

PN-ABF-034
65993

Subcontracting in Central Java

Report on Consultancy

April 25 - May 16, 1983

Donald C. Mead
Professor of Agricultural Economics
Michigan State University
East Lansing, Michigan

This paper reports on work supported by the Bureau for
Science and Technology, USAID. (DAN-1090-A-00-2087-00)

1. INTRODUCTION

Subcontracting arrangements can play an important role in the development of small industries in third world countries. By giving orders to suppliers, parent firms can help solve problems of marketing, finance and management as well as raising the level of technical skills in the supplier firms. Beyond this, subcontracting systems may provide appropriate vehicles for outside assistance, channeling aid through a limited number of larger producers to many smaller dispersed suppliers who would otherwise be difficult to reach effectively.

The purpose of the consultancy reported on here was first and foremost to survey the extent and patterns of subcontracting in use in Central Java today; based on that survey, to explore the possibilities for either improving or expanding the operation of these subcontracting systems; more specifically, to make recommendations concerning possible activities for the Central Java Enterprise Development Project (CJEDP) in the area of subcontracting.

The report which follows is based on interviews with some 65 producers, merchants, government officials, cooperative organization officials, and other knowledgeable people, over the period April 26 - May 15, 1983. The writer would like to express appreciation for guidance, advice, and logistical support to the staff of the CJEDP, particularly Mr. Gary Kilmer, Project Chief of Party, and Bapak Pratomo, translator and interview companion; and to Dr. James Boomgard, USAID economist working with the CJEDP, who provided invaluable help in suggesting areas of work, sharing his understanding, and taking part in several of the interviews. Of course none of these share responsibility for views expressed here.

A disclaimer may be appropriate at the start. In the field work reported on here, the first two or three interviews in a particular industry were often sufficient to form a clear hypothesis about the structure of that industry, and the nature of the contractual arrangements in use there. When the number of interviews in the industry increased to ten or twelve, in a number of cases those early hypotheses turned out to be serious oversimplifications, in some cases, downright wrong. That is disquieting, to say the least. The second layer of understanding may be more accurate than the first, but it still may be quite inadequate. The world being described is complex, and outsiders can be misled, unintentionally or otherwise. Beyond that, in spite of inquiries made of a variety of informed people, it seems possible -- perhaps even likely -- that contractual relationships between manufacturers are substantially more extensive than what is reported here. In some cases this is because producers have an incentive to hide the facts (e.g., to understate the the magnitude of their business, to avoid taxes);

in other cases, it is because we didn't happen to ask the right questions of the right people. One must recognize the limitations of the study, and say: this is what one consultant was able to learn in just under three weeks in the field.

2. A NOTE ON DEFINITIONS

Although there is an extensive literature on subcontracting, there is no general agreement on the precise meaning of term. One might ask first about the prefix, the "sub" part of contracts: someone hired me (gives me a contract) to do a certain job; I in turn hire someone else to complete one or more parts of that task. In this way the contract "passes through" me to someone else. A clear example is provided by the construction industry: a contractor is hired to build a house; he in turns hires one firm to install the electricity, someone else to handle the plumbing, etc. In such cases, the word "subcontracting" is clear and appropriate. The term is used much more broadly than this, however. If a manufacturer selling consumer goods (e.g., cars) to the public contracts with a separate firm to produce parts (e.g., spark plugs) to be incorporated in his finished product, this would also universally be referred to as subcontracting. In this case, what is being referred to is essentially production according to a contract: an order is placed, then production responds.

In the most common usage, the person giving the order is himself a manufacturer, who "contracts out" part of the production process to another producer. This need not be the case, however. The person giving the order may be a merchant; arrangements of this type made by firms such as Sears Roebuck in the USA or Marks and Spencer in Britain are often referred to as commercial subcontracting. It is but a short step from there to include production undertaken under contract with the government. The essence of the term, then, is not the "sub" part, but the contract: production takes place in accordance with a contract previously negotiated and finalized. ^{1/}

^{1/}In a broader context, one might note that such contractual arrangements constitute one of three alternative ways of achieving coordination between different steps in production/distribution systems reaching from raw material procurement through processing or manufacturing to delivery of the finished product to final users; the other two ways in which this coordination can be achieved are 1) through internal management within integrated firms, or 2) through purchase and sale of products in "spot" markets.

There is a further problem with the terminology. The word "subcontractor" is an ambiguous one; it could be used to refer either to the person who gives the contract or to the person who receives it. To avoid confusion, we will generally not use the term subcontractor, speaking instead about parent firms, on the one hand, and suppliers, on the other. We do, however, continue to refer to subcontracting systems or subcontracting arrangements, although from what has been said above it should be clear that in some cases these could be more accurately described simply as contracting systems or arrangements.

In the field work for this study, contractual arrangements between private suppliers and either merchants or government institutions as buyers have been examined only from the point of view of the private sector suppliers, not the commercial or public sector demanders. These aspects not covered here could provide fruitful areas for further examination by the CJEDP. The primary focus of our study has been on contractual links between independent private sector manufacturers, using this term to include household producers as well as small, medium, and large-scale firms.

The interviews were primarily concentrated in three subsectors: metal products, batik, and wood furniture. Beyond this, a few isolated examples of subcontracting were identified in other industries. After a brief description of the government's "foster father" program, these different sectors are discussed in turn below. The final sections examine some broader, cross-industry questions, and provide an overview and summary of some of the major findings.

3. INDONESIAN GOVERNMENT POLICY TOWARDS SUBCONTRACTING: THE FOSTER FATHER PROGRAM

For some time the Indonesian Government has sought to encourage the expansion of subcontracting systems. The main vehicle for this, as specified in the Third Five Year Plan, has been the Foster Father (Bapak Angkat) Program. This is an arrangement whereby a parent firm which is engaged in subcontracting is officially recognized as a bapak angkat. With this designation comes the expectation that the parent will provide assistance, as needed, to supplier firms (foster children): raw materials, technical advice, design development, marketing assistance, etc. For its part, the government is expected to support the relationship through the provision of a variety of "facilities." While these are not specified in detail, they were described in discussions as including the provision of technical, financial and marketing assistance, as well as the provision of suitable work places through Small Industrial Estates (LIK). One question explored in our interviews concerned the effectiveness of this Foster Father Program; we return to this question in section 8 below.

4. METAL PRODUCTS

4.1. Overview

Metal industries are often considered to play a key role in the process of development and modernization. In order to understand the patterns of contracting and subcontracting in this area of the economy, 32 interviews were done in Semarang, Tegal (Adiwerna and Talang), Ceper (Batur), and Pati (Juwana). In the course of those interviews, four different subcontracting systems or groups were identified. In two of these groups only the parent firms were interviewed. In addition to these four, a number of metal products firms were interviewed who are engaged in regular contract production for other private manufacturing firms or for various agencies of government. These different patterns are described below.

4.2. Kubota

In discussions of subcontracting in Central Java, the Kubota Diesel Engine Factory is always cited as the prime "success story." As explained by BIPIK ^{2/} officials in Semarang, this firm is the show-piece of the government's bapak angkat system in Central Java.

a) History. When Kubota began the production of diesel engines in Indonesia nearly 10 years ago, their production was based entirely on CKD parts imported from their joint venture partner in Japan. Since that time they have gradually increased their local content, until it is now described as 30-40% of sales values. Virtually all local production of parts is done on a subcontracting basis, purchased from 25-30 local suppliers.

b) The parent/child relationship. Discussions with the Kubota management made a distinction between two types of subcontracting relationships: those in the bapak angkat framework (foster parent/foster child), and those operating on a strictly business basis. In the field, this distinction disappeared; most suppliers interviewed were designated by Kubota as foster children, but the suppliers said their relationship was strictly business. Very few wanted to acknowledge that they were foster children! In practice, the distinction is irrelevant.

^{2/}The government agency responsible for the guidance and development of small industries.

Firms found out about the possibility of being Kubota suppliers in a variety of ways: through short training courses arranged through MIDC ^{3/}, through LIK's (small industrial estates), cooperatives, or word of mouth. When they approached Kubota, they were generally given one or a few sample parts, with technical specifications, and invited to try to produce them. These were then carefully tested by Kubota. If they were found acceptable -- or defects could be corrected on subsequent trials -- then the firm was invited to submit a bid (i.e., give a price quotation).

The price formation in the system is interesting. In no case did we hear of Kubota negotiating a price; they either accept or reject it. Their rule seems to be quite simple: if the quality is acceptable, they accept the bid if it is below the CIF price; if above, with only rare exceptions, it is rejected. Suppliers can also take the initiative in asking for changes in price, if their costs change; they expressed uniform satisfaction with the way this process has worked.

Kubota makes a policy of buying from at least two (preferably three) suppliers for each part they use. This increases their flexibility, and reduces their dependence on any one supplier. They accept bids from two (or more) suppliers even if the price offered is different, as long as both are below the CIF price (although they may give more orders to the supplier with the lower price). In distributing orders among a variety of different suppliers, more firms get to participate in the system; but the amount bought from any one is correspondingly smaller. Only rarely did Kubota orders account for as much as 50% of the supplier firm's total sales; a more usual figure was around 20%.

While Kubota is rather flexible with regard to price, its quality standards are strict. Suppliers are chosen with care, and those not able to meet the quality standards cannot participate. The fact that 60-70% of the parts are still imported from Japan reflects the fact that no domestic producers have been able to produce these with adequate quality. In Batur, we were told that many casting firms have tried to produce parts for Kubota, but were not able to meet the quality standards. Each part is inspected as it comes back from the supplier; the March 1983 report shows 98 parts brought in from 24 suppliers, with the following distribution of rejection rates:

^{3/} Metal Industries Development Center, in Bandung.

<u>Rejection Rates</u>	<u>Number of Cases</u>
0%	41
1-9%	42
10-19%	8
20-39%	5
40-60%	2
	<hr/>
Total	98

In cases of high rejection rates, the Kubota technical staff works with the supplier firm to try to correct the problem. In fact, as far as we could tell, all of Kubota's technical assistance to suppliers was focused on such "problem solving" activities.

It was surprising to find that in general Kubota provides no fixed or working capital to their suppliers. With rare exceptions, raw materials and machines are purchased by the supplying firms. If anything, the flow runs the other way: the suppliers are paid 15 days after delivery of the product (ostensibly to give Kubota a chance to check the products for rejects -- but in fact providing a limited amount of credit from suppliers to parent).

c) Evaluation and future prospects. The Kubota management seems to be quite pleased with the way the system is operating. They commented on the extra overhead costs they bear in terms of greater attention to quality checking, to logistics, to ensure the desired supply is available at the correct time, and the extra costs of the technical assistance provided; but they also expressed satisfaction at the ways in which the system permits them to reduce other aspects of their overhead costs (particularly in relation to fixed and working capital). By reducing their reliance on imported parts, the system decreases their risks arising from either economic or bureaucratic/administrative forces which might disrupt that source of supply. On balance, the system seems like very good business for them.

From the other side, the suppliers are also generally very pleased about the way the system operates. Kubota suppliers are uniformly proud to have been chosen to participate in the system. The prices they receive are judged to be fair, the business practices straight-forward and smoothly operating. The main problem for the suppliers is that the orders are too small. All expressed a wish that they could expand their sales to Kubota. The parent firm's own limited market, combined with its policy of distributing orders among a number of different suppliers, means that this market channel does no more than supply a relatively reliable underlying base of orders for the supplier firms; they must scramble for other outlets for their products, to bring them closer to their full production capacity.

The orders are also somewhat variable from month to month. The normal pattern seems to be for orders to be placed in the middle of month 1, to be produced in month 2 and delivered to Kubota by the 10th of month 3. There is also a (non-binding) "indicative plan" for each supplier, telling of anticipated orders over a three month horizon. The size of the orders is based on Kubota's own sales expectations and inventory position, and does involve fairly wide month-to-month fluctuations in orders to suppliers. The suppliers obviously wish not only for more orders, but for a more regular pattern of them. The variability was not a major problem or complaint for them, however.

On the whole, the Kubota subcontracting system could be judged a real success. It is well administered, and provides benefits to both parent and suppliers.

The main question which may be raised about the system concerns the 60-70% of parts still being imported. I would be the last one to suggest that they be forced to use more higher cost and lower quality local components. With the system in place, though, this would seem to be an ideal focus for programs of technical assistance by MIDC, designed to enable some of the better firms to move on to more complex and sophisticated technologies. An appropriate function of CJEDP could be the coordination of technical assistance needed to bring this about.

For some components, the problem may be one of scale rather than skill (the total Indonesian market may be too small to justify a plant of the required scale). This raises the further question -- reaching beyond Central Java and the CJEDP -- of supply patterns used by the other two diesel motor manufacturers in Indonesia. Both of these are located outside of Central Java; neither was interviewed, but neither was reported to be making use of subcontracting systems. One would like to know whether this is so; if so, why; and whether changes in this situation might increase the scale of production to a point where other components could be efficiently manufactured locally.

4.3 Krisna Kerajinan Kuningan, Juwana

Although they operate with much less publicity, the subcontracting arrangements developed by the Krisna Brass Handicraft company in Juwana are in many ways as impressive as those of Kubota.

a) History. Krisna has been producing brass products in Juwana for many years. Until the mid 1970's their main products were locks, door handles, hinges and various kinds of fittings, a product line which matched that of many other producers in the area.

Competition was stiff, and returns only modest. In the mid 1970's, Krisna decided to try another approach. He changed his product line to concentrate on what might be called ornamental brass: lamps, vases, and various kinds of nick-nacks. This involved substantially more attention to high quality finishing. In the process of doing that, he developed a network of subcontracting arrangements, now involving 25 supplier firms. He has established five retail stores in major cities of Java; these also operate as wholesalers for other retailers who carry his products.

b) The parent/child relationship. The supplier firms have quite a different relationship to Krisna, compared to those of Kubota. For one thing, most are located very nearby: many within a few hundred meters, none more than one kilometer away. More fundamentally, each of these suppliers sells 100% of its output to Krisna. Beyond that, each part is made by only one supplier (although each supplier makes several different parts).

The subcontracting relationship here is based on a good deal of specialization. Each supplier firm does the casting of a few selected parts. Perhaps 25% of the work force in each of the supplier firms is engaged in casting, with the rest doing primary finishing: filing, grinding, milling with lathes, some preliminary polishing. Krisna himself does some of these same things, for more complex or larger pieces (he does 20% of the casting himself), plus the final polishing, assembly, quality control, packing, and marketing.

The pricing system starts out -- as with Kubota -- by a bid from the supplier; the response, though, without the CIF price ceiling or the import alternative, is not a simple yes-or-no but a process of negotiation. The suppliers with whom we discussed this (in the presence of Mr. Krisnawan, the owner) were quite satisfied with the outcome. Price changes are negotiated from time to time with the whole group, resulting in a uniform percentage change for all parts bought.

As in the case of Kubota, Krisna exercises strict quality control, rejecting parts found unacceptable. His technical staff spends quite a lot of time working with the suppliers, to help overcome their problems.

The supplier firms have a substantial amount of machinery: lathes, grinders, welding equipment, and polishers, along with the simple furnaces which melt the brass for casting. Krisna supplies interest-free loans to suppliers to buy these machines, as needed, and as he has the funds available. To date 75% of the suppliers have received loans ranging in size from Rp 200,000 to Rp 3 million. ^{4/}

^{4/}The exchange rate is currently US\$1 = Rp 965.

Repayment is in cash, when the borrower has it available; the repayment rate is reported to be good.

For newly established suppliers, Krisna also provides raw materials (scrap brass) on an advance-against-product basis. As soon as they are able, though, he expects the suppliers to provide their own working capital, buying the raw material themselves from the active market in Juwana.

When asked why he uses the subcontracting system, Mr. Krisnawan first answered in terms of his own limited production capacity, relative to the total demand he faces. When pressed that he could have built up that capacity inside his firm rather than through the suppliers, his answer was in terms of his moral responsibility towards other producers in his area, who otherwise would face severe marketing problems. When asked whether it would be cheaper to produce inside instead of through subcontracting, he responded, of course; direct production costs (labor, brass, machinery and tools) would be the same, and he would then avoid having to pay the profits earned by the suppliers. When asked again why he does it, if it costs him more, the response was again in terms of moral responsibility. He made no mention of possible benefits to him in terms of gains from specialization, reduced needs for working and fixed capital (including the land and buildings of the work place), the spreading of risks, or the increased respect he gains this way in the community. As a non-pribumi (i.e., Chinese ancestry) businessman dealing entirely with pribumi suppliers, this latter could be an important consideration.

Production was again based on written orders, but in this case, these were only one week in advance. The potentially disastrous effects of this arrangement -- being 100% dependent on only one buyer, who lets you know only one week in advance how much he will be buying -- is in this case mitigated by that same sense of moral responsibility, effected through a willingness on the part of Krisna to accumulate inventories of parts in anticipation of later sales. This might be verified, either by checking records or by further interviews with suppliers; from what we were told, it seems to work.

c) Prospects and problems. Krisna's current market for ornamental brass products -- 100% domestic -- is reported to be strong, and continuing to grow well. He is interested, though, in moving on to new products and/or new markets; he would particularly like to explore the export market. My non-expert judgment is that because all products are channeled through his effective finishing facilities, the quality of his products is good. One might have more questions about the production efficiency, which would be reflected in his comparative cost position. Casual observation of several of the suppliers' workshops suggests a great deal of busy-ness, but a rather

uneven level of efficiency with which the labor, raw materials, and equipment are used. In the present expanding market where he has a clear quality edge over his competitors, with pay to suppliers based on their production costs tempered with a measure of "parental" responsibility, the market discipline pressing for efficiency of production has been largely missing.

Selling in an expanding domestic market, improved production efficiency could mean higher returns to management and/or to workers, which are obviously desirable things. For sales in the export market, they may be indispensable, if the products are to be competitive with alternative sources of supply. The subcontracting system in this industry as currently organized tolerates varying levels of efficiency in different suppliers, and provides no extra rewards for those who work hardest to improve efficiency. For export production, this will probably need to be changed. One realistic approach -- suggested by Krisna in discussion of this point -- would be to enable the suppliers to bid for the production of parts of products to be exported; the awards would go to the lowest cost firms. The existing, more tolerant system could then continue to operate for other suppliers, for the domestic market. The problem, of course, is that the availability of that more tolerant domestically oriented system may eliminate any incentive for suppliers to make the extra efforts which may be needed to improve efficiency for export sales.

The reasoning on this point has been conjectural. To move it beyond that level requires more detailed knowledge of the export market: product types, demand trends, and particularly prices and costs. It would be entirely appropriate for CJEDP to help locate and perhaps help finance a visit by selected agents, buyers, or specialized consultants in this area. A few such visits could quickly clarify whether the exporting of a modified range of Krisna's products is a realistic undertaking.

4.4. Mahmotin, Adiwerna

Although again not as widely known in Semarang as Kubota, this firm seems to have many of the same characteristics and operating procedures. Like Kubota, he has been officially recognized as a bapak angkat. He specializes in automobile and electrical parts. He operates as a contract supplier to PT Toyota Mobilindu and Beta Sarana, a subsidiary of PT Astra. Mahmotin meets about 60% of the orders which he received from his own production, focusing on the most sophisticated products, requiring the most precision work, in which he is specialized; the other 40% is passed on to 22 subcontracting suppliers with whom he deals on a regular basis.

When Mobilindu and Beta Sarana place orders with him, they generally provide the necessary raw materials. For orders which he passes on to his suppliers, he either provides the raw materials or guarantees a bank loan to the supplier. With the loan, the supplier buys the raw materials for processing; when the finished parts are delivered to Mahmotin, he pays part of the proceeds directly to the bank in repayment of the loan, with the residual going to the supplier. There is a similar system of guaranteed loans for machine purchases.

He said that his designation as a bapak angkat has been very helpful to him in providing direct access to government officials. This has been helpful in obtaining a number of government contracts, including a series of orders from the telecommunications department for electrical supplies.

The subcontracting system enables him to accept orders beyond his own capacity. Beyond that, it enables him to concentrate his work on the precision parts which are his specialty, passing on orders for simpler activities to his suppliers. On orders which he passes on, he takes a 20% commission.

This system has not been investigated thoroughly. None of Mahmotin's suppliers were interviewed, and the discussion with him lasted only for one hour. One could raise questions about the terms of the contracts, about the degree of variability of orders, and a variety of other issues. On the face of it, though, it reflects desirable features of a rather high degree of specialization combined with a system linking a number of middle-sized suppliers to this growing market.

4.5. Mutof

This firm in Talang produces a variety of products, as the orders come in, including such things as hand sprayers for the Department of Transmigration, and bolts and nuts for Krakatau Steel. As a general rule, when he gets an order, Mutof takes about 60% of it for his own production, subcontracting the other 40% (with no commission) to 9 workshops in his neighborhood. All of these are people who previously worked in his factory, and are now established on their own. In such cases, he supplies the raw materials for them to work on.

The motivation seems to be primarily a moral one: he feels a responsibility to help provide markets for his former employees. This is particularly striking since he seems to have trouble finding enough orders for himself.

4.6. Other Metal Products

A number of other metal products firms were interviewed who produce on a contract basis. Perhaps the most striking thing about the list is the extent to which it is dominated by sources of demand which are either branches of the government or public enterprises. These include drain covers and pipes for the city of Yogyakarta; water pumps for a public housing project; pulleys, switches, and other equipment for the railroad; electrical parts for PLN (the electricity company); water meter housings for the water company (through MIDC); and machine parts for the (public sector) sugar factories, in addition to the hand sprayers (for the transmigration program) and bolts and nuts (for Krakatau Steel, a public company) referred to above. Only in the case of parts for rice mills (ordered by an assembler in Jakarta) and cast iron molds (for a ceramics factory in Semarang) did the demand emanate from the private sector. Perhaps this balance reflects the "luck of the draw," in terms of firms we happened to hear about for interviewing; there was no intent to bias the selection in this direction, however.

The public sector has both advantages and disadvantages as a source of such contract demand. On the one hand, a number of respondents commented that government contracts may involve an "element of subsidy" in that the prices they pay -- often channeled through cooperatives -- are somewhat higher than those from private sector demanders. On the other hand, these public sector contracts more often require payment of turnover and sales taxes, universally ignored for other contractual sales, as well as fees to the cooperatives and assorted other informal payments associated with government contracts. The result often is that while the government may start out paying a relatively high price, the amount which gets to the producer may be relatively low. There is a standard way of dealing with this, however, which is to compensate by lowering the quality of the product. Thus the government ends up paying prices which are on the high side, and getting products whose quality is on the low side. Producers have no complaints about this system (they are used to it); their main problem -- here as in the whole industrial sector, it seems -- is that there are not enough orders.

5. BATIK

5.1. Background

The batik industry in Indonesia is extensive and complex, covering many products, firm types, and marketing channels. The overview presented here is based on interviews with 8 middle-sized producers in Pekalongan; 3 large producers in Solo; officials

(including some producers) in 4 different batik cooperatives (3 in Pekalongan, 1 in Solo); and several knowledgeable outsiders. No secondary studies were consulted, although it seems probably that many have been written. If further work is done in this area by CJEDP, a search for such reports would deserve high priority.

5.2. Product Types

There are two different ways of producing batik:

a) batik tulis: this, the traditional way of making batik, involves drawing with wax by hand on cloth, to cover areas which will not "take" the color, when the cloth is dyed. This may be done a number of times, to produce several different colors on a piece of cloth. Results are often intricate and very beautiful.

b) batik cap (pronounced "chap"): in this procedure, a metal stamp with a design is dipped in wax, then stamped on the cloth. The cap, or stamp, may be quite complicated. This technique is often combined with some hand drawing (tulis) to supplement the cap.

The market for these wax-and-dye batik products has been sharply challenged in recent years by the expanded production of printed cloth with batik designs. This technique, which can be done either by hand or with modern machines, involves a silk screen process, passing the colors directly to the cloth without the use of wax.

The total market for textile products grew rapidly in the early and mid 1970's, with the result that many batik producers faced a shortage of white cloth. In the late 1970's, there was a considerable expansion in weaving capacity. The subsequent weakening of demand in the 1980's has left many of these weaving firms -- including several started by batik cooperatives -- with substantial excess capacity, with resulting severe financial problems.

As suggested above, the market for traditional batik products has been strongly affected by the rapid expansion in production of printed cloth with batik designs. Twenty years ago, this product seems to have been of negligible importance; by now it probably accounts for a volume equal to that of traditional batik. The reason, of course, is the price; a piece of batik tulis can easily cost ten times as much as its printed counterpart. 5/

5/ In one middle-sized household "factory" which we visited where printing is all done by hand but the fixing of colors, washing, drying, and handling of cloth (folding, rolling, etc.) involved large but simple machines, 100 workers produced 2,000 pieces (continued on next page)

Different people gave different answers concerning future prospects for the three batik types. Some said that proportions have now stabilized; others thought the printed share would continue to rise, either at the expense of cap alone or of cap as well as tulis. These questions are obviously of considerable importance, in view of the much greater labor intensity of batik tulis, on the one hand (which is important in terms of employment creation -- or potential employment destruction), but the much lower price of printed cloth, on the other hand (which contributes to consumer welfare, as well as opening up possibilities for substantial expansion in the total market).

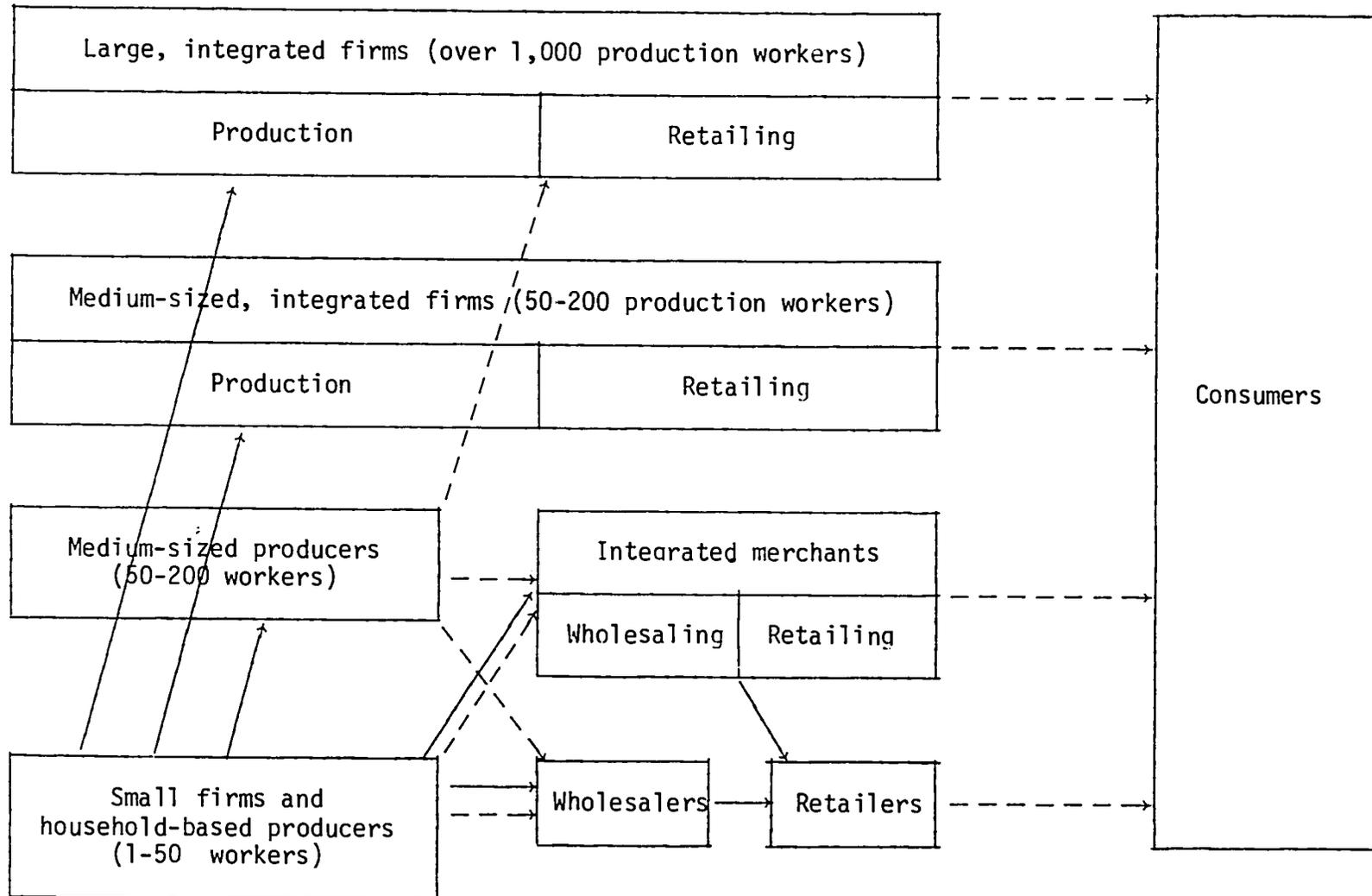
5.3. Firm Types, Marketing and Production Systems

There are two large-scale batik producers in Central Java (both in Solo), with over 1,000 production workers apiece, each with a national network of retail stores. Rough guesses are that these two together supply less than 10% of the national market for batik products (see chart 1). Below these two, there are many firms with 50-200 workers, and even more household-based producers, some with as many as 50 workers. A few of the middle-sized firms have their own retail outlets; some are able to sell their products through the retail outlets of one of the major batik producers; most sell primarily to merchants, of whom there are very many. These merchants buy either for sale in their own retail outlet or as wholesalers, supplying retailers in countless markets across the country. As we shall see, some of these merchants are also directly tied into the production process.

Alternative ways of organizing the production system, particularly with regard to subcontracting, arise primarily with regard to the production of batik tulis; subsequent discussion is focused on this product.

of cloth per (7-hour) day. A firm nearby has a regular, in-house work force of 40; the owner said that if he set these people to work making "combination" cap plus tulis batik, they could produce 130 pieces per (7-hour) day; working on pure tulis, they could make only 10. Even this may be too high; other observers suggest much more than four days per person per piece implied by these figures. Perhaps he was speaking of quite simple tulis. We did not collect information on capital and raw materials which would permit full cost comparisons; but these figures suggest why printed batik has succeeded in making such big inroads into the market.

Chart 1: Batik Production and Distribution Patterns in Central Java



Middle and large scale producers of batik tulis face a choice between making this product themselves, on their own premises, or contracting with others -- either smaller factories, or households -- to make it for them. Merchants of batik do not have the option of manufacturing it; for them, the choice is one of buying from what is presented by the producers, or contracting with them to make particular items or designs. For the large firms which are both producers and retailers, there is a three-way option: produce themselves, buy what is presented by other producers for resale through their own outlets, or make contracts with other producers (either firms or households) to produce particular products. All of these alternatives can be observed in the market. In many cases, one participant uses at least two of these patterns on a regular basis. The largest firm in the industry, both a producer and a retailer, makes some 30% of the products it sells in-house, obtains another 20% through subcontracting arrangements, and buys the remaining 50% in spot markets from other producers. The second largest firm, also a producer/retailer, obtains nearly 20% of its batik supplies -- virtually all tulis -- by subcontracting, with the rest all produced in-house; this firm makes no spot purchases of finished cloth from other suppliers. The same approach is followed by the other medium and large-scale firms: some batik tulis is made in-house, but a substantial portion -- often half or more -- is obtained on a subcontracting basis.

5.4. A Comparison Between Alternative Production Systems

Let us compare three alternative ways of arranging the production of batik tulis: i) in a household or other small producing unit, producing without contract (i.e., for sale in the market, and through a merchant); ii) in a household or small producing unit according to a contract with a large producer or merchant; and iii) production by (within) a large producer.

a) Marketing and market risks. It is a commonly claimed advantage of the subcontracting system that the producer who makes something according to a contract is freed from the problem of marketing his product, as well as the risks of not being able to sell it, or not being able to sell it at a satisfactory price. Unless the person giving the contract is either a final consumer or someone who has also received a contract from a final consumer, however, these risks are not eliminated from the system, they are just shifted from the producer to someone else. On the other hand, if the person giving the contract knows the market better than the producer, then the overall risk may be reduced by a system which enables those with the best knowledge of the market to have the greatest influence on actual production patterns.

This reasoning suggests that subcontracting systems can have the effect of shifting marketing risks away from household producers of batik tulis as well as reducing marketing risks for the system as a whole. Production within integrated firms has the same result -- but it also has the effect of shifting the production itself out of the household.

b) Finance: household producers without contract must provide for raw materials from their own resources. This clearly could be a problem for them, although for batik tulis it is probably not a major one. For subcontracted production, working capital in the form of cloth, wax, and colors is usually provided by the parent firm.

c) Designs: these are sometimes provided by parent firms as part of a subcontracting arrangement. If the parent firms know which designs and colors are most in demand, this transmission of information can improve the marketability of the product. On the other hand, one large producer also buys products from a variety of independent suppliers precisely because he feels the need for more diversity of design than he could provide himself.

d) Income to the workers: it would obviously be of considerable interest to compare income to workers obtainable through each of these three supply systems. This study has not attempted to collect information on this topic.

e) Labor force characteristics: those who work on batik tulis are mostly women. If they produce this product in a factory, they mostly do it on a full-time basis. If they produce in their homes, either as subcontract suppliers or as independent producers, it is often done on a part-time basis, fitting in between other household chores. There are benefits to be derived from the provision of such opportunities which can take up the slack of underemployment in urban as well as rural areas.

f) Market price/market promotion/future prospects: in the absence of comparative cost data on alternative organizing systems, it is difficult to guess about the effects of these different systems on profits and market prices. One might expect that if production of batik tulis is done either inside of or by direct subcontracting to large firms, it will be more widely available and more actively promoted; total production of batik tulis would be more likely to expand in such a case than if it were simply made available to merchants, if they should choose to buy it.

5.5. Evaluation and Future Prospects

An examination of the future prospects for subcontracting in the production of batik tulis raises questions in two areas: (i) the future prospects for batik tulis itself, and (ii) the desirability of producing the product on a subcontracting basis. On the first of these, our guess is that printed cloth will continue to increase its share of the market, but primarily at the expense of batik cap; the total demand for batik tulis will continue to grow, as some people continue to buy the readily identifiable, higher priced but higher prestige item.

With only limited exceptions, parent firms using subcontracting systems to produce batik tulis seemed well pleased with the arrangement, and expect to continue to rely on it in the future. Such a pattern fits well with the goals of national policy, in terms of the growth of cooperatively or communally based production and marketing arrangements, as well as the encouragement of small industries. Subcontracting systems permit a greater dispersion of economic activity, reducing the burdens of urbanization and agglomeration; they permit people to combine work on batik production with other household responsibilities; they provide opportunities for creative expression for a wider range of people.

There are other desirable features of the subcontracting relationship. The contract removes the risk to the producer that she may be forced to sell her product at an unexpectedly unfavorable price. It opens a channel for the person giving the contract to provide information about market tastes and trends, as well as to supply working capital to the producer, if this is needed. By linking the producers directly with more active marketing agents, there may be opportunities for more rapid expansion of the total market for batik tulis.

Of course there are potential counterarguments. The most serious is that the dispersal of workers provides them with less benefits (e.g., health insurance), less protection against arbitrary acts by employers (e.g., dismissal), and less opportunities to work together for improvement in wages and working conditions. Moving jobs to people who have fewer alternatives and are therefore willing to work for lower pay may be seen by some as taking advantage of people's unfortunate circumstances; it may also be seen as an effective first step in moving to change those circumstances.

6. JEPARA FURNITURE

6.1. Background

In some ways, Jepara furniture production is simpler than other product groups discussed here. Although the subsector includes a diverse range of products -- chairs, tables, beds, dressers, and an assortment of related bric-a-brac (mirror frames, shelves, etc.) -- it is quite homogeneous in style. It is geographically concentrated, with most production taking place in one kecamatan (sub-district). It clearly competes in the national market with both plain wood furniture and with metal products made elsewhere, but for carved wood furniture, it has established an overwhelming market dominance. The results reported on here are based on discussions with 5 producers, 6 merchants, and several officials of one of the two furniture coops in Jepara. This is obviously a small number, so generalizations should be treated with caution.

6.2 Market Participants

On arrival in Jepara, one's first impression is of a road lined with furniture displays. Although we did not count them, a guess is that there may be 75-100 of these along the main road. Some of these people are producers, with their own manufacturing facilities; many (probably most) are assemblers.

Their customers are buyers who come from all over Indonesia to buy the famous Jepara furniture. Some of the buyers are retailers, with stores in Jakarta, Bandung, Surabaya, or elsewhere in Java. Others are wholesalers, supplying smaller stores in the big cities as well as many retailers in the other islands. Some of these buyers come to place orders, giving a 50% down payment towards the final price; others buy from the extensive inventory which the assemblers maintain.

As suggested above, many assemblers do not themselves produce furniture; instead they buy from any of the 1,700 or more furniture producers in that area. As in the case of their sales, some of their purchases are by contract; the assemblers place orders with suppliers, again advancing 50% of the cost as down payment. For the rest, they drive through the network of back roads in the area, purchasing from the stock of finished products held by producers.

From the producers' perspective, their sales options include producing on a contract basis for one of the local assemblers; producing "for inventory," i.e., in anticipation of sales to an assembler or outside buyer who happens down his road; or linking

up directly with an outside buyer. Of the producers we interviewed, one had been working for two years as a supplier of a Jakarta retail firm, working on a series of contracts. A second had received a series of contracts from an exporter, who sold his products regularly in Australia, and was hoping to arrange for sales in Germany. The others sometimes got contracts from local assemblers, but more often produced "for inventory." They said that in general they found a buyer within a week of completion of their products. In general they seemed satisfied with the prices obtained this way.

In addition to the production-for-contract between merchants and producers described above, there are two types of subcontracting practised in Jepara. One involves subcontracting of complete products, in case a producer receives an order which surpassed his production capacity. This was the case, for example, for the producer supplying the exporter, discussed above. This man told us that he would prefer to expand his production capacity, to be able to fill the whole order in his own workshop; but he cannot find the skilled workers to do this, so his orders substantially exceed the amount he can produce himself. Some of the people who have worked for him in the past and learned their skills in his workshop have chosen to try to establish themselves on their own; although they have acquired the skills, they have a hard time with both orders and capital. By contracting with them to supply orders he has received which are beyond his own capacity, this man provides not only the training but also the capital and the markets to establish these people in business. This is subcontracting at its best.

Another man interviewed reflects a different pattern of subcontracting. He is a wood carver, operating out of his home, some 10 km. from the center of town. He receives furniture frames from a manufacturer in town, which he carves, being paid on a piece-work basis for the work he does. He has worked in this way for a number of different furniture manufacturers, working for "whoever pays him the most." He said there are several others near his house who operate in the same way.

In addition to contracting out the carving of furniture, it seems to be common practice to hire outsiders to weave the rattan seats and backs of chairs and couches. In addition, then, to the reported 1,700 firms in the area, there are substantial numbers of individual craftsmen, many doing this kind of subcontracting work in their own home. A cooperative official estimated their number at 10,000, although I was not able to verify this number.

6.3. Contracting and Subcontracting Implications

It is useful in this section to distinguish between contract production and subcontracting, more narrowly defined. Contract

production takes place whenever a producer makes a piece of furniture according to a contract, presumably with a merchant, either one of the local assemblers, a retailer, wholesaler, or exporter. Clearly such an arrangement reduces the market uncertainty and risk for the producer; it provides him with finance for working capital; it provides him with information about the types of product he should make. As long as such a contract does not put him into a more dependent position towards one buyer (compared to his present situation, where he can "shop around"), it seems to be very much in the producer's interest to expand the system.

The problem is that if efforts are made to expand the use of this system, those who get the contracts will be those who need them the least: the producers of products most in demand, whose buyers might be glad to use contracts to assure themselves of a supply of products from the more capable firms. For less skilled producers, making products in less demand -- those for whom contracts would be most useful -- the prospects of negotiating them seem least likely. This suggests that one should not be too optimistic about changes along these lines. Fortunately, the present non-contract-based marketing system seems to be performing reasonably effectively.

Moving on, then, to the subcontracting relationships, we have seen that these arise in two types of situations: i) subcontracting of complete products, where one producer has orders which exceed his own production capacity; and (ii) subcontracting of particular activities, e.g., carving, or weaving of seats in chairs. Subcontracting in each of these ways has the desirable features of providing working capital finance as well as links to the market for firms which might otherwise find difficulties in these areas. The main problem with the arrangement arises for suppliers of complete products; they may find the demand for their services to be quite unstable. In fact the system could be characterized as one which permits the parent producer to limit his production capacity to what he can keep employed on a full-time basis; whenever he has orders which reach beyond that base capacity, he passes these on to his subcontracting suppliers. The result might be considerable instability in the supply of subcontracts. The interviews did not clarify the extent to which this is true, although the only producer interviewed who makes use of this system indicated that he is permanently short of capacity, and uses the system not now and then but all the time. In such cases, this problem of fluctuating availability of contracts might not be a major problem.

One of the key advantages of subcontracting arrangements in this industry is that they could permit the development of greater specialization, either by function (e.g., carving), by quality level, or by product type. If supplier firms are able to enter into contracts with any of a variety of different parent producers and conversely, then the parents can channel their orders to the supplier best suited to the product or quality level they wish to purchase. Such specialization can be important in permitting costs to go down, returns to producers to go up, and quality to improve.

7. OTHER SECTORS OF THE ECONOMY

Our primary interviewing was in the three sectors of the economy discussed above, since these were the areas where subcontracting was reported to be most extensive in Central Java. The interviews also uncovered a few other examples of subcontracting. These are described briefly here.

a) Baskets: There is a firm in Ungaran which has in the past produced large numbers of baskets, primarily for export to Germany. The firm made some of the baskets in its own work place, but also subcontracted to produce substantial numbers of them in village households in another district. When problems developed with the buyer, the firm fell on hard times; it is currently looking for new markets, but is finding this difficult in spite of substantial government subsidies (free machines, provision of technical training for workers and staff time to supervise the subcontracting workers).

b) Troso cloth: In this village near Jepara, household-based factories make cloth by a process which involves dying of the thread with a pattern prior to weaving. The designing and wrapping of the thread is often done on a subcontracting basis. A number of household firms in the villages produce cloth in this way.

c) In the Kampongs (urban villages) of Semarang (and probably other cities of Central Java as well), there are small producers making camera cases, ladies' handbags, shirts and dresses on the basis of a "putting out system:" the entrepreneur provides the materials and the designs, while the sewing is done in suppliers' households. Pay is on a piece-work basis.

d) A producer in the small-scale industrial estate (LIK) in Tegal makes rubber parts for a producer (assembler?) of water pumps. It would be interesting to know whether the other components are also made on a subcontracting basis.

e) A large scale shirt manufacturer in Ungaran has contracts to buy cardboard boxes, plastic bags, thread and buttons from other producers. These purchases are small relative to his total production costs, but since he produces 5,000 shirts per day, they constitute quite an important market for the suppliers. The box manufacturer also supplies Krisna in Juwana.

These are examples we happened to hear about and interview; there are probably many more.

8. GENERAL FINDINGS

8.1. Taxes

Concern has been expressed that the potentially cascading sales and turnover tax (PPN and MPO, totalling 4.5%) could operate to discourage subcontracting systems, since in principle they are levied each time the product changes hands. As presently administered, this is a non-problem. Such taxes are currently collected only on products destined for the public sector, and then only at one stage. In all other cases, if the supplier answered the question (which was almost always), he said that tax collection was not enforced on products he sells.

Of course the fact that the tax is on the books may still have a deterrent effect, either because people fear that some day it may be enforced, or because the non-enforcement may cost something. As of the moment, though, it seems not to be a problem.

8.2 Contracts

The topic of this paper concerns contracts and subcontracts; yet the fact of the matter is that the contract itself is simple in the extreme. In most cases, it is in writing, but usually takes the form of a simple order, specifying the product (sometimes by code number), the quantity, price, and delivery date. All concerned recognized that disputes over interpretation of this document would depend solely on bilateral negotiations between the two parties involved. Some fear was expressed that more formalized contractual arrangements might be a prelude to more extensive taxation or other intervention from outside. With only rare exceptions, neither side seemed the least bit uncomfortable with the current arrangements.

8.3 Finance

The extent to which parent firms provide capital -- fixed or working -- to suppliers varied widely among the sectors studied. At one extreme is the Kubota case, where the suppliers provide (short-term) credit to their parent. There are more cases of the parent firm providing either the raw materials themselves (batik, furniture carvers) or the money to buy these materials (furniture makers, some metal products). Krisna follows a different pattern, providing (interest-free) loans for machines, but leaving the provision of working capital to suppliers. In only one case (Mahmotin) did the parent firm arrange (in guaranteeing bank loans)

to provide both fixed and working capital to suppliers. On the whole, the provision of capital from parent to supplier firms is an important component of the subcontracting system.

It is important to notice in this regard that when parent firms provide raw materials to suppliers, substantially more is involved than simply the provision of working capital. When they behave in this way, the parent firms are doing the job of search and selection of inputs, which may be costly and time-consuming, but for which there are significant economies of scale. By controlling inputs, parent firms can have an important impact on the quality of the product, tailoring it to meet market demands. Parent firms in this way also share with suppliers some of the risks that things may go wrong in the production process. In some cases, the raw material can be re-used (brass can be re-melted and cast a second time); but in other cases (batik, or carved furniture) this second chance may not be possible. This means that the working capital is subject to much higher risk from problems in the production process in some industries than in others. By providing the raw materials, the parent firms bear a higher share of that risk.

The practice of having parent firms guarantee bank loans to suppliers is not widely practiced, but seems like a potentially fruitful arrangement, particularly for the purchase of machinery and equipment. At present only one firm (Mahmotin) reported such arrangements; banks and parent firms might be encouraged to explore the wider use of this system.

8.4. Technical Assistance

The provision of technical assistance is uneven. The most usual pattern is that it is provided if and only if problems arise which involve the delivery of unacceptable products. More general tasks of upgrading of product quality, improved ability to produce more complex products, or improved efficiency to reduce costs are goals which exist in rhetoric more than in practice. Once again, one might ask whether this might be a fruitful intervention point, encouraging either parent firms or government agencies providing technical assistance (e.g., MIDC) to do more in this regard.

8.5. Marketing Assistance

In some industries, producers do not make anything unless they first have an order (e.g., specialty metal products). In other industries, if they don't have an order, they can go ahead and produce, but with the risk that they might not find a buyer, that the buyer might want a different style or quality, or that the price

may be unexpectedly low. Contract production -- including sub-contracting -- solves these problems by eliminating these marketing risks, or shifting them to someone better able to bear them. By helping the producers target their output more accurately to meet the market demands, contracting can reduce the overall level of risk in the system. With limited exceptions, contracting does not expand total demand for the products of a sector, but enables producers to adapt their production to that demand more effectively. The exceptions come when more carefully targeted production (and perhaps lower prices) encourages consumers to increase their total demand for a product.

8.6. Bapak Angkat

The official bapak angkat designation has been used sparingly; only few firms have been so designated. To date, such firms have received only few benefits. They have obtained technical advice through MIDC, BIPIK, and the LIKs, although it seems that this has been quite limited.

A number of firms engaged in subcontracting activities have expressed a strong wish to be designated as bapak angkat. The reasons they give are three:

a) First and foremost is the honor which this term conveys, and the recognition of the firm as one which takes seriously its responsibility for other producers. In Javanese society, this is an important consideration.

b) The designation may also open doors to government officials, providing contacts which are useful in obtaining orders. A particularly strong case can be made for obtaining a large order if this will be passed on in part to a number of subcontracting suppliers.

c) Although current foster parents receive only modest technical assistance from the government, that assistance can be important. This is particularly so for non-pribumi firms, for whom such a designation could provide access to people and to types of assistance currently not available to them.

On the whole, while the bapak angkat system has provided only limited benefits to its participants, it is a useful and important instrument for the encouragement of subcontracting. The government should be urged to use it more actively, both in the sense of coordinating the provision of a variety of types of assistance to make these available on a more regular basis to bapak angkat, and in terms of designating more firms as bapak angkat. As suggested in this report, there are a number of appropriate candidates, several of which would be eager to be recognized in this way.

9. A SUMMARY OF POSSIBLE FOLLOW-UP ACTIVITIES

The kinds of follow-up work suggested by this paper fall into three major categories:

a) Gather further information about the nature and extent of subcontracting systems, and whether they are working in a satisfactory way: check previous studies of the subsectors and systems examined here; be on the look-out for subcontracting arrangements in other industries; examine more closely the government's contractual procurement practices, and contractual supplies for merchants; compare income of batik workers under subcontracting with those working in parent firms; determine the extent of variability in demand among subcontract workers in furniture and metal products industries.

b) Seek to expand the use of the subcontracting system: recognize those who do it well, honoring them by designating them as bapak angkat; look for efficient ways to administer the system, in order to reduce the cumbersome burdens which supervision can impose. At a more general level, look at the characteristics of industries where subcontracting systems are currently working well; on that basis, see if there are opportunities to introduce it into other industries where it is not currently used in Central Java.

c) Work through existing systems to effect changes: channel additional support (technical assistance, commercial bank lending, exploration of other new market opportunities) to existing subcontracting systems to enable them to expand (for example, exploring the possibility of accelerating the process of import substitution for precision parts); explore possibilities for export of brass or furniture products.

Subcontracting systems are alive and well in Central Java. While the discussion of this paper does not imply that these arrangements provide the substance for major new and independent aid initiatives, it does suggest that they offer useful areas of work for the CJEDP, and opportunities for growth in the industrial sector of the region and the country as a whole.