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**SUBCONTRACTING SYSTEMS
AND ASSISTANCE PROGRAMS:
Opportunities for Intervention**

by

Donald C. Mead

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Subcontracting Systems and Assistance Programs:
Opportunities for Intervention*

by

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Four earlier papers have examined various aspects of subcontracting in Thailand (Mead, 1982), in Indonesia (Mead, 1983), in Egypt (Davies, et al.), and in Bangladesh (Mead, 1985). A fifth paper explored issues of subcontracting in a more general context (Mead, 1984). This paper builds on those five, focusing more specifically on their implications in terms of the types of programs which might be supported by USAID.

1. Introduction

Development implies increasing complexity of production and distribution systems. In the simplest state, a single household handles all aspects from the gathering of raw materials and their transformation through to their final consumption. As development proceeds, each of these steps becomes more complex. Raw materials are gathered over a wider area, and become more highly differentiated. The transformation process goes through more stages, as products become more sophisticated; the conveying of products to final consumers increases in complexity as the products become more highly differentiated, and producers serve more distant customers.

It is in the nature of market-oriented economic systems that one single producer does not need to keep pace with this growing complexity by mastering all these aspects of production and distribution. On the contrary, the growing complexity itself expands opportunities for specialization, enabling one enterprise to concentrate on only a portion of this diverse set of activities. He or she is then linked to other participants in the system through markets. These can be spot markets (where a producer completes a particular activity, then sells the result to a user); or they may be based on contracts, such that production takes place in response to an order previously placed by a buyer.

Much has been written about the benefits of specialization, as a means of lowering costs and prices and of increasing the range of products available to consumers. An alternative way of looking at this is to say that such market-linked patterns make it possible for producers to partici-

pate in increasingly complex and increasingly specialized production/distribution systems without having to master all aspects of these systems themselves. In particular, subcontracting arrangements make it possible for small firms, or larger but less sophisticated producers, to concentrate on one or a few production activities, leaving the development of marketing functions or other aspects of the production process to those giving the contracts.

Such contracting systems have a further potential importance for aid-givers. The provision of assistance to small producers often runs into problems of selecting recipients who can benefit from the assistance, and of designing assistance so it can actually be put to use, in a situation where recipients may have multiple needs, often only imperfectly understood by those who wish to help them. The large number of small producers and their short average life span means that it is difficult to select a target group for assistance which has a reasonable chance of benefitting from the assistance. By channeling aid through a limited number of parent firms, it is possible to reach a large number of suppliers who have already shown by their participation in the system that they are able to undertake some aspects of the work, and are therefore more likely to be able to be helped by the assistance. This also makes it possible to design the assistance to meet clearly identifiable needs on the part of the recipients. Because of the role which parent firms can play in identifying recipients, in specifying the nature of the assistance needed and in providing some required functions directly themselves in tandem with the activities supported by the aid program, subcontracting systems can provide

a particularly cost-effective way of supplying aid to small producers. Section 2 of this paper explores ways in which one might take advantage of these features, in channeling aid programs through subcontracting systems.

Once one has determined that a particular type of assistance targeted at a particular group of beneficiaries is desirable, one faces a parallel question of institutional channels for supplying that assistance. Section 3 of the paper explores different channels which might be used in providing assistance to or through subcontracting systems. Beyond this, it should be clear that there are sectors of the economy where production based on subcontracting is either not feasible or not desirable. An attempt to push subcontracting in such industries would be fruitless at best, and could be quite costly in terms of wasted resources. Section 4 of the paper, then, explores the question of sectors where subcontracting can best be encouraged. This section also examines the problematic question of equity between parent and supplier firms engaged in contract production. Section 5 provides conclusions.

2. Possible Aid Activities Relating to Subcontracting

Programs which work through subcontracting systems to provide assistance to small enterprises fall into two major categories. One set of activities is concerned with the encouragement of the use of subcontracting per se, while the other seeks to use subcontracting systems as a channel for assistance to small producers. Needless to say, the two aspects are closely related, and in particular cases could be joined together in one assistance project.

2.1. Activities to facilitate the use of subcontracting

There are a number of things which can be done to encourage producers to engage in subcontracting.

2.1.1. Exchanges can provide information about both potential suppliers and potential parent firms. These exchange centers develop lists of potential suppliers, with some specification of their capacity to produce particular products, services, or activities on a contracting basis; and lists of potential buyers of such products or services, with some indications of the types of things which they may wish to purchase. To be useful, there needs to be some evaluation of the capability of different suppliers and buyers.¹

2.1.2. Tax systems can either impede, be neutral towards, or encourage the growth of subcontracting systems. If products are subject to turnover or sales taxes each time they change hands, this will result in tax cascading, and will discourage the adoption of subcontracting systems. A neutral tax system would need either to be based on a value-added

¹The UNIDO publication, Subcontracting for Modernizing Economies, discusses at some length the organization and contribution of subcontracting exchanges and registers. These bureaus are quite widespread in Western Europe, including Spain, Greece, and Turkey; they have also been established in India and Chile. The UNIDO study explains in some detail the ways in which these exchanges have operated. The authors of that study clearly feel that subcontracting exchanges have much to offer in encouraging the expanded use of subcontracting. See UNIDO, chapter 6. After some years when this type of work was in abeyance, UNIDO is currently gearing up to renew its activities in this area.

principle or else would tax each product at only one stage (probably either as a raw material or as a finished product). If one wanted to go further and use the tax system to encourage subcontract production, it would be feasible to grant to purchasing firms a more than 100% deduction from taxable income for their subcontract expenses. So far as I know, this has never been done. While many tax structures are cascading in principle, in practice the tax is generally enforced only at the final stage, which means that the results turn out to be neutral.²

2.1.3. Tariff systems. There are various ways in which tariff systems might provide advantages to integrated firms, thereby impeding the expansion of subcontracting. One of these concerns situations which permit duty-free import of inputs, to be used in making products for export. The laws are frequently written in such a way that, to take advantage of such a provision, the importing, processing, and exporting must all be done by the same firm, thereby precluding any opportunities for subcontracting. A related problem arises if tariff rates vary by type of importer. In some cases, licensed manufacturers may be entitled to concessional rates for imported inputs, but these favorable rates apply only to those inputs which they will

²The Indonesian sales tax, in principle, is applied each time a product (even an intermediate product) changes ownership. The consistent application of such a law would clearly provide an advantage for integrated firms, compared to a subcontracting system. In my consultancy in Central Java, I found that in practice sales by subcontractors were never subject to this tax; only the final sellers paid it. See Mead, 1983, p. 23.

process themselves internally. Again, this makes it difficult if not impossible for a small firm to act as subcontracting suppliers.³

2.1.4. Publicity. Another approach to the spread of subcontracting systems might come from seminars or discussions aimed at making businessmen aware of potential benefits to be derived from the use of such systems. These could be targeted to producers in industries in which subcontracting systems seem particularly well suited. Case studies of successful patterns and advice on ways of adapting or emulating them, preferably with field visits to see them in action (for other producers in the same country), could be of considerable importance in encouraging more firms to use the approach.⁴

2.1.5. Training of agents. Some types of subcontracting systems rely heavily on agents who constitute the link between parent firms and suppliers. In such situations, the whole system can stand or fall based on the ability of the agents; non-availability of these key actors can block the spread of the system. The identification and training of persons able to perform this role might then help to remove a binding constraint on the growth

³Both of these problems were observed in a recent consultancy exploring subcontracting systems in Bangladesh. See Mead, 1985.

⁴Smith has an interesting discussion of intermediaries: private firms which have grown up partly to provide subcontracting-exchange-type information about potential buyers or suppliers of subcontracted products or services. In marketing their services, they have also acted as promoters of the idea, organizing seminars for potential participants, and doing their own research concerning types of activities which might fruitfully be handled by subcontracting. Smith's discussion focuses on intermediaries operating along the US-Mexico border. I have not observed such firms in third world countries where I have worked. See Smith, pp. 38-41.

of the system. In large part this training would have to be industry-specific, although it could also deal with some common issues relating to record-keeping, financial arrangements, liability for losses, etc. Seeking to regularize these arrangements could also help to prevent abuses of the system.⁵

All five of these activities are based on a presumption that the expanded use of subcontracting is a desirable thing. One might justify this presumption with the argument that such arrangements do enable small and perhaps dispersed firms to participate in more advanced and dynamic markets, permitting them to specialize more by removing the necessity to master a whole range of increasingly diverse activities. One should not push this argument too far; subcontracting is clearly not suitable for all industries or all product lines. We return to this point in section 4 below.

2.2. Activities Using Subcontracting Systems to Assist Small Firms

In addition to the argument that subcontracting systems permit smaller and more specialized producers to participate in more complex and dynamic production/distribution systems, and hence are desirable per se, one could also argue that such systems are desirable since they provide a mechanism for providing effective assistance to small suppliers. This provides an additional justification for the types of activities discussed above, which

⁵This proposal was originally set out in my study of subcontracting in rural areas of Thailand. In the Thai context, the suppliers were generally village households, engaged in embroidery, sweater knitting, silk weaving or similar activities, working in their homes on a contract basis. The agents, who were often fellow-villagers, played a key role in linking the household workers with parent firms, generally in towns. See Mead, 1982.

were aimed at the spread of subcontracting systems. Let us now examine ways in which it is possible to use subcontracting systems as channels for assistance.

As suggested above, the general context for this discussion comes from the existence of large numbers of small producers, with complex and diverse needs and with rapid turn-over of participants; that being so, it is difficult for aid-givers to identify suitable target recipients, and to design assistance programs which are responsive to the actual needs of individual producers. Working with or through the smaller number of parent firms -- those giving the orders -- can provide an effective way of addressing these problems.

2.2.1. Finance. It is a standard procedure in many subcontracting systems for parent firms to provide capital to suppliers from whom they buy. This is frequently done in the form of working capital: the parent firm provides either the funds to purchase raw materials, or (more often) the raw materials themselves. Parent firms may also provide fixed capital to their suppliers; again, this can be in the form of credit to buy machines, or as a loan of equipment or machines themselves.

When parent firms make available financial assistance "in kind," whether in the form of raw materials or machinery and equipment, they are clearly doing more than simply lending capital. In this process, parent firms are able to take advantage of economies of scale: in the search among alternative suppliers for the best input and the best price, in bulk buying, sometimes in inventory maintenance. All of these have the potential for making inputs cheaper and more carefully tailored to market needs. This latter feature can

be particularly important in terms of quality control; by selecting embroidery threads which are color-fast, wood which is dried so it will not crack, or machines well adapted to particular production processes, parent firms can have a significant impact on the quality and character of the product. In this way, finance becomes a vehicle for other important transfers from parent to supplier firms.

Whether implemented in cash or in kind, such arrangements provide a ready way of channeling capital to smaller supplier firms: making financing available to parent producers, on condition that it be passed through a subcontracting system to the suppliers. This could be implemented through a development bank or a commercial bank, with loans to parents drawn from funds made available to the financial institution for this purpose from outside assistance. There would need to be some monitoring of both financial institution and parent firms, to make sure that the funds were in fact passed on to supplier firms, on reasonable terms.

Since such credit would be targeted for small producers who are involved in longer-standing and multi-dimensioned commercial arrangements with parent firms, the risk of default could be substantially reduced in such a system. Identification of potential borrowers and the determination of the particular uses for which the credit is supplied would be done by parent firms as part of their normal management of the subcontracting system. These features mean that the processing costs to parent firms of a credit program would be minimized. Since the responsibility for selecting recipients, for ensuring that the capital is wisely used, and for the repayment of loans all rest with the parent firms, the costs to financial institutions of administering such a

program would be substantially smaller than if they themselves had to consider and evaluate each application from each small supplier individually. These characteristics imply that this could be a cost-effective delivery system for making credit available to small producers.⁶

An alternative way of channeling credit to small producers who participate in subcontracting systems would involve facilities for discounting orders received from parent firms. A recently proposed subcontracting credit project in Bangladesh is designed to follow this approach. Based on a pre-screening of parent and supplier firms by a specialized agency, a commercial bank will make loans to suppliers, based on orders received from certified buyers. To the extent that shortages of working capital hinders the expansion of output by small supplier firms, this approach can be an effective way of easing that constraint.⁷

2.2.2. Marketing and product design. One of the most difficult challenges facing small producers, particularly in rural areas, concerns marketing patterns which restrict sales to localized areas with relatively slowly-growing demand. While production skills of such producers may be quite adequate to meet the demands of current buyers -- and even to produce variations, with some guidance and direction -- their marketing skills are

⁶Financial arrangements between parents and suppliers are discussed in reports on subcontracting in Thailand (Mead, 1982) and Indonesia (Mead, 1983), and in the more general report on small industry in Egypt (Davies, et al., 1984). In Indonesia, in some cases the parent firms have guaranteed bank loans made to supplier firms.

⁷See Mead, 1985.

often rudimentary. One might say that current simplified marketing practices -- often based on production for order by final consumers -- have grown up precisely in response to these limited marketing skills of small rural producers.

Subcontracting systems can have a major role to play here, both in providing an outlet in more dynamic markets for more isolated producers and in providing a channel for information and instruction concerning product modification, which will generally be needed if such producers are to sell in more dynamic markets.

How can external assistance be used to facilitate this process? There are a number of things which can be done.

a. Activities of private firms engaged in these functions can be subsidized; part of the cost of establishing or operating such arrangements can be covered from technical assistance funds.

b. Assistance can be provided to parent firms to enable them more effectively to find out about and sell in new and more dynamic markets.

c. In many cases this process of tying into new markets will involve product design and development. The parent firm can play a key role in this process, but may not have staff with the right skills, or enough people, to do this task on behalf of a number of suppliers. Assistance to parent firms in product development, linking what will sell in dynamic

markets with what suppliers are capable of producing, could have substantial multiplied effects.⁸

2.2.3. Production controls. If supplier firms are to move from selling standard products in localized markets to producing more diverse items for sale in national or international markets, they will generally need to pay considerably more attention to the production process: to ensure quality control, to keep costs down, to ensure timely delivery of the product. These are not easy changes to make, particularly for people who are often not highly skilled in management techniques and who are used to selling in more tolerant if less dynamic local markets.

Again, subcontracting systems provide a mechanism for providing assistance to suppliers, working through the smaller number of buyers. The link is important in identifying the potential beneficiaries as well as in providing a framework for making clear both the necessity for better production controls and the precise nature of the controls which are needed. As in the case of marketing and product development, this issue provides an avenue for technical assistance. This could be done through the parent firms -- with assistance being supplied by an outside agency, but targeted to firms identified by the parent firms, and with the precise assistance program defined in close con-

⁸Marketing and product design work has been undertaken in Indonesia. In the ornamental brass industry, for example, where a parent firm has extensive subcontracting links with a number of suppliers, efforts were made to help the parent firm move into exporting. These activities were discussed in Mead, 1983, pp. 7-10, and have subsequently been implemented in part through pre-project activities designed to lead into the Central Java Enterprise Development Project. Similar opportunities were identified in Egypt; see Davies et al., pp. 93-96.

sultation with the parent firms; alternatively, the assistance could be offered by the parent firm themselves, but with some of the costs covered by technical assistance (or perhaps the costs of additional personnel needed to expand the program).

The types of skills which are needed here are quite diverse. Inventory control may sound like too sophisticated a concept for small producers, with only limited education; yet the flow of materials through the production process is of central importance to the control of costs, to timely delivery and uniform quality of product. A regular supply of inputs is required to guard against work stoppages or replacement with the wrong substitutes which result when a garment manufacturer has run out of the right kind of buttons or a furniture maker is out of varnish.

Closely related are simple bookkeeping and accounting skills, to enable managers of supplier firms to keep records of things bought and sold and to relate these one to another in order to calculate costs and profits. Such information is also needed in order to set prices which will be fair to both buyers and sellers. The accounting system would need to be simple enough to be easily understood by people with only limited education. Most probably a different adaptation would be needed for each industry type or even activity within an industry, to suit the particular inputs and products of that industry.

Quality control is another function -- or skill -- which may need to be strengthened. While considerable variability in quality may have been acceptable in local markets, sales to more demanding customers in more dynamic national markets will generally require more consistent and uniform standards.

What is needed here is primarily the instilling of an attitude rather than the teaching of a particular technique for either sampling or testing of products.⁹

2.2.4. Technical upgrading. Moving into somewhat modified products sold in more competitive markets may require new technical skills, perhaps tied to the use of new machinery. Channeling any technical training required to make this possible through a subcontracting system enables one to tailor it to the particular needs of the market, minimizing the risk of training people to do jobs for which there is no demand. Again, such training might be offered by the parent firm and paid for -- perhaps in part -- by technical assistance; or it might be offered by a separate agency funded by technical assistance, but with the actual content worked out in close consultation with buying firms. The identification of those to be trained and the user input in the design of the training program itself are of great help in setting up such a program.¹⁰

2.2.5. Other kinds of training. Much of what has been discussed in preceding paragraphs could be described as training. Some of this (e.g.,

⁹Industrial extension services aimed at providing improved production controls, among other things, have been established in a number of developing countries; see UNIDO, chapter V.

¹⁰The Metal Industries Development Center in Indonesia provides assistance to participants in subcontracting systems in the metal industries, to enable them to improve product qualities as well as to produce new parts to the specification of those giving the orders. In principle, parent firms also play the same role, although in practice their assistance is limited almost exclusively to ensuring that suppliers meet minimum quality standards. See Mead (1983).

relating to marketing functions) might involve learning-by-doing (or more accurately, learning-by-participating-with-others-in-doing). In other cases discussed (e.g., technical upgrading, bookkeeping, or accounting) the learning would generally require an explicit training program. There are other types of training which might be appropriate components of an enterprise development effort channeled through subcontracting systems. Perhaps the most obvious here concern other types of management skills. These might include questions relating to personnel: the importance of combatting high rates of labor turnover, and ways of dealing with this problem; and need for a better-trained work force, and the ways of either hiring better-trained people or of encouraging current employees to participate in available training programs. Another set of issues concerns relations between the firm and the government: ways of either avoiding or complying with government regulations (licensing, registration, labor regulations, etc.), or ways of taking advantage of existing government services (infrastructure, training, etc.). A third might concern financing issues: teaching people about possible sources of loans, how to approach lenders, how to complete loan applications, etc. None of these requires subcontracting arrangements for their implementation; but each would be easier to implement if channeled through a subcontracting system, in terms of the identification of potential beneficiaries and the tailoring of the training to an operational system.

All of these different types of technical assistance (marketing, product development, technical upgrading, etc.) face the same challenge: they may be expensive to supply, with relatively high delivery costs per enterprise helped. As suggested at various points above, working through subcontracting

systems can provide an effective way of dealing with this difficulty. By identifying potential beneficiaries and specifying their particular needs, and by coordinating these activities with other functions supplied by the parent firms themselves, it is possible to reduce costs and raise benefits, thereby providing a cost-effective channel for aid assistance.

3. Institutional Channels for Assistance

One of the challenges facing those designing programs in this area concerns the institutional channels for establishing assistance programs. Four alternative patterns will be discussed.

3.1. Parent Firms

As suggested at various points above, parent firms can often be the most effective source of assistance to those firms from whom they buy. The parent firms are often the best judge of the market, as well as of the capacities and limitations of the suppliers; they can identify the weaknesses which need to be overcome, and can tailor the aid to meet those particular needs.

Two questions arise here. First, it is important in designing any type of assistance working through subcontracting systems, but particularly one implemented through parent firms, to ensure that the benefits reach the suppliers, rather than all being captured by the buyers. This issue is discussed in section 4.2 below. Secondly, one might recognize that buyers often provide guidance to their suppliers, as part of a normal business relationship; why is there any need to subsidize such assistance through aid funds?

The best answer is that the expansion of such a system provides benefits which are more significant and widespread than those which the parent firm can capture for him or herself. This is a standard case of training resulting in what economists call external benefits: benefits to the nation as a whole are not fully captured by those offering the training, since those who learn may then apply their skills working for different employers, or for themselves. In fact the training may even operate to the detriment of the original trainer, if he finds that he faces stronger competition from new channels that emerge as a result of his training. In such cases, it may still be possible, by covering from aid funds some of the costs of training which parent firms offer to their suppliers, to bring about a more rapid expansion of such training activities. This will not always be the case; parent firms may be satisfied with the status quo, or may be fearful that expansion of the system may harm rather than help them. In such cases, the training would need to be offered by a separate institution.

3.2. Other Private Firms

In some cases, private profit-motivated firms have been established to provide some of the linkage, facilitating, or training functions discussed. An example would be the private agencies that make a business of linking buyers with suppliers, or of helping parent firms through the complexities of establishing a subcontracting network. Other firms offer training programs, on a fee-for-service basis.

The advantage of working through such firms is that, since they are profit-motivated, they can only succeed by being attuned to the needs of

their customers, offering a service which the buyers of the service find useful enough to pay for. Such firms will not exist for many of the activities discussed in this paper; when they do not exist, it will generally be fruitless to try to promote their establishment through aid-funded subsidies. It may be possible, on the other hand, for firms which have operated in one country or in one functional area to be drawn into something new by an offer to pay some of the initial establishment costs. A fruitful activity, then, might be a listing of such firms, with an evaluation of what they have done and of ways in which their activity might be extended either geographically or functionally.

3.3. Private Voluntary Organizations

PVO's have both strengths and weaknesses in terms of the activities discussed here. By operating at a "grass-roots" level, they are often closer to the true needs of small firms, allowing those who will be most affected to shape the nature of the programs. They often stay in a particular locality for long enough to gain a deeper understanding of the cultural, social and political context in which production takes place. Their motivation is often conducive to concern for an equitable sharing of benefits. Their background and training, on the other hand, are often ill-suited to the requirements of business development. The advantage of the subcontracting system is precisely that it helps focus the assistance, to make it support the needs of a particular production/distribution system. If particular PVO's can supply the kinds of assistance needed in such a context, there would be a strong justification for using assistance money to support them in this.

3.4. Government Agencies

A standard institutional channel for supplying the types of assistance discussed above is through a government agency of some type: either a division of a ministry or a specialized agency established, supported and regulated by the government.

While this is in some ways the most obvious possibility, and perhaps the most obvious channel for government-to-government assistance, it is not obviously the most effective way of meeting needs in the development of subcontracting systems. The major problems here are similar to those that arise for PVO's: officials involved may have neither the background and training nor (in this case) the motivation required to facilitate the growth of the private sector. There are some activities which they may be able to implement quite well (e.g., training programs of various kinds), working closely with parent firms in the design of the activity; there are other activities (e.g., product design, market development) to which they are less well suited.

3.5. Institutional Summary

Table 1 summarizes the kinds of activities which different groups seem best able to perform. It suggests, in broad terms, that activities to expand the use of subcontracting could well be done by government agencies, perhaps supplemented by activities of PVO's or specialized private firms. Among the groups of activities that use subcontracting systems to assist in the development of small enterprises, marketing activities can best be handled by private firms (either the parent firms or specialized profit-maximizing enterprises). Training activities relating to production control or technical upgrading

Table 1: Institutional Channels Best Suited to
Alternative Types of Assistance Activity

| | Parent Firms | Other Private Firms | PVO's | Government Agencies |
|---|-----------------|---------------------------|-------|------------------------|
| A. Activities to facilitate the use of subcontracting | | | | |
| 1. Information exchanges | | X | X | X |
| 2. Tax and tariff structures | | | | X |
| 3. Publicity | | X | X | X |
| 4. Training of agents | | | X | X |
| B. Activities that use subcon- tracting systems to assist small firms | | | | |
| 1. Finance | X | X | X | X |
| 2. Marketing and product design | | | | |
| a. Establish links back to suppliers | X | X | | |
| b. Find new markets | X | X | X | |
| c. Product design and development | X | X | | |
| 3. Production Control | | | | |
| a. Inventory Control | X | | X | X |
| b. Bookkeeping | X | | X | X |
| c. Quality control | X | | X | X |
| 4. Technical upgrading | X | | X | X |
| 5. Other training | X | X | X | X |

can be handled either by government agencies, PVO's, or the parent firms themselves. In the area of finance, as well as for other types of training, a variety of patterns is feasible, using any (or several) of the different institutional types.

4. Limitations and Problems

Subcontracting systems do not provide a panacea for all problems of small enterprise development. Some production lines seem well suited to subcontracting arrangements, but others clearly do not. Beyond that, subcontracting systems surely are subject to abuse, since parent firms can often take advantage of their greater market power, relative to their suppliers. These two questions will be considered in turn.

4.1. Subcontracting in What Product Lines?

Information from the field makes clear that subcontracting systems arise in particular industries or product lines; they are not equally useable every-where. What can one say about segments of the economy to which they seem best suited?

One could approach this question in two ways. One would be to ask what is currently being done in developing countries using subcontracting arrangements. Table 2 gives information on this, for four countries where the author has worked. The information in the table is based on our own field studies as well as a review of published reports by others for those four countries; although the focus is primarily on rural areas, information on urban activities is also included where it was found.¹¹

Table 2: Production Activities in Four Countries, Organized Using Subcontracting Systems
(numbers are 2- and 4-digit ISIC categories)

| Industry | Egypt | Indonesia | Thailand | Bangladesh |
|---------------------------------------|--|--|---|---|
| 31 Food, beverage tobacco | --- | --- | --- | --- |
| 32 Textiles, wearing apparel, leather | 3213: Knitted hats 3214: Rugs, mats 3220: Dresses, other garments, buttons, zippers, fasteners 3233: Leather bags and belts 3240: Leather shoes, whole or part | 3211: Batik 3212: Table cloths, bedspreads | 3211: Silk 3213: Knitted sweaters 3214: Mats 3215: Fish nets 3220: Embroidery | 3213: Knitted clothing 3220: Garments 3240: Footwear |
| 33 Wood and wood products | 3312: Baskets and crates | 3220: Furniture | 3320: Furniture | 3320: Tables, covers for sewing machines |
| 34 Paper, printing | --- | --- | --- | --- |
| 35 Chemicals | --- | --- | --- | --- |
| 36 Non-metallic minerals | --- | --- | --- | --- |
| 37 Basic metals | --- | --- | --- | --- |
| 38 Fabricated metal products | 3819: Metal cans 3843: Parts for cars | 3819: Ornamental brass 3821: Parts for diesel engines 3822: Water pumps 3829: Miscellaneous metal parts | | 3819: Electroplating 3822: Agricultural pumps 3823: Lathes 3824: Rice mills, power looms |
| 39 Other manufacturing | --- | --- | --- | --- |

Perhaps the most striking thing about the table is that of the nine two-digit ISIC categories for manufacturing, subcontracting activities were found in only three: textiles, wearing apparel, and leather (ISIC code 32), wood and wood products (33), and fabricated metal products (38). With the exception of metal products in Thailand (which probably are produced on a subcontracting basis, but not in the areas of Thailand studied by this project), subcontracting systems appeared in each of these three industries in each of the four countries studied. At a four-digit level, though (i.e., at a finer level of industry detail), the particular activities within these industries undertaken through subcontracting differed rather markedly from country to country.

The other way of approaching this question of industry groups suitable for subcontracting is more conceptual: what are the characteristics of product lines where subcontracting systems might be used? A full answer would reach beyond the confines of this paper. Among the considerations to be included would be the following.

a. Technological: lack of significant economies of scale, either in the production process as a whole (if the total production is to be handled through a subcontract) or for particular activities to be handled through sub-contracting (if only part is to be arranged in this

¹¹A recent study of international trade involving subcontracts and subsidiaries (tariff categories 806 and 807) found an overwhelming share of the total concentrated in garments and electronics. See Grunwald and Flamm, chapter 2. The UNIDO study includes a list of product lines which the Indian government has designated as suitable for subcontracting; virtually all of these involve the metal industries: parts for machines, automobiles, bicycles, electrical equipment, etc. See UNIDO, pp. 116-121.

way); in the latter case, technological separability in the production process, making it possible for different activities to be undertaken by different producers.

b. Coordination: reasonably good prospects for using contracts to coordinate different steps in the production/distribution system without risk that participants will engage in opportunistic behavior. This implies either implicitly hierarchical relationships, or large numbers of participants as both buyers and sellers, or a complex one-to-one relationship involving multi-dimensioned ties binding the firms together.¹²

c. Transportability of product before and after the sub-contract activity: it is unlikely that subcontracting would be used for activities where either inputs or outputs are expensive to transport, because they are unusually fragile, bulky, or heavy. The presence of such transport costs would tend to bring the result that such an activity would be integrated either backwards or forward.

There are other considerations which matter here as well, but these are the primary three. From the industrial sectors in table 2 which are currently not handled using subcontracting systems, it would seem that some food products (e.g., canneries), beverages, tobacco, paper, chemicals, and basic metals are generally ruled out on technological grounds (significant economies of scale, difficulties of dis-aggregating the production

¹²See Mead, 1984, pp. 14-20.

process); the same would generally be true of spinning and weaving of cloth. Some of these product lines (e.g., basic metals, chemicals) plus non-metallic minerals would face difficulties in terms of the transportability of inputs and outputs. For particular product lines within these and other industry groups, issues of coordination make subcontracting systems impractical.

The discussion of this section has been focused on negative considerations: necessary conditions for subcontracting to be feasible. One might go beyond this to ask, on the positive side, about sufficient conditions to make producers want to adopt subcontracting arrangements. Again, the presentation here is a brief summary of an argument presented at greater length elsewhere.¹³ There are four major benefits to be derived by parent firms from subcontracting arrangements:

a. to take advantage of lower costs of factors of production (particularly labor and work space) in certain locations or firms of certain types;

b. to permit firms to specialize in particular activities, there-by taking advantage of economies of scale or other advantages of specialization;

c. to deal with problems of fluctuations in demand, dealing with temporary surges in demand through contract buying rather than in-house production; and

¹³Mead, 1984, pp. 2-8.

d. to overcome limitations on the part of parent firms in their ability to manage or finance all aspects of complex production/distribution systems.

4.2. Equity Issues: Who Benefits?

One of the most controversial aspects of subcontracting concerns the balance of benefits obtained by parent versus supplier firms. If one is to use a system of this type as a channel for assistance primarily aimed at helping supplier firms, care must be taken to ensure that the assistance actually reaches that target group. There are two sets of issues here, which can be thought of under the headings of quantities and prices. The first of these concerns the need to ensure that the assistance offered -- whether it be finance, training programs, or new product designs -- is actually made available to the supplier firms. This would generally be relatively easy to monitor, and programs could be designed in ways that specify responsibilities in this regard. The second is more complicated; it involves the terms on which this assistance is made available. In fact this is only a part of a larger question -- and can only be evaluated in that larger context -- concerning the fairness of the overall relationship between parent and supplier firms. Marketing assistance -- the development of modified products to sell in dynamic markets -- can result in substantially higher employment and income for parent and supplier firms taken together; but the allocation or appropriation of these benefits -- particularly as they relate to the extra income per hour worked or per

dollar invested -- is problematic. In general, the outcome here will result from the play of market forces, reflecting among other things the market power of different participants. It is clear that this generally works strongly to the benefit of parent firms.

There are at least three ways of dealing with this problem; none of these is foolproof, each has limitations. The first would be to try to organize the suppliers, so they can insist on an equitable share of the benefits from the system. In some cases (e.g., village embroiderers in Northern Thailand or hat-knitters in Egypt), the vast number of potential suppliers make this unrealistic; but for suppliers with less widely available skills (e.g., some metal products suppliers in Indonesia), it may be possible.

A second approach would be to help suppliers deal with a variety of different buyers, giving them increased opportunity to "shop around," looking for better terms. In some cases (e.g., involving product development and marketing assistance), this would not be feasible, since the developing subcontracting system would almost inevitably involve one-to-one relationships between buyers and suppliers. In other cases, though, involving training programs in production or management skills offered by a PVO or a government agency, for example, these skills might be relevant to the needs of several alternative buyers (potential parents). A supplier firm might then be able to increase its bargaining strength by dealing with a number of different buyers. Similarly, one might design assistance programs so they operate through a number of different parent firms in any

one industry or location, thereby increasing the likelihood that suppliers will have some choice as to buyers with whom they deal.

The third approach would be for some outside agency -- perhaps a PVO or government agency providing assistance in this area -- to monitor the terms of exchange, to ensure that they are handled equitably. This is no easy task, specially since the very concept of equity here is an uncertain and controversial one; yet giving some third party explicit responsibility for monitoring the question, with further assistance being contingent on their being satisfied with the outcome, may be a satisfactory approach. Such an arrangement may be particularly appropriate where the aid itself is being provided by that third party, so they are participants in the system in any case.

5. Conclusions

The encouragement of small enterprises has by now been widely recognized as a desirable goal for developing countries. Small producers use resources efficiently, economizing on scarce capital while using more of the abundant labor supply. They provide a training ground for nascent entrepreneurs. The benefits from their growth are equitably distributed both in regional terms (dispersed, often in rural areas) and in terms of expanding opportunities for lower-income or disadvantaged people.

It is also widely recognized, though, that the encouragement of small enterprises is no easy task. The producers are dispersed and numerous, there is a rapid turn-over in the population of small firms as these producers move, go out of business, or change product lines. Their needs

are often not well understood by those offering help, which means that the assistance is often mis-directed. Their needs may be viewed as so complex and multi-dimensional that outsiders either give up in despair or mount a complex aid program that seeks to move forward on many fronts simultaneously, often with disappointing results.

Subcontracting systems would seem to offer a useful way of approaching this set of problems. Through participation in such a system, a supplier is already identified as capable of handling some more complex business arrangements, with the continuity and reliability that this may imply. Working through parent firms, it is possible for aid programs to reach a large number of suppliers while dealing directly with only a smaller number of parent firms. Perhaps most significantly, the parent firms can be expected to handle a number of aspects of enterprise development themselves. The aid program does not need to do everything, but only to supplement or cover the weak spots of the activities of the parent firms, in supporting the growth of suppliers, so delivery costs should be lower. This approach makes it possible to tailor aid programs to the particular problems of suppliers who are already involved in a production/distribution system, but who have identifiable needs whose removal would permit an expansion or improvement in the operation of the system.

Lest this sound like too rosy a picture, one should immediately point out some limitations and problems. In the first place, the approach is essentially selective. It is appropriate for some industries, but seems not to work in others. It is reportedly more widespread in some countries

and even some continents than others (although one wonders whether this is simply because it has not been studied as much in sub-Saharan Africa, for example). Beyond this, working through existing systems may discriminate in favor of those producers who have already attained a certain level of proficiency, leaving those who have not reached that standard even further behind.

There is a further problem here. Subcontracting is built on a system of contracts between private producers. The thing which drives such a system forward is a set of market pressures: the opportunity to earn a profit, if one is successful, and the threat of failure or bankruptcy, if one is not. One does not need to defend all aspects of the resulting outcomes to recognize that this process provides a powerful dynamic for the development process. It is not easy, on the other hand, to find ways of encouraging the workings of that system, of facilitating its expansion and improving the distribution of the benefits it supplies, without at the same time weakening those positive and negative sanctions which keep it going. It is important, in the design of aid programs working through subcontracting systems, to set them up in such a way that they supplement, control, and direct these forces -- the opportunities for profit, the risks of failure -- but in ways which do not blunt or eliminate them.

Aid programs aimed at channeling assistance to small producers working through subcontracting systems cannot be equally effective for all small producers, for all industries, or even for all countries. Carefully targeted, though, along lines suggested above, they can make an important

contribution to the encouragement of small enterprise growth, and in this way, to the raising of standards of living and employment opportunities for low-income people in many third world countries.

Bibliography

- Davies, Stephen, M. Badr, A. R. Saidi, J. Seale, N. El Sheikh, and D. Mead, "Small Enterprises in Egypt: A Study of Two Governorates," MSU International Development Papers, Working Paper No. 16, 1984.
- Grunwald, J., and K. Flamm, The Global Factory: Foreign Assembly in International Trade (Washington, D.C.: The Brookings Institution, 1985).
- Mead, Donald C., "Of Contracts and Subcontracts: Small Firms in Vertically Dis-integrated Production/Distribution Systems in LDC's," forthcoming in World Development, November-December, 1984.
- Mead, Donald C., "Subcontracting in Central Java: Report on Consultancy," April 25 - May 16, 1984 (mimeo).
- Mead, Donald C., "Subcontracting in Rural Areas of Thailand," MSU International Development Papers, Working Paper No. 4, 1982.
- Mead, Donald C., "Subcontracting Systems in Bangladesh," mimeographed consultancy report, 1985
- Smith, Bryant, "International Subcontracting: Institutional Promotion and Facilitation," (mimeo, August 1982).
- United Nations Industrial Development Organization, Subcontracting for Modernizing Societies (New York: United Nations, 1974; UN Sales No. #.74.II.B.12; ID/129).

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