD 650,000 + 20,000/year)

Case 3 involved an electrical goods manufacturer as the main contractor, *Luz de Servicios*, and a manufacturer of electric components, *Electroferretero S.R.L.*, as the subcontractor. The contract involved the manufacture of galvanised steel rings. The main benefits extracted from this operation for the subcontractor were an **increase in direct employment** by eight workers (workforce up by 15%), and an **indirect generation of employment** (40 workers) as a result of the commercialisation of the above mentioned components. There was also an **increase in production** of 25% and an improvement in the competitive position of the firms due to a **reduction in costs and delivery times**, and an **improvement in the quality** of the final products. The operation also led to an **increase in the market share** of both main and subcontractor. The latter benefited mostly from a **transfer of technology** and an **increased access to credits** as a result of an increased output. The **commercial link** between both parties already existed and is set to remain in the future.

(b) Examples of subcontracting at international level:

Case 1 involved a German main contractor in the metal-mechanic sector, *Hells*, and a Peruvian subcontracting firm, *Sealer's S.A.*, a manufacturer of steel fastening and sealing materials. The contract had its origins in the firms' participation at the Hanover '95 Fair, and it concerned the manufacturing of safety seals for fastening and securing plastic cables for industrial installations. It amounted to USD 30,000 for one year. The main benefits for the subcontractor extracted from this operation can be summarised in terms of **direct employment creation** by two workers (from 10 to 12, workforce up by 20%), an **increase in production** by 7.5% (turnover increase: USD 400,000 + 30,000), and **access to new markets**, in this case Germany (7.5% increase in market share). The domestic firm has also the possibility of acquiring new industrial marketing and promotional techniques if the contract is renewed. There is also the possibility of a **transfer of technology** as European technological processes are introduced.

Case 2 involved a main contractor from Costa Rica, *Aguila Centroamericana*, which manufactures electrical connections for industrial and household use, and the previously mentioned local firm, *Productos Rema S.A.* The contract came as a result of contacts established from a bulletin published by the Lima SPX regarding supply and demand for industrial subcontracting services. It involved the manufacture of electrical components and various types of plugs for industrial installations, and it amounted to USD 86,282 for one year. The main benefits for the subcontractor extracted from this operation can be summarised in terms of **direct employment creation**, with nine new workers (plus one employed indirectly, from a total of 160 workers; workforce up by 6.3%), an **increase in production** by 3.6% (turnover increase: USD 2,400,000 + 86,282), and **access to new markets**. The subcontractor already exports 5% of total production to Bolivia, and with this contract it will export 3.6% of total production to Costa Rica, with the possibility of expanding further in that market within the electrical sector.

Case 3 again involved a German main contractor in the metal-mechanic sector, *LOSI*, and a Peruvian subcontracting firm, *Fortaulic S.A.* The operation had its origins in the firms' participation at the Hanover '96 Fair, and it concerned the establishment of a **joint venture** for the manufacture of hydraulic motors. This strategic partnership is in the process of being consolidated. **Direct employment generation** in the order of 50 new jobs and indirect employment generation in the order of 300 new jobs is expected. The joint venture expects to **expand production and export** to countries of the Andean Pact and others in Latin America. A **transfer of technology** is expected as German technology is assimilated by the Peruvian counterpart. An **investment** of USD 1 million is in progress through an ECIP<sup>6</sup> European-Latin American mechanism, and a **both technical and commercial partnership** is expected to persist beyond the medium-term into the long-term.

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<sup>6</sup> European Community Investment Partners

## URUGUAY:

### Subcontracting to firms in the neighbouring industrial giant

The information submitted by the SPX in Montevideo outlined two Cases of successful international industrial subcontracting operations.

Case 1 involved a Brazilian importer, *IPUBRAS Ltda de Caixas do Sol*, which required to import polyurethane parts and components for machinery, and which had participated in the Latin American subcontracting fair initiated by UNIDO (SUBCONTRATA Latinoamericana, Sao Paulo' 94). The subcontractor selected was *Poliuretanos Uruguayos Ltda*, which benefited from this operation as its **production increased by 20%** and its turnover by 15%, and it exported its products into foreign markets, **increasing its market share** in the Brazilian market from 5% to 20%. The operation brought about a 30% increase in **employment**. In terms of **increased competitiveness**, the main contractor **improved the quality** of the product and **reduced delivery time**. The subcontractor also **reduced costs** and **secured future contracts**, thus establishing a **long lasting business link** (subcontracting relationship since April 1995).

Case 2 involved *Mercedes-Benz Brasil* as the main contractor, and *Robtec S.A.* as the local subcontracting firm. The operation involved the manufacture of plastic resin spare parts and prototypes for automobiles through a specialised method of processing. The benefits of both operations on the subcontractor meant an **employment generation** of eight new jobs, an **increase in market share** of 240% as the firm entered the market in Brazil, Argentina and Chile, and an **increase in production** of 350%. In terms of **increased competitiveness**, the main contractor reduced costs and lead-times in the production of spare parts. This high-tech subcontractor secured future contracts, thus establishing a **long lasting business link** (subcontracting relationship since March 1995). **New investments** amounted to USD 100,000 in 1995. There was also a **technological improvement** as new software for use in the subcontracted machinery was transferred.

## **MOROCCO:**

### **From International Subcontracting to Partnership**

The information submitted by the SPX in Casablanca outlined three Cases of successful industrial subcontracting operations, one at national level, two at international level.

#### **(a) Example of subcontracting at national level:**

This involved the oil company *SHELL Maroc* as the main contractor, which required the construction of a cleaning tunnel for gas bottles, and was searching to subcontract this operation. The role of the SPX was essential in processing this inquiry, and eventually a local subcontractor was found (out of five pre-selected firms, four were consulted, three were approached, and one was chosen): *Industrie de chimie appliquée ICA*, in partnership with the French company *Provos Auto-mécanique*.

The main benefits outlined as a result of this operation helped both parties involved. The main contractor **improved the quality** of its products, achieved a **60% reduction in costs**, and thus **improved its competitiveness**. In terms of direct **employment creation**, three workers and one controller were employed, with an **employment generation** of 3,360 additional man-hours. The subcontractor benefited from a **partnership agreement** with a foreign firm, with the subsequent acquisition of **new know-how** and **technological improvements**, and from potential **new markets** in similar areas of activity from abroad.

#### **(b) Examples of subcontracting at international level:**

Case 1 involved a French main contractor, *ADB*, a manufacturer of optical materials, which required the production of fixating clamps (an initial order was placed for 10,000 units). This firm had participated in the MIDESEST '92 Subcontracting Fair, and turned to the services of the SPX to find a suitable subcontractor for this operation (eight companies were pre-selected, all were contacted, five were approached, and finally one was chosen). The subcontracting firm *COMEGA* successfully delivered the first order on time and both partners envisage a **long-term commercial relation**.

The operation brought about benefits both for the main contractor, with an **improvement in the competitiveness** of the final product as a result of a successful subcontracting operation, and for the subcontractor. In addition to a **long-term commercial link** with the main contractor, the latter attained a **10% increase in machine time utilisation**. The operation resulted in some **employment generation**, with an additional 1,000 m/hrs.

Case 2 involved another French manufacturer, *Polytech*, as the main contractor, and a Moroccan partner firm, *Novaprim*, as the subcontractor.

In this case, *Polytech* opted for the establishment of a manufacturing workshop abroad in order to be able to recapture those orders which it was unable to deliver due to excessive costs. After initial country research, Morocco was chosen for proximity and linguistic reasons and contacts with the SPX began in order to establish a site and begin the recruitment of the workforce that would deliver the expected quality products twelve times cheaper than in France. *Novaprim* was set up in Rabat in record time with the necessary **technical support and quality certification (ISO 9002)** provided by the main contractor. After the SISTEP '94 International Subcontracting and Partnership Fair in Casablanca, the *Novaprim-Polytech* partnership was approached by several large electronic international groups, such as *Thomson, Alcatel, Berliet, Moroccan Railways*, etc.

There are several benefits resulting from this **partnership**. In terms of **employment generation**, the subcontractor now employs more than 80 local workers (100 expected in 1998). The subcontractor has also benefited from a **transfer of technology and know-how** and from **investments in equipment and training** (amounting to almost one million US dollars). The main contractor has managed to **recapture its market share** in the French market, which was being lost in favour of the Asian market, and has **successfully entered a totally new market** in Morocco and from there has access to other potential North African markets. It is important to note that there was also employment generation for the main contractor, increasing its workforce in France by 20. In terms of **future orders**, many large contractors can expect to receive a high quality product delivered by the same one subcontracting firm.

## **TUNISIA:**

### **Partnership from the start**

The information submitted by the SPX in Tunis outlined two Cases of successful international industrial subcontracting operations.

Case 1 involved a French main contractor, *COMAP*, a subsidiary of the group *Leguis Industrie* specialising in the control of fluids in buildings, which required the subcontracting of pressure-injected components for gas detectors. The role of the SPX proved essential in the selection of a local company, *SOPAL*, a manufacturer of accessories for piping systems which could fulfil this operation.

This is a particularly interesting case because from an initial contact concerning a common subcontracting operation it became a **full-fledged partnership** project. The reasons for this development were due to the fact that the needs of the main contractor went beyond the production capacity of the subcontracting firm, yet the latter enjoyed an unmatched level of expertise and of specialisation in its domain. Thus the main contractor opted for **investing directly** in the subcontracting company (after it undertook an in-depth feasibility project and evaluation) in order to enable *SOPAL* to cope with the output capacity required by *COMAP*'s orders.

Case 2 involved a French subsidiary of the Swedish Group *Kinnekin*, known as *3C Communication*, which required the subcontracting of the maintenance of credit card payment telephone terminals. Once again, it was the SPX that brought about the completion of this operation and the selection of *Tunisian Telecom Electric - TTE* as the subcontracting firm. The SPX went about contacting the relevant Tunisian official telecommunication institutions and identifying potential clients for the product in question (such as banks, airline companies, etc.). *TTE* was selected out of nine firms that were contacted. This operation contributed to the successful **domestic development of an innovative service** (new in Tunisia), to a **transfer of technology**, and to the **creation of a new market niche** in the telecommunications sector.

## **TURKEY:**

### **A reliable partner for European firms**

The information submitted by the SPX in Istanbul outlined two Cases of successful industrial subcontracting operations, one at national level, the other at international level.

Case 1 involved a large main contractor of the metal-mechanic sector, *Valeo Türk A.S.*, itself a subsidiary of *Valeo France*, a large equipment supplier and subcontractor of the automotive industry, and a specialised subcontractor and manufacturer of alternator parts for the automotive industry, *Safak Makine Yedek Parca Sanayi Ticaret A.S.*

The main benefits for the subcontractor outlined as a result of this operation can be summarised in terms of an **increase in production** of 5%, an **increased local market share**, a **transfer of technology**, and **improved competitiveness**, (unfortunately, no figures were provided). There is also the establishment of a **future commercial link**, with further subcontracting operations since September 1993.

Case 2 involved a German main contractor of the construction sector, *Futzmeister GmbH*, and a specialised sub-contractor and manufacturer of rubber parts for building installations, *Arsan Kauçuk Plastik Makine Sanayi ve Ticaret A.S.*

The main benefits for the subcontractor outlined as a result of this operation were mainly an **increase in production** by 30%, great **employment generation**, with a 30% increase (40 new workers), and **access to the German market** for the first time, which has become a major export market for the subcontractor. There was also a **transfer of technology** and **increased investments**, as well as the establishment of a permanent business link, with a **Joint Venture** for a rubber profile production line.



**Others: CUBA: Large industrial firms can also be subcontractors**

The information submitted by the SPX in Havana listed two examples of successful industrial subcontracting operations at national level and international level.

**(a) Example of subcontracting at national level:**

This concerned a contract regarding metal frames for the manufacture of doors and windows for a luxury hotel in Havana. The main contractor was *IMEXIN S.A* and the subcontractor was *Empresa Cubana de Acero*, a large plant running far below its installed capacity. It appears to be frequently the case in Cuba that large plants are often used as subcontractors for one or several client firms.

**(b) Example of subcontracting at international level:**

This involved a contract for the supply of forged metal pieces between a main contractor, a foundry from Lima, Peru, *Fundición S.A*, and a Cuban subcontracting firm, *Empresa Vanguardia Habana*. Many firms in Cuba suffer from lack of capital and investment, but there appears to be a relatively high level of industrial technology present and the labour force is also relatively skilled. This would explain why some foreign firms would consider placing orders with Cuban subcontractors.

Both these operations allowed for the **full utilisation of available capacity**, and in the case of national subcontracting, it contributed to **import substitution**.

**SLOVAKIA: Subcontracting in a restructuring economy**

The new economic environment has affected subcontracting among Central and Eastern European firms. Given the reduced capacity utilisation, many companies face difficult financial position, resulting in an increased interest in partnership contracts with firms abroad, in particular in such forms which bring new technology to the local company.

The SPX of Slovakia submitted an original example of a successful international case of industrial subcontracting. It involved a French main contractor, *Pomagalski*, and a larger Slovak metal producer as the subcontractor, *VSZ*. There were several benefits resulting from the subcontracting operation, which was initiated in March 1997, and which consisted in the production and delivery of metal pipes for a value of around USD 500,000. Since *VSZ* is a major flagship of the Slovak metal industry, there was no employment generation or transfer of technology as such as result of the operation, although there was certainly an **increase in production**. In this particular case, it was the main contractor which benefited most from the whole operation, especially by **improving its competitiveness** as a result of the lower prices offered by the subcontractor. In the sense that the main contractor was not previously a customer of *VSZ*, it can be said that *VSZ* as the subcontractor **gained access** and a **small share in a foreign market**, thus increasing its production and foreign exchange earnings. Both main- and subcontractor are willing to **co-operate in the future**, as they plan the production of metal constructions.

## Summary

### Checklist of benefits resulting from industrial subcontracting operation by country/SPX:

Abbreviations: SC = subcontractor  
MC = main contractor  
NA = not available

#### **Argentina**     National case

- *Employment creation:* SC: 4 new workers, up 16%
- *Increased turnover:* SC: up 15.1%
- *Improved quality:* MC: yes
- *Improved technology:* MC: yes
- *Improved competitiveness:* MC: yes, reduced costs, improved productivity
- *Improved market share/ access to new markets:* NA
- *Increased investment/ improved access to credit:* NA
- *Continuity of orders/ future partnership link:* yes

#### **Brazil**     National case

- *Employment creation:* SC: up 41.66%, from 5 to 12 workers
- *Increased production:* SC: up 30%, turnover up 30%
- *Improved quality:* SC: yes
- *Improved technology/ technological transfer:* SC: yes
- *Improved competitiveness:* SC: yes, reduced costs and unused spare capacity  
MC: yes, reduced costs
- *Improved market share/ access to new markets:* SC: yes
- *Increased investment/ improved access to credit:* NA
- *Continuity of orders/ future partnership link:* yes

#### **Brazil**     International case

- *Employment creation:* SC: up 20%, from 80 to 100 workers
- *Increased production:* SC: up 25%
- *Improved quality:* NA
- *Improved technology/ technological transfer:* SC: yes
- *Improved competitiveness:* SC: yes, reduced spare capacity  
MC: yes, reduced costs
- *Improved market share/ access to new markets:* SC: yes
- *Increased investment/ improved access to credit:* NA
- *Continuity of orders/ future partnership link:* yes

**Chile** International case 1

- *Employment creation:* expected
- *Improved/increased production:* NA
- *Improved quality:* NA
- *Improved technology/ technological transfer:* yes
- *Improved competitiveness:* NA
- *Improved market share/ access to new markets:* SC: yes
- *Increased investment/ improved access to credit:* NA
- *Continuity of orders/ future partnership link:* yes, in some cases

**Chile** International case 2

- *Employment creation:* expected
- *Improved production:* yes
- *Improved quality:* NA
- *Improved technology/ technological transfer:* No
- *Improved competitiveness:* MC: yes, reduced costs and improved productivity
- *Improved market share/ access to new markets:* SC: yes
- *Increased investment/ improved access to credit:* NA
- *Continuity of orders/ future partnership link:* yes, representation agreement

**Colombia** National case

- *Employment creation:* SC: 7 new workers
- *Improved/increased production:* SC: yes
- *Improved quality:* NA
- *Improved technology/ technological transfer:* SC: yes
- *Improved competitiveness:* SC: yes, reduced stock levels, introduced JIT
- *Improved market share/ access to new markets:* SC: yes
- *Increased investment:* SC: yes
- *Continuity of orders/ future partnership link:* yes

**Guatemala** National case

- *Employment creation:* SC: 7 new workers
- *Improved/increased production:* SC: yes
- *Improved quality:* NA
- *Improved technology/ technological transfer:* SC: yes
- *Improved competitiveness:* SC: yes, reduced stock levels, introduced JIT
- *Improved market share/ access to new markets:* SC: yes
- *Increased investment:* SC: yes
- *Continuity of orders/ future partnership link:* yes

**Guatemala** International case

- *Employment creation:* SC: doubled
- *Improved/increased production:* NA
- *Improved quality:* NA
- *Improved technology/ technological transfer:* NA
- *Improved competitiveness:* MC: yes, reduced supply lead times and stocks
- *Improved market share/ access to new markets:* SC: yes
- *Increased investment/ improved access to credit:* NA
- *Continuity of orders/ future partnership link:* yes

**Mexico D.F.** National case

- *Employment creation:* no
- *Increased production:* SC: yes, up 8%
- *Improved quality:* yes
- *Improved technology/ technological transfer:* SC: yes
- *Improved competitiveness:* yes
- *Improved market share/ access to new markets:* SC: yes
- *Increased investment/ improved access to credit:* NA
- *Continuity of orders/ future partnership link:* yes

**Mexico D.F.** International case

- *Employment creation:* NA
- *Improved/increased production:* SC: yes
- *Improved quality:* NA
- *Improved technology/ technological transfer:* SC: yes
- *Improved competitiveness:* NA
- *Improved market share/ access to new markets:* MC: yes
- *Increased investment/ improved access to credit:* NA
- *Continuity of orders/ future partnership link:* NA

**Mexico Monterrey** National case

- *Employment creation:* SC: 15 new workers
- *Increased production:* SC: up 30%
- *Improved quality:* yes
- *Improved technology/ technological transfer:* yes
- *Improved competitiveness:* SC and MC: yes, reduced costs, improved productivity
- *Improved market share/ access to new markets:* yes
- *Increased investment/ improved access to credit:* NA
- *Continuity of orders/ future partnership link:* NA

**Mexico Monterrey** National case 2

- *Employment creation:* 4 new workers
- *Increased production:* SC: up 40%
- *Improved quality:* yes
- *Improved technology/ technological transfer:* yes
- *Improved competitiveness:* SC: yes, reduced costs, improved productivity
- *Improved market share/ access to new markets:* yes
- *Increased investment:* SC: yes
- *Continuity of orders/ future partnership link:* yes

**Mexico Monterrey** International case 1

- *Employment creation:* 10 + 8 new workers
- *Increased production:* SC: up 4%
- *Improved quality:* yes
- *Improved technology/ technological transfer:* no
- *Improved competitiveness:* NA
- *Improved market share/ access to new markets:* yes
- *Increased investment/ improved access to credit:* NA
- *Continuity of orders/ future partnership link:* yes

**Mexico Queretaro** International case 1

- *Employment creation:* SC: up 135%, from 17 to 40 workers
- *Increased production:* SC: up 100%; MC: increased exports
- *Improved quality:* SC: yes
- *Improved technology/ technological transfer:* SC: yes
- *Improved competitiveness:* SC: yes, increased productivity by 25%, rejects down from 7% to 0.6%
- *Improved market share/ access to new markets:* MC: yes
- *Increased investment/ improved access to credit:* NA
- *Continuity of orders/ future partnership link:* yes

**Mexico Queretaro** International case 2

- *Employment creation:* SC: from 4 to 30 workers
- *Improved/increased production:* SC: up fivefold
- *Improved quality:* SC: yes
- *Improved technology/ technological transfer:* SC: yes
- *Improved competitiveness:* SC: yes
- *Improved market share/ access to new markets:* NA
- *Increased investment/ improved access to credit:* SC: yes
- *Continuity of orders/ future partnership link:* yes

**Paraguay**      International case 1

- *Employment creation:*                      NA
- *Improved/increased production:*      NA
- *Improved quality:*                              NA
- *Improved technology/ technological transfer:*      NA
- *Improved competitiveness:*              NA
- *Improved market share/ access to new markets:*      NA
- *Increased investment/ improved access to credit:*      SC: yes
- *Continuity of orders/ future partnership link:*      yes

**Peru**              National case 1

- *Employment creation:*      SC: up 25%, from 8 to 10 workers
- *Increased production:*      SC: up 20%, turnover also up
- *Improved quality:*                              NA
- *Improved technology/ technological transfer:*      NA
- *Improved competitiveness:*              NA
- *Improved market share/ access to new markets:*      NA
- *Increased investment/ improved access to credit:*      NA
- *Continuity of orders/ future partnership link:*      NA

**Peru**              National case 2

- *Employment creation:*      SC: up 4.7%, from 21 to 22 workers
- *Increased production:*      SC: up 3.07%, turnover also up
- *Improved quality:*                              NA
- *Improved technology/ technological transfer:*      NA
- *Improved competitiveness:*              NA
- *Improved market share/ access to new markets:*      NA
- *Increased investment/ improved access to credit:*      NA
- *Continuity of orders/ future partnership link:*      NA

**Peru**              National case 3

- *Employment creation:*      SC: up 15%, 8 new workers
- *Increased production:*      SC: up 25%
- *Improved quality:*                              MC: yes
- *Improved technology/ technological transfer:*      SC: yes
- *Improved competitiveness:*      SC and MC: yes, reduced costs and delivery times
- *Improved market share/ access to new markets:*      MC and SC: yes
- *Improved access to credit:*                              SC: yes
- *Continuity of orders/ future partnership link:*      yes

**Peru**            International case 1

- *Employment creation:*      SC: up 20%, from 10 to 12 workers
- *Increased production:*      SC: up 25%
- *Improved quality:*              NA
- *Improved technology/ technological transfer:*      SC: yes
- *Improved competitiveness:*      NA
- *Improved market share/ access to new markets:* SC: yes
- *Increased investment/ improved access to credit:* NA
- *Continuity of orders/ future partnership link:*      NA

**Peru**            International case 2

- *Employment creation:*      SC: up 6.3%, 9 new workers
- *Increased production:*      SC: up 3.6%
- *Improved quality:*              NA
- *Improved technology/ technological transfer:*      NA
- *Improved competitiveness:*      NA
- *Improved market share/ access to new markets:* SC: yes
- *Increased investment/ improved access to credit:* NA
- *Continuity of orders/ future partnership link:*      NA

**Peru**            International case 3

- *Employment creation:*      SC: 50 new workers expected
- *Increased production:*      SC: expected
- *Improved quality:*              NA
- *Improved technology/ technological transfer:*      expected
- *Improved competitiveness:*      NA
- *Access to new markets:*      expected, in Europe and Latin America
- *Increased investment/ improved access to credit:* yes (ECIP)
- *Continuity of orders/ future partnership link:*      yes, joint venture

**Uruguay**        International case 1

- *Employment creation:*              SC: yes, up 30%
- *Improved/increased production:* SC: yes, up 20%, turnover up 15%
- *Improved quality:*                  MC: yes
- *Improved technology/ technological transfer:*      NA
- *Improved competitiveness:*      MC: yes, reduced delivery time; SC: reduced costs
- *Improved market share/ access to new markets:* SC: yes, from 5 to 20%
- *Increased investment:*                  NA
- *Continuity of orders/ future partnership link:*      yes

**Uruguay**      International case 2

- *Employment creation:*                      SC: yes, 8 new workers
- *Increased production:*                      SC: yes, up 350%
- *Improved quality:*                              NA
- *Improved technology/ technological transfer:*    yes
- *Improved competitiveness:*                  MC: yes, reduced costs and lead times
- *Improved market share/ access to new markets:* SC: yes, up 240%
- *Increased investment:*                              yes
- *Continuity of orders/ future partnership link:* yes

**Morocco**      National case

- *Employment creation:*                      SC: 4 new workers
- *Improved/increased production:* NA
- *Improved quality:*                              MC: yes
- *Improved technology/ technological transfer:*    SC: yes
- *Improved competitiveness:*                  MC: yes, reduced costs by 60 %
- *Improved market share/ access to new markets:* SC: yes
- *Increased investment/ improved access to credit:* NA
- *Continuity of orders/ future partnership link:*    yes, full partnership

**Morocco**      International case 1

- *Employment creation:*                      SC: up by 1,000 m/hrs
- *Improved/increased production:* NA
- *Improved quality:*                              NA
- *Improved technology/ technological transfer:*    SC: yes
- *Improved competitiveness:*                  MC: yes, increased machine time utilisation by 10%
- *Improved market share/ access to new markets:* NA
- *Increased investment/ improved access to credit:* NA
- *Continuity of orders/ future partnership link:*    NA

**Morocco**      International case 2

- *Employment creation:*                      SC: 80 new workers
- *Improved/increased production:* yes
- *Improved quality:*                              yes
- *Improved technology/ technological transfer:*    SC: yes
- *Improved competitiveness:*                  MC and SC: yes
- *Improved market share/ access to new markets:* yes
- *Increased investment/ improved access to credit:* SC: yes
- *Continuity of orders/ future partnership link:*    yes, full partnership



**Tunisia**      International case 1

- *Employment creation:* NA
- *Improved/increased production:* NA
- *Improved quality:* NA
- *Improved technology/ technological transfer:* NA
- *Improved competitiveness:* NA
- *Improved market share/ access to new markets:* NA
- *Increased investment:* SC: yes
- *Continuity of orders/ future partnership link:* yes, full partnership

**Tunisia**      International case 2

- *Employment creation:* NA
- *Improved/increased production:* NA
- *Improved quality:* NA
- *Improved technology/ technological transfer:* SC: yes
- *Improved competitiveness:* NA
- *Improved market share/ access to new markets:* SC and MC: yes
- *Increased investment:* SC: yes
- *Continuity of orders/ future partnership link:* NA

**Turkey**      National case

- *Employment creation:* NA
- *Increased production:* SC: yes, up 5%
- *Improved quality:* NA
- *Improved technology/ technological transfer:* NA
- *Improved competitiveness:* SC: yes
- *Improved market share/ access to new markets:* SC: yes
- *Increased investment:* SC: yes
- *Continuity of orders/ future partnership link:* yes

**Turkey**      International case

- *Employment creation:* SC: yes, up 30%, 40 new workers
- *Increased production:* SC: yes, up 30%
- *Improved quality:* NA
- *Improved technology/ technological transfer:* SC: yes
- *Improved competitiveness:* NA
- *Improved market share/ access to new markets:* SC: yes
- *Increased investment:* SC: yes
- *Continuity of orders/ future partnership link:* yes, Joint Venture

**Cuba** National and International cases

- *Employment creation:* NA
- *Improved/increased production:* NA
- *Improved quality:* NA
- *Improved technology/ technological transfer:* NA
- *Improved competitiveness:* SC and MN: yes, full utilisation of available capacity, import substitution
- *Improved market share/ access to new markets:* NA
- *Increased investment/ improved access to credit:* NA
- *Continuity of orders/ future partnership link:* NA

**Slovakia** International case

- *Employment creation:* NA
- *Improved/increased production:* SC: yes
- *Improved quality:* NA
- *Improved technology/ technological transfer:* NA
- *Improved competitiveness:* MC: yes, reduced costs
- *Improved market share/ access to new markets:* SC: yes
- *Increased investment/ improved access to credit:* NA
- *Continuity of orders/ future partnership link:* yes

## Conclusions

### **What are the advantages of industrial subcontracting and partnerships?**

#### Advantages for the Subcontractor (supplier enterprise)

As we have seen in the Case Studies, subcontractors have the responsibility to act independently with several clients, national and international. They also have the opportunity to specialise in specific lines of production and to cater to sophisticated customers. Several other advantages of subcontracting have been illustrated by the Case Studies. These are outlined below.

1. The subcontractor gains the advantage of **increasing the utilisation of his installed capacity and/or utilising it on a regular basis**, which in turn increases **production, output and revenue**, and ensures the security of **employment** of his work force and frequently generates new employment, as seen in most of the Case Studies.
2. Another advantage small companies may receive from a subcontracting arrangement is **stability of orders** over a given period of time, although even occasional subcontracting boosts production and turnover and is eagerly sought after. As has been illustrated, when the subcontractor has an assured market, he may be able to introduce, sometimes with the contractor's assistance, the machinery and equipment for faster and improved or specialised production. As marketing problems are taken care of, the commercial expenses decrease substantially enabling the unit to charge its services at a lower rate.
3. Through greater **specialisation** the subcontractor can produce more efficiently and can expand his market, especially by subcontracting for additional enterprises, as illustrated in the Brazil Case Study. Specialisation gives the subcontractor the many benefits of higher productivity and greater independence, as well as the ability to become a solid and stable partner in a long lasting industrial co-operation with the main contractor. By concentrating on a narrow field, a small enterprise may become so skilled that it can develop and innovate in the technology or process involved. It may then be able to obtain patents and become prominent in its field and may become a medium-sized or large firm, as has been illustrated in the case of Mexico-Queretaro.
4. **Technology transfer** from large industry to small subcontractors is also a major gain for the subcontracting units and the national industrial sector at large, and has also been illustrated in most of the Case Studies. Technical innovations of the main contracting firms get transmitted to subcontracting units who also benefit from the continuous technical assistance received from main contractors. The subcontractors receive complicated tools, moulds, specialised jigs and fixtures and assistance in standardisation and quality control, as well as raw materials (especially when rare or imported) from the main contracting firms. Subsequently, their level of expertise increases.

5. Subcontractors also benefit when they receive from the **technical and managerial assistance**, as was seen in some Cases such as Brazil and Morocco. This is particularly relevant in the training on **Total Quality Management** and in **ISO 9000 certification**. As a rule, large industries are not inclined to bear the costs of technical assistance or training, but may have to do so, especially when subcontractors produce complex parts requiring specialised technologies or high quality and precision. We have seen that in developing countries, the need for such assistance may be greater than in industrialised countries, for example at the **planning stage** and at the **beginning of production** and when setting up some forms of quality control. If large industries resort to subcontracting, it is in their own interest to **minimise rejects** and to ensure **agreed-upon delivery schedules**. They may consider it more beneficial and cheaper to provide technical and managerial assistance than to suffer delays in their own production and assembly lines.

6. Provision of **financing** by the contractor or improved access to credit by subcontractors does not appear to be common, and has only been observed in a few cases, such as one in the Case Study for Paraguay, Mexico-Queretaro and in one example from Peru. Yet it occurs more frequently in the form of joint ventures. In some industrialised countries such as Japan, especially for “affiliated” subcontractors, large private enterprises occasionally provide assistance in the form of advance payments or of low-cost rental of standard factories in ancillary industrial estates. This has not been observed in the countries covered by this study. But in any event, timely payment from main contractors for the jobs undertaken also helps in smooth functioning of the small subcontracting units who normally have very limited financial resources.

#### **Advantages for the main contractor** (client enterprise)

Since the questionnaire sent to the SPX focused mainly on the benefits of subcontracting and partnership on subcontractors, this outline of the advantages for main contractors does not stem totally from the Case Studies, although in many cases some benefits for the main contractors were mentioned.

1. One of the most important advantages a subcontracting agreement brings to the contractor is the opportunity to **reduce costs** and the availability of components and services at comparatively lower cost from small and medium sector units since their overhead cost is low. This ultimately helps in reducing the cost of the final product. Costs may be reduced by placing orders with small firms because:

- Subcontractors have more flexibility; management can take decisions more quickly and production programmes may be changed or adjusted more easily;
- Subcontractors, especially when highly specialised, can often produce certain items more efficiently and cheaper than contractors.
- Subcontractors spend little on research and marketing, which also reduces their costs;

- Overhead and administrative costs (sometimes also labour costs) are often lower in small enterprises than in large firms;
- Most subcontractors have less equipment and machinery and simpler workshops than large firms, and their depreciation costs are lower;

An advantage accrues to the subcontractor in that he can shift to the subcontractor some of the **costs of working capital** (variable costs) spread over the production period. The contractor pays for the component, part or process only upon delivery; if he produced these in-house, he would bear all the cash payments when due. The main contractor can get an ensured supply of quality goods as per specifications and thus maintain a very low level of inventories and save on **storage costs**. If he were to produce the item himself, he would have to store materials, part and supplies during weeks to achieve profitable load planning for his machines. Thus, there is scope for reducing investments in capital goods, saving financial resources, limiting the size of the organisational set-up and the labour employed.

2. Subcontracting enables the contractor to adjust his production to **fluctuations in demand** and to supplement his production **capacity**, equipment or technique by using subcontractors. A contractor having a capacity geared to a given level must decide, when faced with an increase in orders, either to expand his capacity (by additional investment in plant and equipment) or to subcontract. If the increase in orders represents a temporary or seasonal trend in demand, the contractor is more inclined to subcontract than to expand his capacity and thereby risk under-utilisation of his investment later. Some changes in production resulting from changes in demand involve sizeable re-equipment and retooling. Some large manufacturers with heavy investment tend to use plant and equipment well beyond the depreciation stage. They hesitate to acquire new machinery and turn out new goods. The main contractor may be able to use his capital more efficiently, in particular, by avoiding excess capacity through the use of the capital investment of his subcontractors. Subcontracting may enable such firms to take advantage of technological innovation by relying, to a greater or smaller extent, on small but modern enterprises having the necessary equipment and the required skills, as illustrated by the Case Studies.

3. Another important advantage is **better quality** of products as a result of greater **specialisation** of the subcontractor. A contractor may become efficient by subcontracting certain work in which the subcontractor has specialised knowledge or uses a patented process. It is then more economic to subcontract than to acquire the necessary knowledge or license the process. Small companies acting as subcontractors often have opportunities to innovate by concentrating on specialised production, as was the case for most of the examples reviewed.

4. Large manufacturers with major assembly operations wish to **secure alternative sources of supply** to allow for fluctuations in demand, to balance their inventories and sometimes to alleviate the strain of full-capacity production. Even though sound inventory planning protects them against short interruptions in the supply of components, they need to guard against total interruptions in the event of machinery breakdown, work stoppage or transport failure.

5. Subcontracting and out-sourcing can also help to solve certain problems contractors face owing to **limitation of facilities and resources**. The contractor may solve the problems arising from a lack of machinery, shortage of skilled labour and materials through subcontracting. When **skilled labour** is lacking, rather than invest time and expense in training the manpower needed, a large manufacturer can utilise skilled labour available with a subcontractor. If **materials** are in short supply, either through insufficient imports or through the long lead-time needed to procure them, a contractor may be able to overcome the difficulty through recourse to a subcontractor. When **machinery** is unavailable either because of breakdowns or lack of suitable operators, subcontracting may extricate the contractor from a critical situation that would otherwise lead to defaulting orders and so reduce the opportunity cost of continuing production. Even where machine and operators are available, but can be utilised only with considerable overtime charges, subcontracting may provide a cheaper solution. The main contractor has thus the opportunity to **optimise the use of his resources** by concentrating on technological innovations, sophisticated and technically intricate items of production, new marketing channels, etc. Subcontracting of parts and components to other units enables the main contracting firms to achieve the most effective and efficient organisational structure.

From the Case Studies alone, it is difficult to assess the relative importance of the above-mentioned inducements to large firms to subcontract. Cost reduction, quality derived from specialised subcontractors, savings in and/or more efficient levels of investment, and better adjustment to fluctuations in demand appear to be the most important in practice. Their relative importance will vary according to the type of subcontracting, especially as between capacity or peak-load subcontracting on the one hand and specialised subcontracting on the other.

## **Advantages to the economy as a whole**

Apart from the benefits that it offers to both main contractor and subcontractor, subcontracting may accelerate industrial development; but to do so, subcontracting programmes must be designed rationally, using institutional mechanisms such as Subcontracting and Partnership Exchanges. As the Case Studies reflect, these SPXs are essential in furthering and promoting subcontracting and other forms of industrial linkages.

**1. Optimal allocation of national industrial resources:** one of the most obvious benefits subcontracting provides is that it may broaden the industrial base in such a way that resources, whether scarce or not, are efficiently utilised. It minimises waste by reducing unused capacity, which is particularly important to developing countries as long as their markets remain limited. The market can easily be over-estimated. Such a mistake results in excess capacity, which means an unprofitable plant investment. It may require years to utilise capacity fully.

**2. Subcontracting may further import substitution:** when indigenous manufacturers take on the production of various parts, components and subassemblies that were previously imported and locally assembled, they increase the so-called "local content"; it may thus contribute to alleviating the scarcity of foreign exchange.

**3. Creation, development and upgrading of SMIs:** Not only does subcontracting expand the industrial base, it also improves the technical competence of the subcontractors. Owing to the specialisation it induces and to the assistance provided by organisations such as UNIDO, Governments and/or by the main contractors themselves, the productivity of the small manufacturing companies increases. Subcontractors gain a degree of security that enables them to concentrate on the efficient production of a narrow range of products or processes.

**4. Subcontracting may, under certain conditions, contribute to the decentralisation of industry** in a geographical sense. Most subcontracting orders are placed with small and medium companies located close to the primary company mainly to save on transport costs but also to keep close contact with the subcontractors and suppliers. In an economic sense, subcontracting, especially in former centrally planned economies, enforces new flexible dimensions to previously rigid industrial linkages and appears to be an essential instrument of industrial restructuring, diversification and decentralisation by transforming spin-offs into sustainable profit centres.

**5. Development of Human Resources:** Subcontracting helps to mould a more highly skilled entrepreneur, a scarce and highly desirable factor in most developing countries, especially in those in which the indigenous sector of the population hardly participates in industrial development. Through the technical upgrading of the subcontractor and the training provided by the industrial extension services or by the large contractors, the development of higher skilled labour can be anticipated. Too often, large and small enterprises in developing countries operate in isolation from each other. There is little co-operation, and even lack of trust, between the two groups of enterprises, and the division of labour among different lines of production is left undeveloped. Subcontracting helps to correct this situation.

\*\*\*\*\*

Many of the above-mentioned advantages, as well as other factors such as the instrumental role played by SPXs and the importance of industrial fairs and exhibitions in promoting long lasting industrial partnership agreements, are illustrated by these Case Studies. UNIDO continues to support, using its experience and expertise, the promotion of industrial subcontracting and partnerships, and in future, the promotion of subcontractors/suppliers development programmes. UNIDO has already established more than 45 similar SPXs in some 30 countries world-wide, creating thus a network that aims to successfully meet the challenge of globalisation. This globalisation fully applies to industrial subcontracting, since enterprises are now looking for outsourcing and supply opportunities world-wide, in almost all sectors of industry and services, in an ever lasting search for a competitive edge, as evidenced by an ever increasing share of subcontracting and supply within international trade flows. Through these programmes of Industrial Subcontracting and Partnership, UNIDO's ultimate aim is to encourage and support the use of modern industrial linkages to further economic development on a global basis.



For future analysis of other specific subcontracting operations, both at national and international level, a standard questionnaire (in three languages) has been designed, which can be submitted directly to the subcontracting exchanges.

**STANDARD QUESTIONNAIRE FOR THE ANALYSIS OF SUBCONTRACTING OPERATIONS**  
**QUESTIONNAIRE STANDARD POUR L'ANALYSE D'OPERATIONS DE SOUS-TRAITANCE**  
**CUESTIONARIO ESTANDAR PARA EL ANALISIS DE OPERACIONES DE SUBCONTRATACION**

- COUNTRY/PAYS/PAIS
- 
- NAME OF THE INDUSTRIAL SUBCONTRACTING AND PARTNERSHIP EXCHANGE
- NOM DE LA BOURSE DE SOUS-TRAITANCE ET DE PARTENARIAT INDUSTRIEL
- NOMBRE DE LA BOLSA DE SUBCONTRATACION Y COOPERACION INDUSTRIAL
- 
- DATE OF SUBCONTRACTING OPERATION
- DATE DE L'OPERATION DE SOUS-TRAITANCE
- FECHA DE LA OPERACION DE SUBCONTRATACION
- 
- MAIN CONTRACTOR      NATIONAL              INTERNATIONAL
- DONNEUR D'ORDRE
- EMPRESA CONTRATISTA
- 
- SUBCONTRACTING FIRM
- ENTREPRISE SOUS-TRAITANTE
- EMPRESA SUBCONTRATISTA
- 
- SECTOR OF ACTIVITY
- SECTEUR D'ACTIVITE
- SECTOR DE ACTIVIDAD
- 
- WHAT DID THE SUBCONTRACTING OPERATION INVOLVE?
- EN QUOI CONSISTE L'OPERATION DE SOUS-TRAITANCE?
- EN QUE CONSISTIO LA OPERACION DE SUBCONTRATACION?
- 
-

- WAS THERE ANY **EMPLOYMENT** GENERATION AS A RESULT OF THE OPERATION?
- EST-CE QUE L'OPERATION A PERMIS UNE GENERATION D'**EMPLOI**?
- HUBO GENERACION DE **EMPLEO** COMO RESULTADO DE LA OPERACION?

-

- NUMBER OF NEW WORKERS / PERCENTAGE INCREASE IN EMPLOYMENT IN THE SUBCONTRACTING FIRM
- NOMBRE DE NOUVEAUX EMPLOIS / POURCENTAGE D'AUGMENTATION DE L'EMPLOI DANS L'ENTREPRISE SOUS-TRAITANTE
- NUMERO DE NUEVOS PUESTOS / PORCENTAGE DE AUMENTO DEL EMPLEO EN LA EMPRESA SUBCONTRATISTA

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- WAS THERE AN INCREASE / IMPROVEMENT IN **PRODUCTION** AS A RESULT OF THE OPERATION?
- EST-CE QUE L'OPERATION A PERMIS UNE AUGMENTATION / AMELIORATION DE LA **PRODUCTION**?
- HUBO UN AUMENTO / MEJORA DE LA **PRODUCCION** COMO RESULTADO DE LA OPERACION?

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PERCENTAGE INCREASE IN PRODUCTION  
 POURCENTAGE D'AUGMENTATION DE LA PRODUCTION  
 PORCENTAGE DE AUMENTO DE LA PRODUCCION

- WAS THERE AN IMPROVEMENT IN THE **COMPETITIVENESS** OF THE FIRMS -MAIN CONTRACTOR AND SUBCONTRACTOR- INVOLVED IN THE OPERATION?  
(IMPROVED *QUALITY* OF THE PRODUCT, REDUCED *PRODUCTION COSTS*, IMPROVED *PRODUCTIVITY*, ETC)
- EST-CE QU'IL Y A EU UNE AMELIORATION DE LA **COMPETITIVITE** DES ENTREPRISES-DONNEUR D'ORDRE ET SOUS-TRAITANT- PARTICIPANTES DANS L'OPERATION?  
(AMELIORATION DE LA *QUALITE* DU PRODUIT, REDUCTION DES *COUTS DE PRODUCTION*, AMELIORATION DE LA *PRODUCTIVITE*, ETC)
- HUBO UNA MEJORA DE LA **COMPETITIVIDAD** DE LAS EMPRESAS - CONTRATISTA Y SUBCONTRATISTA-PARTICIPANTES EN LA OPERACION?  
(CALIDAD DEL PRODUCTO MEJORADA, REDUCCION DE LOS COSTES DE PRODUCCION, MEJORA DE LA PRODUCTIVIDAD, ETC)

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- WAS THERE AN INCREASE IN **MARKET SHARE** OR ACCESS TO NEW MARKETS FOR THE SUBCONTRACTOR AS A RESULT OF THE OPERATION?
- EST-CE QU'IL Y A EU UNE AUGMENTATION DE LA **PART DE MARCHÉ** DU SOUS-TRAITANT OU ACCES A DES NOUVEAUX MARCHES RESULTANT DE L'OPERATION?
- HUBO UN AUMENTO DE LA **PARTE DE MERCADO** PARA EL SUBCONTRATISTA O ACCESO A NUEVOS MERCADOS COMO RESULTADO DE LA OPERACION?

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PERCENTAGE INCREASE IN MARKET SHARE  
POURCENTAGE D'AUGMENTATION DE PART DE MARCHÉ  
PORCENTAGE DE AUMENTO DE PARTE DE MERCADO

- WAS THERE ANY **TRANSFER OF TECHNOLOGY** AS A RESULT OF THE OPERATION?
- EST-CE QU'IL Y A EU UN **TRANSFER DE TECHNOLOGIE** RESULTANT DE L'OPERATION?
- HUBO **TRANSFERENCIA DE TECNOLOGIA** COMO RESULTADO DE LA OPERACION?

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- WAS THERE AN INCREASE IN **INVESTMENT** OR IMPROVED ACCESS TO CREDIT FOR THE SUBCONTRACTOR AS A RESULT OF THE OPERATION?
- EST-CE QU'IL Y A EU UNE AUGMENTATION DE L' **INVESTISSEMENT** OU UN MEILLEUR ACCES A DES CREDITS RESULTANT DE L'OPERATION?
- HUBO UN AUMENTO DE LA **INVERSION** O UN MAS FACIL ACCESO A CREDITOS COMO RESULTADO DE LA OPERACION?

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- IS THERE ANY POTENTIAL **FUTURE LINK** (EVEN A PARTNERSHIP) BETWEEN THE MAIN CONTRACTOR AND THE SUBCONTRACTOR AS A RESULT OF THE OPERATION?
- EST-CE QU'IL Y A UNE POSSIBILITE D'ETABLIR UN **LIEN COMMERCIAL POTENTIEL** (MEME UN PARTENARIAT) ENTRE LE DONNEUR D'ORDRE ET LE SOUS-TRAITANT RESULTANT DE L'OPERATION?
- EXISTE LA POSIBILIDAD DE ESTABLECER UN **FUTURO LAZO COMERCIAL** ENTRE EL CONTRATISTA Y EL SUBCONTRATISTA COMO RESULTADO DE LA OPERACION?

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